

Amendment 2 (04/2019)
To
AIS-012 (Part 8) (Rev.1) 2011
Performance Requirements for Parking Lamps for Motor Vehicles

1. Page III, Introduction, Point No. 0.3

Substitute the following text for the existing text:

“ECE-R 77 Rev 3, Supplement 16 to the original version of the Regulation - Date of entry into force: 3 November 2013”

2. Page III, Introduction, Point No. 0.4

Insert the following words in the table:

Provisions concerning the approval of Light Emitting Diode (LED) light
AIS 130 sources for use in approved lamp units on power-driven vehicles and their
trailers

3. Page 1/24, Clause 2.3

Substitute the following words:

“filament lamp” with “light source”

4. Page 1/24, Clause 2.4

Insert the following text at the end:

“Reference made in this Standard to standard (étalon) LED light source(s) and to AIS 130 shall refer to AIS 130 as amended from time to time in force at the time of application for type approval.”

5. Page 2/24, Clause 3.2.1

Renumber Sub-Clause (b) as (c)

6. Page 2/24, Clause 3.2.1

Insert the following text in sr. no. (b):

“(b) The category or categories of LED light source(s) prescribed; this LED light source category shall be one of those contained in AIS 130 and as amended from time to time at the time of application for type approval; and/or.”

7. Page 2/24, Clause 4.1.2 (a)

Substitute the following words:

“filament lamp” with “light source”

8. Page 3/24, Clause 6.0

Insert new sub Clause 6.3.3 after 6.3.2:

“6.3.3 A light source module shall be so designed that regardless of the use of tool(s), it shall not be mechanically interchangeable with any replaceable approved light source.”

9. Page 3/24, Clause 6.4.1

Substitute the following text for the existing text:

Any category or categories of light source(s) approved according to AIS-034 (Part 1) (Rev. 1) and/or AIS 130 may be used, provided that no restriction on the use is made in AIS-034 (Part 1) (Rev. 1) and its series of amendments in force at the time of application for type approval or in AIS 130 and its series of amendments in force at the time of application for type approval.

10. Page 4/24, Clause 6.4.2

Substitute the following words:

“filament lamp” with “light source”

11. Page 5/24, Clause 8.1

Substitute the following text for the existing text:

All measurements, photometric and colorimetric shall be carried out with an uncoloured or coloured standard light source of the category prescribed for the device, supplied with the voltage;

- (a) In the case of filament lamps, that is necessary to produce the reference luminous flux required for that category of filament lamp;
- (b) In the case of LED light sources of 6.75 V, 13.5 V or 28 V; the luminous flux value produced shall be corrected. The correction factor is the ratio between the objective luminous flux and the mean value of the luminous flux found at the voltage applied;
- (c) In the case of lamps with non-replaceable light sources: 6.75 V, 13.5 V or 28 V respectively;
- (d) In the case of a system that uses an electronic light source control gear being part of the lamp³ applying at the input terminals of the lamp the voltage declared by the manufacturer or, if not indicated, 6.75 V, 13.5 V or 28.0 V, respectively;
- (e) 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.

12. Page 5/24, Clause 8.2

Renumber the Sub Clause as 8.3

13. Page 5/24, Clause 8

Insert new sub Clause 8.2 after 8.1

“8.2 The test laboratory shall require from the manufacturer the light source control gear needed to supply the light source and the applicable functions.”

14. Page 6/24, Sub Clause 12.1

Substitute the following words:

“Standard filament lamp” with “Standard light source”

15. Page 8/24, Sub Clause 17.1.1

Substitute the following words:

“Standard filament lamp” with “Standard light source”

16. Page 13/24, Annex D, Sub Clause D3.2

Substitute the following text with the existing text:

“D3.2 For replaceable light sources:

When equipped with light sources at 6.75 V, 13.5 V or 28.0 V, the luminous intensity values produced shall be corrected. For filament lamps 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)

For LED light sources the correction factor is the ratio between the objective 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 light source used shall not deviate more than ± 5 per cent from the mean value. Alternatively and in case of filament lamps only, 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.

17. Page 15/24, Annex F, Sub Clause F1.2, F1.2.2 & F1.3

Substitute the following words:

“Standard filament lamp” with “Standard light source”

18. Page 17/24, Annex G, Sub Clause G1.2, G1.2.2 & G1.3

Substitute the following words:

“Standard filament lamp” with “Standard light source”

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THE AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA
P.B. NO. 832, PUNE 411 004

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

11th April 2019

Amendment 1 19th December 2017
to
AIS-012 (Part 8) (Rev.1) 2011
Performance Requirements for Parking Lamps for Motor Vehicles

1. Page 1/24, Clause 1.0 - Scope,

Substitute the following text for the existing text:

1.0 SCOPE

This standard applies to parking lamps for vehicles of categories L7, M, N and A^{1/}

Note: The permission to use parking lamps covered by this standard is governed by requirements specified by the standard for installation of requirements of that category of vehicles.

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

19th December 2017

AUTOMOTIVE INDUSTRY STANDARD

**Performance Requirements for
Parking Lamps for Motor Vehicles**

(Revision 1)

PRINTED BY
THE AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA
P.B. NO. 832, PUNE 411 004

ON BEHALF OF
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CENTRAL MOTOR VEHICLE RULES – TECHNICAL STANDING COMMITTEE

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

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 parking lamps for motor vehicles.

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

ECE R 77 (Rev. 2, Amd. 1, Suppl. 12 to original version) Date of entry into force: 15 October 2008	Uniform provisions concerning the approval of parking 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-034 (Part 2) (Rev. 1):2010	Provisions concerning the Approval of Gas-discharge Light Sources for use in Approved Gas-discharge Lamp units of Power-driven Vehicles
AIS-010 (Part 5) (Rev. 1):2010	Requirements of Chromaticity Co-ordinates of Colour of Light Emitted from Lighting and Light-signalling Devices

AIS-037:2004	Procedure for Type Approval and Establishing Conformity of Production for Safety Critical Components
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- 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 Parking Lamps for Motor Vehicles

Para. No.	Contents	Page No.
1.	Scope	1/24
2.	Definitions	1/24
3.	Application for approval	1/24
4.	Markings	2/24
5.	Approval	3/24
6.	General specifications	3/24
7.	Photometric characteristics	4/24
8.	Test procedure	5/24
9.	Colour of light emitted	5/24
10.	Reserved	5/24
11.	Modifications of the type of parking lamp and extension of approval	5/24
12.	Conformity of production	6/24
13.	Penalties for non-conformity of production	6/24
14.	Reserved.	6/24
15.	Reserved	6/24
16.	Transitional provisions	7/24
17.	Establishing compliance of “E”/“e” approved parking lamp to this standard	8/24
18.	Amendments to ECE regulations after the level described in 0.3 of introduction	8/24
List of Annexes		
Annex A	Reserved.	9/24
Annex B	Reserved.	9/24
Annex C	Minimum angles required for the light distribution in space	10/24
Annex D	Photometric measurements	12/24
Annex E	Colour of light emitted	14/24
Annex F	Minimum requirements for conformity of production control procedures	15/24
Annex G	Minimum requirements for sampling by a testing agency	17/24

Performance Requirements for Parking Lamps for Motor Vehicles

1.0 SCOPE

This standard applies to parking lamps for vehicles of categories M, N and A^{1/}

Note: The permission to use parking lamps covered by this standard is governed by requirements specified by the standard for installation of requirements of that category of vehicles.

2.0 DEFINITIONS

For the purposes 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. **"Parking lamp"** means the lamp used to draw attention to the presence of a stationary vehicle;

2.3. **"Parking 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.

3.0 APPLICATION FOR APPROVAL

3.1. The application for approval shall be submitted by the applicant as given below.

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 communication form.

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

- 3.2. For each type of parking lamp the application shall be accompanied by:
 - 3.2.1. 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 listed in AIS-034 (Parts 1 and 2)(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.
 - 3.2.2. drawings, in triplicate, in sufficient detail to permit identification of the type of the parking lamp and showing geometrically the position(s) in which the 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; the drawings shall indicate the space reserved for the approval mark as per AIS-037.
 - 3.2.3. Two samples; if the parking lamps are such that they can be mounted only on one 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.

4.0 MARKINGS

- 4.1 Parking lamps submitted for approval shall clearly, legibly and indelibly bear:
 - 4.1.1. Parking lamp manufacturer's trade mark;
 - 4.1.2. With the exception of lamps with non-replaceable light sources, 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.
 - 4.1.3. In the case of lamps with non-replaceable light sources or light source module(s), the marking of rated voltage or the range of voltages, and the rated wattage.
- 4.2. Reserved
- 4.3. In the case of lamps with light source modules(s), the light source module shall bear:
 - 4.3.1. The trade name or mark of the applicant; this marking shall be clearly legible and indelible;
 - 4.3.2. Reserved
 - 4.3.3. The marking of the rated voltage and rated wattage.

- 4.4. 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.

5.0 APPROVAL

- 5.1. If the two samples of a parking lamp type submitted in accordance with paragraph 3.2.3.above meet the requirements of this standard, approval shall be granted.

- 5.2. Type approval number shall be assigned to each type approved

- 5.3. and 5.4 Reserved.

- 5.5. Approval marking shall be as per AIS-037

- 5.5.1 and 5.5.2 Reserved

- 5.5.3 When a lamp emits a light of amber colour towards the front and rear, the lamp must be marked with an arrow indicating its orientation, the arrow showing the front of the vehicle;

- 5.5.4. to 5.8 Reserved

6.0 GENERAL SPECIFICATIONS

- 6.1. Each sample shall conform to the specifications of paragraphs 7.0 and 9.0 of this standard.

- 6.2. Parking lamps shall be so designed and constructed that in normal use, despite the vibrations to which they may be subjected, their satisfactory operation continues to be ensured and they retain the characteristics prescribed by this standard.

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

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

- (a) that each light source module can 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 cannot be interchanged within the same lamp housing.

- 6.3.2. The light source module(s) shall be tamperproof.

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

- 6.4.1. 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.

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

- 6.4.3. 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.

7.0 PHOTOMETRIC CHARACTERISTICS

- 7.1. In the reference axis, the light emitted by each of the two samples shall be of not less than the minimum intensity and of not more than the maximum intensity specified below:

		Minimum (cd)	Maximum (cd)
7.1.1.	Intensity of forward facing parking lamps	2	60
7.1.2.	Intensity of rearward facing parking lamps	2	30

- 7.1.3. 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.

All light sources which are connected in series are considered to be one light source.

- 7.2. Outside the reference axis and within the angular fields defined in the diagrams in Annex C to this standard, the intensity of the light emitted by each of the two samples shall:

- 7.2.1. in each direction corresponding to the points in the luminous intensity distribution table reproduced in Annex D to this standard be not less than the value shown in the said table for the direction in question, expressed as a percentage of the minimum specified in paragraph 7.1.;

- 7.2.2. in any direction within the space from which the light in question is visible, not exceed the maximum specified in paragraph 7.1.;

- 7.2.3. however, a luminous intensity of 60 cd shall be permitted for parking lamps directed to the rear incorporated with stop lamps (see paragraph 7.1.2.) below a plane forming an angle of 5° with and downward from the horizontal plane;

- 7.2.4. Moreover,

- 7.2.4.1. Any further verification is required to establish compliance throughout the fields defined in Annex C the intensity of the light emitted shall be not less than 0.05 cd,

- 7.2.4.2. the requirements of paragraph D2.2. of Annex D on local variations of intensity shall be observed.

- 7.3. Annex D of this standard to which reference is made in paragraph 7.2.1., gives particulars of the methods of measurement to be used.

8.0 TEST PROCEDURE

All measurements shall be carried out with uncoloured standard filament lamps of the types prescribed for the device, adjusted to produce the normal luminous flux prescribed for those types of lamps.

- 8.1. 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.

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 the manufacturer the special power supply needed to supply the light sources.

- 8.2. The limits of the apparent surface in the direction of the reference axis of a light-signalling device shall be determined.

9.0 COLOUR OF LIGHT EMITTED

The colour of the light emitted inside the field of the light distribution grid defined at paragraph D2. of Annex D, measured by using a source of light with a colour temperature of 2,856 K, corresponding to illuminant A of the International Commission on Illumination (CIE), shall be red, white or amber. For testing see Annex E to this standard. Outside this field no sharp variation of colour shall be observed.

However, for lamps equipped with non-replaceable light sources (filament lamps and other), the colorimetric characteristics should be verified with the light sources present in the lamp, in accordance with paragraph 8.1. of this standard.

10.0 Reserved

11.0 MODIFICATIONS OF THE TYPE OF PARKING LAMP AND EXTENSION OF APPROVAL

- 11.1 Every modification pertaining to the information, even if the changes are not technical in nature declared in accordance with paragraph 3 of this standard 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,

- 11.1.1 The device with the changed specifications still complies with provisions, or
- 11.1.2 Any further verification is required to establish compliance.

- 11.2 For considering whether testing is required or not, guidelines given in 11.5 (criteria for extension of approval) shall be used.
- 11.3 In case of 11.1.2, tests for only those parameters which are affected by the modifications need be carried out
- 11.4 In case of fulfillment of criterion of 11.1.1 or after results of further verification as per 11.1.2 are satisfactory, the approval of compliance shall be extended for the changes carried out.
- 11.5 **Criteria for extension of approval**
The criteria shall be as agreed between the testing agency and applicant.

12. CONFORMITY OF PRODUCTION

- 12.1. 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 8. above) shall be at least 80 per cent of the minimum values specified and not exceed 120 per cent of the maximum values allowed.
- 12.2 The conformity of production procedures shall comply with those set out in the AIS-037 with the following requirements:
 - 12.2.1 During the verification as per 12.2, if tests are required, the following tests shall be carried out:
 - 12.2.1.1 Intensity of light emitted (See 7).
 - 12.2.1.2 Colour of light emitted (See 9).
- 12.3 Devices with apparent defects are disregarded.
- 12.4 The reference mark is disregarded.
- 12.5 The normal frequency of these verifications shall be once every two years.

13. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

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

14. Reserved

15. Reserved

16. TRANSITIONAL PROVISIONS

- 16.1 At the request of the applicant, type approvals for compliance to AIS-012(Part 8) (Rev.1):2011, shall be granted by testing agencies from 22nd February 2011(date of adoption of this standard in CMVR-TSC). Such type approvals shall be deemed to be compliance to Annex G1, G2, G3 of AIS-012:2004.
- 16.2 At the request of applicant, type approval to the compliance to Annex G1, G2, G3 of AIS-012:2004 shall be granted up to the notified date of implementation of AIS-012(Part 8) (Rev.1):2011.
- 16.3 Type approvals issued for compliance to Annex G1,G2, G3 of AIS-012 : 2004 shall be extended to approval of AIS-012 (Part 8) (Rev.1):2011subject to satisfactory compliance of the following:
- 16.3.1 Marking as per 4.0 and sub-clauses for 5.0 applicable for marking.
- 16.3.2 In case of “E”/“e” approved devices, requirements specified in 17.
- 16.3.3 In the case of Parking lamp the photometric requirements shall be in those prescribed in clause 7 of this standard.
- Note:** Additional verification for the above need not be carried out, if compliance to the above requirements has already been established during the type approval as per Annex G1, G2, G3 of AIS-012:2004.
- 16.4 Extension of Approvals for engineering and administrative changes:
- 16.4.1 In the case of 16.1 extensions shall be granted subject to the conditions of AIS-012(Part 8)(Rev.1):2011. Such extensions shall be deemed to be compliance to AIS-012:2004.
- 16.4.2 In the case of 16.2, extensions shall be granted subject to conditions of AIS-012:2004 till the notified date of implementation of AIS-012(Part 8) (Rev.1):2011.
- 16.5 Type approvals for compliance to AIS-037, already been granted, shall continue to be valid for AIS-012(Part 8) (Rev.1):2011.

Note : Necessary corrections to the reference of verification reports as per this standard shall be incorporated while issuing the next COP certificate. In the meantime for issuing of vehicle certificate, test/verification report as per this standard shall deemed to be the proof of compliance of AIS-037.

17.0 ESTABLISHING COMPLIANCE OF “E”/“e” APPROVED LIGHTING AND LIGHT SIGNALLING DEVICES TO THIS STANDARD

17.1 As an exception to 7.4 of AIS-037 (or related administrative decisions) for certifying compliance of “E”/“e” approved front position lamps, rear position lamps, stop lamps, direction indicators rear-registration-plate illuminating devices and Reversing Lamp to this standard, the following test shall be carried out by testing agency

17.1.1 Photometric requirements measured with a standard filament lamp as referred to in 8 above shall be at least 80 per cent of the minimum values specified and shall not exceed 120 per cent of the maximum values specified in 7.0.

17.1.2 Colourimetric requirements shall be specified in 9.0 within the limits specified.

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

18.1 Supplements

Note : 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.

18.2 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.

ANNEX A
(Reserved)

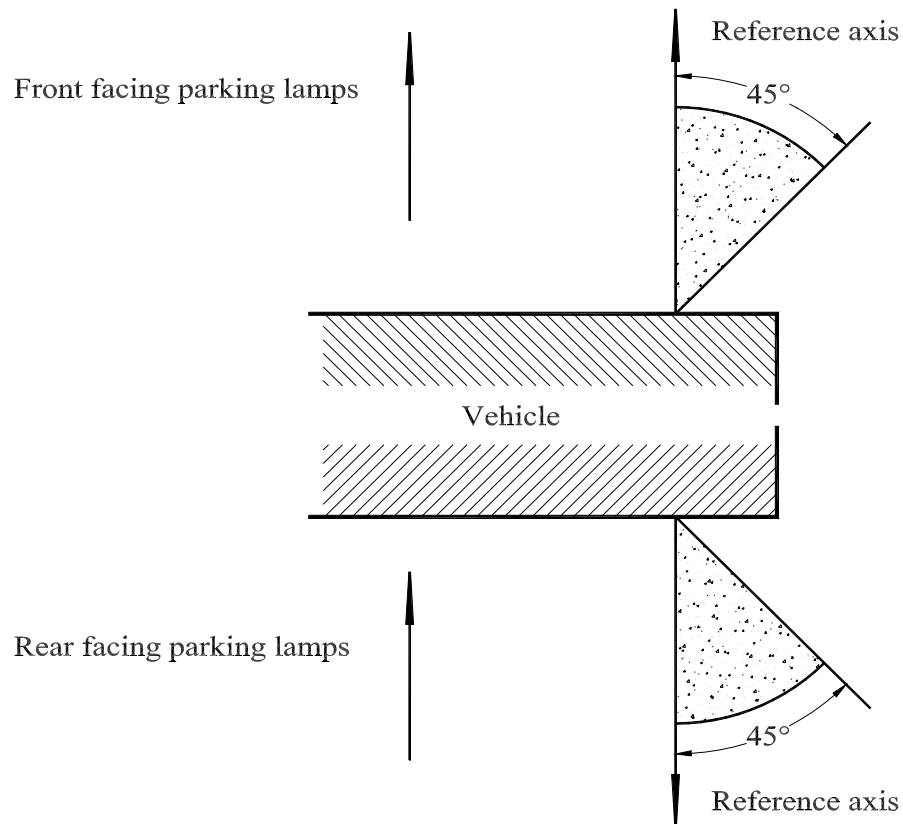
ANNEX B
(Reserved)

ANNEX C

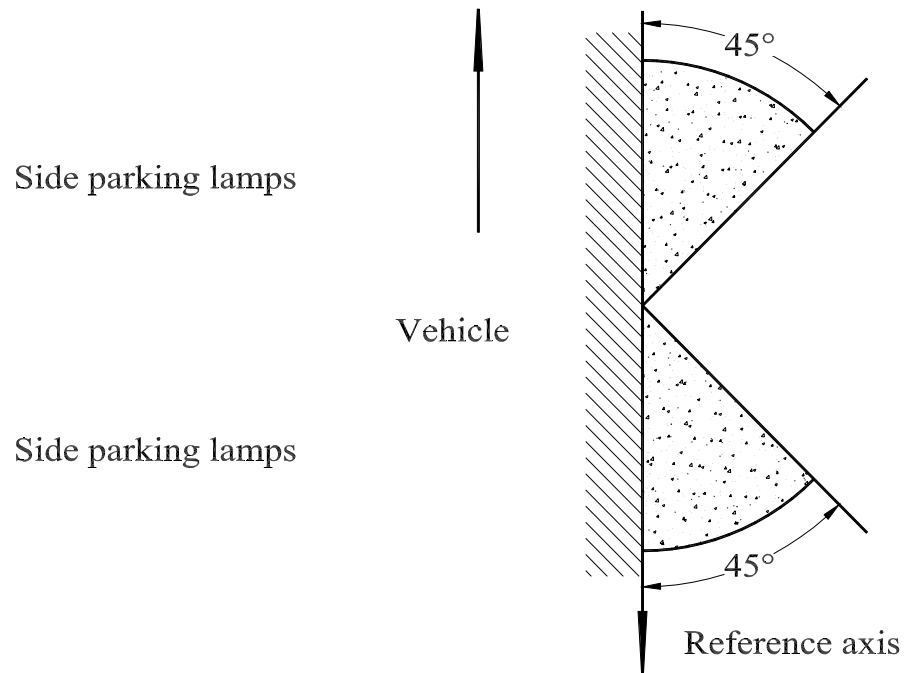
(See 7.2)

**MINIMUM ANGLES REQUIRED FOR THE
LIGHT DISTRIBUTION IN SPACE ^{*/}**

In all cases, the minimum vertical angles of light distribution in space are 15° above and 15° below the horizontal except for lamps with a mounting height of equal to or less than 750 mm above the ground, for which they are 15° above and 5° below the horizontal.



^{*/} The angles shown in these diagrams are correct for devices to be mounted on the right side of the vehicle. The arrows point to the front of the vehicles.



ANNEX D

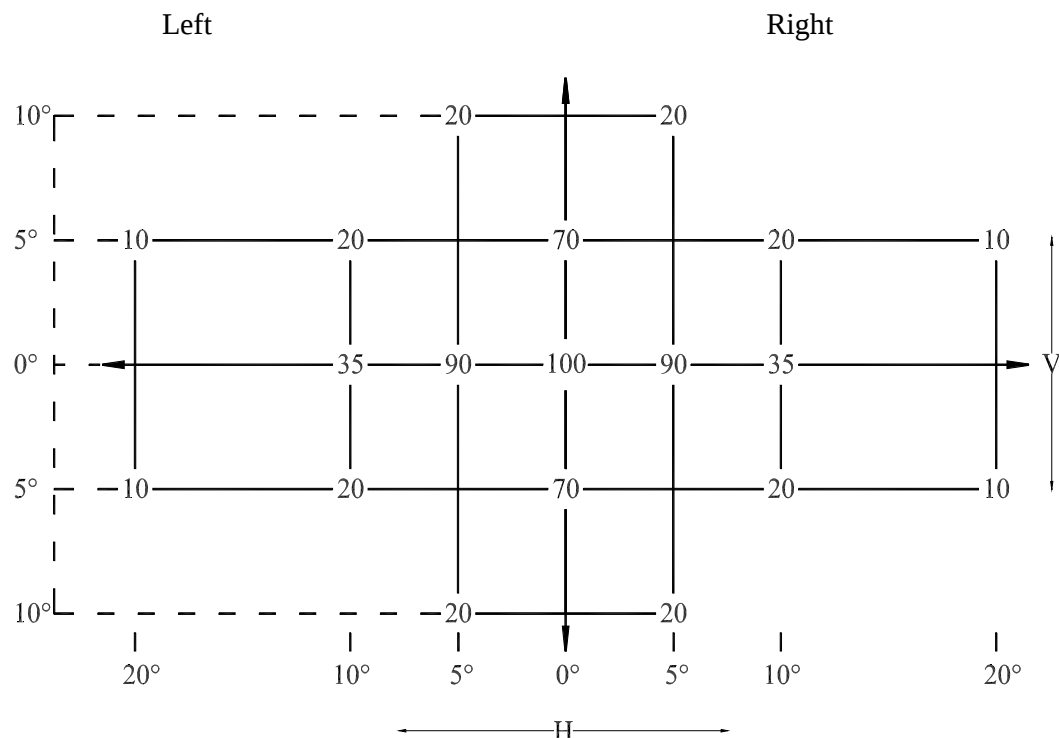
(See 7.2.1)

PHOTOMETRIC MEASUREMENTS

D1.0 MEASUREMENT METHODS

- D1.1. During photometric measurements, stray reflections shall be prevented by appropriate masking.
- D1.2. Should the results of measurements be challenged, measurements shall be carried out in such a way as to meet the following requirements:
- D1.2.1. the distance of measurements shall be such that the law of the inverse of the square of the distance is applicable;
- D1.2.2. the measuring equipment shall be such that the angular aperture of the receiver viewed from the reference centre of the light is between 10' and 1°;
- D1.2.3. the intensity requirement for a particular direction of observation shall be deemed to be satisfied if that requirement is met in a direction deviating by not more than 15' from the direction of observation.
- D1.3. In the case where the device 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 of the field of the reference axis specified by the manufacturer.

D2.0 STANDARD LUMINOUS INTENSITY DISTRIBUTION TABLE



- D2.1 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 measurements, the minimum intensities as a percentage of the minimum required in the axis for each lamp (in the direction $H = 0^\circ$ and $V = 0^\circ$).
- D2.2. Within the field of light distribution of paragraph D2.0, schematically shown as a grid, the light pattern should be substantially uniform in so far as the light intensity in each direction of a part of the field formed by the grid lines meets at least the lowest minimum percentage value being shown (available) on the grid lines surrounding the questioned direction.
- D2.3. However in the case where a device is intended to be installed at a mounting height of equal to or less than 750 mm above the ground, the photometric intensity is verified only up to an angle of 5° downwards.

D3.0 PHOTOMETRIC MEASUREMENT OF LAMPS

The photometric performance shall be checked:

- D3.1. For non-replaceable light sources (filament lamps and other):

with the light sources present in the lamp, in accordance with paragraph 8.1. of this standard.
- D3.2. 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.
- D3.3. 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 E

(See 9.0)

COLOUR OF LIGHT EMITTED

The chromaticity co-ordinates of the colour emitted shall be in accordance with AIS-010(Part 5)(Rev. 1)

For checking the colorimetric characteristics, a source of light at a colour temperature of 2,854 K, corresponding to illuminant A of the International Commission on Illumination (CIE), shall be used.

However, for lamps equipped with non-replaceable light sources (filament lamps and other), the colorimetric characteristics should be verified with the light sources present in the lamp, in accordance with paragraph 8.1. of this standard.

ANNEX F

(See 12.0)

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

F1.0 GENERAL

F1.1. 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.

F1.2. 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:

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

F1.2.2. 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.

F1.3. 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.

**F2.0 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.

F2.1. Nature of tests

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

F2.2. Methods used in tests

F2.2.1. 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 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 F2.2.1. and F2.2.2. 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 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.

F2.4. Measured and recorded photometric characteristics

The sampled lamp shall be subjected to photometric measurements for the minimum values at the points listed in Annex D and the required chromaticity coordinates listed in Annex E, 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 12.1. 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 F 2.5)

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

G1.0 GENERAL

G1.1. 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.

G1.2. 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:

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

G1.2.2. 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.

G1.2.3. Lamps with apparent defects are disregarded.

G1.3. 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.

G2.0 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.

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 lamps shall not be contested if the deviation of the measured values of the lamps in the unfavourable directions are:

G2.1.1.1. 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	

G2.1.1.2.	sample B	
	B1: both lamps	0 per cent
G2.1.2.	or, if the conditions of paragraph G1.2.2. for sample A are fulfilled.	
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 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:	
G2.2.1.1.	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
G2.2.1.2.	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
G2.2.2.	or, if the conditions of paragraph G1.2.2. for sample A are not fulfilled.	
G2.3.	Nonconformity Established	
	Conformity shall be contested and paragraph 13. applied if, following the sampling procedure in Figure 1 of this annex, the deviations of the measured values of the lamps are:	
G2.3.1.	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

- G2.3.2. 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 |
- G2.3.3. or, if the conditions of paragraph G1.2.2. for samples A and B are not fulfilled.

G3.0 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.

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 lamps shall not be contested if the deviations of the measured values of the lamps are:

- G3.1.1.1. 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 | |

- G3.1.1.2. sample D
- | | |
|-----------------------|------------|
| D1: in the case of C2 | |
| both lamps | 0 per cent |

G3.1.2. or, if the conditions of paragraph G1.2.2. for sample C are fulfilled.

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 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:

G3.2.1.1. 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

G3.2.1.2. or, if the conditions of paragraph G1.2.2. for sample C are not fulfilled.

G3.3. **Nonconformity established**

Conformity shall be contested and paragraph 13. applied if, following the sampling procedure in Figure 1 of this annex, the deviations of the measured values of the lamps are:

G3.3.1. sample C

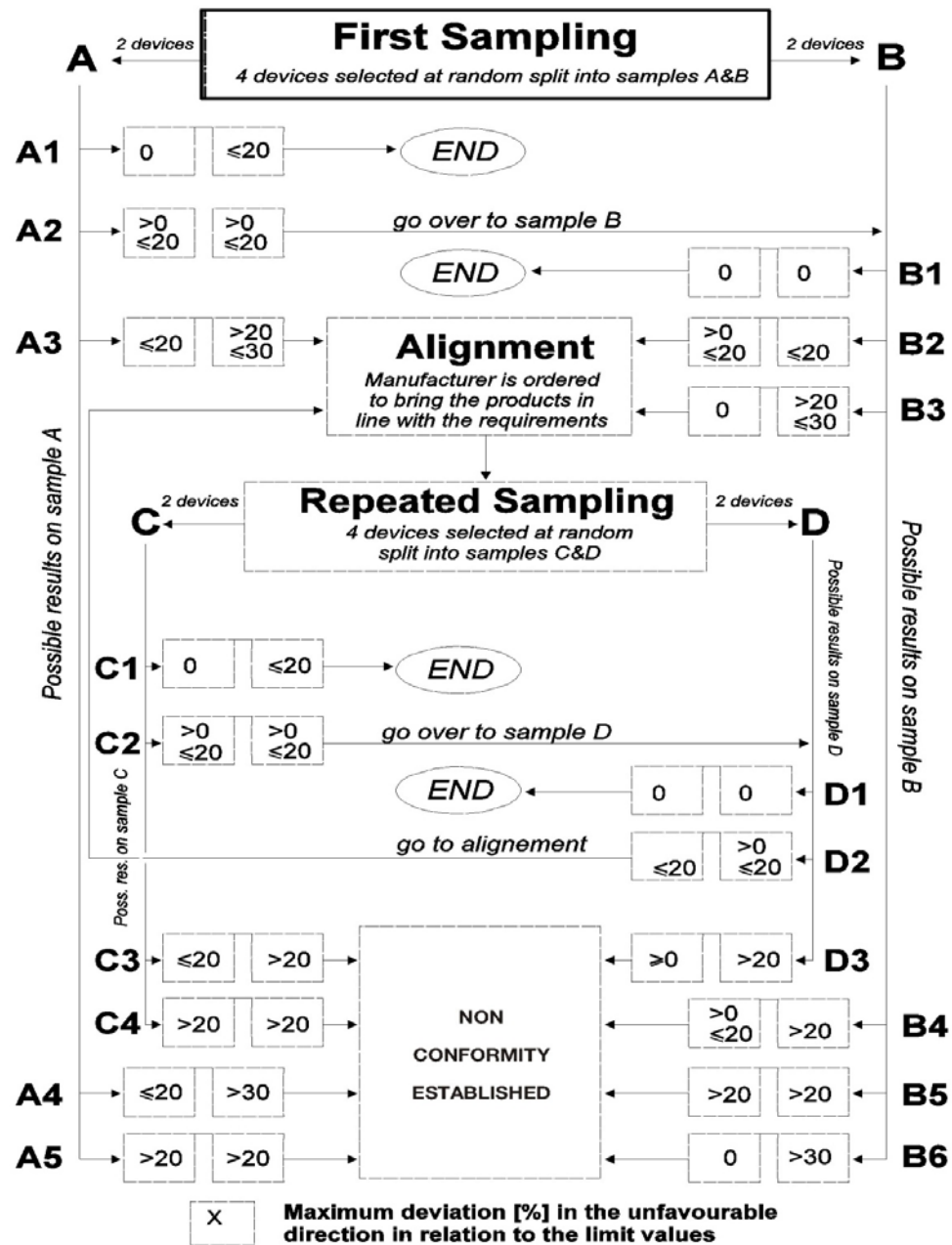
C3: one lamp not more than	20 per cent
one lamp more than	20 per cent

G3.3.2. C4: both lamps more than 20 per cent
sample D

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

G3.3.3. or, if the conditions of paragraph G1.2.2. for samples C and D are not fulfilled.

Figure 1



ANNEX H
(See introduction)

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

Convener	
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. 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
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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
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Shri C. P. Ramnarayanan	Vehicles Research & Development Establishment, Ahmednagar
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Mrs. Rashmi Urdhwareshe
Sr. Deputy Director
The Automotive Research Association of India, Pune

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