Laboratory	**Honeywell Technology Solutions Lab Private Limited (S & PS Laboratory), 151/1, Doraisanipalya, Bannerghatta Road, Bangalore, Karnataka** **Location 1: 151/1, Doraisanipalya, Bannerghatta Road, Bangalore, Karnataka** **Location 2: 152/9 & 10, Bilekahalli Village, Begur Hobli, Bannerghatta Road, Bangalore, Karnataka**
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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection

ELECTRICAL TESTING

LOCATION 1				
I.	**SWITCHGEAR EQUIPMENT**			
1.	**Switchgear Components for Road Vehicles**	Reversed voltage	ISO 16750-2, Ed 4, (2012-11-01); Cl 4.7 4.7.2.2 Case 1 4.7.2.3 Case 2	Upto 12 V 60 s ± 6 s
		Over Voltage	ISO 16750-2 Ed 4 (2012-11-01); Cl 4.3 4.3.1.1.2 4.3.1.2.2	Tmax -20 °C 18 V, 60 min. 24V, 60 s ± 6 s
2.	**Electrical and Electronic Equipment for Road Vehicles**	Short Circuit Protection	ISO16750-2 Ed 4, 2012-11-01; Cl 4.10	25±5°C 60s 16VDC
II.	**ENVIRONMENTAL TEST FACILITY**			
1.	**Electronic And Electrical Components**	Thermal Shock	MIL-STD-202-107, 18 April 2015 (Test Condition B-3)	1 to 100 cycles -65°C to 125°C
2.	**Airborne Equipment**	Ground Survival Low Temperature and Short-time Operating Low Temperature	RTCA DO-160G, Dec 08, 2010; Section 4.5.1	-55 °C to - 40°C Upto 2°C/min
		Operating Low Temperature	RTCA DO-160G, Dec 08, 2010; Section 4.5.2	-55 °C to - 40°C Upto 2°C/min

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		Ground Survival High Temperature and Short-Time Operating High Temperature	RTCA DO-160G, Dec 08, 2010; Section 4.5.3	50 °C to 120°C; Upto 2°C/min
		Operating High Temperature	RTCA DO-160G, Dec 08, 2010; Section 4.5.4	50°C to 120°C Upto 2°C/min
		Temperature Variation Low Operational Temp High Operational Temp	RTCA DO-160G, Dec 08, 2010; Section 5	 -55 °C to -40°C; 70°C to 85°C; Upto 5°C/min
		Humidity	RTCA DO-160G, Dec 08, 2010; Section 6	80%RH to 98%RH 35°C to 70°C 6.5 to 7.5 100,000 to 249,000 Ω–cm 0.5 m/s to 1.7m/s 45 hr to 245 hr
		Water Proofness - Condensing Water Proof	RTCA DO-160G, Dec 08, 2010; Section 10.3.1	Chamber 1 Temp: -10°C; Chamber 2 Temp: 40°C; Chamber 2 Humidity: 85% RH; Temp. Stabilization Time: 3 Hours to 4 Hours Transfer Time: 1min to 4.9 min
3.	**Electrical and electronic equipment for Road vehicles**	Submersion	ISO 16750-4 Ed 3: 2010-04-15 CL 5.4.3	Upto 125°C 1 to 10

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4.	**Any Electrical Product**	Na: Rapid change of temperature with prescribed time of transfer (Thermal Shock)	DS/EN 60068-2-14: 2009-09-02; Cl 7	-65°C to 155°C
		Nb: Change of temperature with specified rate of change (Thermal Cycling)	DS/EN 60068-2-14: 2009-09-02; Cl 8	-65°C to 155°C 3±0.6°C/min
		Db: Damp heat, cyclic	DS/EN 60068-2-30: 2006-02-23 12 h + 12 h cycle	40°C & 55°C, 90%RH to 96%RH No of cycles:1, 2, 6

Prachi Kukreti
Convenor

N. Venkateswaran
Program Director

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
LOCATION 2				
I.	**SWITCHGEAR EQUIPMENT**			
1.	**Low-voltage switchgear and controlgear**	Mechanical Durability	IEC 60947-1, Ed 5.2 (2014-09), Cl 7.2.4.3.1 IEC60947-5-1, Ed 4.0, 2016-05; Annex C	10 to 300 Upto 2 Million counts
2.	**Electro Mechanical, Electronic Sensing & Measurement Products**	Mechanical Endurance	MIL-PRF-8805G, 29-Feb-2016; Cl 4.7.25	10CPM to300 CPM
3.	**Industrial Control Equipment, Low-voltage switchgear and controlgear**	Temperature Temperature Rise	UL 508, Ed 17, Jan 28, 1999; Cl 43 IEC 60947-1, Ed 5.2 (2014-09); Cl 8.3.3.3	1A to 20A Ambient to 125°C
4.	**Industrial Control Equipment, Low-voltage switchgear and controlgear**	Overload Endurance Making and breaking capacities of switching elements under normal conditions Making and breaking capacities of switching elements under abnormal conditions	a) UL 508, Ed 17, Jan 28, 1999; Cl 137 b) UL 508, Ed 17, Jan 28, 1999; Cl 138 c) IEC60947-5-1, Ed 4.0, 2016-05; Cl 8.3.3.5.2 d) IEC60947-5-1, Ed 4.0, 2016-05; Cl 8.3.3.5.3	1VACto 660VAC, 66A 1VDC to 660VDC, 2.2A

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5.	**Industrial Control Equipment, Low-voltage switchgear and controlgear**	Dielectric Voltage-Withstand Dielectric Properties	UL 508, Ed 17, Jan 28, 1999; Cl 49 IEC60947-5-1, Ed 4.0, 2016-05; Cl 8.3.3.4	0.01kV to5 kVAC / 0.01kVto 6 kVDC 50 Hz/ 60Hz
6.	**Electronic And Electrical Component Parts Switches And Switch Assemblies, Sensitive, Snap Action (Basic, Limit, Push Button And Toggle Switches)**	Insulation Resistance	MIL-STD-202-302, 18 April 2015; MIL-PRF-8805G, 29-Feb-2016; Cl 4.7.5	Upto 500V +/- 10% Upto 9999 MΩ
7.	**Electronic And Electrical Components**	Contact Resistance	MIL-STD-202-307, 18 April 2015	0.1A to 5A Upto 100 mΩ
8.	**Door Interlock Switch for Elevators and Escalators**	Endurance	ASME A 17.1-2013/CSA B44-13, Oct 21, 2013; Cl 8.3.3.4.1	10CPM to 250CPM 1 A to 300 V 0.1A to 5A
		Current Interruption	ASME A 17.1-2013/CSA B44-13, Oct 21, 2013; Cl 8.3.3.4.2	4 to 20 1V to 300V 0.1A to 5A
		Without Lubricant	ASME A 17.1-2013/CSA B44-13, Oct 21, 2013; Cl 8.3.3.4.3	10 to 250 1V to 300 V 0.1A to 5A

Prachi Kukreti
Convenor

N. Venkateswaran
Program Director

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Moist Atmosphere	ASME A 17.1-2013/CSA B44-13, Oct 21, 2013; Cl 8.3.3.4.4	33°C to 37°C 72 hrs 82.73kPato 110.31 kPa 6.3 to 7.2; 1ml/hr to 2 ml/hr 10 CPM to 250CPM 1V to 300 V 0.1A to 5A
II.	**ENVIRONMENTAL TEST FACILITY**			
1.	**Electrical Enclosure**	**Degrees of protection provided by enclosures**		
		Second characteristic numeral 5 with the 6, 3 mm nozzle (IPX5)	IEC 60529, Ed 2.2, 2013-08; Cl 14.2.5	11.87 L/min to 13.12 L/min ≥ 3 min
		Second characteristic numeral 6 with the 12, 5 mm nozzle (IPX6)	IEC 60529, Ed 2.2, 2013-08;Cl 14.2.6	95 L/min to 105 L/min ≥ 3 min
		Second characteristic numeral 7: temporary immersion between 0,15 m and 1 m (IPX7)	IEC 60529, Ed 2.2, 2013-08; Cl 14.2.7	1m 30 min
		Second characteristic numeral 8: continuous immersion subject to agreement (IPX8)	IEC 60529, Ed 2.2, 2013-08; Cl 14.2.8	1m 24 hr
2.	**Enclosures for Electrical Equipment-1000V Maximum**	Protection Against Ingress Of Water (Hosedown) (NEMA 4) Hosedown	NEMA 250-2014; Cl 5.7 UL 50E, Ed 2, Oct 16, 2015; Cl 8.6	> 240 L/ min; 5 min

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		Oil Exclusion (NEMA 13) Oil Exclusion	NEMA 250-2014; Cl 5.13 UL 50E, Ed 2, Oct 16, 2015; Cl 8.12	> 7 L/min; 30 min
		Indoor Corrosion Protection (Rust-Resistance Indoor Corrosion Protection	NEMA 250-2014, Cl 5.8 ; UL 50E, Ed 2, Oct 16, 2015; Cl 8.7	33°C to 37°C; 24 hr 82.73 to 110.31 kPa 6.3 to 7.2 1ml/hr to 2 ml/hr 450 cu cm
		Salt Spray Outdoor Corrosion Protection	NEMA 250-2014, Cl 5.9.1; UL 50E, Ed 2, Oct 16, 2015; Cl 8.8.1	33°C to 37°C; 600 hr 82.73kPa to 110.31 kPa 6.3 to 7.2 1ml/hr to 2 ml/hr
3.	**Airborne Equipment**	Water Proofness - Spray Proof	RTCA DO-160G, Dec 08, 2010; Section 10.3.3	≤2.5m above surface of DUT ≥ 15 min, 450 lph
		Salt Fog	RTCA DO-160G, Dec 08, 2010; Section 14	24 hr 33°C to 37°C 82.73kPa to 110.31 kPa 6.3 to 7.2 1 ml/hr to 2 ml/hr 450 cu cm
4.	**Electrical Enclosure**	**Degrees of protection provided by enclosures**		
		Second characteristic numeral 9 by high pressure and temperature water jetting	IEC 60529, Ed 2.2, 2013-08; Cl 14.2.9	8000 to 10,000kPa 75°C to 85°C 30s for each angle 14 to 16 lpm 0°, 30°, 60°, 90° 100 to 150 mm 4rpm to 5 rpm

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5.	**Road vehicles- Electrical Equipment**	Degrees of protection against water- IPX9K	ISO 20653: 2013-02; Cl 9.2	8000 to 10,000kPa 75°C to 85°C 30s for each angle 14 lpm to 16 lpm 0°, 30°, 60°, 90° 100 mm to 150 mm 4 rpm to 5 rpm

Prachi Kukreti
Convenor

N. Venkateswaran
Program Director