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BUREAU OF INDIAN STANDARDS

Approved Minutes

Name of the Committee	No. of Meeting	Date and Time	Day	VENUE
Automotive Electrical Equipment and Instruments Sectional Committee, TED 11	Thirty-second (32nd)	27.9.2024 10:30 AM onwards	Friday	COEP Technological University, Pune

CHAIRMAN: Shri G R M Rao **(**VRDE, DRDO)

HEAD (TED): Shri A P D Dwivedi **MEMBER SECRETARY:** August Dubey

0.1 Welcome Remarks by Head (TED)

Member Secretary welcomed the participants to the meeting.

0.2 Opening Remarks by the Chairman

In the absence of TED 11 Chair, Shri G R M Rao, the committee requested Dr. B.V. Shamsundara (from ARAI) to Chair the meeting. Dr. Shamsundara warmly welcomed all participants and expressed his gratitude to the committee for appointing him as the acting Chair. He noted that this was the first in-person TED 11 meeting after a long hiatus due to the COVID-19 pandemic. Dr. Shamsundara stressed the importance of active stakeholder engagement in National Standardization efforts and encouraged members to actively contribute to both national and international standardization initiatives. He also urged the committee to discuss the standards formulated by ISO, focusing on their need-based adaptations. Additionally, he called on the Panels to accelerate their work and complete tasks ahead of schedule, allowing the committee ample time for thorough discussions and timely finalization of documents.

0.3 The committee deliberated and decided to share the VC link with Shri Gururaj Ravi and Shri Sanjay Tank, allowing them to join the meeting and brief the relevant points of the agenda.

ITEM 1 CONFIRMATION OF THE MINUTES OF LAST MEETING

The minutes of the last meeting (31st meeting) of Sectional Committee TED 11, held on 3rd May 2024 in virtual mode, was circulated vide BIS Portal 30.05.2024. Members were requested to send their comments on recording of the proceeding. There being no technical comment on recording of the proceedings, committee confirmed the minutes of 31st meeting.

ITEM 2 COMPOSITION OF THE SECTIONAL COMMITTEE

2.1 The committee noted the information given in the agenda.

2.2 The committee noted the information given in the agenda.

2.3 The committee noted the information given in the agenda.

2.4 Co-Option in Ted 11 Committee

2.4.1 Committee deliberated and approved the nominations received and requested members for active participation in standardization. Committee requested BIS to follow up one more time with LUCAS, John Deere and Force motors.

2.4.2 Committee deliberated and decided as follows:

Sl. No.	Nomination	Organization	Decision
1)	Shri Aarul Jain	Synopsys India Pvt Ltd	Representative from each organization briefed their request. Committee deliberated and accepted the request
2)	Shri Shiva Kiran A R	Bosch Limited, Bengaluru	
3)	Shri Vijaykumar Vaghasiya	Qualcomm India Private Limited, Bengaluru	
4)	Shri Sujeet Gaikwad	Hella India Automotive Private Limited, Gurugram	

2.4.4 Shri Sanjay tank from ACMA briefed the representation and requested committee to re-deliberate on APTIV nomination. Committee deliberated and accepted the nomination of APTIV in TED 11 committee.

2.4.5 In continuation to above discussion, committee decided to include academia and more Govt organizations, which are working in the field of automotive electrical component field, in TED 11 committee. It requested members to suggest the name of such organization which can be co-opted in TED 11 committee.

2.4 Committee noted the information given in agenda.

2.6 Panel deliberated and updated the panel details as follows:

Panel No.	Composition	Remarks
Panel 1	**Panel convenor-** Shri Gururaj Ravi **Composition**-Experts from ARAI CIRT ICAT SIAM vehicle manufacturers in TED 11 committee ACMA	**Scope:** To deliberate on All Horn related standards and comments received thereon and provide its recommendation to the committee.
Panel 2	**Convenor-** From TML **Composition-**Experts from • Mahindra • MSIL • Ashok Leyland • UNO Minda	**Scope:** To deliberate on comments received on draft document TED/11/23215
Panel 3	**Convenor:** From Renault **Members:** Experts from • LEAR • MAHINDRA • MSIL	**Scope:** Formulation of Indian Standards on Cyber Security , based on AIS 189 and AIS 190
Panel 4	**Panel convenor:** **Members:** Experts from • HMSI • MSIL • UNO Minda • Hero Motocorp • Lear • BAL ***(Committee decided to deliberate on Panel 4 later)***	Panel 4- For ISO TC 22 SC 32 Panel 5- For ISO TC 22 SC 35 Reviewing the ISO standard and segregating them in following category: ISO Standards which can be directly adopted as Indian Standards without any change. ISO standards which can be modified technically as per our country's needs and then adopted as Indian Standards. ISO Standards which are not at all suitable for our country needs and may not be adopted at all.
Panel 5	**Convenor:** From Renault **Members:** Experts from • MSIL • HERO MOTOCORP • ARAI	
Panel 6	**Convenor**: Shri Tushar (Lear) **Member:**	**Scope:** ISO related work for Cybersecurity

	• Shri Arul Jain (Synopsis) • Shri Sujeet Gaikwad (Hella) • Shri Sumit (MSIL) ○ Ms Pushpanjali (M&M)	
Panel 7	**Convener:** Shri Tushar (Lear) **Member:** • Shri Arul Jain (Synopsis) • Shri Vijaykumar Vaghasiya (Qualcom) • Shri Sujeet Gaikwad (Hella) • Shri Chagari (APTIV)	**Scope:** ISO related work for Functional Safety
Panel 8	**Panel convenor**- Shri Gururaj Ravi ***Experts from*** • ARAI • CIRT • ICAT • SIAM • vehicle manufacturers in TED 11 committee • ACMA	**Scope:** To deliberate on All Windscreen, wiping and washing related standards and comments received thereon and provide its recommendation
Panel 9	**Convenor:** Shri Hemanth (ICAI) ***Experts from:*** • vehicle manufacturers in TED 11 committee • Malhotra Cables • ARAI • CIRT	**Scope:** To deliberate on subject Cable for Automotive and provide its recommendation
Panel 10	**Convenor:** From UNO Minda **Experts:** • From Jai Ushin • One expert from Switch Industry to be nominated by ACMA	**Scope:** To deliberate on review report of IS 13931 Part 1 and part 2 and provide its recommendation.

NOTE: Committee requested ACMA and SIAM to invite additional experts also in panel in which ACMA and SIAM are members, depending on the subjects under discussion. BIS will write a formal letter to ACMA and SIAM

to seek nominations.

ITEM 3 ISSUES ARISING OUT OF ACTIONS OF THE PREVIOUS MEETINGS

Sr No	Subject	Decision taken in previous meeting	Present Status	Present Status
1.	Indian Standard based on AIS 198, AIS 199 and AIS 200 'Retro-reflective markings — Retro-reflective markings for vehicles, their trailers and semi-trailers — Specification' (Adoption of AIS 090:2019)	**32nd Meeting Status:** ARAI may please update. **32nd Meeting Decision:** Ms Jyoti from ARAI informed that AIS 198, AIS 199 and AIS 200 have been finalized by AISC and adopted by CMVR-TSC during its last meeting, however the minutes of CMVR-TSC meeting was awaited. Committee deliberated and decided to drop the documents for formulation of Indian Standards based on AIS 89, AIS 90 and AIS 91. Further, the committee deliberated and decided to formulate Indian Standards based on AIS 198, AIS 199, and AIS 200. It decided that once these standards are published, BIS may request the committee members to provide suitable drafts for formulating Indian standards based on above standard, or seek their assistance in preparing the drafts. Committee further decided that drafts prepared as above, would be issued into WC of 60 days.	Draft document, based on AIS 89, AIS 90 and AIS 91 have been dropped from the BIS Portal. AIS 198, AIS 199, and AIS 200 could not be found on ARAI webpage. Committee may please deliberate	Dr Shamsundara informed that AIS 198, AIS 199 and AIS 200 would be published shortly. Committee deliberated and requested ARAI to share the contact detail of experts (convenor who prepared draft for AIS 198, AIS 199 and AIS 200) with BIS. It advised BIS to request these experts to prepare the draft document for respective standards in BIS format and submit it to BIS for further deliberation by the committee. In case, they don't show interest in providing draft and national standardization, same would be put up to committee for noting, and BIS in consultation with Chair may request the other committee members for preparing the draft. BIS will advice further regarding the administration clauses.

2.	**TED 11 (15885) W** 'Head light switches for automobiles – Specification (First revision of IS4061)	**Status in 31st meeting:** Correction as per decision of the 30th meeting has been done in F-Draft and it has been processed for further action. **Committee may please note.** **Decision in 31st meeting:** Committee noted the information.	Document has been published as IS 4061: 2024. Committee may please note.	Committee noted the information.
3.	**TED 11 (20542)** Self-Cancelling Direction Indicator Switch for Automotive Vehicles – Specification (First Revision of IS 4815)	**Status in 31st meeting:** Comments received on TED 11 (20542)W are attached at **Annexure 2.** **Committee may please deliberate.** **Decision in 31st meeting:** Committee deferred the subject for further deliberation in next meeting	Comments received on TED 11 (20542)W are attached at **ANNEXURE 2.** Status is same as in 31st meeting. Committee may please deliberate.	Committee deliberated and did not agree with Lear comment on clause 4. It accepted the lear comment on clause 7.2 Further, it decided to process the draft document into Publication and authorized BIS to carry out editorial correction, if any.
4.	**TED 11 (20737)** Push Button Type Switch for Automotive vehicles – Specification (First Revision of IS 9521)	**Status in 31st meeting:** Comments received on draft document are: **MSIL:** Not CMVR item, ACMA to further comment. **LEAR:** No Comment/No exprtise However, it is observed that following standards referred in TED 11 (20737) have been withdrawn: IS 9000 (Part 2/ Sec 4) : 1977 IS 9000 (Part 3/ Sec 5) : 1977 IS 9000 (Part 12) : 1981 Committee may please deliberate.	Status is same as in 31st meeting. Committee may please deliberate.	Committee deliberated and decided to replace IS 9000 (Part 2/ Sec 4) : 1977 IS 9000 (Part 3/ Sec 5) : 1977 IS 9000 (Part 12) : 1981 by IS/IEC 60068-2-1 IS/IEC 60068-2-2 IS/IEC 60068-2-68 It decided to process the document for publication after incorporating the agreed comments, and

		Decision in 31st meeting: Committee deferred the subject for further deliberation in next meeting.		authorized BIS to carry out editorial correction, if any.
5.	**TED 11 (22534)** Recommendation for Polarity of Earth Connections and Marking of Electrical Equipment for Automobiles (First Revision of IS 7471)	**Status in 31st meeting:** On Draft document, following comment is received **MSIL** (date: 23.11.2023): Not CMVR item, ACMA to further comment Draft document is attached at **Annexure 3.** Committee may please deliberate. **Decision in 31st meeting:** Committee deferred the subject for further deliberation in next meeting	Draft document is attached at **ANNEXURE 3.** Committee may please deliberate.	Committee deliberated and decided to delete Para 3 (*all vehicle manufacturers……*) from foreword. It requested Shri Varun Sharma (Hero MotoCorp) to provide a brief of the subject to include in the foreword of the standard. It further decided to issue the updated draft into WC for 60 days.
6.	**<u>TED/11/23335</u>** Revision of IS 1884: 1993 AUTOMOTIVE VEHICLES - AUDIBLE WARNING DEVICES SPECIFICATION	**Status in 31st meeting:** ***For Revision of IS 1884: 1993*** Panel 1 meeting was held on **17/4/2024.** Minutes of the panel 1 meeting and ppt shared by MSIL during panel meeting are attached at **Annexure 4**. Comments received from members are attached at **Annexure 5.** Committee may please deliberate	Subject was discussed in Panel 1 meeting. Minutes of the Panel 1 is attached at **ANNEXURE 4** Committee may please deliberate	Panel convenor presented a presentation and briefed the panel recommendation. Presentation attached at Annexure 1. Committee deliberated and decided as follows: **IS 1884:** ***Addition of Class III horn:*** Committee deliberated and decided to not go beyond 125 db (as given
7.	**IS: 15796 2008** Automotive Vehicles -Horn installation requirements			

		For IS 15796: 2008 MSIL has reviewed the standard and with consent of Panel 1 members they briefed the review report to the Panel 1 members in its meeting held on 17.4.2024. For deliberation held on review document, please refer the minutes of panel 1 meeting attached at **Annexure 4.** Comments received from M/s BAL is attached at **Annexure 5.** Committee may please deliberate. **Decision in 31st meeting:** Shri Rajkumar Dwivedi from MSIL briefed the minutes of the panel 1 meeting. He further mentioned that based on input received, Panel convenor Shri Gururaj Ravi would convene the next panel meeting shortly. Committee modified the scope of Panel (pl refer item 2.6). Committee deliberated and requested panel to deliberate in detail, and provide its final recommendation before next committee meeting. It mentioned that for other components we are trying to align our standards with UNECE, in this case also we may think same, however panel to deliberate in detail taking account every aspect.		in CMVR). Further for type/class classification, it requested panel to deliberate and provide its recommendation. ***Addition of High voltage Horn in IS 1884.*** Shri Subrat from OLA presented a presentation (attached at Annexure 2). Committee deliberated on panel recommendation and ola input, and requested panel to deliberate and provide its recommendation. ***AIR HORN:*** *Committee deliberated and decided to keep IS 14813 and IS 1884 as two separate standards. Further committee added that revision of IS 14813 is currently not needed, if any comment is received for revision/amendment that can be taken in Panel 1.* **IS 15796: 2008** Committee deliberated and decided with panel recommendation of not aligning Indian standard with ECER. It was also agreed that there is no further discussion on the removal of present endurance and

				climatic tests as there is a need for the country's specific requirements. For IS 1884 and IS 15796 Committee requested panel to provide draft document also where consensus is built in the panel meeting, along with its recommendation, for deliberation in committee.
8.	**<u>TED/11/23075</u>** Revision of IS 9433: 1980 PIANO KEY TYPE SWITCHES FOR USE IN AUTOMOBILES SPECIFICATION	**Status in 31st meeting:** Comments received from Members before the 30th meeting are attached at **Annexure 6.** Clarification from UNO Minda received via mail dated 25.4.24 is also attached at **Annexure 6.** Committee may please deliberate. **Decision in 31st meeting:** Committee deferred the subject for deliberation in next meeting	Comments received from Members before the 30th meeting, and clarification from UNO Minda are attached at **ANNEXURE 5.** Status is same as in 31st meeting. Committee may please deliberate.	Committee deliberated and requested members to provide their input and to discuss in next meeting of TED 11.
9.	**<u>TED/11/23215</u>** Revision of IS 4050: 1976 HORN SWITCHES FOR AUTOMOBILES METHODS OF TESTS	**Status in 30th meeting:** P Draft was circulated on 25.07.2023 Last Date for Comment: **24.09.2023** Comments received from committee members are attached at **Annexure-5** Committee may please deliberate and decide to issue the draft into WC.	Minutes of Panel 2 meeting is attached at **ANNEXURE 6.** Status is same as in 31st meeting. Committee may please deliberate.	Shri Varun Sharma briefed the panel recommendation. Committee deliberated and 1. decided to update draft document in line with amendment 2 to IS 4050 (i.e. exclusion of 2&3 wheeled vehicles from scope) 2. modified panel 2

		Decision in 30th meeting: Mr. Varun from Heromotocorp briefed his comments. Committee deliberated and constituted a Panel (P2). Committee requested P2 to deliberate on comment received and submit its recommendation to the BIS by 15 January 2023. **Status in 31st meeting:** Panel 2 meeting was held on **21.2.24.** Minutes of Panel 2 meeting is attached at **Annexure 7.** Committee may please deliberate. **Decision in 31st meeting:** Committee deferred the subject for deliberation in next meeting		and requested panel to deliberate and provide its recommendation before next committee meeting.
10.	**TED 11 (15614)** **'**Rear marking plates — Rear marking plates for heavy and long vehicles' (Adoption of AIS 089:2019)	**Status in 31st meeting:** Please refer Sl No 1 of ITEM 3. **Decision in 31st meeting:** Please refer Sl No 1 of Item 3.	Draft document TED 11 (15614) has been dropped. For detail, please refer Sl No 1 of Item 3.	Committee noted the information.
11.	**TED 11 (16959) P** 'Road vehicles – Fuse links Part 3: Fuse-links with tabs blade type, Type C Medium Type E High	**Status in 31st meeting:** While preparing the draft document to process it to publication, following points are observed:	Draft document TED 11 (16959) F is attached at **ANNEXURE 7.** Status is same as in 31st meeting.	Committee deliberated and requested BIS to share ISO 8823-3 with TML for reference. Committee requested TML to review and check the correctness of draft

	Current Type F miniature type N and type P sub-miniature	1. In table 1- Type E is mentioned in Column 2 and Column 3 2. In Table 2- For operating time resting test, *IR or 1.10 IR a) 1.35 IR a) 1.60 IR 2.00 IR* are mentioned and in Table 4 test current mentioned are *IR or 1.10 IR a) 1.35 IR a) 1.60 IR 2.00 IR, 3.5 IR and 6 IR* However in ISO 8823-3, In Tables corresponding to Table 2 and Table 4, for operating time resting test and test current IR or 1.10 IR 1.35 IR 1.60 IR 2.00 IR, 3.50 IR, 6.00 IR are mentioned. Draft document TED 11 (16959)F is attached at Annexure 8. Committee may please deliberate. **Decision in 31st meeting:** Committee deferred the subject for deliberation in next meeting	Committee may please deliberate.	for Table 1, Table 2 and clause 6.1, and to submit the draft with correction, if any, to BIS. Further it decided to issue the draft document into WC of 30 days, once it is received from TML.
12.	**IS/ISO 6722-1 : 2011** Road vehicles -- 60 V and 600 V single-core cables -- Part 1: Dimensions test methods and requirements for	**Status in 31st meeting:** ISO 6722-1 : 2011 and ISO 6722-2: 2013 have been withdrawn. Committee may please deliberate. **Decision in 31st meeting:**	Status is same as in 31st meeting. Committee may please deliberate.	Shri Hemanth from ICAI presented the presentation. Presentation attached at Annexure 3. Committee deliberated and constituted a Panel 9. It requested Panel 9 to deliberate and provide its recommendation before

	copper conductor cables **IS/ISO 6722-2 : 2013** Road vehicles - 60 V and 600 V single - Core cables: Part 2 dimensions, test methods and requirements for aluminium conductor cables (First Revision)	Committee deliberated and deferred the subject for deliberation in next meeting		the next committee meeting.
13.	**IS 13931 (Part 1): 1993** Automotive vehicles - Stoplight switches: Part 1specification **IS 13931 (Part 2): 1993** Automotive vehicles - stoplight switches: Part 2 Methods of Test	In 30th meeting, IS 13931 Part 1 and Part 2 were allocated to ACMA for review. **Status in 31st meeting:** Review report was received from ACMA vide mail dated 20.2.2024. Review reports have been circulated through BIS portal and they can be accessed by clicking on followings: Review report IS 13931 Part 1 Review report IS 13931 Part 2 Committee may please deliberate. **Decision in 31st meeting:** Committee deferred the subject for deliberation in next meeting	No comments are received on review documents. Committee may please deliberate.	Shri Sanjay Tank from ACMA briefed the comment, committee deliberated and decided to reaffim IS 13931 part 1 and Part 2. It further constituted Panel 10 and decided that based on recommendation received from Panel 10, these stadnards may be taken up for amendment/revision. It requested Panel 10 to deliberate and provide its recommendation before the next committee meeting.

14.	**IS 8339: 1993** Automotive vehicles - Reflex reflectors - Specification	**Status in 31st meeting:** Review report was received from ACMA vide mail dated 19.2.2024. Review report has been circulated through BIS portal and it can be accessed by clicking on followings: <u>Review report of IS 8339: 1993</u> **<u>Comment from ARAI</u>** <u>vide mail dated 23.4.24**:**</u> this standard is older version and currently not using in automotive application since 2010. At this juncture applicable standard is AIS:57 Rev1 and soon it will be replaced by AIS:200. Considering the fact, you may withdraw this standard. Committee may please deliberate. **Decision in 31st meeting:** BAL also expressed their agreement with ARAI and MSIL comment. Committee deferred the subject for deliberation in next meeting	Comments has been received from MSIL vide BIS Portal: *MSIL is aligned with TED 11 Recommendations as subject is adequately covered in AIS 200* Committee may please deliberate.	Committee deliberated and decided to reaffirm and archive IS 8339. Further it decided that IS 8339:1993 will be withdrawn once Indian Standard based on AIS 200 is published.

15.	**IS 4063 : 1982** Specification for fuse box for automobiles (First Revision)	**Status in 31st meeting:** Review was done by BIS officer Shri Niraj Kumar. Review report has been circulated and it can be accessed by clicking on the followings: Review report of IS 4063: 1982 Committee may please deliberate. **Decision in 31st meeting:** Committee deferred the subject for deliberation in next meeting	Following comments are received vide BIS Portal: **From Lear:** No expertise on the specified topic **From MSIL:** Component level standard. Need ACMA to comment Committee may please deliberate.	Committee deliberated and decided to reaffirm IS 4063. It further requested Shri Niraj kumar to participate in next meeting and brief the recommendation in detail.
16.	**IS 7998 : 1986** Specification for contact breakers for two wheelers, three wheelers and stationary spark ignition engines (First Revision)	**Status in 31st meeting:** Review was done by BIS officer Shri Nishant Parasar. Review report has been circulated and it can be accessed by clicking on the followings: Review report of IS 7998: 1986 Committee may please deliberate. **Decision in 31st meeting:** Committee deferred the subject for deliberation in next meeting	No comments are received on review document. Committee may please deliberate.	Committee deliberated and decided to reaffirm and archive IS 7998.
17.	**IS 7827 : Part 3 : Sec 2 : 1985** Specification for electrical wind	**Status in 31st meeting:** Review was done by BIS officer Shri Mitrasen Verma	Following comments are received vide BIS Portal:	Committee deliberated and decided to reaffirm IS 7827 Part 3 Sec 2. It further requested MSIL to review the input

	screen wiper: Part 3 wiper arms and blades section 2 wiper blades	Review report has been circulated and it can be accessed by clicking on the following: Review report of IS 7827 Part 3 Sec 2: 1985 Committee may please deliberate. **Decision in 31st meeting:** Committee deferred the subject for deliberation in next meeting	**From Lear:** No expertise on the specified topic **From MSIL:** Component level standard. Need ACMA to comment Committee may please deliberate.	submitted by Shri Mitrasen and submit their observation before next meeting.
18.	**IS 2081 : 1998** Automotive vehicles - Taper terminal cable connectors for batteries - Specification (Second Revision)	**Status in 31st meeting:** Review was done by BIS officer Shri Hariom Meena Review report has been circulated and it can be accessed by clicking on the followings: Review report of IS 2081: 1998 Committee may please deliberate. **Decision in 31st meeting:** Committee deferred the subject for deliberation in next meeting	Following comments are received vide BIS Portal: **From Lear:** Replace IS 2: 1960 ‘Rules for rounding off numerical values (revised)' with latest IS 2: 2022 ‘Rules for rounding off numerical values (Second Revision)’ **From MSIL:** Component level standard. Need ACMA to comment Committee may please deliberate.	Committee deliberated and decided to reaffirm IS 4063. It further requested Shri Hariom Meena to participate in next meeting and brief the recommendation in detail.
19.	**Standards on Cyber Security**	**Decision in 31st meeting:** On Lear proposal, Shri Kiran from Lear presented a presentation (attached). Shri Vijay mentioned that AIS 189 and AIS 190 have been approved by CMVR for notification and ISO 21434 is referred in it also.	National foreword for adoption of ISO 21434 has been issued into WC. **Doc No:** TED/11/26207 **WC Date:** 24.7.2024	Committee deliberated and finalized the document TED/11/26207 for publication. It added that subject cybersecurity should fall under scope of TED 11 and requested BIS to

		Shri Sumit from MSIL mentioned that subject AIS 189 and AIS 190 was discussed in last meeting of TED 28. Shri Vijay from Renault mentioned that since cybersecurity affects the electrical components directly, (electrical component under the Scope of TED 11) it should come under TED 11. It was decided that HTED will take-up the subject for deliberation with TEDC Chair. Committee deliberated and decided to formulate Indian Standards based on AIS 189 and AIS 190. Committee constituted a panel P-3 and requested it to provide the draft document based on AIS 189 and AIS 190. It authorized BIS to issue the draft documents into WC of 60 days once the drafts are received from Renault. Further it also decided to adopt ISO 21434 identically under single numbering system and requested BIS to issue the National Foreword into WC of 60 days.	**Comments Received :** I agree with the Draft (from- MSIL, LEAR, Ministry of MSME) Draft document based on AIS 189 and AIS 190 are received from Renault. Draft documents received from Renault have been shared with members vide mail dated 18.9.2024. Regarding the subject, pertaining to TED 11 and TED 28, it will be taken up in next meeting of TEDC. Committee may please deliberate.	resolve the discussion in TEDC. Further, it requested Panel 3 to deliberate on draft submitted by Renault and provide the updated draft. It added that once AIS 189 and AIS 190 are published, draft documents finalized by Panel would be shared into WC for 60 days.
20.	**IS 1606 : 1979** Specification for automobile lamps (Second Revision)	**Status in 26th meeting:** The work to review the Indian Standard was assigned to Shri Virendra Sachdev M/s Lumax and Shri P N Bhagwan M/s ISLE. Inputs received from Shri P N Bhagwan vide mail dated 12th August 2021. In the last meeting Shri PN Bhagwan explained that in his document, variety of bulbs which have either been deleted	Draft document was shared by Shri P N Bhagwan through mail. However, document has been sent back to SHRI P N Bhagwan for providing input on BIS query. Draft document sent back to Shri P N Bhagwan, was shared	Shri P. N. Bhagwan provided an update on the status of the draft document and stated that the finalization of the draft will take at least one month. He also mentioned that the 6 V category is not being used by the industries and therefore should not be included in the standard. After deliberation, the

		or are temporarily included in AIS 034 (Part 1), are not included. The committee after deliberations advised member secretary to explore if bulbs of 6 V can be included in the draft standard. Preliminary draft is under preparation. The Chairman requested Shri Bhagwan to prepare document based on AIS 034 (Part 2) and AIS 130 and forward them to member secretary. **Decision in 26th meeting:** The committee advised member secretary to prepare and circulate Preliminary draft at the earliest. Preliminary draft to be circulated among committee members for comments for 60 days as a priority III document. **Decision in 31st Meeting:** In 31st meeting, Shri P N Bhawgan mentioned that he had completed the review and shared the draft with BIS. Committee requested member secretary to check the minutes of previous meetings and take necessary action.	vide mail dated 18.9.2024. Updated draft document is awaited. Member may please provide the input regarding inclusion of 6V blubs. Committee may please deliberate.	committee decided not to include the 6 V category in the standard. Shri Bhagwan further noted that there are several bulbs currently used by the industry that are not covered in AIS and ECE but have been included in the draft document, most of which are covered under IS 1606. The committee discussed and decided that, similar to AIS 034 Part 1 and Part 2, IS 1606 will be published in two parts (IS 1606 Part 1 and Part 2). The committee requested Shri P. N. Bhagwan and Shri Varun Sharma (HMC) to provide an updated draft document based on the latest revision of AIS 034 Part 1. This group was also asked to add bulbs, that are not part of AIS 034 and ECE but are being used by automotive industry, into the draft and submit it to BIS for circulation among the members. Additionally, the committee requested members to provide their input regarding the inclusion of such bulbs in the standard. A final

				decision on this matter will be made during the next meeting, based on the feedback received. Subsequently the committee requested Shri Varun Sharma (HMC) to provide the draft document for the formulation of the Indian Standard (IS 1606 Part 2), based on AIS 034 Part 2. It was further decided that draft documents submitted by Shri Bhagwan and Shri Varun Sharma will be circulated among members for their input.

ITEM 4 RESEARCH PROJECTS TO BE TAKEN UP FOR INCLUSION OF EMPIRICALDATA AND INSIGHTS

Committee approved the ToR, finalized by internal screening committee. It further deliberated and nominated Shri Gururaj Ravi and Dr. B V Shamsundra as a member in Research Evaluation Committee for R&D project identified by TED 11.

ITEM 5 COMMENTS/CLARIFICATION ON INDIAN STANDARDS
5.1 MSIL Comment on IS 13427 (vide mail dated 14.5.2024)

Committee noted the information and agreed that IS 13427 was recommended for withdrawal by committee. Members mentioned that IS 13427 was not being used by industry, it requested MSIL that they can inform the committee that for what purpose they want to use IS 13247. It further decided that if no reply is received from MSIL within 30 days, subject will be dropped from the agenda of next meetings.

5.2 Comment on IS 16325 from Mahindra and Mahindra (*vide BIS Portal***)**

Ms Pushpanjali from M&M briefed the comment, committee deliberated and accepted the comment. It requested BIS to issue draft amendment document into WC for 30 days.

ITEM 6 REVIEW OF PUBLISHED STANDARDS

6.1 Committee noted the information given in the agenda.

6.2 Committee deliberated and decided as follows:

SI. No.	IS No.	Title	Remarks	Committee Decision Iin 30th meeting	Committee Decision
1.	IS 1884 : 1993	Automotive vehicles - Electric horns - Specification (Third Revision)	Based on UNECE Regulation	Allocated to ACMA	Already taken under Sl No 6 of ITEM 3.
2.	IS 2081: 1998	Automotive vehicles - Taper terminal cable connectors for batteries - Specification (Second Revision)	Assistance- JIS D 5403:1977 Cable terminals for automobiles	Allocated to ACMA	Decided to reaffirm and requested ACMA to submit input before next meeting, based on input it may be taken up for amendment/revision.
3	IS 8339: 1993	Automotive vehicles Reflex reflectors - Specification (First Revision)	Based on UNESC regulation 3.	Allocated to ACMA	Please refer Sl. 15 of ITEM 3
4	IS 11086: 2013	Speedometer/odometer systems for automotiveapplication - Specification (First Revision)	Based on DIN 75532-1:1976 Transmission of rotarymotion; Types of connection to gears, Intermediate gears, flexible drive shafts and equipment	Allocated to ACMA	Decided to reaffirm and requested **ACMA** to submit input before next meeting, based on input these may be taken up for amendment/revision. For IS 11086, committee requested Ms Pushpanjali to assist ACMA in reviewing the standard and providing the input.
5	IS 12508: 2013	ELECTRIC TACHOMETER FOR AUTOMOTIVE VEHICLES — SPECIFICATION		Allocated to ACMA	
6	IS 13602: 2013	Automotive vehicles Instrument systems - Temperature gauges mechanical types - Specification (First Revision)		Allocated to ACMA	
7	IS 13646: 2018	Automotive vehicles Instrument systems - Pressure gauges electrical / electronic type specification (First Revision)	SAE J 1810 : 2010 ‘Electrical indicating systemspecification’.	Allocated to ACMA	

8	IS 13654: 1993	Automotive vehicles- Instrument systems- Electrical speedometer performance requirements		Allocated to ACMA	
9	IS 13931 (Part 1) : 1993	Automotive vehicles - Stoplight switches: Part 1 specification		Allocated to ACMA	Please refer Sl. No 14 ITEM 3
10.	IS 13931 (Part 2): 1993	Automotive vehicles - stoplight switches: Part 2 methods of test		Allocated to ACMA	
11	IS 15364: 2003	Automotive vehicles - Spark - Plugs M10 x 1 withflat seating	ISO 2704 : 1998 'Road vehicles M10 × 1 spark-plugswith flat seating and their cylinder head housing* ISO 14508 : 1997 'Road vehicles — Spark-plug — Terminals'	Allocated to SIAM	Decided to reaffirm and requested Shri Shiva Kiran (Bosch) to submit input before next meeting, based on input it may be taken up for amendment/revision.
12	IS 15796: 2008	Automotive vehicles - Horn installationrequirements	Based on AIS 014 - 2001 Automotive vehicles - Horninstallation requirement	Allocated to SIAM	please refer Sl No 7 of ITEM 3
12	IS 2077 : 2014	Automotive vehicles - Electric relays - Specification (Third Revision)			Decided to reaffirm.
13	IS 15802 : 2008	Automotive vehicles - Windscreen wiping system for 4 wheelers other than ml category of vehicles - Requirements		Allocated to SIAM	Committee deliberated on review report submitted by MSIL. Shri Sumit from MSIL presented a presentation, attached at Annexure- 1 Committee deliberated and decided as follows: • It constituted Panel 8. Panel 8 to deliberate and provide its recommendation. • BIS to procure SAEJ903, SAEJ941 and SAEJ942, which to be shared with MSIL for further study and based on finding panel 8 will deliberate and provide its recommendation. • Reaffirm these standards and based on further discussion these may be taken up for
14	IS 15804 : 2008	Automotive vehicles - Windscreen wiping and washing system for ml category of vehicles - Requirements		Allocated to SIAM	
15	IS 7827 (Part 3/Sec 1) : 1993	Automotive vehicles electrical wind screen wipers: Part 3 wiper arms and blades section 1 wiper arms - Specification		Allocated to SIAM	

					amendment/revision.
16	IS 1062 : 2014 ISO 11565:2006	Road vehicles - Spark - Plugs - Test methods and requirements (Third Revision)		Committee allocated the review of these standards to ACMA	Decided to reaffirm and requested ACMA to submit input before next meeting, based on input these may be taken up for amendment/revision.
17	IS 12588 : 2014	Automotive vehicles - Oil and air assisted pressure gauges - Specification (First Revision)			
18	IS 13599 : 2014	Automotive vehicles - Instrument systems - Temperature gauges - Electrical and Electronic type - Specification (First Revision)			
19	IS 14141 : 1994	Automotive vehicles - Electrical windshield washing systems - Performance requirements			
20	IS 4060 : 1994	Automotive vehicles - Flashers for direction indicators - Specification (Second Revision)			
21	IS 5577 : 2015	Automotive vehicles - Ammeters - Specification (Third Revision)			
22	IS 17436 : 2020	Automotive Vehicles - Advance-Warning Triangle - Specification			

6.3 Committee noted the information and requested members to suggest the standards, which can be archived.

ITEM 7 NEW WORK ITEM PROPOSAL

7.1 Committee noted the information.

7.2 Committee deliberated and requested Shri Shiva Kiran (Bosch) to review various parts of ISO 16750 and provide input, that whether these ISO standards can be adopted identically or modification would be required, considering Indian requirement.

7.3 Committee deliberated and decided as follows:

Sl No	Subject	Proposer	About Subject	Remarks
1	Backup Alarm	Roots Industries India Private Limited, Coimbatore	Detailed proposal was shared with members vide BIS portal dated 19.11.2023.	Shri Sumit briefed MSIL input. Shri Selvaraj added that proposed subject is for pedestrian which is not covered in existing Indian standard. Committee deliberated and requested Shri Selvaraj to prepare a report/presentation based on national and international references, for component and vehicle level requirements and its implementation level in various countries. Based on input received, the committee will deliberate and decide on the subject.
2	DC to DC Voltage converters		DC to DC Voltage converters are widely being used in EV. BIS standard can be developed to frame the product requirements	Committee noted the information.
3	Mobile phone Chargers / USB Charger		USB Chargers are widely used in Automotive & other applications BIS standard can be developed to frame the product requirements	Committee deliberated and requested Shri Selvaraj to check the existing Indian Standards, (list of such Indian standard has been shared by BIS with Sh Selvaraj) and provide input that whether the subject is covered under any other existing standard or not. Based on input received, the committee will deliberate and decide on the subject.

7.4 In continuation to above subjects, committee added that as TED 11 has liaison with ISO TC 22 SC 32 which deals with EMC subject, TED 11 should formulate Indian Standard for EMC test for automotive vehicle. Members added that AIS 004 Part 3 is under revision, formulation of Indian standards, based on AIS 004 Part 3 may be taken once the revision is complete and revised version of AIS 004 Part 3 is published. Committee deliberated and decided to formulate Indian Standards based on AIS 004 Part 3, once revision of AIS 004 part 3 is complete. Further it requested BAL to review ISO 7637 part 1 and Part 2, which are referred in AIS 004 Part 3, and to provide input that whether these ISO standards can be adopted directly by TED 11 committee.

ITEM 8 INTERNATIONAL ACTIVITIES

8.1 Committee noted the information given in the agenda.

8.2 Committee deliberated on ISO working group and decided to nominate following experts **also** in ISO WGs

ISO/TC 22/SC 32/WG 8	Functional safety	Shri Arul Jain (Synopsis) Shri VijaykumarVaghasiya (Qualcom) Shri Sujeet Gaikwad (Hella) Shri Chagari (APTIV)
ISO/TC 22/SC 32/WG 11	Cybersecurity	Shri Arul Jain (Synopsis) Shri Sujeet Gaikwad Shri Sumit (MSIL) Ms Pushpanjali (M&M)
ISO/TC 22/SC 32/WG 2	Environmental conditions	Shri Shiva Kiran (Bosch)

Further, committee requested SIAM and ACMA to nominate experts from their associations for relevant working groups of ISO.

8.3 ISO Ballots

Committee deliberated and mentioned that Lear may propose the required changes during DIS stage in advance, which can be submitted to ISO with the approval of committee/Chair.

8.4 ISO Standards

8.4.1 Committee noted the information.

8.4.2 Shri Jebin from Renault briefed the panel recommendation. Committee deliberated and appreciated the work done by Panel 5. It agreed with the panel view that initial 11 standards (as mentioned in Annexure 19 of agenda) under ISO TC 22 SC 35, pertain to TED 11 and remaining pertains to TED 6. It suggested that this information may be forwarded to TED 6 also. It further requested Panel 5 to deliberate on standards pertaining to TED 11 and submit the recommendation before next committee meeting.

8.5 Participation in WG

Shri Tushar from Lear mentioned that after 31st meeting of TED 11, no meeting has happened for ISO TC 22 SC 32 WG8 and 11. Committee noted it.

Regarding ISO/TC 22/SC 32/WG 4, the committee discussed that, as in the 31st meeting, no updates were provided on the subject, despite it being part of the agenda. It also mentioned that Shri Rajiv Malhotra, who has been nominated by the TED 11 committee, has not provided any information regarding ISO/TC 22/SC 32/WG 4 to the committee. The committee requested Shri Rajiv Malhotra to submit a detailed report within 30 days, including whether he has been attending ISO/TC 22/SC 32/WG 4 meetings, updates on current developments in the group, and how he has been contributing to the working group. The committee further stated that if no input is received, his nomination for ISO/TC 22/SC 32/WG 4 may be considered for withdrawal.

8.6 IR PORTAL- Committee deliberated and deferred the subject for next meeting.

8.7 Committee noted the information given in agenda.

ITEM 9 PROGRAM OF WORK

Committee noted the information given in agenda.

ITEM 10 ROAD MAP OF STANDARDIZATION WORK OF TED 11

Committee noted the information given in agenda and requested members to suggest the subjects, which can be taken up for standardization by TED 11 committee.

ITEM 11 STANDARDS NOTIFIED UNDER CMVR

Committee noted the information and requested members to suggest the no of standard, if any missing in the list.

ITEM 12 ANALYTICAL REPORTS/ADVANCED DASHBOARD

Committee noted the information given in agenda.

ITEM 13 DATE FOR THE NEXT MEETING

Committee deliberated and decided to hold the next meeting in virtual mode on 19 January 2025

ITEM 14 ANY OTHER BUSINESS

There being no other business, meeting ended with vote of thanks to the chair and participants

ANNEXURE 1

Presentation by MSIL

Horn | Audible Warning Devices

IS-1884 [Horn Component Level] & IS-15796 [Horn Installation]

TED11 Sectional Meeting Dated- 27th Sept 2024

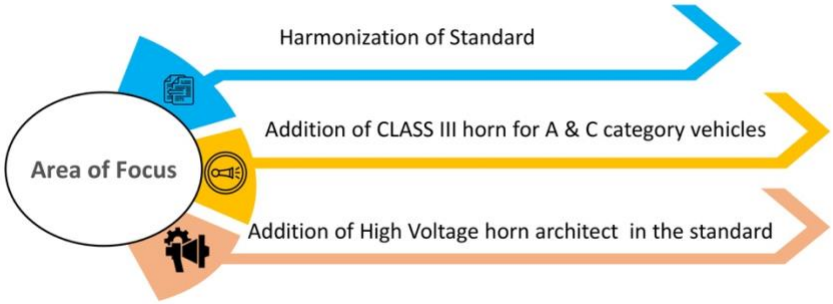
Panel Convenor – Mr. Gururaj Ravi, Vice President(Regulatory Affairs & policy)|Maruti Suzuki India Ltd.

27th Sept 2024

1st Panel Meeting held on 17th April 2024:

- MSIL briefed the background on IS-1884 and IS-15796 regulation progression along with the progression of the ECE R28 and the possible change points to be considered for the revision.
  - IS-1884- AUTOMOTIVE VEHICLES — ELECTRIC HORNS — SPECIFICATION
  - IS-15796-AUTOMOTIVE VEHICLES —HORN INSTALLATION REQUIREMENTS

2nd Panel Meeting held on 22nd August 2024:



Completed Action Items

Harmonization of Standards

Item	Decision	Remarks
Scope	Yes	→Harmonizing the scope with ECE R028 at the administrative level excluding AIR horns. →Terminology will remain 'Horn' instead of 'AWD' to avoid the inconvenience of updating other standards and the CMVR
Definitions	Yes	→Definitions (excluding AIR horn) would be harmonized
Classifications	Yes	→Horn classification would be harmonized (Class I & Class II),
Tests & Testing requirements	No	→Depending on the Indian use cases, Horn being a safety critical component and considering the panel members views the horn tests and all it's testing requirements would be retained as per existing IS-1884.

Ongoing Action Item

Addition of High Voltage horn architect in the standard

Item	Decision	Remarks
Addition of High voltage Horn	Open	→M/s OLA suggested to the addition of 48V horn & similarly M/s ROOTS suggested addition of other high voltage horns (36V, 48V, 72V, 80V) →After the detailed deliberation panel members are further requested to share any relevant data and test reports for further study on this →After thoroughly reviewing all reports and relevant data from test agencies, the necessary approach may be decided in subsequent meetings.

Direction required from TED 11 Committee

Addition of CLASS III horn for A & C category vehicle

Item	Decision	Remarks
CLASS III Horn	Open	→Further discussion on this topic is needed and will be addressed in the subsequent meeting.

CLASSIFICATION

IS-1884	Criteria
Type 1	a.c. horns of high frequency type primarily intended for mopeds, scooters and motorcycles employing magneto system
Type 2A	d.c. horns of high frequency type intended for two wheelers, three wheelers and quadricycles using storage battery
Type 2B	d.c. horns of high frequency type intended for passenger cars, quadricycles and commercial vehicles employing dc system
Type 3	d.c. horns of wind tone type intended for passenger cars, quadricycles and commercial vehicles

8.6.7.1 The measured sound pressure level of the horn shall be within the following limiting values:

a) 85 to 105 dB for Type 1 horns,
b) 90 to 115 dB for Type 2A horns,
c) 100 to 125 dB for Type 2B horns, and
d) 105 to 125 dB for Type 3 horns.

≠

UNR-028	Criteria
Class I	For vehicles of categories L3 to L5 of a power less than or equal to 7 KW
Class II	For vehicles of categories M, N and L3 to L5 of a power greater than 7 KW

6.3.7. Under the conditions set forth above, the sound-pressure level weighted in accordance with curve A shall not exceed the following values:

(a) 115 dB(A) for audible warning device, audible warning system, multiple audible warning system intended principally for vehicles of categories L_3 to L_5 with a power less than or equal to 7 kW;

(b) 118 dB(A) for audible warning device, audible warning system, multiple audible warning system intended principally for vehicles of categories M, N and L_3 to L_5 with a power greater than 7 kW.

- Proposed Class III horn is covered current IS 1884, However it gets omitted as we align with UN R28.
- It is notable that IN CMVR there is No mandatory requirement for Horn for A and C category.

Direction required from TED 11 Committee

AIR Horns (IS-14813)

1. According to CMVR regulations, the use of air horns is prohibited in India for passenger automotive vehicles. Additionally, a distinct standard, IS-14813, is exist for air horns.
2. It is advisable not to incorporate air horn requirements into IS-1884 and IS-15796. However, IS-14813 may be considered for revision in the panel if deemed necessary.

Windscreen wiper and Washer System

IS-15804 [AUTOMOTIVE VEHICLES - WINDSCREEN WIPING AND WASHING SYSTEM FOR M1 CATEGORY OF VEHICLES - REQUIREMENTS]

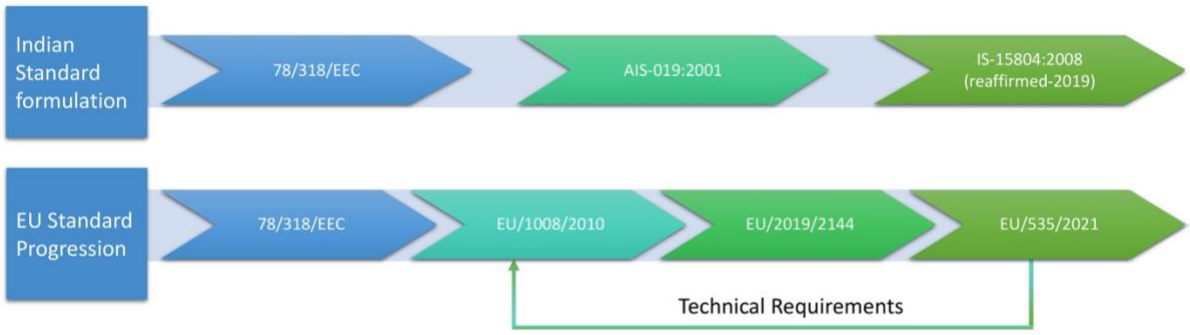
IS-15802 [AUTOMOTIVE VEHICLES - WINDSCREEN WIPING SYSTEM FOR 4-WHEELERS OTHER THAN M1 CATEGORY OF VEHICLES – REQUIREMENTS]

IS-7827 Part 3/Sec-01 **[Automotive Vehicles-Electrical windscreen wipers]**

PART 3: WIPER ARMS AND BLADES | Section-1: Wiper Arms specifications

IS-15804

[AUTOMOTIVE VEHICLES - WINDSCREEN WIPING AND WASHING SYSTEM FOR M1 CATEGORY OF VEHICLES REQUIREMENTS]

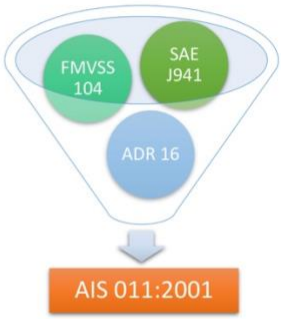


- As IS-15804:2008 was formulated from 78/318/2010, it would be advisable to revise the standard and harmonize with the EU/1008/2010
- However, considering Indian climatic conditions, Environmental requirements for the wiper and washer testing to be retained as per the existing Indian standard.
- IS-15804:2008 is already notified in CMVR, Therefore BIS shall ensure concurrent running of both the versions of IS-15804 till the time revised standards is enforced via CMVR change.

IS-15802

[AUTOMOTIVE VEHICLES - WINDSCREEN WIPING SYSTEM FOR 4 WHEELERS OTHER THAN M1 CATEGORY OF VEHICLES – REQUIREMENTS]

- For the formulation of IS-15802 considerable assistance has been drawn from the AIS-011/2001 'Automotive vehicles - Testing procedure for windscreen wiping system for 4-wheeler and other than M1 category of vehicles



International standard Progression	
Standard	Progression
FMVSS 104	Updated over time considering SAE J903, SAE J942 (Note accessible) etc.
ADR 16	Repealed in 2003
SAE J941	Not Accessible

- IS-15802 covers all the category of vehicles (except M1) and meanwhile SAE standards are not accessible.
- After detailed study, Technical requirements (wiping area, test procedures, etc.) of AIS-011:2001 found to be different from the requirements of FMVSS 104 and ADR 16
- We request for TED 11 committee for support in SAE standard access and go ahead to initial panel for deliberation on this standard.

IS-7827 Part 3/Sec-01 [Automotive Vehicles-Electrical windscreen wipers]

PART 3: WIPER ARMS AND BLADES | Section-1: Wiper Arms specifications

Standard Formulation

In the preparation of this Indian Standard considerable assistance has been derived from the following:

1. JIS D 5710 : 1982 'Wiper Blades and Wiper Arms for Automobiles', issued by Japanese Industrial Standards Committee (JISC).
2. ISO 9259 : 1991 'Road Vehicles - Wiper Systems for Passenger Cars -- Wiper arms-to-blade Connections', issued by International Organization for Standardization (ISO).
3. This standard was reaffirmed in 2019.

Proposal

As this standard is based on JIS D 5710 : 1982 and IS0 9259 : 1991 & there is NO further revision in these reference standards. Therefore, we recommend IS 7827 (Part3/Sec1) : 1993 standard to be reaffirmed.

ANNEXURE 2

Presentation by OLA

OLA ELECTRIC

SAFETY ,PERFORMANCE & FUNCTIONAL EVALUATION OF 48V HORN

[IS 1884:1993 & IS15796:2008]

Page 1 OF 6

OLA ELECTRIC

HORN STANDARD: TYPES, VOLTAGES AND APPLICATIONS

Horns
[Ref.Indian Standards]
- IS 1884:1993
- IS 15796:2008

Type of Horns defined
- Type 1
- Type 2A
- Type 2B
- Type 3

Rated Voltage allowed in the Indian standards.
- 6V
- 12V
- 24V

Type	*Application*	*Vehicles in illustration*
Type 1	a.c. horns of high frequency type primarily intended for mopeds, scooters and motorcycles employing magneto system	
Type 2A	**d.c. horns of high frequency type intended for two wheelers, three wheelers and quadricycles using storage battery.**	
Type 2B	d.c. horns of high frequency type intended for passenger cars, quadricycles and commercial vehicles employing dc system	
Type 3	d.c. horns of wind tone type intended for passenger cars, quadricycles and commercial vehicles	

48V Horn Test Results: IS 1884: 1993 & IS 15796

OLA ELECTRIC

S.No	Test Names	Tested at Supplier Location (9 Samples)		Tested at OLA Location (3 Samples)	Tested at NABL Lab (9 Samples)	
1	High voltage test	☑		-	☑	
2	Current drawn test	☑ Max. Current drawn 0.8 amp		☑ Max. Current drawn at 1.1amp	☑ Max. Current drawn at 0.5 amp	
3	Operating Voltage test	☑ 36V to 60V		☑ 36V to 58V	☑ 42V to 54V	
4	Insulation Resistance	☑		☑	☑	
5	Endurance Test	☑ 3,00,000 Cycles		☑ 3,00,000 Cycles	☑ 1,00,000 Cycles	
6	Vibration Test	-		-	☑	
7	Corrosion Resistance	☑	SPL drop range after the test 2 dB(A) to 4.5dB(A)	-	☑	SPL drop range after the test 0.2 dB(A) to 2.1dB(A)
8	Continuous Operation Test	☑		-	☑	
9	Dust Test, Damp Heat Test	☑		-	☑	
10	Water spray proof	☑		-	☑	
11	Thermal stability Test	☑		-	☑	

S.No	Test Voltage range	Requirements/Limit	Measured Sound level in dB(A)
1	42V to 58V	Power rating ≤ 7kW : 83dB(A) to 112dB(A) > 7kW : 87dB(A) to 112dB(A)	88.1 dB(A) to 94.2 dB(A)

- At component level meets functional, Performance & durability requirements
- At vehicle level meets SPL level at Operating voltage range.
- Max current drawn is in range of 0.5 amp to 1.1 amp

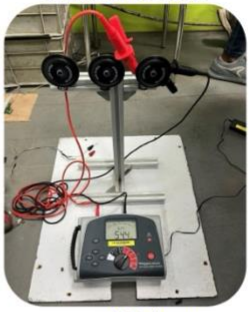
OLA ELECTRIC

Test Photos (1)

At performance

Average Current

At Insulation Resistance



At dB(A) Measurement

At Endurance

OLA ELECTRIC

Test Photos (2)

At dB(A) measurements

At Endurance

At Insulation resistance

ANNEXURE 3
Presentation by ICAI

Automotive cables

K N Hemanth Kumar

ISO6722-1 – withdrawn

~~ISO 6722-1:2011~~

Road vehicles

60 V and 600 V single-core cables

Part 1: Dimensions, test methods and requirements for copper conductor cables

Status : **Withdrawn**

ISO 6722-1:2011 specifies the dimensions, test methods, and requirements for single-core 60 V cables intended for use in road vehicle applications where the nominal system voltage is ≤ (60 V d.c. or 25 V a.c.). It also specifies additional test methods and/or requirements for 600 V cables intended for use in road vehicle applications where the nominal system voltage is greater than > (60 V d.c. or 25 V a.c.) to ≤ (600 V d.c. or 600 V a.c.). It also applies to individual cores in multi-core cables.

ISO 6722-1:2011 specifies requirements for copper conductor cables.

ISO 19642

ISO 19642-1:2023

Road vehicles

Automotive cables

Part 1: Vocabulary and design guidelines

Status : **Published**

This document defines terms in the field of cables applied in road vehicle general purpose applications, for use in the other parts of the ISO 19642 series.

ISO 19642-2

ISO 19642-2:2023

Road vehicles

Automotive cables

Part 2: Test methods

Status : **Published**

This document defines test methods for electrical cables in road vehicles, which are used in other parts of the ISO 19642 series.

ISO 19642-3

ISO 19642-3:2019

Road vehicles

Automotive cables

Part 3: Dimensions and requirements for 30 V a.c. or 60 V d.c. single core copper conductor cables

Status : **Published**

This document specifies the dimensions and requirements for single-core cables intended for general purpose vehicle applications where the nominal system voltage is less than or equal to 30 V a.c. or less than or equal to 60 V d.c.. It also applies to individual cores in multi-core cables.

ISO 19642-5

ISO 19642-5:2019

Road vehicles

Automotive cables

Part 5: Dimensions and requirements for 600 V a.c. or 900 V d.c. and 1 000 V a.c. or 1 500 V d.c. single core copper conductor cables

Status : **Published**

This document specifies the dimensions and requirements for single core cables intended for use in general purpose road vehicle applications where the nominal system voltage is 600 V a.c. or 900 V d.c. and 1 000 V a.c. or 1 500 V d.c.. It also applies to the individual conductor cores used in multi core cables.

ISO 19642-7:2019

ISO 19642-7:2019

Road vehicles

Automotive cables

Part 7: Dimensions and requirements for 30 V a.c. or 60 V d.c. round, sheathed, screened or unscreened multi or single core copper conductor cables

Status : **Published**

This document specifies the dimensions and requirements for multi or single core cables intended for use in road vehicle applications where the nominal system voltage is 30 V a.c. or 60 V d.c.. It also applies to individual cores in multi core and single core cables.

ISO 19642-9:2019

ISO 19642-9:2019

Road vehicles

Automotive cables

Part 9: Dimensions and requirements for 600 V a.c. or 900 V d.c. and 1 000 V a.c. or 1 500 V d.c. round, sheathed, screened or unscreened multi or single core copper conductor cables

Status : **Published**

This document specifies the dimensions and requirements for multi or single core cables intended for use in road vehicle applications where the nominal system voltage is 600 V a.c. or 900 V d.c. and 1 000 V a.c. or 1 500 V d.c.. It also applies to individual cores in multi and single core cables.

ISO 8092 (part -1, 2, 3,4,5) : Road vehicles — Connections for on-board electrical wiring harnesses

- Part-1 Part 1: Tabs for single-pole connections — Dimensions and specific requirements
- Part 2: Terminology, test methods and general performance requirements: This document provides terminology and specifies test methods for general performance requirements of voltage class A connectors used in electrical wiring harnesses on road vehicles. This document applies to connectors which, after mounting in the vehicle, are designed to only be disconnected in connection with repair and maintenance.
- ISO 8092-3:1996 Part 3: Tabs for multi-pole connections — Dimensions and specific requirements
- ISO 8092-4:1997 -Part 4: Pins for single- and multi-pole connections — Dimensions and specific requirements
- ISO 8092-5:2021:Part 5: Test methods and general performance requirements for wiring harness connector operation

ISO 8092

- Road vehicles — Connections for on-board electrical wiring harnesses
- This document provides terminology and specifies test methods for general performance requirements of voltage class A connectors used in electrical wiring harnesses on road vehicles.
- This document applies to connectors which, after mounting in the vehicle, are designed to only be disconnected in connection with repair and maintenance.
- This document does not apply to internal connections for electronic devices.
- This document does not apply to signal communication quality or data integrity , test methods and general performance requirements

Directions from TED-11

Working group to be formed to

- Review the ISO standards 19642 series
- To develop Indian standard inline with ISO
- To develop the connector standards

ANNEXURE 4

List of Participants

Sl. No.	MEMBER	ORGANIZATION
1)	Shri B V Shamsundra **(Chaired the meeting)**	Automotive Research Association of India, Pune
2)	Shri Sanjay Tank **[Virtually Present]**	Automotive Component Manufactures Association of India, New Delhi
3)	Shri Faustino V	Ashok Leyland Limited, Chennai
4)	Shri Abhay Kumar	Bajaj Auto Limited, Pune
5)	Shri Shiva Kiran **[invitee, Virtually Present]**	Bosch Limited
6)	Shri Nishant Parasar	Sc 'D', BIS
7)	Ms. Sheeba Rani Mamidi	Central Institute of Road Transport, Pune
8)	Shri Santosh Desai	Central Institute of Road Transport, Pune
9)	Ms. Ashwini Malajure	Central Institute of Road Transport, Pune
10)	Shri Sujeet Gaikwad **[invitee Virtually Present]**	HELLA India Pvt. Ltd.
11)	Shri Varun Sharma	Hero MotoCorp Limited, New Delhi
12)	Shri Arpan Shukla	Honda Motorcycle and Scooter India Private Limited, Gurgaon
13)	Shri P. N. Bhagwan	Indian Society of Lighting Engineers, New Delhi
14)	Shri Parag Shirole	Indian Society of Lighting Engineers, New Delhi
15)	Shri Parag Sangpal	Indian Society of Lighting Engineers, New Delhi
16)	Shri Silven Miranda	Indication Instruments Limited, Faridabad
17)	Shri Hemanth Kumar	International Copper Association India (ICA India)
18)	Shri Tushar Yadav	Lear India Engineering LLP, Pune
19)	Mr. Rohit Talekar	Lear India Engineering LLP, Pune
20)	Ms. Pushpanjali Pathak	Mahindra and Mahindra Limited, Mumbai
21)	Shri Rahul Singh	Malhotra Cables Private Limited, New Delhi
22)	Shri Narendra Chauhan	Malhotra Cables Private Limited, New Delhi
23)	Shri Gururaj Ravi **[Virtually Present]**	Maruti Suzuki India Limited, Gurugram
24)	Shri Sumit Kumar	Maruti Suzuki India Limited, Gurugram
25)	Shri Sonu samantaray	Maruti Suzuki India Limited, Gurugram
26)	Ms. Buvaneswari M	Maruti Suzuki India Limited, Gurugram
27)	Shri Subrat dash	Ola Electric Technologies Private Limited
28)	Shri Shivayogi B. A	Ola Electric Technologies Private Limited
29)	Shri Vijaykumar Vaghasiya **[invitee, Virtually Present]**	Qualcomm India Private Limited
30)	Shri Vivekraj S	Renault India Private Limited, Mumbai
31)	Shri Jebin Jowhar	Renault India Private Limited, Mumbai
32)	Shri Selvaraj R	Roots Industries India Limited, Coimbatore
33)	Shri Subodh	Roots Industries India Limited, Coimbatore

Sl. No.	MEMBER	ORGANIZATION
34)	Shri Raiwin Raj	Skoda Auto Volkswagen India Private Limited
35)	Shri Aarul Jain **[invitee Virtually Present]**	Synopsys India Pvt Ltd
36)	Shri P. Gowrishankar	Tata Motors Limited, Pune
37)	Shri Prasad Shitare	Tata Motors Limited, Pune
38)	Ms. Namrata Deb	Tata Motors Limited, Pune
39)	Shri Kiran TN	Toyota Kirloskar Motor Private Limited, Bidadi
40)	Shri Pradeep Shinde	Tractor and Mechanization Association, New Delhi
41)	Shri Philip Koshy	Tractor and Mechanization Association, New Delhi
42)	Shri T.S. Sikanth	Uno Minda