

AUTOMOTIVE INDUSTRY STANDARD

**Performance Requirements for
Daytime Running 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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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 daytime running lamps for motor vehicles.

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

ECE R 87 Revision 2 - Amendment 1 Supplement 13 to the original version of the Regulation - Date of entry into force: 15 October 2008	Uniform provisions concerning the approval of daytime running lamps for power-driven vehicles
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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): 2010	Installation Requirements of Lighting and Light-signalling Devices for Motor Vehicle having more than Three Wheels, Trailer and Semi-trailer excluding Agricultural Tractor and Special Purpose Vehicle
AIS-034 (Part 1) (Rev. 1):2010	Provisions concerning the Approval of Filament Lamps for use in Approved Lamp Units on Power Driven Vehicles and their Trailers
AIS-037:2004	Procedure for Type Approval and Establishing Conformity of Production for Safety Critical Components
AIS-010 (Part 5) (Rev. 1):2010	Requirements of Chromaticity Co-ordinates of Colour of Light Emitted from Lighting and Light-signalling Devices
IEC Publication 60061,	Lamp Caps and Holders together with Gauges for the Control of Interchangeability and Safety.

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 Daytime Running Lamps
for Motor Vehicles**

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Performance Requirements for Daytime Running Lamps for Motor Vehicles

1. SCOPE

This standard applies to daytime running lamps for vehicles of category L2, M, N and A^{1/}.

Note: The permission to install daytime running lamps covered by this standard are governed by requirements specified by the standard for installation for that category of vehicles.

2. DEFINITIONS

For the purpose of this standard,

2.1. 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

2.2. **"Daytime running lamp"** means a lamp facing in a forward direction used to make the vehicle more easily visible when driving during daytime;

2.3. **"Daytime running lamps of different types"** means lamps which differ in such essential respects as:

(a) the trade name or mark;

(b) the characteristics of the optical system, (levels 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.

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

3. APPLICATION FOR APPROVAL

The application for approval shall be submitted by the applicant as given in Annex A.

3.1 At the choice of the applicant, it will specify that the device may be installed on the vehicle with different inclinations of the reference axis in respect to the vehicle reference planes and to the ground or rotate around its reference axis; these different conditions of installation shall be indicated in the application.

^{1/} As defined in AIS-053: Automotive Vehicles - Types - Terminology

- 3.2. For each type of daytime running lamp, the application shall be accompanied by:
 - 3.2.1. drawings, in triplicate, in sufficient detail to permit identification of the type of the daytime running lamp and showing geometrically the position(s) in which the daytime running lamp may 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; and the illuminating surface.
 - 3.2.2. 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.
 - 3.2.3. two lamps.

4. MARKINGS

Daytime running lamps submitted for approval shall,

- 4.1. bear on the lens the trade name or trade mark of the lamp manufacturer , this marking shall be clearly legible and be indelible,
- 4.2. with the exception of lamps with non-replaceable light sources, bear a clearly legible and indelible marking indicating:
 - (a) the category or categories of filament lamp(s) prescribed; and/or
 - (b) the light source module specific identification code.
- 4.3. 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.
- 4.4. Reserved
- 4.5. In the case of lamps with light source module(s), the light source module(s) shall bear:
 - 4.5.1. the trade name or lamp manufacturer's trade mark ; this marking shall be clearly legible and indelible;
 - 4.5.2. 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" in the case several non identical light source modules are used, followed by additional symbols or characters; this specific identification code shall be shown in the drawings mentioned in paragraph 3.2.1. above.

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.

- 4.5.3. the marking of the rated voltage and rated wattage.
- 4.6. 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.
- 4.7. 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.
- 4.8. 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.

5. APPROVAL

5.1. General

5.1.1. If the two lamps which are submitted in pursuance of paragraph 3.2.3 satisfy the requirements to this standard, approval shall be granted.

5.1.2. to 5.3.3.2 Reserved

6. GENERAL SPECIFICATIONS

- 6.1. Each lamp shall conform to the specifications set forth in the paragraphs below.
- 6.2. Daytime running 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.

Note: - This is a general requirement and no verification is needed for this clause to approve the headlamp for compliance to this standard.

6.3. Daytime running lamps, which are reciprocally incorporated with another function, using a common light source, and designed to operate permanently with an electronic light source control gear to regulate the intensity of the light emitted, are permitted.

6.4. In the case of light source modules, it shall be checked that:

6.4.1. The design of the light source module(s) shall be such as:

- (a) that each light source module shall be able only to be fitted in no other position than the designated and correct one and shall be able only to 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.

- 6.4.2. The light source module(s) shall be tamperproof.
- 6.5 In the case of replaceable filament lamp(s):
 - 6.5.1. Any category or categories of filament lamp(s) approved according to AIS-034 (Part 1)(Rev. 1) 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.
 - 6.5.2. 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.
 - 6.5.3. 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.

7. INTENSITY OF LIGHT

- 7.1. The luminous intensity of the light emitted by each lamp shall not be less than 400 cd in the axis of reference.
- 7.2. Outside the reference axis and within the angular fields defined in the arrangement diagram in Annex F to this standard, the intensity of the light emitted by each lamp shall:
 - 7.2.1. In each direction corresponding to the points in the table of standard light distribution reproduced in Annex C to this standard, be not less than the minimum specified in paragraph 7.1. above, multiplied by the percentage specified in the said table of the direction in question, and
 - 7.2.2. not exceed 1,200 cd in any direction the lamp is visible.
- 7.3. Moreover, throughout the field defined in the diagram in Annex F, the intensity of the light emitted shall not be less than 1.0 cd.
- 7.4. In the case of a 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 intensity shall not be exceeded.

A group of light sources, wired so that the failure of any one of them causes all of them to stop emitting light, shall be considered to be one light source.

8. APPARENT SURFACE

The area of the apparent surface in the direction of the axis of reference of the lamp shall be not less than 25 cm² and not more than 200 cm².

9. COLOUR OF LIGHT EMITTED

The colour of the light shall be white. It shall be measured under the conditions as prescribed in paragraph 10 below.

The colour shall be within the limits of the chromaticity co-ordinates prescribed in para. 2 of AIS-010 (Part 5)(Rev. 1).

10. TEST PROCEDURE

- 10.1. All measurements, photometric and colorimetric, shall be made with a colourless standard filament lamp of the category prescribed for the device, the supply voltage being so regulated as to produce the reference luminous flux required for that category of lamp, when not supplied by an electronic light source control gear.
- 10.2. In the case of a system that uses an electronic light source control gear being part of the lamp ^{1/}, 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.
- 10.3. 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 manufacturer 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 Application form for Approval in Annex A of this standard.
- 10.4. 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 ~~can~~ shall be able to 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.
- 10.5. The limits of the apparent surface in the direction of the reference axis of a light-signalling device shall be determined.

11. HEAT RESISTANCE TEST

- 11.1. The lamp shall be subjected to a one-hour test of continuous operation following a warm-up period of 20 minutes. The ambient temperature shall be 23°C+ 5°. The filament lamp used shall be a filament lamp of the category specified for the lamp, and shall be supplied with a current at a voltage such that it gives the specified average power at the corresponding test voltage. However, for lamps equipped with non-replaceable light sources (filament lamps and other), the test shall be made with the light sources present in the lamp, in accordance with paragraph 10.2. of this standard.

^{1/} 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.

- 11.2. Where only the maximum power is specified, the test shall be carried out by regulating the voltage to obtain a power equal to 90 per cent of the specified power. The specified average or maximum power referred to above shall in all cases be chosen from the voltage range of 6, 12 or 24 V at which it reaches the highest value; for lamps equipped with non-replaceable light sources (filament lamps and other) the test conditions set in paragraph 10.2. of this standard shall be applied.
- 11.3. After the lamp has been stabilized at the ambient temperature, no distortion, deformation, cracking or colour modification shall be perceptible. In case of doubt the intensity of light according to paragraph 7. above shall be measured. At that measurement the values shall reach at least 90 per cent of the values obtained before the heat resistance test on the same device.

12. MODIFICATIONS OF THE TYPE OF DAYTIME RUNNING LAMP AND EXTENSION OF APPROVAL

- 12.1. 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,

- 12.1.1. the device with the changed specifications still complies with provisions,
or
- 12.1.2. Any further verification is required to establish compliance.
- 12.2. For considering whether testing is required or not, guidelines given in 12.5 (Criteria for Extension of Approval) shall be used.
- 12.3. In case of 12.1.2, tests for only those parameters which are affected by the modifications need be carried out
- 12.4 In case of fulfilment of criterion of 12.1.1 or after results of further verification as per 12.1.2 are satisfactory, the approval of compliance shall be extended for the changes carried out.

12.5 Criteria for extension of approval

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

13. CONFORMITY OF PRODUCTION

13.1 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 10. above) shall be at least 80 per cent of the minimum values specified and not exceed 120 per cent of the maximum values allowed.

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

13.2.1 During the verification as per 13.2, if tests are required, the following tests shall be carried out:

13.2.1.1 Intensity of light emitted (See 7).

13.2.1.2 Colour of light emitted (See 9).

13.3 Devices with apparent defects are disregarded.

13.4 The reference mark is disregarded.

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

14. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

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

14.2 Reserved

15. Reserved

16. Reserved

17. TRANSITIONAL PROVISIONS

17.1 At the request of the applicant, type approvals for compliance to AIS-012(Part10)(Rev.1):2011, shall be granted by testing agencies from 22nd February 2011 (date of adoption of this standard in CMVR-TSC).

18 ESTABLISHING COMPLIANCE OF “E”/ “e” APPROVED DAYTIME RUNNING LAMPS TO THIS STANDARD

- 18.1 As an exception to 7.4 of AIS-037, (or related administrative decisions) for certifying compliance of “E”/“e” approved daytime running lamps to this standard, the test for the following shall be carried out by testing agency
- 18.2 Photometric requirements measured with a standard filament lamp as referred to in 7 above shall be at least 80 per cent of the minimum values and shall not exceed 120 per cent of the maximum values specified.
- 18.3 Colorimetric requirements shall be within the limits specified.

19. AMENDMENTS TO ECE REGULATIONS AFTER THE LEVEL DESCRIBED IN 0.3 OF INTRODUCTION

19.1 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.

19.2 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 3.0)

APPLICATION FOR TYPE APPROVAL

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

- A.1. Manufacturer's name and address
- A.2. Telephone No
- A.3. FAX. No.
- A.4. E mail address
- A.5. Contact person
- A.6. Plant/(s) of manufacture.
- A.7. The intended function(s) of the device.

ANNEX B

(Reserved)

ANNEX C

(See 7.2.1)

PHOTOMETRIC MEASUREMENTS

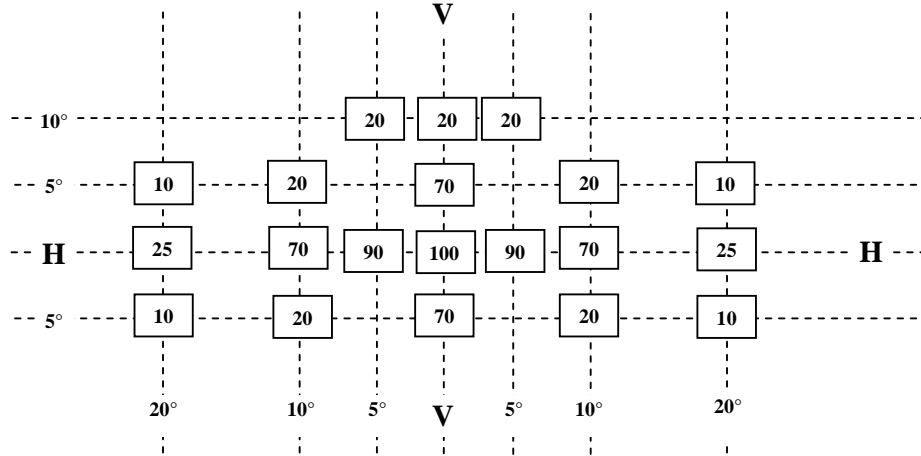
- C.1. When photometric measurements are taken, stray reflections shall be avoided by appropriate masking.
- C.2. In the event that the results of measurements are challenged, measurements shall be taken in such way as to meet the following requirements:
 - C.2.1. the distance of measurement shall be such that the law of the inverse of the square of the distance is applicable:
 - C.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.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.3. In the case where the daytime running lamp may be installed on the vehicle in more than one or in a field of different positions the photometric measurements shall be repeated for each position or for the extreme positions in the field of the reference axis specified by the manufacturer.
- C.4. Photometric measurement of lamps
 - The photometric performance shall be checked:
 - C.4.1 For non-replaceable light sources (filament lamps or other):

with the light sources present in the lamp, in accordance with paragraph 10. of this standard.
 - C.4.2 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 ± 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.4.3. For any daytime running 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 shall be able to 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.

C. 5. Table of standard light distribution



C.5.1. The direction $H = 0^\circ$ and $V = 0^\circ$ corresponds to the reference axis. (On the vehicle, it is horizontal, parallel to the median longitudinal plane of the vehicle and oriented in the required direction of visibility). It passes through the centre of reference. The values shown in the table give, for the various directions of measurement, the minimum intensities as a percentage of the minimum required in the axis for each lamp (in the direction $H = 0^\circ$ and $V = 0^\circ$).

C.5.2. Within the field of light distribution of paragraph C.3. above schematically shown as a grid, the light pattern should be substantially uniform, i.e. in so far as the light intensity in each direction of a part of the field formed by the grid lines shall meet at least the lowest minimum value being shown on the grid lines surrounding the questioned direction as a percentage.

Figure 4

Light source modules

MD E3 17325

The light source module bearing the identification code shown above has been approved together with a lamp approved in Italy (E3) under approval number 17325.

ANNEX D

(See 13.)

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

D.1. GENERAL

D.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.

D.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:

D.1.2.1. no measured value deviates unfavourably by more than 20 per cent from the values prescribed in this standard.

D.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.

D.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.

**D.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.

D.2.1. Nature of tests

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

D.2.2. Methods used in tests

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

D.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.

D.2.2.3. The application of paragraphs D.2.2.1. and D.2.2.2. requires regular calibration of test apparatus and its correlation with measurements made by a testing agency.

D.2.2.4. In all cases the reference methods shall be those of this standard, particularly for the purpose of administrative verification and sampling.

D.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.

D.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 chromaticity coordinates as per clause 9 above.

D.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 13.1. 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 E (first sampling) would be 0.95.

ANNEX E

(See D 2.5)

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

E.1. GENERAL

- E.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.
- E.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:
 - 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.1.2.3. Lamps with apparent defects are disregarded.
- 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. 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.

E.2.1. The conformity is not contested

- E.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:

- E.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 | |
- E.2.1.1.2. sample B
- | | | |
|-----|------------|------------|
| B1: | both lamps | 0 per cent |
|-----|------------|------------|
- E.2.1.2. or, if the conditions of paragraph E.1.2.2. for sample A are fulfilled.
- E.2.2. **The conformity is contested**
- E.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:
- E.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 |
- E.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 |
- E.2.2.2. or, if the conditions of paragraph E1.2.2. for sample A are not fulfilled.

E.2.3. **Non conformity established**

Conformity shall be contested and paragraph 14. applied if, following the sampling procedure in Figure 1 of this annex, the deviations of the measured values of the lamps are:

E.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

E.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

E.2.3.3. or, if the conditions of paragraph E1.2.2. for samples A and B are not fulfilled.

E.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.

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

E.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:

E.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	

E.3.1.1.2. sample D

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

E.3.1.2. or, if the conditions of paragraph E 1.2.2. for sample C are fulfilled.

E.3.2. **The conformity is contested**

E.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:

E.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

E.3.2.1.2. or, if the conditions of paragraph E 1.2.2. for sample C are not fulfilled.

E.3.3. **Non conformity established**

Conformity shall be contested and paragraph 14. applied if, following the sampling procedure in Figure 1 of this annex, the deviations of the measured values of the lamps are:

E.3.3.1. sample C

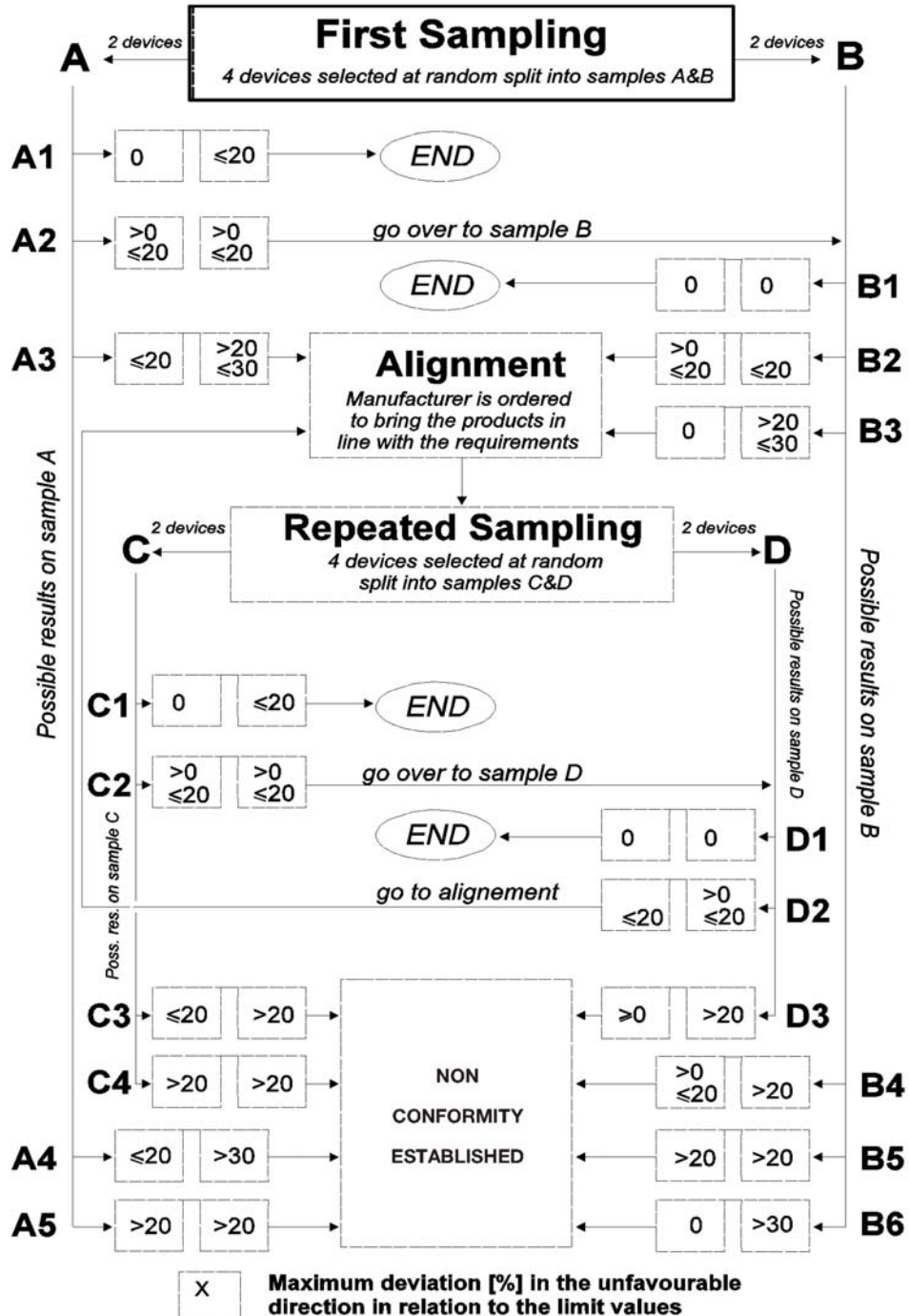
C3:	one lamp not more than	20 per cent
	one lamp more than	20 per cent
C4:	both lamps more than	20 per cent

E.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

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

Figure 1



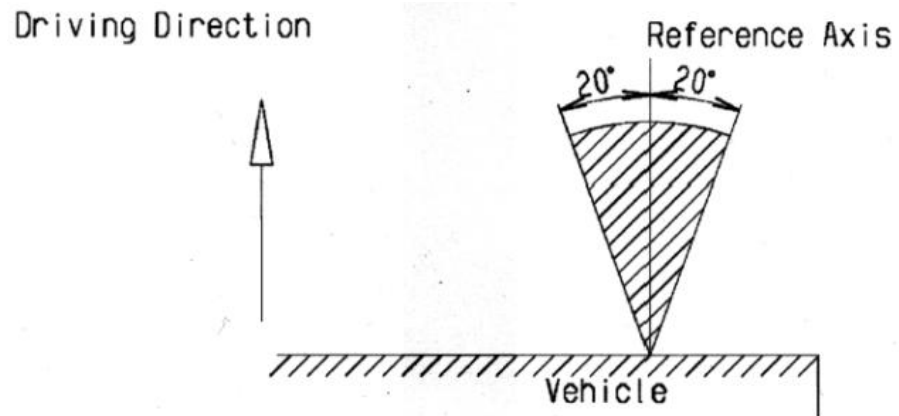
ANNEX F

(See 7.2)

**MINIMUM ANGLES REQUIRED FOR LIGHT
DISTRIBUTION IN SPACE**

In all cases, the minimum vertical angles of light distribution in space are 10° above and 5° below the horizontal for DRL devices included in the standard.

Minimum horizontal angles of light distribution in space:



ANNEX G
(See introduction)

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

Convener	
Mr. R. M. Kanitkar	Force Motors Ltd., (SIAM)
Members	Representing
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Mr. B. V. Shamsundara	The Automotive Research Association of India (ARAI)
Mr. D. P. Saste	Central Institute of Road Transport (CIRT)
Mr. V. D. Chavan	Central Institute of Road Transport (CIRT)
Dr. Madhusudan Joshi	International Centre for Automotive Technology (ICAT)
Mr. G.R.M. Rao	Vehicle Research & Dev. Estt. (VRDE)
Dr. N. Karuppaiah	National Automotive Testing and R&D Infrastructure Project (NATRIP)
Mr. K. K. Gandhi	Society of Indian Automobile Manufacturers (SIAM)
Mr. T. M. Balaraman	Society of Indian Automobile Manufacturers (SIAM) (Hero MotoCorp Ltd.)
Mr. G. K. Binani	Society of Indian Automobile Manufacturers (SIAM) (Tata Motors Ltd)
Mr. P. K. Banerjee	Society of Indian Automobile Manufacturers (SIAM) (Tata Motors Ltd)
Mr. Z. A. Mujawar	Society of Indian Automobile Manufacturers (SIAM) (Mahindra and Mahindra Ltd)
Mr. Nagendra H. V.	Society of Indian Automobile Manufacturers (SIAM) (Toyota Kirloskar Motor Pvt. Ltd)
Mr. Prakash Vemali	Society of Indian Automobile Manufacturers (SIAM) (Mercedes Benz India Ltd.)
Mr. Jitendra Malhotra	Society of Indian Automobile Manufacturers (SIAM) (Maruti Suzuki India Ltd)
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Mr. Harjeet Singh	Society of Indian Automobile Manufacturers (SIAM) (Hero Honda Motors Ltd)
Mr. Harsh Agrawal	Society of Indian Automobile Manufacturers (SIAM) (Hero Honda Motors Ltd)
Mr. S Ramiah	Society of Indian Automobile Manufacturers (SIAM) (TVS Motor Company Limited)
Mr. T.C. Gopalan,	Tractor Manufacturers Association (TMA)

Mr. K. N. D. Nambudiripad	Automotive Component Manufacturers Association (ACMA)
Mr. G. V. George	FIEM Industries Ltd. (ACMA)
Mr. Rajagopalan	FIEM Industries Ltd. (ACMA)
Mr. Virendra Sachdev	Lumax Industries Ltd. (ACMA)
Mr. Sagar Kulkarni	Rinder India Pvt. Ltd. (ACMA)
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

Chairman	
Shri Shrikant R. Marathe	Director The Automotive Research Association of India, Pune
Members	Representing
Representative from	Ministry of Road Transport & Highways (Dept. of Road Transport & Highways), New Delhi
Representative from	Ministry of Heavy Industries & Public Enterprises (Department of Heavy Industry), New Delhi
Shri S. M. Ahuja	Office of the Development Commissioner, MSME, Ministry of Micro, Small & Medium Enterprises, New Delhi
Shri T. V. Singh	Bureau of Indian Standards, New Delhi
Director Shri D. P. Saste (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, Ahmednagar
Representatives from	Society of Indian Automobile Manufacturers
Shri T.C. Gopalan	Tractor Manufacturers Association, New Delhi
Shri K.N.D. Nambudiripad	Automotive Components Manufacturers Association of India, New Delhi

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

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