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**BUREAU OF INDIAN STANDARDS**

MINUTES

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name of the Committee** | **No. of Meeting** | **Day** | **Date** | **Time** | **Venue** |
| ETD 51-Electrotechnology in Mobility Sectional Committee | 25th | Friday | 23-08-2024 | 10:30 h | **Physical Meeting**  ICAT Centre 2, Gurgaon, Haryana |

**CHAIRMAN:** Shri Prashant Vijay **MEMBER SECRETARY:** Mr Nitish Kr Jain

**Members Present:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No.** | **Organization** | **Member Name** | **E Mail** |
|  | International Centre of Automotive Technology, Manesar | Shri Prashant Vijay (*Chairperson*) | prashant.vijay@icat.in |
|  | Bureau of Indian Standards, New Delhi | Shri Nitish Kumar Jain  (*Member Secretary*) | eetd@bis.gov.in |
|  | Ashok Leyland Limited, Chennai | Shri Karthick G | Karthick.G@ashokleyland.com |
|  | Ather Energy Private Limited, Bengaluru | Shri Akshay Mukesh | akshay.mukesh@atherenergy.com |
|  | Ather Energy Private Limited, Bengaluru | Shri Vignesh Reviraj | vignesh.reviraj@atherenergy.com |
|  | Bajaj Auto Limited, Pune | Shri Abhay Kumar | akumar15@bajajauto.co.in |
|  | Central Electricity Authority, New Delhi | Shri R K Tiwari | cedpm.cea@gov.in |
|  | CSIR - National Physical Laboratory, New Delhi | Dr. Arun Ram Prasath RT | arunramprasathrt@nplindia.org |
|  | CSIR - National Physical Laboratory, New Delhi | Shri Manish Kumar Tamrakar | tamrakarm@nplindia.org |
|  | Delta Electronics India Private Limited, Haryana | Shri Shashank Narayan | shashank.n@log9materials.com |
|  | Denso International India Private Limited, Gurugram | Shri Rohit Yadav | rohit.yadav.a6y@ap.denso.com |
|  | Department of Science and Technology, New Mehrauli Road, New Delhi | Shri Suresh Babu Muttana | sureshbabu.muttana@gov.in |
|  | Electrical Research and Development Association, Vadodara | Shri Ravi Singh | ravi.singh@erda.org |
|  | Exicom Tele-Systems Limited, Gurugram | Shri Ram Kumar Upadhyay | ram.upadhyay@exicom.in |
|  | Hero Motocorp Limited, New Delhi | Shri Varun Kumar Sharma | varun2.sharma@heromotocorp.com |
|  | Honda Cars India Research and Development Limited, Noida | Shri S. Muthu Kumar | muthu\_kumar@hondacarindia.com |
|  | Honda Motorcycle and Scooter India Private Limited, Gurgaon | Shri Vipin Sharma | vipin.sharma@honda.hmsi.in |
|  | Honda Motorcycle and Scooter India Private Limited, Gurgaon | Shri Arpan shukla | arpan.shukla@honda2wheelersindia.com |
|  | India Yamaha Motor Private Limited, Noida | Shri Navneet Kaushik | navneetk@yamaha-motor-india.com |
|  | India Yamaha Motor Private Limited, Noida | Shri Mohit Kansal | mkansal@yamaha-motor-india.com |
|  | Indian Institute of Technology Madras, Chennai | Ms. Anitha Dhianeshwar | anitha@tcoe.iitm.ac.in |
|  | International Centre for Automotive Technology, Manesar | Shri Deepak Joshi | srs@icat.in |
|  | International Centre for Automotive Technology, Manesar | Shri Udit Kaul | udit.kaul@icat.in |
|  | International Centre for Automotive Technology, Manesar | Ms Aditi Sethi | aditi.sethi@icat.in |
|  | International Centre for Automotive Technology, Manesar | Shri Sonu kumar Sudrania | sonu.sudrania @icat.in |
|  | International Copper Association India, Mumbai | Shri K N Hemanth Kumar | hemanth.kumar@internationalcopper.org |
|  | Maruti Suzuki India Limited, Gurugram | Shri Sumit Kumar | sumitkumar@maruti.co.in |
|  | Maruti Suzuki India Limited, Gurugram | Shri Shubhajit Kulavi | shubhajit.kulavi@maruti.co.in |
|  | Nissan Motor India Private Limited, Chennai | Ms Pragalpha J | pragalpha28@gmail.com |
|  | Phoenix Contact India Private Limited, New Delhi | Shri Rahul Lodhi | rlodhi@phoenixcontact.co.in |
|  | Reliance BP Mobility Limited, New Delhi | Shri Sushant Gangwar | sushant.gangwar@jiobp.com |
|  | Schneider Electric India Private Limited, Gurugram | Shri Kedar R. Purandare | kedar.purandare@lntebg.com |
|  | Siemens Limited, Mumbai | Shri Bidyut Mazumder | bidyut.mazumder@siemens.com |
|  | Society of Indian Automobile Manufacturers (SIAM), Delhi | Shri Akshat Verma | akshatverma@siam.in |
|  | TVS Motor Company Limited, Hosur | Shri Asish Kumar Das | asish.das@tvsmotor.com |
|  | Volvo Group India Private Limited, Bengaluru | Shri Animesh Upadhyay | animesh.upadhyay@volvo.com |
|  | Volvo Group India Private Limited, Bengaluru | Shri Rajesh D | rajesh.d@volvo.com |

**ITEM 0 GENERAL**

**0.1 Welcome by Member Secretary**

Mr. Nitish Kumar Jain, Member Secretary ETD 51 extended a warm welcome to the Chairperson and the members of Electrotechnology in Mobility Sectional Committee, ETD 51 to its 25th meeting and thanked them for sparing their valuable time for supporting BIS, the National Standards Body of India in its pursuit of standardization.

**0.2** **Opening Remarks by the Chairman**

Mr. Prashant Vijay extended a warm welcome to all the members of the Committee to its 25th meeting. In his first formal meeting as Chairperson, he briefly introduced himself by sharing his educational background and prior professional experiences, and highlighted his current role at ICAT. Mr. Vijay spoke about the crucial role of standards in supporting India's ongoing Electric Vehicle (EV) mission, noting that robust standardization is essential to sustain the mission’s momentum.

He highlighted the increasing focus on battery swapping and public charging infrastructure as emerging topics of national importance. Additionally, he underscored the significance of energy efficiency in chargers, an area currently being addressed by the Bureau of Energy Efficiency (BEE).

Mr. Vijay expressed high expectations from the Committee, recognizing that a major milestone had already been achieved with the publication of the IS 17017 series. He recommended initiating revisions to the series in alignment with IEC standards to ensure continued relevance. He also suggested implementing reforms to streamline the management of the Committee, aiming for greater efficiency and timely progress.

He informed, in today’s meeting, we would concentrate on the restructuring of the Committee’s composition and the establishment of working groups to drive forward key initiatives. He concluded by warmly welcoming all members to ICAT and encouraging them to engage in productive deliberations during the meeting.

**ITEM 1 CONFIRMATION OF THE MINUTES OF THE LAST MEETING**

As there were no further comments, the minutes of the last meeting (24th meeting) of Electrotechnology in Mobility Sectional Committee, ETD 51 virtually held on 07 November 2023, circulated vide BISDG letter No. ETD 51/A-2.24 dated 28 February 2024 has been formally confirmed.

**ITEM 2 COMPOSITION**

**2.1** The committee reviewed the information presented in the Agenda and resolved to discontinue the involvement of industry organizations that have not actively participated.

**2.2** The committee deliberated on restructuring its composition.

It was decided to organize the committee into sector-specific groups, categorized based on vehicle segments: 2W/3W, 4W, Buses/Trucks, and Common. Each group will have a designated convener, supported by interested members with expertise in the respective sectors. The detailed structure of the groups is as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Group** | **Stakeholders** | | | |
| **2W/3W** | **4W** | **Buses/Trucks** | **Common** |
| **EVSE & Installation** |  |  |  |  |
| **Plug and Sockets** |  |  |  |  |
| **Communication** |  |  |  |  |
| **Battery Swapping** |  |  |  |  |
| **Battery Swap Station** |  |  |  |  |
| **Pantograph Charging** |  |  |  |  |

Representatives from SIAM and Hero Moto Corp stated that it may be premature to introduce Battery Swapping Interoperability Standards at this stage, as the technology is still evolving. The Chairman recommended that the group, for the time being, focus on the safety and performance aspects of battery swapping systems. For interoperability, the working group can explore multiple interoperability provisions in case single is not possible.

Nominations for conveners and members were invited via Google form through email on August 29, 2024, and the final composition will be determined in consultation with the Chairperson.

**2.3** The committee has decided to place all co-option requests on hold, as the limit for industry representation in the committee has been exceeded. These requests may be reconsidered during the next meeting, contingent upon the potential contributions the applicants can bring.

**Item 3 OVERVIEW OF THE ACTIVITIES OF THE COMMITTEE**

**3.1** The committee noted the information given in the Agenda.

**3.2 NEW WORK ITEM PROPOSALS**

**3.2.1 Standard on pantograph charging of e-buses**

In the last meeting, the committee formed a panel with four sub-groups consisting of following members under it for working on the draft. These sub-groups will be looking into the Power, Infrastructure, Communication and Safety aspect of the Standard.

Panel Convener: Shri Vipin Khurana, Vice President, Volvo Eicher Commercial Vehicles Ltd.

Co-Convenor: Shri V. Manjunath, UL India

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Aspect**  **Sl No.** | **Power** | **Infrastructure** | **Communication** | **Safety** |
|  | Member from IEEMA | Sundaresan, *Ashok Leyland* | Veena Koodli, *Bosch Ltd* | Member from IEEMA |
|  | Zakhir H. Rather, *IIT Bombay* | Haresh Bhere, *Reliance BP Mobility* | Sundaresan, *Ashok Leyland* | Member from Volvo Group India Private Limited, Bengaluru |
|  | P M Singh, *Exicom* | Bidyut Mazumder, *Siemens* | Srikanth, *Uno Minda* | Pooja Jain, CEA |
|  | Haresh Bhere, *Reliance BP Mobility* | Member from IEEMA | Member from IEEMA |
|  | Srikanth, *Uno Minda* | Rahul Lodhi, *Phoenix* | Member from Volvo Group India Private Limited, Bengaluru |
|  | Bidyut Mazumder, *Siemens* | Suresh Babu, *DST* |
|  | Rahul Lodhi, *Phoenix* |

The committee decided to continue with the Panel until the new Groups as decided in **2.2** is formed.

**3.2.2 Standard on performance efficiency for EV chargers**

In the last meeting, the committee formed following panel for formulation of standard on Performance (energy efficiency, Power Quality & Safety) for EV chargers (Level-1, Level-2, & fast chargers) including the Methods of testing:

1. Hemanth Kumar,ICAI – Convener
2. P K Mukherjee, In personal capacity
3. Vijay Dinakaran, Renault India
4. Prabhjot Kaur, Esmito Solutions
5. Suresh babu, DST
6. Haresh Bhere, *Reliance BP Mobility*
7. Vipin Sharma, Honda Motorcycle and Scooter India
8. Prashant Kr Banerjee, *SIAM*
9. Srikanth, *Uno Minda*
10. M S Anand Kumar, *TVS Motor*
11. Subrat Dash, *Ola Electric*
12. Member from Hero Motocorp Limited
13. Member from IEEMA
14. Member from Bajaj Auto Limited
15. Member from Maruti Suzuki India Limited

The committee considered the proposal received from Sh P.K Mukherjee (**Item 3.2.4 of Agenda**) and decided that the subject is a part of this proposal on Standard on performance efficiency for EV chargers.

The committee decided to continue with the Panel until the new Groups as decided in **2.2** is formed.

**3.2.3 Battery Swapping Stations**

In the last meeting, the committee formed following panel for formulation of standard on Safety of battery swapping stations:

1. Hemanth Kumar,ICAI – Convener
2. Prabhjot Kaur, Esmito Solutions
3. Subrat Dash, *Ola Electric*
4. Suresh babu, DST
5. Vipin Sharma, Honda Motorcycle and Scooter India
6. Prashant Kr Banerjee, *SIAM*
7. Haresh Bhere, *Reliance BP Mobility*
8. V. Manjunath, UL India
9. M S Anand Kumar, *TVS Motor*
10. Member from Hero Motocorp Limited
11. Member from IEEMA
12. Member from Bajaj Auto Limited
13. Member from Maruti Suzuki India Limited

The committee decided to continue with the Panel until the new Groups as decided in **2.2** is formed.

**3.2.4 Method of Measurement of Energy Efficiency for Electric Vehicle Supply Equipment**

*Pl see* **3.2.2**

**3.2.5 Proposal based on Manak Manthan to formulate Indian Standard on Guidelines on EV charging supporting infrastructure covering specific requirements like fire safety in EV charging stations, Central emergency control switch etc and other general safety requirements for the overall EV charging stations.**

Sh. Hemanth Kumar, ICAI, informed that work is ongoing on this matter and highlighted the need for expertise from the Electrical Installations Sectional Committee, ETD 20. He requested the Member Secretary to provide the necessary details of experts to support the group.

The committee decided to continue with the Panel until the new Groups as decided in **2.2** is formed.

**3.3 Presentation on Megawatt Charging System (MCS) from Volvo India.**

Representatives from Volvo presented an overview of the MegaWatt Charging System (MCS), focusing on its application for heavy-duty commercial electric vehicles. MCS supports high-power charging with a voltage range of 500-1250 Vdc and current up to 3000 A, enabling faster and more efficient operations. India's unique environmental conditions, grid capacities, and tariff structures were discussed, with BIS encouraged to actively participate in shaping global MCS standards to ensure they align with Indian requirements and optimize for local challenges.

Copy of the presentation is enclosed. 

**3.4 Proposal from Electric and Hybrid Vehicle Sectional Committee, TED 27 for adoption of following International Standards**

1. ISO/TS 5474-5:2024 Electrically propelled road vehicles — Functional Safety and requirements for power transfer between vehicle and external electric circuit — Part 5: Automatic conductive power transfer
2. ISO 19363:2020 Electrically propelled road vehicles — Magnetic field wireless power transfer — Safety and interoperability requirements
3. ISO 17409:2020 Electrically propelled road vehicles — Conductive power transfer — Safety requirements
4. IEC 62752:2016 In-Cable Control and Protection Device for mode 2 charging of electric road vehicles (ICCPD) { *Adopted as IS 17120 : 2019 under ETD 07*}

The committee decided to consider the proposals within the working groups to be created as per **2.2.**

**3.5 DOCUMENTS UNDER PRINTING**

(ETD/51/21658) “Electric Vehicle Conductive Charging Systems Part 30 Dual Gun dc Electric Vehicle Supply Equipment”

Member Secretary informed that the document will be gazette soon.

**Item 4 REVIEW OF INDIAN STANDARDS FOR REVISION/ REAFFIRMATION**

**4.1** The committee approved reaffirmation of following Indian Standards:

1. IS/ISO 15118-1: 2013, Road vehicles - Vehicle to grid communication interface: Part 1 general information and use - Case definition
2. IS/ISO 15118-2: 2014, Road vehicles - Vehicle - To - Grid communication interface: Part 2 network and application protocol requirements
3. IS/ISO 15118-3: 2015, Road vehicles - Vehicle to grid communication interface: Part 3 physical and data link layer requirements
4. IS/ISO 15118-4: 2019, Road vehicles - Vehicle to grid communication interface: Part 4 network and application protocol conformance test
5. IS/ISO 15118-5: 2018, Road vehicles - Vehicle to grid communication interface: Part 5 physical layer and data link layer conformance test
6. IS 17017 (Part 1): 2018 Electric Vehicle Conductive Charging System Part 1 General Requirements
7. IS 17017 (Part 21/Sec 1): 2019 Electric Vehicle Conductive Charging System Part 21 Electromagnetic Compatibility (EMC) Requirements Section 1 On-board chargers
8. IS 17017 (Part 21/Sec 2): 2019, Electric Vehicle Conductive Charging System Part 21 Electromagnetic Compatibility (EMC) Requirements Section 2 Off-board chargers

**Item 5 INTERNATIONAL ACTIVITIES**

**5.1** The committee noted the information given in the Agenda.

**5.2** Member Secretary informed the committee about the importance of commenting on IEC ballots. He emphasized that it allows members to influence global standards to align with India’s needs, protect national interests, gain international exposure, and contribute to the development of emerging technologies. This active participation also strengthens India’s role in international standardization efforts.

**5.3.1** The Competent Authority of BIS considered the delegates approved by Sectional Committee. After examining, the following delegates have been approved for participation:

|  |  |  |  |
| --- | --- | --- | --- |
| **Title of TC/SC** | **Date of Meeting** | **Place of Meeting** | **Delegates** |
| IEC TC/SC 23H:  Plugs, Socket-Outlets And Couplers For Industrial And Similar Applications, And For Electric Vehicles | 23 October 2024  (13:30-17:30h) | Edinburgh (GB)  (Face-to-Face and Virtual ) | 1. Mr Vignesh Reviraj  2. Mr Nitish Kr Jain |
| IEC TC 69:  Electrical Power/Energy Transfer Systems For Electrically Propelled Road Vehicles And Industrial Trucks | 24 October 2024 –  25 October 2024 | Edinburgh (GB)  (Face-to-Face and Virtual ) | 1. Mr Vignesh Reviraj  2. Ms Veena Koodli  3. Mr Nitish Kr Jain |

**5.3.2** Mr Vignesh presented the subject of Combined AC and DC charging of Light Electric Vehicles which Indian National Committee will be introducing during the upcoming IEC TC 69 & SC 23H meeting.

Copy of presentation is enclosed. 

**5.4 Review of Nominated Experts in IEC TC/SC 23H and TC 69**

Member Secretary informed that participation at IEC will now be focused on projects based on the Level of Interest (LOI) established for each NWIP or draft standard. In consultation with the Chair and Head of Department, the LOI will be determined, and one or two experts will be designated to represent BIS for High (H) and Medium (M) interest projects. The designated expert shall be responsible for providing detailed feedback on drafts and documents from IEC, assisting the Sectional Committee in developing the rationale for proposing NWIPs, finalizing proposals for leadership positions and secretariats and briefing the Sectional Committee on discussions at the IEC level.

**ITEM 6 INFORMATION ON e-SALE OF STANDARDS BY BIS**

The committee noted the information given in the Agenda.

**ITEM 7 NATIONAL INSTITUTE FOR TRAINING IN STANDARDISATION (NITS)**

The committee noted the information given in the Agenda.

**ITEM 8 DATE AND PLACE OF NEXT MEETING**

It was decided to hold the next meeting at BIS HQ, New Delhi. The final date and place shall be decided in consultation with the Chairman.