Vardhamana Testing Laboratory

(LABORATORY IN ELECTRICAL, ELECTRONICS & PHOTOMETRY TESTING)
Plot No.-403, Udyog Kendra-II, Ecotech-III, Greater Noida-201306 (U.P.)
Tel. : 0120-6811256
E-mail: info@vardhamanatestlab.com , Web.: www.vardhamanatestlab.com

TEST REPORT

			Format No. : VTL/FR/19
Discipline:	ELECTRICAL	Group:	
Location of testing performance of the Laboratory & its Address:		Vardhamana Testing Laboratory Plot No 403, Udyog Kendra Extn –II Ecotech -3, Greater Noida- 201306 (U.P.)	
Test Specification:		As per IEC 61851-1: 2017 /IS 17017-1 : 2018	
Report No. :	VTL/TRN/2024/06/016	Issue Date :	26/06/2024
		Page No. :	1 of 26
Name & Address of Manufacturer :		M/s ARINEM POWER SYSTEMS PRIVATE LIMITED FL - 1402 , Ashirwad Residene Plot – 14 and 14A, Sector – 18, Kharghar Panvel Raigarh(MH) MH -410210 IN	
Name & Address of Applicants :		M/s ARINEM POWER SYSTEMS PRIVATE LIMITED FL - 1402 , Ashirwad Residene Plot – 14 and 14A, Sector – 18, Kharghar Panvel Raigarh(MH) MH -410210 IN	

PART A. PARTICULARS OF SAMPLE SUBMITTED BY CUSTOMER	
a)Sample Name:	EV Charger (3.3 kW)
b) Sample Description (Rating/ Class/Type etc.)	Input Voltage : 240 VAC , 1- phase 15A, Frequency: 50 Hz, Output Voltage : 240 VAC , 1 - phase 16A, Frequency: 50 Hz Output Connector : as per IEC 60309
c) Model Number:	LEVAC3K3W
d) Brand Name:	--
e) Quantity of Sample:	01
f)Date of Receipt of Sample:	05/06/2024
g) Date of performance of testing:	05/06/2024 to 25/06/2024
h) Condition of sample received :	Good
i)Environmental Conditionsof Lab . :	25.2°C/60% RH
j) Code No. / Sr. No. / Batch No. / Date of Manufacturer/ Seal & IO's sign , if any	--
k) Any Other Information , If Any:	Dimension : 205x105x300 (mm)

PART B: SUPPLEMENTARY INFORMATIONS	
a)Reference to sampling procedure , wherever applicable	N/A
b) Supporting documents for the measurements taken and results derived like graphs, tables, sketches and /or photographs , as appropriate to test report , if any (To be attached):	See Attachment 1
c) Deviation from the test methods as prescribed in relevant ISS/ work instructions,	IP 65 and Operating temperature 55 °C to 0 °C

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Tested By:	Approved By (Authorized Signatory):	Issued By:
Pooran Saini (Testing Engineer)	R.K Srivastava(Technical Manager)	Pooja Jain (Lab Head)

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Test item particulars .....: EV Charger (3.3 kW)	
Equipment mobility.....	: movable ■ hand-held ☐ transportable ■ Stationary ☐ for building-in ☐ direct plug-in ☐
Connection to the mains.....	:pluggable equipment type A ☐ type B ☐ permanent connection ■ detachable power supply cord ☐ non-detachable power supply cordnot ☐ directly connected to the mains ☐
EV charging modes.....	: Mode 3 charging
Type of EV connection	: Case A ☐ Case B ☐ Case C ■
Access location	: operator accessible ■ service access area restricted ☐ access location ☐
Over voltage category (OVC)	: OVC I ☐ OVC II ☐ OVC III ■ OVC IV ☐ other:
Mains supply tolerance (%) or absolute mains supply	: 10 values
Tested for IT power systems	: Yes ■ No ☐
IT testing, phase-phase voltage (V)	: N/A
Class of equipment	: ■ Class I ☐ Class II ☐ Class III Not classified
Considered current rating (A)	: 16 A
Pollution degree (PD)	: PD 1 ☐ PD 2 ■ PD 3
IP degree	: IP65
Altitude during operation (m)	: Upto 2000
Altitude of test laboratory (m)	: 1000
Mass of equipment (kg)	: <10kg

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Specifications		
Type designation		See above table
Supply	Power System	TN-S■ TN-C-S☐ TN-C☐ TT ☐ IT☐ DC
	Number of phases	■ single phase ☐ 3 phase
	Number of poles	Single Pole
	Rated Voltage	230 V AC
	Rated Current	16A AC
	Rated Power	3.3KW
	Rated Frequency	50Hz
Equipment mobility		pole/column/pipe-mounted Wall- mounted.
Construction		■ Integrated-type □ split-type
Input connection		Permanently connected
EV charging mode		Mode 3
Type of EV connection		C
Output connection		1 Vehicle connectivity
Vehicle connector		IEC 62196
IP degree		IP65
Environmental condition		Indoor and Outdoor
Pollution Degree		PD III
Altitude		Upto 2000m

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Genral Product Specification: EV Charger has Single Phase 240 V input and output is Single phase 240V .

2)it has Wifi/4G/GSM/ network connection.

3) OCPP 1.6J use for communication protocol and RFID use for user authentication.

4) It has 1.3 Inch OLED Display with LED indication.

5) Heat Dissipation method : Natural Air Cooled

Model		
AC input	Single Phase 240 V, 50Hz	
AC output	Single Phase 240V, 50Hz	
Number of power modules	1	230V, 50Hz
AC Contactor	1	220-230V, 50Hz
Current rating of RCCB(A)	230/240V	16 A
Current rating of EV connector(A)	240Vac	16A

Equipment Details:

Sr. No.	Equipment Name	Validity Upto
1.	Climatic Test chamber	16.04.2025
2.	Digital Insulation resistance tester	17.04.2025
3.	AC High Voltage Tester	16.11.2024
4.	DUST Chamber	17.04.2025
5.	Surge Generator	07.11.2024
6.	Electro Static Discharger	18.09.2024

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IEC 61851-1: 2017 / IS 17017-1 : 2018			
Clause	**Requirement + Test**	**Result - Remark**	**Verdict**
4	**GENERAL REQUIREMENTS**		
	The EV supply equipment shall be so constructedthat an EV can be connected to the EV supply equipment so that in normal conditions of use, theenergy transfer operates safely, and its performance is reliable and minimises the risk of danger to the user or surroundings.	In Complies	P
4.1	Unless otherwise stated all tests indicated in this document are type tests.	See above	P
4.2	Unless otherwise stated, all tests required by this standard may be conducted on separate samples.	See above	P
4.3	Unless otherwise stated, each test is conducted once.	See above	P
4.4	Unless otherwise specified, all tests shall be carried out in a draught-free location and at an ambient temperature of 27°± 2 °C and Relative Humidity of 65 ± 5%	See above	P
4.5	The EV supply equipment shall be rated for one ormore of standard nominal voltages and frequencies as given in IEC 60038/ IS12360	See above	P
4.6	Assemblies for EV supply equipment shall comply with IEC TS 61439-7 with the exceptions or additions as indicated in Clause 13.		N/A
4.7	The standard applies to equipment that is designed to be used at an altitude up to 2 000 m.	See above	P

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5	CLASSIFICATION		
5.1	**Characteristics of power supply and output**		
5.1.1	**Characteristics of power supply input**		
	The EV supply equipment that it is intended to be connected to:	AC supply network	P
	EV supply equipment connection method	Permanently connected.	P
5.1.2	**Characteristics of power supply output**		
	The EV supply equipment shall be classified according to the type of current the EV supply equipment delivers:	AC EV supply equipment	P
5.2	**Normal environmental conditions**		—
	The EV supply equipment shall be classified according to the environmental conditions and use:	a)Indoor use b)Outdoor use	P
5.3	**Special environmental conditions**		—
	The EV supply equipment may be classified according to their suitability for use in special environmental conditions other than those specified in this document, if declared so by the manufacturer.	In Complies	N/A
5.4	**Access**		—
	a)Equipment for locations with non-restricted access.	In Complies	P
	b)Equipment for loactions with restricted access.	In Complies	P
5.5	**Mounting method**		—
	The EV supply equipment shall be classified according to the type of mounting:	Stationary equipment;(wall, pole, floor, ground, surface mounted)	P
5.6	**Protection against electric shock**		
	The equipment shall be classified according to the protection against electric shock:	Class I equipment;	P
5.7	**Charging modes**		—
	The EV supply equipment shall be classified according to 6.2	Mode 3	P

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6	Charging Modes and functions		
6.2	Charging Modes		
6.2.3	Connection of an EV to a.c.EVSE permanently connected to a.c supply network with a control pilot function. It should also provide a protective earthing conductor to the EV socket-outlet to the vehicle connector.	Mode 3	P
6.3.1	Mandatory functions in Modes 4		
6.3.1.2	Continuous continuity checking of the protective conductor	In Complies	P
6.3.1.3	Verification that the EV is properly connected to the EV supply equipment.	Confirmed by control pilot state change and proximity detection.	P
6.3.1.4	**Energization of the power supply to the EV**		
	The EV socket-outlet or the vehicle connector shall not be energized unless the control pilot function between EV supply equipment and EV has been established correctly with signal states allowing energization	In Complies	P
	If the EV requests ventilation, the EV supply equipment shall only energize the system if such ventilation is provided by the installation or the premises.		N/A
6.3.1.5	**De-energization of the power supply to the EV**		
	If the control pilot signal is interrupted the power supply to the EV shall be interrupted according to 6.3.1.2.	In Complies	P
	If the control pilot signal status no longer allows energization, the power supply to the EV shall be interrupted but the control pilot signalling may remain in operation.	In Complies	P
6.3.1.6	**Maximum allowable current**		
	A means shall be provided to inform the EV of the value of the maximum current it is allowed to draw. The value of the maximum current permitted shall be transmitted and shall not exceed any of the following:	Provided through Control Pilot Function Controller (CPFC) (In Complies)	P
	•the rated output current of the EV supply equipment,	16A	P
	•the rated current of the cable assembly.	16A	P

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	The transmitted value may change, without exceeding the maximum allowed current, to adapt to power limitations, e.g. for load management.		P
	The EV supply equipment may interrupt the energy supply if the current drawn by the EV exceeds the transmitted value.		P
6.3.2	**Optional functions for Modes 2, 3 and 4**		
6.3.2.1	**General**		
	The optional functions that are implemented shall be indicated in the manual and shall fulfil the requirements of 6.3.2.	Provided through CMS	P
6.3.2.2	**Ventilation during supply of energy**		
	EV supply equipment can exchange information with installation regarding the request and presence for ventilation.		N/A
6.3.2.3	**Intentional and unintentional disconnection of the vehicle connector and/or the EV plug**		
	A mechanical or electro-mechanical means shall be provided to prevent intentional and unintentional disconnection under load of the vehicle connector and/or plug according to IEC 62196-1.	In Complies	P
7	**Communications**		
7.1	Digital Communication between the EV Supply Equipment and the EV		P
7.2	**Digital communication between the EV supply equipment and the management system**		—
	Telecommunication network or telecommunication port of the EV supply equipment, connected to the telecommunication network, if any, shall comply with the requirements for connection to telecommunication networks according to Clause 6 of IEC 60950-1:2005.	Wi-Fi, GSM, Ethernet	P
8	**PROTECTION AGAINST ELECTRIC SHOCK**		
8.1	**Degrees of protection against access to hazardous-live-parts**		
	The different parts of the EV supply equipment as mentioned shall fulfill the following requirements:		
	•IP ratings for enclosures	IPXXD	P
	•Vehicle connector when mated with vehicle inlet	IPXXD	P

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8.2	**Stored energy**		—
8.2.1	Disconnection of plug connected EV supply equipment		N/A
8.2.2	**Loss of supply voltage to permanently connected EV supply equipment**		
	The voltage between power lines and protective earthing conductor, when measured at the input supply terminals of the EV supply equipment, shall be less than or equal to 60 V d.c. or the stored energy shall be less than or equal to 0.2 J within 5 second after disconnecting the power supply voltage to the EV supply equipment.	In Complies	P
8.3	**Fault protection**		—
	• Fault protection shall consist of one or more protective measures as permitted according to IEC 60364-4-41/ IS 732:	Automatic disconnection of supply	P
8.4	**Protective conductor**		—
	The protective earthing conductor and the protective conductor shall be of sufficient rating in accordance with requirements of IEC TS 61439-7.		P
	For Modes 1, 2 and 3, a protective earthing conductor shall be provided between the AC supply input earthing terminal of the EV supply equipment and the EV.		P
8.5	**Residual current protective devices**		—
	•RCD(s) protecting connecting points shall be atleast type A;		P
	•RCDs shall comply with one of the following standards: IEC 61008-1, IEC 61009-1, IEC 60947-2 and IEC 62423;	IEC 62423	P
	• Where the EV supply equipment is equipped with a socket-outlet or vehicle connector for AC use in accordance with IEC 62196 (all parts).	RCD type B	P
8.6	**Safety requirements for signalling circuits between the EV supply equipment and the EV**		—
	Any circuit for signalling, which extends beyond the EV supply equipment enclosure for connection with the EV (e.g. control pilot circuit), shall be extra low voltage (SELV or PELV) according to IEC 60364-4-41/ IS 302 (Part 1).		P
8.7	**Isolating Transformers**		N/A

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9	**CONDUCTIVE ELECTRICAL INTERFACE REQUIREMENTS**		
9.3	**Functional description of the basic interface**		—
	General requirements and ratings shall be in accordance with the requirements specified in IEC 62196-1. The basic interface is specified in 6.5 of IEC 62196-1:2014.	Approved connector used.	P
	Ratings and requirements for the use of the basic interface shall be in accordance with the requirements specified in IEC 62196-2.		P
9.7	**Wiring of the neutral conductor**		—
	Where accessories according to IEC 62196 are used for single phase supply, the terminals L (L1) and N (Neutral) shall always be wired.		P
10	**REQUIREMENTS FOR ADAPTORS**		
	Vehicle adaptors shall not be used to connect a vehicle connector to a vehicle inlet.	No adaptor used.	N/A
11	**CABLE ASSEMBLY REQUIREMENTS**		
11.2	**Electrical rating**		—
	For case C, the voltage and current ratings of the cable assembly shall be compatible with the rating of the EV supply equipment. It's accessories shall comply with Annex-B and IEC 62196-2.	In Complies	P
11.3	**Dielectric withstand characteristics**		—
	Dielectric withstand characteristics of the cable assembly shall be as indicated for the EV supply equipment in 12.7.	In Complies	P
11.4	**Construction requirements**		—
	A cable assembly shall be so constructed that it cannot be used as a cord extension set.	In Complies	P
11.5	**Cable dimensions**		—
	The maximum cable length shall be in accordance with manufacturers.	Maximum cable length 5m	P
11.6	**Strain relief**		—
	Strain relief at the EV supply equipment shall be in accordance with the requirements in IEC 62196-1.	In Complies	P
11.7	**Cable management and storage means for cables assemblies**		—

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	For case C EV supply equipment, a storage means shall be provided for the vehicle connector when not in use.	In Complies	P
	For EV supply equipment the lowest point of the vehicle connector when stored shall be located at a height between 0.5 m and 1.5 m above ground level.	1.5m	P
13	**OVERLOAD AND SHORT-CIRCUIT PROTECTION**		
13.1	**General**		—
	Such overcurrent protective devices shall comply with IEC 60947-2, IEC 60947-6-2 or IEC 61009-1 or with the relevant parts of IEC 60898 series or IEC 60269 series.	In Complies	P
13.2	**Overload protection of the cable assembly**		—
	The overload protection may be provided by a circuit breaker, fuse or combination thereof.		P
	If overload protection is provided by a means other than a circuit breaker, fuse or combination thereof, such means shall trip within 1 min if the current exceeds 1.3 times the rated current of the cable assembly.		P
13.3	**Short-circuit protection of the charging cable**	Overload protection may be provided by a circuit breaker, fuse or combination thereof.	P
14	**AUTOMATIC RECLOSING OF PROTECTIVE DEVICES**		
	The automatic or remote reclosing of protective devices after tripping in the EVsupply equipment shall only be possible in case the following requirement is fulfilled:	No automatic remote reclosing of protective device used	N/A
15	**EMERGENCY SWITCHING OR DISCONNECT**		
	Emergency switching or disconnect equipment shall be used either to disconnect the supply network from EV supply equipment or to disconnect the socket-outlet(s) or the cable assembly(ies) from the supply network. Such equipment shall be installed in accordance with IS 732.	Emergency stop push button	P
16	**MARKING AND INSTRUCTIONS**		
16.1	**Installation manual of EV charging stations**		—
	The EV supply equipment manufacturer shall state the interface characteristics specified in Clause 5 of IEC TS 61439-7:2014 in the manual where applicable.	Provided	P
	Wiring instructions shall be provided.	Provided	P

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16.3	**Marking of EV Supply Equipment**		
	EV supply equipment should contain markings • Manufactureruipment sTrade mark • Rated Voltage • Rated Current • Identification number		P
16.5	**Durability test for marking**		—
	The markings required by this standard shall be legible with corrected vision, durable and visible during use.	In Complies	P
	After the test, the marking shall be legible to normal or corrected vision without additional magnification. It shall not be easily possible to remove marking plates and they shall show no curling.	In Complies	P

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Annexure-A

Details of Equipment Used :

Sr. No	Nomenclature	Make/Model	Calibration Validity	Remarks
1.	Memory Hi-Logger 30 Channel	HIOKI E.E. Corporation	18.04.2025	Calibrated
		LR8400-20		
		Sr. No. 160537439		

Range :			Accuracy :
Dc inputs	:	± 10mV to 100V	±10Uv to ±100mV
Temperature input	:	(-100°C to 2000°C)	±0.5 to ±0.8 °C
Thermocouple K type	:	(-100°C to 2000°C)	±0.5 to ±0.8 °C

	Temeperaure rise (Table 12.8)		
	Amb.Temp.		26.5°C
	Test condition		
Sr. No.	Location	Measured	Limit
1.	Circuit Breaker	35.4°C	60 °C
2.	PCB	38.3 °C	85 °C
3.	Connector	35.4 °C	60 °C
4.	Controller PCB	37.0 °C	85 °C
5.	O/p supply wire	35.4 °C	60 °C
6.	Front Enclosure	34.5 °C	50 °C
7.	I/p Supply wire	36.5 °C	60 °C
8.	o/p Connector	34.1 °C	60 °C

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TEST REPORT

Annexture- B

12	**EV SUPPLY EQUIPMENT CONSTRUCTIONAL REQUIREMENTS AND Type Test :**		
12.2	**Characteristics of mechanical switching devices**		—
12.2.2	**Switch and switch-disconnector**		
	Switches and switch-disconnectors shall comply as per IEC 60947-3. Rated Current atleast AC-22A	In Complies	P
12.2.3	**Contactor**	In Complies	
	Contactors shall comply with IEC 60947-4-1.	In Complies	P
12.2.4	**Circuit-breaker**	In Complies	
	Circuit breakers, if any, shall comply with IEC60898-1 or IEC 60947-2 or IEC 61009-1.	In Complies	P
12.2.5	**Relays**	In Complies	
	Relays shall comply with IEC 61810-1	In Complies	P
12.2.6	**Inrush current**	In Complies	
	AC EV supply equipment shall withstand the inrush current according to 8.2.2 of ISO 17409:2015.	In Complies	P
12.3	**Clearances and creepage distances**		—
	The clearances and creepage distances in the EV supply equipment, shall be in accordance with the requirements specified in IEC 60664-1.	Complies as per overvoltage category III	P
12.4	**Ingress Protection**		—
12.4.1	**Degrees of protection against solid foreign objects and water for the enclosures**		
	Enclosures of the EV supply equipment shall have an IP degree, according to IEC60529 as follows:		
	•Indoor use: at least IP41;	IP65	P
	•Outdoor use: at least IP44.	IP65	P

Tested By:	Approved By (Authorized Signatory):	Issued By:
Pooran Saini (Testing Engineer)	R.K Srivastava(Technical Manager)	Pooja Jain (Lab Head)

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TEST REPORT

12.4.2	**Degrees of protection against solid foreign objects and water for basic.**	IP65	P
12.5	**Insulation resistance**		—
	For class I EV Supply equipment.	R>1MΩ	P
12.6	**Touch current**		—
	It shall be measured in accordance to IEC 60990.	Touch Current value <3.5mA for class I equipment	P
12.7	**Dielectric withstand voltage**		—
12.7.1	**AC withstand voltage**		
	AC withstand voltage test performed at 1.5 KV r.m.s.	No breakdowwn observed. Class I EV supply equipment.	P
12.7.2	**Impulse dielectric withstand (1.2 µs/50 µs)**		
	The test shall be carried out in accordance with the requirements of IEC 61180.	No Breakdown observed	P
12.8	**Temperature rise**		
	EV supply equipment shall comply with IEC TS 61439-7.	In Complies See Annexure -A	P

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TEST REPORT

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DISCIPLINE : Electrical

Test Conducted :

(Environmental Test)

Sr. No	Parameter	Reference	Test Condition	Observation	Result Pass/Fail
1.	**High Temperature (Dry Heat) Test**	Test Procedure as per IEC 60068-2-2: 2007	Sample was subjected to Dry heat chamber at **Operational Temperature** Temperature : +55°C Humidity : < 50 % Rh Ramp rate : 1 ^{0} C/ min Duration : 16 Hrs. **Storage Temperature** Temperature : +60°C Humidity : < 50 % Rh Ramp rate : 1 ^{0} C/ min Duration : 16 Hrs.	After test equipment is visually examined and electrically and mechanically checked, no mechanical defects / cracks observed and found functional.	Pass
2.	**Low Temperature (Cold) Test**	Test Procedure as per IEC 60068-2-1:2007	Sample was subjected to Environmental chamber at **Operational Temperature** Temperature : 0 °C ± 3°C Ramp rate : 1 ^{0} C/ min Duration : 16 Hrs. **Storage Temperature** Temperature : 0 °C ± 3°C Ramp rate : 1 ^{0} C/ min Duration : 16 Hrs.	After test equipment is visually examined and electrically and mechanically checked, no mechanical defects / cracks observed and found functional.	Pass

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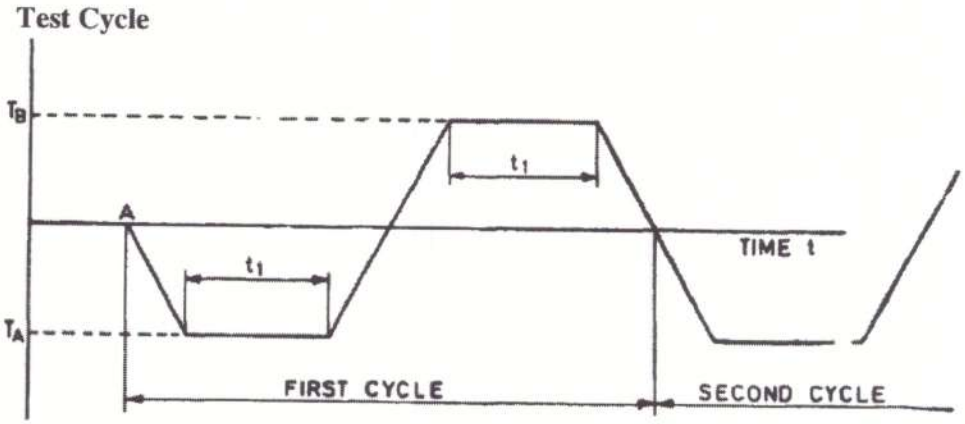
DISCIPLINE : Electrical

Sr. No	Parameter	Reference	Test Condition	Observation	Result Pass/Fail
3.	**Thermal Cycling (Change of Temperature with specified rate) Test :**	Test Procedure as per IEC 60068-2- 14: 2009	Sample was subjected to Environmental chamber at Low Temperature Ta : 0°C High Temperature Tb: +55°C Ramp rate : 1 °C/ min Condition : Operational (ON) Duration: 1Hrs. For 2 cycles	After test equipment is visually examined and electrically and mechanically checked, no mechanical defects / cracks observed and found functional.	Pass

Thermal Cycling (Change of Temperature with specified rate) Test :



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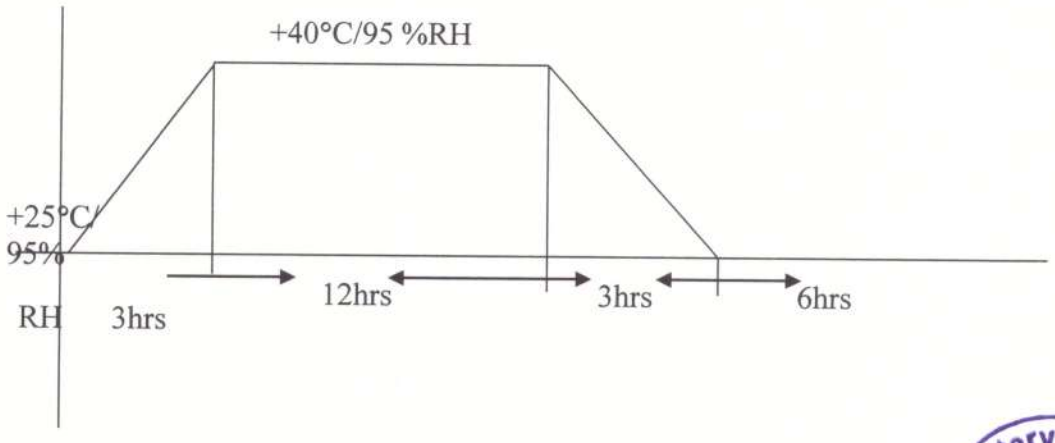
DISCIPLINE : Electrical

Sr. No	Parameter	Reference	Test Condition	Observation	Result Pass/Fail
4.	**Damp Heat Cyclic Test**	Test Procedure as per IEC 60068-2-30 : 2005	Sample was subjected to Environmental chamber at Temperature : +55°C ± 3°C Humidity : Up to 95% Rh Ramp rate : 1 ^{0} C/ min Operational (ON) Duration : 12 + 12 Hrs. No. of Cycle : 05	After test equipment is visually examined and electrically and mechanically checked, no mechanical defects / cracks observed and found functional.	Pass

Damp Heat Cyclic Test:(IEC 60068-2-30) :



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DISCIPLINE : Electrical

5- Test Conducted : (as per IS/IEC 60529-2001)

Sr. No.	Test Conducted	Requirements As per Standard/Specification	Observations
5.	Degree of Protection Provided by nclosure Of EV Charger IP65, (Protocol followed: (IS/IEC60529:2001)	**Test Condition for IP6X (Cl. No. 13.4+ 13.6)** TESTING DUST : 50µm dry talcum powder DENSITY OF DUST : 2kg/m³ TEMPERATURE : 23±5°C HUMIDITY : 25%-75% RH DUST BLOWING TIME : 8 hours **Test Condition for IPX5 (Cl.No.14.2.5)** : Internal Diameter Of The Nozzle : 6.3 mm Delivery Rate : 12.5 l/min ± 5 % Water Pressure : To be Adjusted to Achieve The Specified Delivery Rate Test Duration : 5 min Distance From Nozzle To Enclosure Surface : 3 m **For First Characteristic Numeral 6** The protection is satisfactory if no deposit of dust is observable inside the Enclosure at the end of the test.	In Compliance (No deposit of dust inside the Enclosure of EV Charger). EV Charger was functioning O.K.
		For Second Characteristic Numeral 5 Acceptance conditions for IPX5. In general, Water projected from jets (6.3 mm nozzle) against the Enclosure from any direction shall have no harmful effects.	In Compliance (No water entered inside the Enclosure) EV Charger was functioning O.K.

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TEST REPORT

6. **Mechanical Impact Test :**

(Procedure as per IEC 62262-2002/ IEC 60068-2-75: 2014)

Sl. No	Parameter	Nominal Value / Requirement	Observation	Result
6.	**Impact Resistance of Casing :(IK 10) :** Protected against Impact Energy 20 Joule impact Equivalent to 5.0 kg mass dropped from height of tall 400 mm ± 1 % above impacted surface.	No damage should be observed on the casing of EV Charger.	After the test the casing does not show any damage	Satisfactory

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DISCIPLINE : Electrical

Test Conducted :

(Immunity to Electrostatic Discharges) :

Sl. No.	Parameter	Nominal Value / Requirement	Observation	Result
7.	**ESD TEST**: **(IEC 61000-4-2 : 2008)** Type of Discharge (Air discharge:) Test Voltage : 08 KV (Contact discharge) Test Voltage : 04 KV Polarity: (+ve & -ve) No. of Discharge : 10 of each polarity Unit Under Test Condition: Sample of EV Charger was in Operating condition.	After the test the EUT of EV Charger shall continue to operate as intended without any malfunctioning & degradation in performance	After the test the Sample of EV Charger was working without any malfunctioning & degradation in performance.	Normal performance within limits specified by the manufacturer.

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TEST REPORT

Test Conducted :

(Immunity to Surge Protection) :

Sl. No	Parameter	Nominal Value / Requirement	Observation	Result
8.	**Surge Test :** **(IEC 61000-4-5 : 2014)** Pulse 1.2/50µs Amplitude : 4.0 KV (Symmetrical) 4.0 KV (Asymmetrical) Polarity: (+ve & -ve) No. of pulses Applied: 5 of each Polarity. Phase angle : 0^0, 90^0, 180^0 & 270^0 Condition of Sample : EV Charger was at under normal operating condition.	After the test EV Charger shall continue to operate as intended without any malfunctioning & degradation in performance	**Pass up to** 4.0 KV (Symmetrical 4.0 KV (Asymmetrical) Polarity: (+ve & -ve) No. of pulses Applied: 5 of each Polarity Phase angle : 0^0 , 90^0 , 180^0 & 270^0 EV Charger was Functioning Ok	Normal performance within limits specified by the manufacturer

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DISCIPLINE : Electrical

Sample Photo:

3.3 KW EV Charger

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Environmental Test :

Environmental Test

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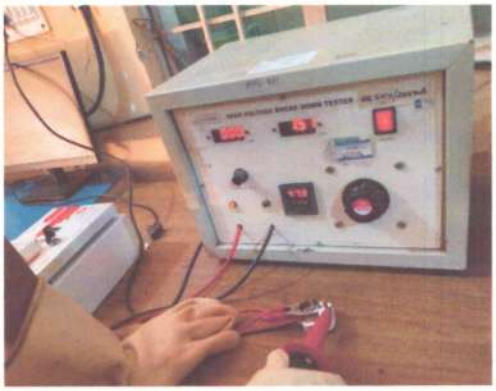
DISCIPLINE : Electrical



HV Test

IR Test

ESD Test

Impulse Test

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DISCIPLINE : Electrical

Internal Circuit Diagram

General Remarks (If any):

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3. The results reported in the report are valid at the time of and under the stated conditions of measurement.

----------End of Report----------

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