Amendment No. 1 August 2013
To
AIS-012 (Part 4) (Rev. 1): 2011
Performance Requirements for Rear Registration Plate (Mark) Illuminating Lamps for Motor Vehicles

1. Page 7/21,

Add following new clause 16.2 after clause 16.1:

" 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.

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

PRINTED BY
THE AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA
P. B. NO. 832, PUNE 411 004
ON BEHALF OF
AUTOMOTIVE INDUSTRY STANDARDS COMMITTEE
UNDER
CENTRAL MOTOR VEHICLES RULES - TECHNICAL STANDING COMMITTEE
SET-UP BY
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
(DEPARTMENT OF ROAD TRANSPORT & HIGHWAYS)
GOVERNMENT OF INDIA

August 2013

AUTOMOTIVE INDUSTRY STANDARD

Performance Requirements for Rear Registration Plate (Mark) Illuminating Lamps for Motor Vehicles

(Revision 1)

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October 2011

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

Sr. No.	Corrigenda.	Amendment	Revision	Date	Remark	Misc.
General remarks :						

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 rear registration plate (mark) illuminating lamps for motor vehicles.

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

Addendum 3: Regulation No. 4 Revision 2 - Amendment 2 Supplement 13 to the original version of the Regulation - Date of entry into force: 11 July 2008	Uniform Provisions Concerning the Approval of Devices for the Illumination of Rear Registration Plates of Power-driven Vehicles and their Trailers

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
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 H and Annex J respectively.

Performance Requirements for Rear Registration Plate (Mark) Illuminating Lamps for Motor Vehicles

Performance Requirements for Rear Registration Plate (Mark) Illuminating Lamps for Motor Vehicles

0. SCOPE

This standard applies to rear registration plate lamps for vehicles of categories M, N, T and A [1/].

Note: The permission to use rear registration plate illuminating 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 "**Rear registration plate lamp**" means the device for the illumination of rear registration plates, hereinafter called "illuminating device", which illuminates the rear registration plate by reflection. For the approval of this device, the illumination of the space to be occupied by the plate is determined.

1.3 "**Rear registration plate 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.)

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

2. APPLICATION FOR APPROVAL: TECHNICAL INFORMATION TO BE SUBMITTED BY THE APPLICANT AT THE TIME OF APPROVAL

Sr. No.	Particulars
2.1	Manufacturer's name and address
2.2	Telephone No
2.3	FAX. No.
2.4	E mail address
2.5	Contact person
2.6	Plant/(s)of manufacture.
2.7	The intended function(s) of the device.

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

The application for approval shall be submitted by the applicant. It shall specify whether the device is intended to illuminate a wide plate (500 x 120 mm), tall plate (340 x 200 mm) or any combination of those plates. At the choice of the applicant, it will also specify that the device may be fitted in more than one or a field of positions in relation to the space to be occupied by this registration plate; these different positions shall be indicated by the applicant in the application. It shall be accompanied by the following, in respect of each type:

(a) drawings, in triplicate, in sufficient detail to permit identification of the type and showing geometrically the position in which the illuminating device is to be fitted in relation to the space to be occupied by the registration plate, and the outlines of the area adequately illuminated.

(b) a brief technical description stating in particular, with the exception of lamps with non-replaceable light sources:

i) the category or categories of filament lamp prescribed; this filament lamp category shall be one of those contained in AIS-34 (Part 1)(Rev. 1); and/or

ii) the light source module specific identification code[1/].

(c) two samples, equipped with the lamp or lamps recommended

3. MARKINGS

Illuminating devices submitted for approval shall bear:

3.1 the trade name or mark of the maker or manufacturer of the illuminating device;

3.2. a space of sufficient size for the approval mark; this space shall be shown in the drawings mentioned in paragraph 2**.7** (a) above.

3.3. in the case of lamps with non-replaceable light sources or light source module(s), the marking of rated voltage of the range of voltage, and the rated wattage;

3.4. with the exception of lamps with non-replaceable light sources it shall 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.

1/ A light source is defined in ISO 7227:1987 "Road vehicles - Lighting and light-signalling devices - Vocabulary" as an emitter of visible and radiant energy.

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 lamp manufacturer; 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", 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 2.7 (a) 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 lamp manufacturer.

3.5.3. the marking of the rated voltage and rated wattage.

4. Reserved

5. GENERAL SPECIFICATIONS

Each device shall satisfy the provisions of paragraph 9 [1/].

5.1. The devices for the illumination of rear registration plates shall be so constructed that the whole surface of the plate will be visible within the angles given in Annex D.

5.2. All measurements shall be made with the standard filament lamp of the category prescribed by the manufacturer, the supply voltage being so regulated as to produce the reference luminous flux. All measurements on the devices with non-replaceable light sources shall be made at 6.75 V, 13.5 V or 28.0 V respectively.

5.3. In the case of light sources supplied by a special power supply, the above test voltages shall be applied to the input terminals of that power supply. The test laboratory may require from manufacturer the special power supply needed to supply the light sources.

5.4. For any rear registration plate illuminating device, except those equipped with filament lamp(s), the luminance values measured after one minute and after 30 minutes of operation shall comply with the minimum requirements.

The luminance distribution after one minute of operation may be calculated by applying at each test point the ratio of luminance values measured in one point after one minute and after 30 minutes of operation.

1/ These specifications are such as to ensure good visibility if the inclination of the registration plate does not exceed 30° on either side of the vertical.

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

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

(a) that each light source module may only be fitted in no other position than the designated and correct one and can only 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 can not be interchanged within the same lamp housing.

5.5.2. The light source module(s) shall be tamperproof.

5.6. In the case of replaceable filament lamp(s):

5.6.1. 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.

5.6.2. The design of the device shall be such that the filament lamp may be fixed in no other position but the correct one.

5.6.3. The filament lamp holder shall conform to the characteristics given in IEC Publication 60061. The lamp manufacturer data sheet relevant to the category of filament lamp used, applies.

6. COLOUR OF LIGHT EMITTED

The light of the lamp used in the illuminating device shall be sufficiently colourless not to cause any appreciable change in the colour of the registration plate.

7. INCIDENCE OF THE LIGHT

The manufacturer of the illuminating device shall specify one or more or a field of positions in which the device is to be fitted in relation to the space for the registration plate; when the lamp is placed in the position (s) specified by the manufacturer the angle of incidence of the light on the surface of the plate shall not exceed 82º at any point of the surface to be illuminated, this angle being measured from the extremity of the device's illuminating area which is furthest from the surface of the plate. If there is more than one illuminating device, the foregoing requirement shall apply only to that part of the plate intended to be illuminated by the device concerned.

When the device has one outer edge of the illuminating surface that is parallel to the surface of the registration plate, the extremity of the illuminating surface of the device which is furthest from the surface of the plate is the middle point of the edge of the illuminating surface, which is parallel to the plate and is furthest from the surface of the plate.

The device shall be so designed that no light is emitted directly towards the rear, with the exception of red light if the device is combined or grouped with a rear lamp.

8. MEASURING PROCEDURE

Luminance measurements shall be made on a diffuse colourless surface with known diffuse reflection factor[1/]. The diffuse colourless surface shall have the dimensions of the registration plate or the dimension exceeding one measuring point. Its center shall be placed in the center of the positions of the measuring points.

This diffuse colourless surface(s) shall be placed in the position normally occupied by the registration plate and 2 mm in front of its holder.

Luminance measurements shall be made perpendicularly to the surface of the diffuse colourless surface with the tolerance of 5° in each direction at the points shown in Annex C to this standard, each point representing a circular area of 25 mm in diameter. The measured luminance shall be corrected for the diffuse reflection factor 1.0.

9. PHOTOMETRIC CHARACTERISTICS

At each of the points of measurement shown in Annex C, the luminance B shall be at least equal to 2.5 cd/m^2.

The gradient of the luminance between the values B_1 and B_2, measured at any two points 1 and 2 selected from among those mentioned above, shall not exceed 2 x Bo/cm, Bo being the minimum luminance measured at the various points, that is to say:

$$\frac{B_2 - B_1}{distance\ 1 - 2\ in\ cm} \leq 2 \times Bo/cm$$

10. CONFORMITY OF PRODUCTION

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

10.1. Devices for the illumination of rear registration plates (henceforth called devices), approved under this standard shall be so manufactured as to conform to the type approved by meeting the requirements set forth in paragraphs 5, 6 and 9 above. If there is more than one device necessary, then in the following text a device means a set of devices.

10.2. The minimum requirements for conformity of production control procedures set forth in Annex F to this standard shall be complied with.

1/ CIE Publication No.17 –1970, paragraph 45-20-040

10.3. The minimum requirements for sampling by a testing agency set forth in Annex G to this standard shall be complied with.

10.4. The testing agency which has granted type approval may at any time verify the conformity control methods applied in each production facility. The normal frequency of these verifications shall be once every two years.

11. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

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

11.2. Reserved

12. Reserved

13. TRANSITIONAL PROVISIONS

13.1. At the request of the applicant, type approvals for compliance to AIS-012 (Part 4)(Rev. 1):2011, shall be granted by testing agencies from the 22nd February 2011 (date of adoption of this standard by CMVR-TSC). Such type approvals shall be deemed to be compliance to AIS-012:2004.

13.2. At the request of applicant, type approval to the compliance to AIS-012:2004 shall be granted up to the notified date of implementation of AIS-012 (Part 4)(Rev. 1):2011.

13.3. Type approvals issued for compliance to AIS-012:2004 shall be extended to approval of AIS-012 (Part 4) (Rev. 1):2011, subject to satisfactory compliance of the following:

(a) Marking

13.4. **Extension of approvals for engineering and administrative changes:**

13.4.1. In the case of 13.1, extensions shall be granted subject to the conditions of AIS 012 (Part 4)(Rev. 1) :2011. Such extensions shall be deemed to be compliance to AIS-012:2004.

13.4.2. In the case of 13.2 extensions shall be granted subject to conditions of AIS-012:2004, till the notified date of implementation.

13.5. Type approvals for compliance to AIS-037, already been granted, shall continue to be valid for AIS-012 (Part 4)(Rev. 1):2011 subject to satisfactory compliance of the following:

(a) Marking

14. Reserved

15. ESTABLISHING COMPLIANCE OF "E"/ "e" APPROVED REAR REGISTRATION PLATE (MARK) ILLUMINATING 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" marked light and light-signalling devices to this standard, the test for the following shall be carried out by testing agency

15.1.1 Photometric requirements shall be within the limits specified in 9.0.

15.1.2 Colourimetric requirements shall be within the limits specified in 6.0.

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.

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

17 MODIFICATIONS OF THE TYPE OF A REAR REGISTRATION PLATE (MARK) ILLUMINATING LAMP AND EXTENSION OF APPROVAL

17.1 Every modification pertaining to the information, even if the changes are not technical in nature declared in accordance with clause No. 2 shall be intimated by the applicant 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,

17.1.1 the model with the changed specifications still complies with provisions, or

17.1.2 Any further verification is required to establish compliance.

17.2 For considering whether testing is required or not, guidelines given in 18.0 (Criteria for extension of approval) shall be used.

17.3 In case of 17.1.2, tests for only those parameters which are affected by the modifications need be carried out

17.4 In case of fulfillment of criterion of 17.1.1 or after results of further verification as per 17.1.2 are satisfactory, the approval of compliance shall be extended for the changes carried out.

18 CRITERIA FOR EXTENSION OF APPROVAL

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

ANNEX A

(Reserved)

ANNEX B

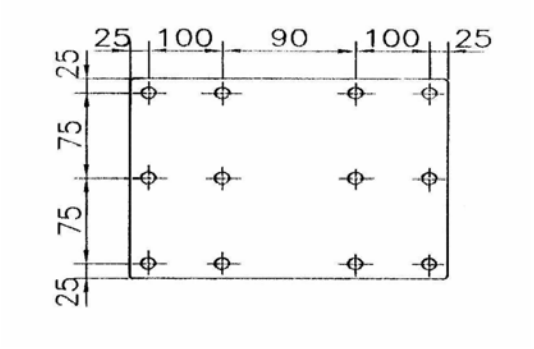
(Reserved)

ANNEX C

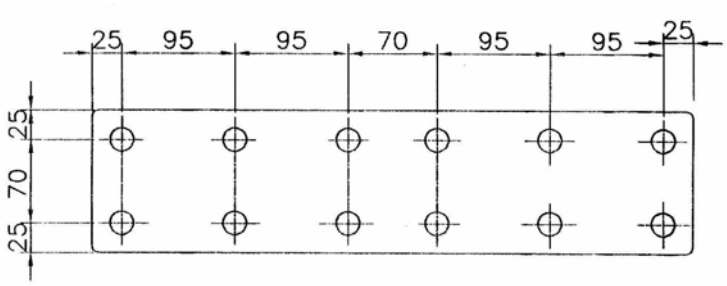
(See 8.0)

MEASUREMENT POINTS FOR TEST PURPOSES

(a) devices for illuminating a tall plate (340 x 200 mm)



(b) devices for illuminating a wide plate (500 x 120 mm)

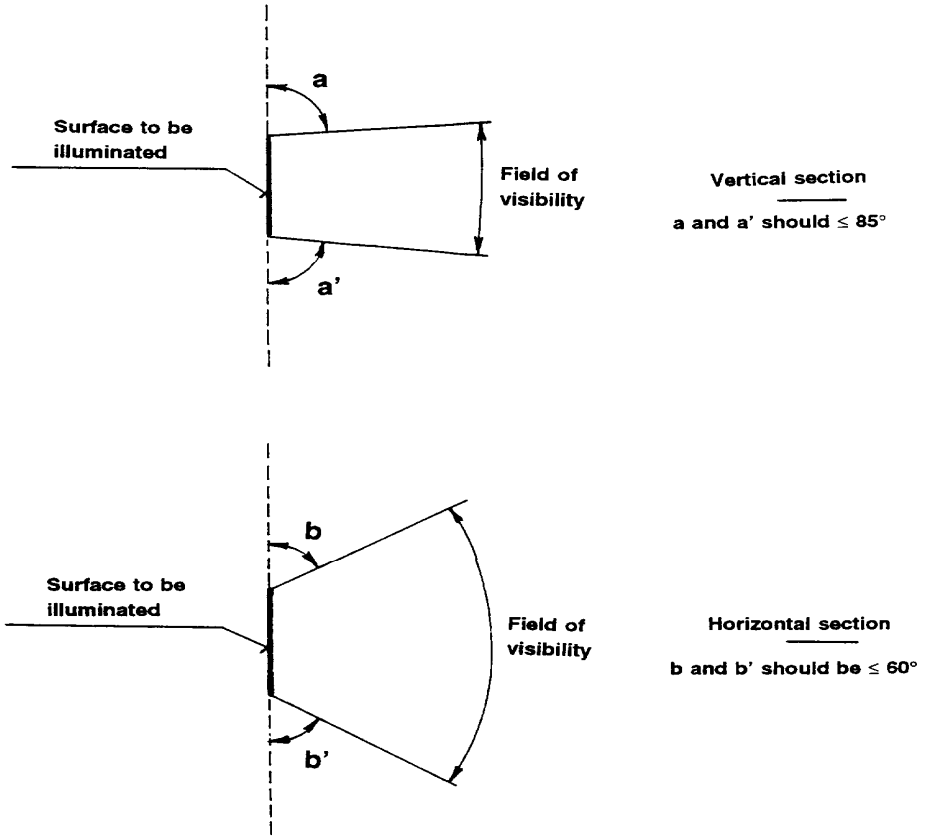


Note: In the case of devices for illuminating two or all of the plates, the measurement points used are obtained by combining the corresponding drawings above in accordance with the outline indicated by the make or manufacturer; however, if two measurement points are less than 30 mm apart, only one shall be used.

ANNEX D

(See 5.1)

MINIMUM FIELD OF VISIBILITY OF THE SURFACE TO BE ILLUMINATED



D1. The field-of-visibility angles shown above relate only to the relative positions of the illuminating device and the space for the registration plate.

D2. The field of visibility of the registration plate when mounted on the vehicle remains subject to the relevant national standards.

D3. The angles shown take account of the partial occultation caused by the illuminating device. They must be adhered to in the directions in which there is most occultation. The illuminating devices shall be such as to reduce the areas partly occulted to the minimum strictly necessary.

ANNEX E

PHOTOMETRIC MEASUREMENT OF LAMPS EQUIPPED WITH SEVERAL LIGHT SOURCES

E1. The photometric performance shall be checked:

E1.1. For non-replaceable light sources (filament lamps and other):

with the light sources present in the lamp, in accordance with paragraph 5.2. of this standard.

E1.2. For replaceable filament lamps:

when equipped with filament lamps at 6.75 V, 13.5 V or 28.0 V the luminance 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.

ANNEX F

(See 10.2)

MINIMUM REQUIREMENTS FOR CONFORMITY OF PRODUCTION CONTROL PROCEDURES

F1. GENERAL

F1.1. The conformity requirements shall be considered satisfied from a mechanical and geometric standpoint, if the differences do notexceed inevitable manufacturing deviations within the requirements of this standard.

F1.2. With respect to photometric performances, the conformity of mass-produced devices shall not be contested if, when testing photometric performances of any device 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:

F1.2.1. no measured value deviates unfavourably by more than 20 per cent from the values prescribed in this standard.

F1.2.2. With respect to the gradient of luminance the unfavourable deviation may be:

2.5 x Bo/cm	comparable to	20 per cent
3.0 x Bo/cm	comparable to	30 per cent

F1.2.3. If, in the case of a device equipped with a replaceable light source and if results of the test described above do not meet the requirements, tests on devices shall be repeated using another standard filament lamp.

F2. MINIMUM REQUIREMENTS FOR VERIFICATION OF CONFORMITY BY THE MANUFACTURER

For each type of device 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.

F2.1. **Nature of tests**

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

F 2.2. **Methods used in tests**

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

F2.2.2 In any test of conformity carried out by the manufacturer, equivalent methods may be used with the consent of the competent 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.

F2.2.3. The application of paragraphs F 2.2.1. and F 2.2.2. requires regular calibration of test apparatus and its correlation with measurements made by a testing agency.

F2.2.4. In all cases the reference methods shall be those of this standard, particularly for the purpose of administrative verification and sampling.

F2.3. **Nature of sampling**

Samples of devices shall be selected at random from the production of a uniform batch. A uniform batch means a set of devices 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.

F2.4. **Measured and recorded photometric characteristics**

The sampled device shall be subjected to photometric measurements provided for in the standard.

F2.5. **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 10.1. 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 G (first sampling) would be 0.95.

ANNEX G

(See 10.3)

MINIMUM REQUIREMENTS FOR SAMPLING BY A TESTING AGENCY

G1. GENERAL

G1.1. The conformity requirements shall be considered satisfied from a mechanical and a geometric stand point, in accordance with the requirements of this standard, if any, if the differences do not exceed inevitable manufacturing deviations.

G1.2. With respect to photometric performance, the conformity of mass-produced devices shall not be contested if, when testing photometric performances of any device 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:

G1.2.1. no measured value deviates unfavourably by more than 20 per cent from the values prescribed in this standard.

G1.2.2. With respect to the gradient of luminance the unfavourable deviation may be:

2.5 x Bo/cm	comparable to	20 per cent
3.0 x Bo/cm	comparable to	30 per cent

G1.2.3. If, in the case of a device equipped with a replaceable light source and if results of the test described above do not meet the requirements, tests on devices shall be repeated using another standard filament lamp.

G1.2.4. Devices with apparent defects are disregarded.

G2. FIRST SAMPLING

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

G2.1. **The conformity is not contested**

G2.1.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced devices shall not be contested if the deviation of the measured values of the devices in the unfavourable directions are:

G2.1.1.1. sample A

A1:	one device	0 per cent
	one device not more than	20 per cent
A2 :	both devices more than	0 per cent
	but not more than	20 per cent
	go to sample B	

G2.1.1.2. sample B

B1:	both devices	0 per cent

G2.2. **The conformity is contested**

G2.2.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced devices shall be contested and the manufacturer requested to make his production meet the requirements (alignment) if the deviations of the measured values of the devices are:

G2.2.1.1. sample A

A3:	one device not more than	20 per cent
	one device more than	20 per cent
	but not more than	30 per cent

G2.2.1.2. sample B

B2:	in the case of A2	
	one device more than	0 per cent
	but not more than	20 per cent
	one device not more than	20 per cent
B3:	in the case of A2	
	one device	0 per cent
	one device more than	20 per cent
	but not more than	30 per cent

G2.3. **Non conformity established**

Conformity shall be contested and paragraph 11 applied if, following the sampling procedure in Figure 1 of this annex, the deviations of the measured values of the devices are:

G2.3.1. sample A

A4:	one device not more than	20 per cent
	one device more than	30 per cent
A5:	both devices more than	20 per cent

G2.3.2. sample B

B4:	in the case of A2	
	one device more than	0 per cent
	but not more than	20 per cent
	one device more than	20 per cent
B5:	in the case of A2	
	both devices more than	20 per cent
B6:	in the case of A2	
	one device	0 per cent
	one device more than	30 per cent

G3. **REPEATED SAMPLING**

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

G3.1. **The conformity is not contested**

G3.1.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced devices shall not be contested if the deviations of the measured values of the devices are:

G3.1.1.1. sample C

C1:	one device	0 per cent
	one device not more than	20 per cent
C2:	both devices more than	0 per cent
	but not more than	20 per cent
	go to sample D	

G3.1.1.2. sample D

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

G3.2. **The conformity is contested**

G3.2.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced devices shall be contested and the manufacturer requested to make his production meet the requirements (alignment) if the deviations of the measured values of the devices are:

G3.2.1.1. sample D

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

G3.3. **Non conformity established**

Conformity shall be contested and paragraph 11 applied if, following the sampling procedure in Figure 1 of this annex, the deviations of the measured values of the devices are:

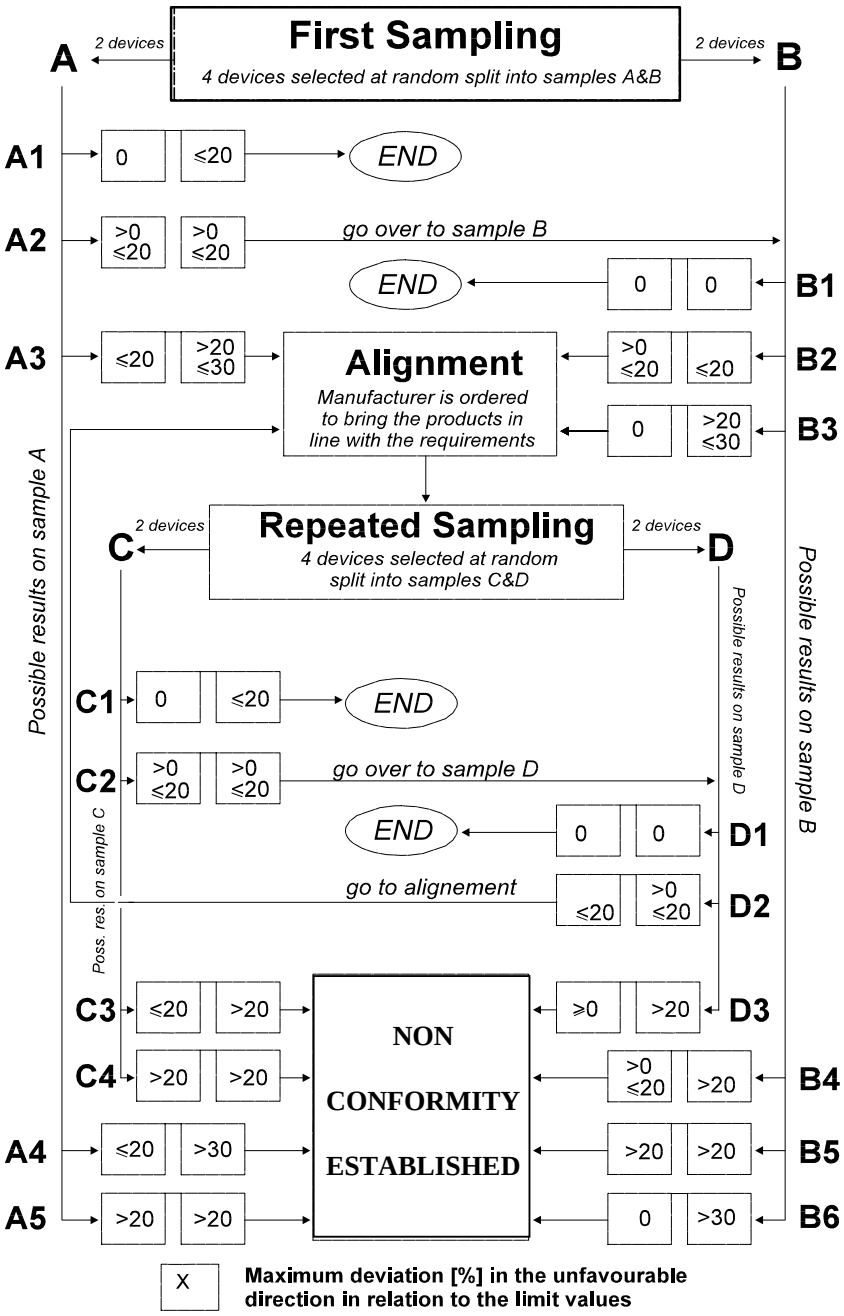
G3.3.1. sample C

C3:	one device not more than	20 per cent
	one device more than	20 per cent
C4:	both devices more than	20 per cent

G3.3.2. sample D

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

Figure 1


First Sampling
4 devices selected at random split into samples A&B
2 devices
2 devices
A
B
A1
0
≤20
END
A2
>0 ≤20
>0 ≤20
go over to sample B
END
0
0
B1
A3
≤20
>20 ≤30
Alignment
Manufacturer is ordered to bring the products in line with the requirements
>0 ≤20
≤20
B2
0
>20 ≤30
B3
Repeated Sampling
4 devices selected at random split into samples C&D
2 devices
2 devices
C
D
Possible results on sample A
Possible results on sample B
Possible results on sample D
C1
0
≤20
END
C2
>0 ≤20
>0 ≤20
go over to sample D
END
0
0
D1
go to alignement
≤20
>0 ≤20
D2
Poss. res. on sample C
C3
≤20
>20
NON CONFORMITY ESTABLISHED
≥0
>20
D3
C4
>20
>20
>0 ≤20
>20
B4
A4
≤20
>30
>20
>20
B5
A5
>20
>20
0
>30
B6
X
Maximum deviation [%] in the unfavourable direction in relation to the limit values

ANNEX H
(See introduction)

COMPOSITION OF AISC PANEL ON LIGHTING AND LIGHT SIGNALLING DEVICES*

Convener	
Mr. R. M. Kanitkar	Force Motors Ltd., (SIAM)
Members	**Representing**
Mr. A. S. Bhale	The Automotive Research Association of India (ARAI)
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)
Mr. Sumit Sharma	Society of Indian Automobile Manufacturers (SIAM) (Volkswagen India Private Ltd.)
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 J
(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

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