BUREAU OF INDIAN STANDARDS

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MINUTES

Name of the Committee	No. of Meeting	Day	Date	Time	Venue
Electrotechnology in Mobility Sectional Committee, ETD 51	**23rd**	**Thursday**	**02 March 2023**	**10:30 am**	Online Meeting through Webex https://bisindia.webex.com/bisindia/j.php?MTID=mabad45cfe9c89d91f40c83211fbc948f

Chairman: Shri A.K. Jain, BHEL
Member Secretary: Shri Ritwik Anand
List of members attended the meeting is placed at **Annexure- A .**

MINUTES

Item 0 WELCOME AND OPENING REMARKS BY CHAIRMAN

Shri A K Jain, Chairperson, extended a warm welcome to all the members present in the meeting. He wished all the members for fruitful discussions during the meeting.

Member Secretary thanked and welcomed all the participants present in the meeting. He requested the committee members to have thorough discussion on each and every agenda point and to arrive at useful conclusion.

ITEM 1 CONFIRMATION OF THE MINUTES OF THE LAST MEETING

1.1 There being no comments, the minutes of the last meeting (22nd meeting) of Electrotechnology in Mobility Sectional Committee, ETD 51 held on 06 October 2022 were confirmed.

ITEM 2 COMPOSITION OF ELECTROTECHNOLOGY IN MOBILITY SECTIONAL COMMITTEE, ETD 51

2.1 Committee noted the information given in the agenda. It was decided that the organizations may share the updated nomination through email wherever updating is required.

2.2 The committee reviewed the cooption request receive from various organisations as mentioned in the agenda and it was decided to coopt following organisations/experts :

a) M/s Volvo Group India
b) M/s Ola Electric Technologies

c) M/s Schneider Electric Ltd

d) Bureau of Energy Efficiency

2.2.1 The committee decided not to coopt M/s Lohum Cleantech Pvt Ltd and M/s Simple Energy Pvt Ltd in view of adequate representation of manufacturers in the committee .

2.3 The committee decided to withdraw nomination of Autogrid India Private Limited, Bengaluru, Areva T & D India Ltd, Delta Electronics India Private Limited, Dialogue and Development Commission of Delhi , Fortum India Private Limited, Gurugram , JBM Group, Gurugram, Mass Tech Controls Private Limited, Mumbai , Matter Motor Works, Ahmedabad , Rajasthan Electronics and Instruments Limited, Revosauto Tech Private Limited, Bengaluru and Tech Perspect Software Private Limited, Delhi from the composition due to their lack of participation.

It was also decided that a final letter to be issued to all these organisations intimating them about the decision of the committee wherein they would asked to submit any justification in this regard.

ITEM 3 DOCUMENTS COMPLETED WIDE CIRCULATION .

a) Doc. ETD 51 (19223)- Electric Vehicle Conductive Charging System Part 2 Plugs, Socket − Outlets, Vehicle Connectors and Vehicle Inlets Section 7 Dimensional Compatibility and Interchangeability Requirements for a.c., d.c. and a.c./d.c. pin and contact-tube vehicle couplers intended to be used for a.c./d.c. EV Supply Equipment where protection relies on the electrical separation.

Committee decided that resolutions as approved by the committee (**See Annexure -B**) shall be incorporated in the draft document and the final draft will be sent for printing. Member Secretary was authorized to make editorial changes wherever necessary.

Further, it was decided that M/s Ather Energy Ltd shall submit a declaration that the designs incorporated in the standard are patent free and shall not be subject to any conditions within a period of 3 weeks .

b) **ETD 51 (21660) - Electric Vehicle Conductive Charging Systems –Part 31: a.c or d.c. EV supply equipment for where protection relies on electrical separation.**

Committee decided that resolutions as approved by the committee (**See Annexure -C**) shall be incorporated in the draft document and the final draft will be sent for printing. Member Secretary was authorized to make editorial changes wherever necessary.

c) ETD 51 (21658) - Electric Vehicle Conductive Charging Systems Part 30 Dual Gun d.c. Electric Vehicle Supply Equipment.

Committee decided that resolutions as approved by the committee (**See Annexure -D**) shall be incorporated in the draft document and the final draft will be sent for printing. Member Secretary was authorized to make editorial changes wherever necessary.

ITEM 4 STATUS OF STANDARDS ON LEV INTEROPERABLE BATTERY SWAPPING SYSTEM

The committee noted the information and manufacturers reiterated that LEV battery swapping interoperability standards may not be brought out at this stage as the technology is still evolving and as of now

majority of manufacturers/swap operators are not in favour of interoperable standards.

ITEM 5 STATUS OF STANDARD ON AUTOMATED CONNECTION DEVICE BASED DC FAST CHARGING .

It was informed by the Member Secretary that draft Indian Standards based on SAE J 3105 and SAE J3105-1 as base standards are under formulation.

BIS has initiated initial dialogue with SAE International for obtaining copyright permissions. However, based on the discussions with SAE it is understood that approach of SAE International is not supportive towards the proposed MoU and they have informed that they are not presently in favour of sharing intellectual property/rights vide the MoU.

Item 6 INTERNATIONAL ACTIVITIES

6.1 Member Secretary emphasized the need for active participation at the IEC Level and informed the members to provide comments on IEC documents and agenda of IEC TC 69 and SC23 H meeting that are suitable for Indian conditions.

ITEM 7 ANY OTHER BUSINESS

Member Secretary requested the members to propose new areas for formulation related EV charging infrastructure. The same may be shared through email correspondences.

There being no further business, the meeting ended with a vote of the thanks to the chair.

Annexure - A

Sn.	Name	Organization
1.	Shri A K Jain (*Chairperson*)	IN INDIVIDUAL CAPACITY
2.	Shri Ritwik Anand (*Member Secretary*)	Bureau of Indian Standards
3.	Ms. Priti Bhatnagar	Bureau of Indian Standards
4.	Shri Vignesh Reviraj	Ather Energy Private Limited, Bengaluru
5.	Shri Vignesh Ather	Ather Energy Private Limited, Bengaluru
6.	Shri Sanjay Tank	Automotive Component Manufactures Association of India, New Delhi
7.	Shri Abhay Kumar	Bajaj Auto Limited, Pune
8.	Shri Arvind V. Kumbhar,	Bajaj Auto Limited, Pune
9.	Shri Milind J Pagare.	Bajaj Auto Limited, Pune
10.	Shri Vaibhav Gupta	Bharat Test House Private Limited, New Delhi
11.	Ms. Tejaswini Atluri	Bosch Limited, Bengaluru
12.	Shri Rajib Kumar Das	Calcutta Electric Supply Corporation Limited, Kolkata
13.	Shri Jeykishan	Central Power Research Institute, Bengaluru
14.	Shri Alok Kumar	Denso International India Private Limited, Gurugram
15.	Shri Abhijeet Kumar	Exicom Tele-Systems Limited, Gurugram
16.	Shri Varun Sharma	Hero Motocorp Limited, New Delhi
17.	Shri Gagan Manral	Honda Cars India Research and Development Limited, Noida
18.	Shri Karan Rajput	Honda Motorcycle and Scooter India Private Limited, Gurgaon
19.	Shri Arpan Shukla	Honda Motorcycle and Scooter India Private Limited, Gurgaon
20.	Shri Navneet Kaushik	India Yamaha Motor Private Limited, Noida
21.	Shri J. Emmanuel	India Yamaha Motor Private Limited, Noida
22.	Shri Kumar Rahul	Indian Electrical and Electronics Manufacturers Association, New Delhi
23.	Shri Debdas Goswami	International Copper Association India, Mumbai
24.	Shri Sumit Kumar	Maruti Suzuki India Limited, Gurugram
25.	Shri Sthitapragyan Behera	Maruti Suzuki India Limited, Gurugram
26.	Ms. Aina Jain	Maruti Suzuki India Limited, Gurugram
27.	Shri Kishor N. Narang	Narnix Technolabs Private Limited, New Delhi
28.	Shri Yusuke Ozawa	Nissan Motor India Private Limited, Chennai
29.	Shri Kunal	Phoenix Contact India Private Limited, New Delhi
30.	Shri Sushant Gangwar	Reliance BP Mobility Limited, New Delhi
31.	Shri Atul Kabre	Reliance BP Mobility Limited, New Delhi
32.	Shri Vijay Dinakaran	Renault India Private Limited, Mumbai
33.	Shri Prashant Kumar Banerjee	Society of Indian Automobile Manufacturers (SIAM), Delhi

34.	Ms. Anushka Tamrakar	Society of Indian Automobile Manufacturers (SIAM), Delhi
35.	Shri Suraj Raju	Sun Mobility Private Limited, Bengaluru
36.	Shri Karthikeyan S	Sun Mobility Private Limited, Bengaluru
37.	Shri Yogesh Kumar	Tata Power Delhi Distribution Limited, New Delhi
38.	Shri M S AnandKumar	TVS Motor Company Limited, Hosur
39.	Shri Manjunath V	UL India Private Limited, Bengaluru
40.	Shri Vivek Murali	Valeo India Private Limited, Chennai
41.	Shri Naveen Jebha	Valeo India Private Limited, Chennai
42.	Shri Sreejakumar Nair	Enphase Energy , Bengaluru

ANNEXURE -B

(Comments received on Doc-ETD 51 (19223)

Sl. No	Name of the Organization	Clause/ Sub-Clause	Paragraph/Figure/Table	Type of Comment (General/ Technical/ Editorial	Comments	Proposed Change	Decision of the committee
1.	**RBML**	6 / 6.1 And 19	Connection between the power supply and the electric vehicle Construction of vehicle inlets	Technical/ General	Committee may also propose provisions for backward compatibility for existing vehicles. So that existing vehicles can also be charged at newly designed connectors.	**Note to consider:** This comment is not specific to connector standard but to protect the Backward compatibility when a charger standard is getting developed. The implementation mechanism could be an adapter to connect with the new gun which can fit onto old generation vehicle and bypass mechanism on charger to initiate charging without communication protocol (PP, CP, CAN+ and CAN-).	No Change
2.	**RBML**	17 And 18	Construction of socket Outlets	Technical/ General	External aesthetics are visually similar as type2 AC socket-plug which will create confusion for end users w.r.t compatibility of	a) Color code the combo gun b) Mechanism to avoid wrong connections	It was decided not to make any changes in the draft right now . However, a panel has been constituted to

			Construction of plugs and vehicle connectors		plugs in their vehicles during the charging session initiation. (Poke-Yoke)	c) Imprinting on the gun with 2W-3W use only	recommend on the colour coding aspects of all chargers a) Shri Vignesh Reviraj (Convener) , M/s Ather Energy Pvt Ltd b) Shri Vijay Dinakaran, M/s Renault India Pvt Ltd. c) Shri Varun Kumar, M/s HeroMotocorp Ltd d) Shri Debdas Goswami, ICAI e) Representaive from Maruti Suzuki India Ltd f) Representative from Bajaj Auto Ltd No Change in the draft

ANNEXURE -C
(Comments received on Doc-ETD 51 (21660))

Sl. No	Name of the Organization	**Clause/** Sub-Clause	**Paragraph/** Figure/Table	**Type of Comment (General/ Technical/** Editorial	**Comments**	**Proposed Change**	**Decision of the committee**

1	ARAI	**6.5.5.2: Available AC output current parameter** The EV supply equipment shall inform the EV of the value of the available AC output current that can be provided by the EV supply equipment. This value cannot be changed during energy transfer, to adapt to power limitations, (e.g. 6 amps or 16 amps or 32 amps AC Plug and socket ratings)		Technical	The EVSE maximum output current is 16Amps,32Amps is not applicable	Current to be limited to ≤ 16Amps for AC charger; 32A to be removed	It was decided to change the introduction clause 1.1 from 16A a.c. to 32A a.c.
2	ARAI	**6.5.9: Protection against Surge** Protection against surge in accordance with 17017-21-1 Electric Vehicle conductive charging system for On board chargers and 17017-21-2 Electric Vehicle conductive charging system for Off board chargers		Technical	Surge test is a part of EMC immunity tests, all EMC tests (Immunity and emission tests) need to be performed as per IS17017-21-2	All applicable EMC tests to be performed as per IS 17017-21-2 for both AC and or DC charger;	Accepted
3	ARAI	**8.5: Residual Current Protective Devices for AC EVSE** a) The connecting point of the EV supply equipment shall be protected by		Technical	As the vehicle connector does not come under IEC62196 category, the comment marked in	The mentioned statements (marked in red) can be deleted as the charging gun/vehicle connector does not fall	Accepted

		an RCD having a rated residual operating current not exceeding 30 mA; b) RCD(s) protecting connecting points shall be at least type A; c) RCDs shall comply with one of the following standards: IS 12640 (Part 1), IS 12640 (Part 2), IS/IEC 609472; and d) RCDs shall disconnect all live conductors Where the EV supply equipment is equipped with a socket-outlet or vehicle connector for a.c. use in accordance with IEC 62196 (all parts), protective measures against d.c. fault current shall be taken. The appropriate measures shall be: a) RCD type B, or b) RCD type A and appropriate equipment that ensures the disconnection of the supply in case of d.c. fault current above 6 mA.			red can be deleted	under IEC 62196 category	
4	ARAI	**DD.3.3: For AC The test system transmits** AC output voltage limit parameter > 480 Vac		Technical	Max output voltage limit is 240VAC	AC output is limited to 240VAC	Accepted

5.	Hero Moto-Corp Ltd.	DD.3/DD.3.1	**DD.3 Description of compliance tests** **DD.3.1 Verification that the EV is properly connected to the a.c. or d.c. EV supply equipment. at start-up** In the following text the control pilot wire voltage is measured between the control pilot wire and the PE (power earth) line of the supply equipment (see figure AA.1). The energy transfer cycle shall not start under either (or both) of the following conditions: a) the mechanical latch is disabled; and/or b) the control pilot circuit is opened (S6 open) or the voltage of the control pilot circuit is within the range 4V V to 8 V (see test of DD.3.5). *Compliance for the mechanical latch is tested by inspection.*	Editorial	Energy transfer should not be allowed outside the range of 4V to 8V	Add the word "**not**" as highlighted below: **DD.3 Description of compliance tests** **DD.3.1 Verification that the EV is properly connected to the a.c. or d.c. EV supply equipment. at start-up**…… …… …… b) the control pilot circuit is opened (S6 open) or the voltage of the control pilot circuit is **not** within the range 4V V to 8 V (see test of DD.3.5). *Compliance for the mechanical latch is tested by inspection.*	Accepted
6.	Hero Moto-Corp Ltd.	**Annexure AA / AA-4**	**AA-4 VEHICLE CONNECTOR LATCHING AND MONITORING** The vehicle connector shall be provided with a latching device to prevent unintentional disconnection	Editorial	Locking provision is provided on the vehicle inlet as per draft IS 17017 Part 2 Section 7 (ETD 51 (1922))	**AA-4 VEHICLE CONNECTOR LATCHING AND MONITORING** The vehicle ~~connector~~ **inlet** shall be provided with a latching device to	Accepted

			from the vehicle inlet during energy transfer. Compliance is checked by inspection. The DC EV supply equipment shall not supply energy if the latch is not engaged. Compliance is verified according to DD-3.6.			prevent unintentional disconnection from the vehicle inlet during energy transfer. Compliance is checked by inspection. The DC EV supply equipment shall not supply energy if the latch is not engaged. Compliance is verified according to DD-3.6.	

Annexure D
Comments received on Doc-ETD 51 21658

Sl. No	Name of the Organiza-tion	Clause/ Sub-Clause	Paragraph/ Figure/Ta-ble	Type of Comment (General/ Technical/ Editorial	Comments	Proposed Change	Decision of the committee
1	**ARAI**	**C-3.4 & C-3.4.1** Disconnection Phase; At the time of connection of charging gun(s) to the Electric vehicle		**Editorial**	It is a connection phase of charging guns	**Disconnection phase to be changed to connection phase**	Accepted
2	**ARAI**	**C-3.4.7 Welded check (Optional) and Unlocking** EV may optionally per-form its welded contactor check by sending Welding Detection Req/Welding Detec tion Res		**Technical**	Welding detection should be mandatory from safety perspective	**EV should perform its welded contactor check by sending Welding Detection Req/Welding Detection Res**	Accepted
3	**ARAI**	**(Clause A-3.2)** There shall be a time dif-ference of "t" sec between SECC1 and SECC2 as specified by OEMs.	**Table 16 (2 of 2)**	**Technical**		**Min Time 't' should be mandatory and kept same for all OEM's.**	No Change
4	**ARAI**			**Technical**	**EMC requirements not mentioned**	**EMC tests to be per-formed as per IS17017-21-2**	Accepted

5	MSIL	**3/3.1/3.1.101 Terminology/ Electric Supply Equipment/ d.c. *EV Charging System***	A system composed of a d.c. charger with two separate cable assemblies for two EVCCs and the equipment(s) on Electric vehicle that is required to fulfil the charging function including digital communication for charging control	**General**	Definition of "d.c.EV charging System" is defined in IS 17017-23. The definition is different from the definition in this draft standard of "dual Gun Charging"	Terminology shall be common across standards. Part 23 defines the same. Same can be utilized. The terminologies specific to this standard part 30 shall be named and defined in order to prevent any variation.	It was decided to modify the wording as "d.c.EV charging System for dual gun " for more clarity.
6	MSIL	**Annex A: d.c. EV SUPPLY EQUIPMENT OF SYSTEM C**	**Annex A**	**Technical**	The draft uses the terminology "System C" everywhere. As per the draft standard, the system is defined in Annex A of this document. System C is originally defined in IS 17017-23.	Direct reference to IS 17017-23/24 system/standard shall be made.	It was decided to modify the wording as "System C " for more clarity
7	MSIL	**Annex C/C-3.4.1** **Multioutlet (Ac/dc isolated) dc EV Supply Equipment**	a) Setting 1: Charging with 1 gun – For Single socket vehicle	**Technical**	It shall be ensured that when the Dual guns are used for charging two vehicles separately, the communication and the power transfer shall be as per IS 17017-23 and IS 17017-24 only.	Add the appropriate content	It was decided to add a note for the same.