

## Table 13 of AIS-007 (Revision 5)

<b>Technical Specifications - Battery Operated Vehicles</b>		
<b>Clause No.</b>	<b>Description</b>	
<b>1.0</b>	<b>General description of vehicle</b>	
1.1	Vehicle Model	
1.2	Vehicle Type	
1.3	Drawing and /or Photographs of the vehicle	
<b>2.0</b>	<b>Description of The Traction Battery Pack</b>	
2.1	Make and Trade name (If any)	
2.2	Kind of Electro – Chemical Chemistry	
2.3	Nominal Voltage (V) at Pack level	
2.3.1	Nominal Voltage (V) at Cell Level	
2.4	Number of Cells/Modules and its Configuration	
2.5	Battery Energy (kWh)	
2.6	Battery Capacity (C <sub>5</sub> ),	
2.7	End of Discharge Voltage Value (V) at Pack Level	
2.8	Provision of ventilation for battery Yes / No	
2.8.1	Brief description of the battery pack ventilation system adopted in the vehicle. Provide drawing if necessary.	
2.9	Traction Battery Approval as per AIS 048 :Report Number	
2.10	On-board Indication of battery state of charge (SOC)	
2.10.1	Details of indication when state of charge (SOC) of the battery reaches a level when the manufacturer recommends re-charging.	
2.10.1.1	Indication format.	
2.10.1.2	Relationship of state of charge indicator and the indication.	
2.10.1.3	Make	
2.10.1.4	Model	

<b>Manufacturer</b>	<b>Sheet No :</b>	<b>Test Agency :</b>
	<b>Document No:</b>	
<b>Name:</b>	<b>Date :</b>	<b>Name:</b>
<b>Designation :</b>		<b>Designation :</b>

## Table 13 of AIS-007 (Revision 5)

2.10.2	Indication of state of charge of battery reaches a level at which driving vehicle further may cause damage to batteries	
2.10.2.1	Indication format.	
2.10.2.2	Relationship of state of charge indicator and the indication.	
2.11	Battery Mass (kg)	
2.12	Brief description of maintenance procedure of battery pack, if any	
<b>3.0</b>	<b>Battery Management System (BMS)</b>	
3.1	Make	
3.2	Model Number / Part Number	
3.3	Software Version	
3.4	Hardware Version	
3.5	Architecture (attach circuit board diagram and Cell configuration structure )	
3.6	Balancing Type (Active/Passive)	
3.7	Communication Protocol	
<b>4.0</b>	<b>DC – DC Converter</b>	
4.1	Make	
4.2	Model Number / Part Number	
4.3	Hardware Version	
4.4	Input Range (Current in A and Voltage in V)	
4.5	Output Range (Current in A and Voltage in V)	
<b>5.0</b>	<b>Description of The Drive Train</b>	
5.1	General	
5.1.1	Make	
5.1.2	Type	
5.1.3	Use : Mono motor / multi motors (number)	
5.1.4	Transmission Arrangement parallel / Transaxial / others to precise	
5.1.5	Test Voltage (V)	
5.1.6	Motor Nominal Speed (min <sup>-1</sup> )	

<b>Manufacturer</b>	<b>Sheet No :</b>	<b>Test Agency :</b>
	<b>Document No:</b>	
<b>Name:</b> <b>Designation :</b>	<b>Date :</b>	<b>Name:</b> <b>Designation :</b>

### Table 13 of AIS-007 (Revision 5)

5.1.7	Motor Maximum Speed, $\text{Min}^{-1}$ or by default reducer outlet shaft / gear box speed (specify gear engaged)	
5.1.8	Maximum Power Speed ( $\text{min}^{-1}$ ) and (km/h)	
5.1.9	Maximum Power (kW)	
5.1.10	Maximum Thirty Minutes Power (kW)	
5.1.11	Maximum Thirty Minutes speed km/h (Reference in AIS-039 (Rev.1) and AIS-040 (Rev.2))	
5.1.12	Range as per AIS 040 (Rev.1) (km)	
5.1.13	Speed at the beginning of the range ( $\text{min}^{-1}$ )	
5.1.14	Speed at the end of the range ( $\text{min}^{-1}$ )	
5.2	Traction Motor	
5.2.1	Make	
5.2.2	Model Number / Part number	
5.2.3	Type (BLDC, DC, AC etc)	
5.2.4	Working Principle	
5.2.4.1	Direct current / alternating current / number of phases	
5.2.4.2	Separate excitation / series / compound	
5.2.4.3	Synchron / asynchron	
5.2.4.4	Coiled rotor / with permanent magnets / with housing	
5.2.4.5	Number of Poles of the Motor	
5.2.5	Motor power curve (kW) with motor RPM ( $\text{min}^{-1}$ ) / vehicle speed in (km/h), (Provide Graph)	
5.3	Power Controller	
5.3.1	Make	
5.3.2	Model Number / Part number	
5.3.3	Software Version	
5.3.4	Hardware Version	
5.3.5	Type	
5.3.6	Control Principle : vectorial / open loop / closed / other (to be specified )	

<b>Manufacturer</b>	<b>Sheet No :</b>	<b>Test Agency :</b>
	<b>Document No:</b>	
<b>Name:</b> <b>Designation :</b>	<b>Date :</b>	<b>Name:</b> <b>Designation :</b>

### Table 13 of AIS-007 (Revision 5)

5.3.7	Maximum effective current supplied to the Motor (A)	
5.3.8	Voltage range use (V to V)	
5.4	Cooling System motor : liquid / air controller : liquid / air Battery : liquid / air	
5.4.1	Liquid cooling equipment characteristics	
5.4.1.1	Nature of the liquid , circulating pumps, yes / no	
5.4.1.2	Characteristics or make(s) and type(s) of the pump	
5.4.1.3	Thermostat : setting	
5.4.1.4	Radiator : drawing(s) or make(s) and type(s)	
5.4.1.5	Relief valve : pressure setting	
5.4.1.6	Fan : Characteristics or make(s) and type(s)	
5.4.1.7	Fan : duct	
5.4.2	Air-cooling equipment characteristics	
5.4.2.1	Blower : Characteristics or make(s) and type(s)	
5.4.2.2	Standard air ducting	
5.4.2.3	Temperature regulating system yes / no	
5.4.2.4	Brief description	
5.4.2.5	Air filter : make(s) type(s)	
5.4.3	Maximum temperatures recommended by the manufacturer:	
5.4.3.1	Motor Outlet : °C	
5.4.3.2	Controller inlet : °C	
5.4.3.3	Battery inlet : °C	
5.4.3.4	At motor reference point(s) °C	
5.4.3.5	At controller reference point(s) °C	
5.4.3.6	At Battery reference point(s) °C	
5.5	Insulating Category :	

<b>Manufacturer</b>	<b>Sheet No :</b>	<b>Test Agency :</b>
	<b>Document No:</b>	
<b>Name:</b> <b>Designation :</b>	<b>Date :</b>	<b>Name:</b> <b>Designation :</b>

## Table 13 of AIS-007 (Revision 5)

5.5.1	Ingress Protection (IP)-Code :	
5.6	Lubrication System Principle Bearings : friction / ball Lubricant : grease / oil Seal : yes / no Circulation : with / without	
<b>6.0</b>	<b>Charger :</b>	
6.1	Charger : on board / external	
6.1.1	Make	
6.1.2	Model	
6.1.3	Software Version	
6.1.4	Hardware Version	
6.1.5	Type (AC/DC, Slow /Fast)	
6.1.6	Standard Protocol (BEVC DC001(or) BEVC AC001(or) CCS (or) GB/T (or) CHAdeMO (or) SAE J1772 (or) if other specify)	
6.2	Description of the normal profile of charging system	
6.3	Specifications	
6.3.1	Mains Supply : single phase/ three phase	
6.3.1	Input Nominal Voltage (V) & frequency (Hz) with tolerances.	
6.3.3	Output Voltage Range (V) and Current Range (A)	
6.4	Reset period recommended between the end of the discharge and the start of the charge	
6.5	Recommended duration of a complete charge	
6.6	In case of on-board charger	
6.6.1	Continuous rating of charger socket (A) :	
6.6.2	Time rating (h) of charger socket, if any :	
6.6.3	Whether soft-start facility Yes / No :	
6.6.4	Maximum initial in-rush current (A)	
<b>7.0</b>	<b>Electrical details of vehicle for functional safety</b>	
7.1	Schematic diagram showing the electrical layout giving all major electrical items along with their	

<b>Manufacturer</b>	<b>Sheet No :</b>	<b>Test Agency :</b>
	<b>Document No:</b>	
<b>Name:</b> <b>Designation :</b>	<b>Date :</b>	<b>Name:</b> <b>Designation :</b>

### Table 13 of AIS-007 (Revision 5)

	physical location in the vehicle. It shall include batteries, power-train components, protection fuses, circuit breakers etc.	
7.2	Specifications of circuit breakers/ fuses used for protection of batteries / power-train	
7.2.1	IS / IEC specifications	
7.2.2	Rating (A)	
7.2.3	Opening time (ms)	
7.3	Working voltage V	
7.4	Schematic highlighting physical location of live parts having working voltage greater than 60 V DC or 25 V AC	
7.5	Electric cables / connectors / wiring harness	
7.5.1	IEC protection class	
7.5.2	Insulation material used	
7.5.3	Is Conduits provided? Write Yes / No	
7.6	List of exposed conductive parts of on-board equipment.	
7.6.1	Any potential equalization resistance used to electrically connect these parts Yes/ No	
7.6.2	If yes, give details	
7.7	List of failures due to which the vehicle will come to standstill	
7.8	List of conditions under which the performance of vehicle is limited and how.	
<b>8.0</b>	<b>Electrical energy consumption of Vehicle in W-h/km, as per AIS-039</b>	

<b>Manufacturer</b>	<b>Sheet No :</b>	<b>Test Agency :</b>
	<b>Document No:</b>	
<b>Name:</b> <b>Designation :</b>	<b>Date :</b>	<b>Name:</b> <b>Designation :</b>