Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	dia Pvt. Ltd., Laboratory E 9/4, EPIP Zone, Phase-II, V ry Building, Kalyani Platina (field, Bangalore, Karnataka ding, Kalyani Platina Campu Bangalore, Karnataka	vt. Ltd., Laboratory Building, Kalyani Platina EPIP Zone, Phase-II, Whitefield, Bangalore, ilding, Kalyani Platina Campus, Sy. No. 129/4, EPIP Bangalore, Karnataka Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, alore, Karnataka			
Accr	editation Standar	rd ISO/IEC 17025: 200	5				
Disci	ipline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	1 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
		LOO	CATION: 1				
I.	ENVIRONMENTA	AL TESTING					
1.	Environmental Testing of Electronics & Electrical Items	Low Temperature (Cold) Test	QM333 Issue. 2: 1998	25 °C to (-)65 °C 1000 mmW x 800 mmI 1000 mmH 3048 mmW x 3658 mm 2388 mmH 1829 mmW x 1829 mm 2388 mmH			
		High Temperature (Dry) Heat	QM333 Issue. 2: 1998	30 °C to 150 1000 mmW = 1000 mmH 3048 mmW = 2388 mmH 1829 mmW = 2388 mmH) °C x 800 mmD x x 3658 mmD x x 1829 mmD x		
		Rapid Temperature Cycle (2 chamber method)	QM333 Issue. 2: 1998	(-)65°C to 15 1000 mmW x 1000 mmH	50 °C x 800 mmD x		
				3048 mmW 2388 mmH	x 3658 mmD x		
				1829 mmW 2 2388 mmH	x 1829 mmD x		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accreditation Standard ISO/IEC 17025: 2005							
Disc	ipline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016	18.10.2016		2 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Environmental Testing of Electronics & Electrical Items	Water Immersion Test	QM333 Issue. 2: 1998	15 °C to 35 °C			
I		Corrosion (Salt)	QM333 Issue. 2: 1998	35 °C, 95 % RH			
		Drop Test	QM333 Issue. 2: 1998	10 mm to 2000 mm, 45°			
		Toppling Test	QM333 Issue. 2: 1998	10 mm to 20	00 mm		
		Fall Test	QM333 Issue. 2: 1998	10 mm to 20	00 mm		
		Cold Test	EN/IEC 60068-2-1: 2007	25 °C to (-)6	55 °C		
				1000 mmW x 800 mmD x 1000 mmH			
				3048 mmW 2 2388 mmH	Bangalore, No. 129/4, EPIP 9/4, EPIP Zone, e 05.08.2016 il 04.08.2018 2 of 111 f Testing / f Detection 5 °C % RH 2000 mm 2000 m		
		Dry Heat	EN/IEC 60068-2-2: 2007	1829 mmW x 2388 mmH 30 °C to 150	x 1829 mmD x) °C		
				1000 mmW x 1000 mmH	x 800 mmD x		
				3048 mmW 2 2388 mmH	x 3658 mmD x		
				1829 mmW 2 2388 mmH	x 1829 mmD x		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accreditation Standard ISO/IEC 17025: 2005							
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	3 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
Environment Testing of Electronics & Electrical Iter	Environmental	Salt Mist Test	IEC 60068-2-11, (3 rd Edition):	25 °C to 35 °	°C, 95 %Rh		
	Electronics & Electrical Items		1701	2160 mmW x 1320 mmH	x 980 mm D x		
		Change of Temperature	IEC 60068-2-14 (6 th Edition): 2009	(-)65°C to 1	50°C		
		method)	2007	1000 mmW : 1000 mmH	x 800 mmD x		
				3048 mmW 2 2388 mmH	x 3658 mmD x		
				1829 mmW 2 2388 mmH	x 1829 mmD x		
		Damp heat, cyclic (Test Db)	IEC 60068-2-30,(3 rd Edition): 2005-08	22 °C to 55 ° 35 % to 95 %	°C, % Rh		
				1000 mmW x 1000 mmH	x 800 mmD x		
				3048 mmW 2 2388 mmH	x 3658 mmD x		
				1829 mmW 2 2388 mmH	x 1829 mmD x		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accreditation Standard ISO/IEC 17025: 2005							
Disc	ipline	Electronics Testing	ng Issue Date 05.08		05.08.2016		
Certificate Number		T-1432		Valid Until 04.08.2018			
Last	Amended on	18.10.2016		Page	4 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Environmental Testing of Electronics & Electrical Items	Salt Mist, Cyclic,	IEC 60068-2-52, (2 nd Edition):	25 °C to 35 °C, 95 %Rh 2160 mmW x 980 mmD x 1320 mmH			
		Test Kb (sodium chloride solution)	1996				
		Water – IPX1 to IP X7 Degrees of Protection): provided by enclosures	IEC 60529: 2013-08, (Edition 2.2) 1+ Corr. 3	IPX1 to IP X Qualitative	7		
		Dust- IP 1 x to IP 6 x	IEC 60529: 2013-08,	IP 1 x to IP 6	δx		
		Degrees of Protection): provided by enclosures	(Edition 2.2) 1+Corr. 3	Qualitative			
		Damp Heat, steady state	IEC 60068-2-78 (2 nd Edition): 2012-10	30 °C to 40 35 % to 95 %	°C, 6 Rh		
				1000 mmW 1000 mmH	x 800 mmD x		
				3048 mmW 2388 mmH	x 3658 mmD x		
				1829 mmW 2388 mmH	x 1829 mmD x		

Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	05.08.2016
Certificate Number	T-1432	Valid Until	04.08.2018
Last Amended on	18.10.2016	Page	5 of 111

S. No. Product / Specific Test Performed Test Method Specification Range of Testing / Material of Test Limits of Detection performed

II. INFORMATION TECHNOLOGY EQUIPMENTS

1.	Power adaptors, Mobile Phone, Cash Register, Point of Sale	Input Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 1.6.2)	1.5 V to 300 VAC/DC 1 mA to 20 A AC/DC
	Terminal, Copying Machine, Franking	Thermal requirement	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.5.1)	20 °C to 400 °C
	Machine, Passport reader, Computer Systems, Monitors.	Overload of operator accessible Parts	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 5.3.7)	1 W to 330 W(max) 0.1 s to 1 hr
	Printers, Scanners, Keyboards, Telephones &	Humidity conditioning	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 2.9.1)	93 % to 95 % RH 20 °C to 100 °C Qualitative
	Automatic Data Processing Machine, Setup Box	Electric strength Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 5.2.2)	50 V to 10 kV AC/DC 1 s to 900 s
	DUX	Touch current Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 5.1)	0.1 mA to 5 mA
		Abnormal operation Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 5.3.1)	25 °C to 400 °C Qualitative

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	dia Pvt. Ltd., Laboratory E 29/4, EPIP Zone, Phase-II, V ry Building, Kalyani Platina (field, Bangalore, Karnataka ding, Kalyani Platina Campu Bangalore, Karnataka	. Ltd., Laboratory Building, Kalyani Platina PIP Zone, Phase-II, Whitefield, Bangalore, ing, Kalyani Platina Campus, Sy. No. 129/4, EPIP angalore, Karnataka alyani Platina Campus, Sy. No 129/4, EPIP Zone, ore, Karnataka			
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disc	ipline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016	18.10.2016		6 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Power adaptors, Mobile Phone, Cash Register, Point of Solo	Capacitance discharge Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 2.1.1.7)	0.1 V to 800	V Peak / DC 5 s		
	Terminal, Copying Machine, Franking	Limited power source measurement Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 2.5)	1 W to 330 V 0.1 s to 1 hr	W(max)		
	Passport reader, Computer Systems,	Working voltage determination	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 2.10.2)	1 V to 1000	V rms/V DC		
	Monitors, Printers, Scanners, Keyboards, Telephones &	Protective bonding Test II	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 2.6.3.4)	0.01 Ω to 0.3 5 s to 600 s A to 60 A	3 Ω 1		
	Automatic Data Processing Machine, Setup Box	Limited current circuit measurements	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 2.4.1)	0.1 mA to 5	mA		
	DUX	Limitation of touch current to a telecommunication and cable distribution system	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 5.1.8.1)	0.1 mA to 5	mA		
		Requirement of separation between telecommunication network from earth	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 6.1.2)	1 V to 2 kV 1-900 s	AC/DC		
		Steady force Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.2.1)	0.1 s to 1 hr 1 N to 900 N Qualitative	ſ		

Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	05.08.2016
Certificate Number	T-1432	Valid Until	04.08.2018
Last Amended on	18.10.2016	Page	7 of 111

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Power adaptors, Mobile Phone, Cash Register, Point of Sale	Impact Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.2.5)	1 mm to 3000 mm 500 g
	Terminal, Copying Machine, Franking Machine.	Strain relief Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 3.2.6)	0.1 s to 1 hr 1 N to 60 N Qualitative
	Passport reader, Computer Systems, Monitors.	Cord guard Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 3.2.8)	5 ° to 90 ° 15.5 mm to 25 mm
	Printers, Scanners, Keyboards, Telephones &	Hazardous moving Parts Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.4.2)	Test finger - Figure 2A Qualitative
	Automatic Data Processing Machine, Setup	Stability Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.1)	5 ° to 60 ° Qualitative
	DUX	Durability of marking Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 1.7.11)	Qualitative (Visual inspection)
		Stress relief Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.2.7)	25°C to 150 °C Qualitative
		Drop Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.2.6)	1 mm to 3000 mm Qualitative

Laboratory UL India Lab, UL India Pvt. Ltd., Laboratory Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Karnataka Location 1: Laboratory Building, Kalyani Platina Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campu Phase-II, Whitefield, Bangalore, Karnataka		Building, Kaly Whitefield, Ba Campus, Sy. No s, Sy. No 129/4	ani Platina angalore, o. 129/4, EPIP I, EPIP Zone,	
Accreditation Standard	ISO/IEC 17025: 200	5		
Discipline	Electronics Testing		Issue Date	05.08.2016
Certificate Number	T-1432		Valid Until	04.08.2018
Last Amended on	18.10.2016		Page	8 of 111
S. No. Product / Sp Material of Test	pecific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection

III. AUDIO/ VIDEO COMPONENTS AND PRODUCTS

Power adaptor,	Humidity treatment	EN/IEC
Televisions,	-	Clause.
Optical Disc		IS 616: 2
Players,		Clause.
Amplifier,		
Electronic		
Musical System		
	Power adaptor, Televisions, Optical Disc Players, Amplifier, Electronic Musical System	Power adaptor,Humidity treatmentTelevisions,Humidity treatmentOptical DiscPlayers,Amplifier,ElectronicMusical System

EN/IEC 60065: 2005, Clause. 10.2 S 616: 2010, Clause. 10.2 28 °C to 50 °C 90 % to 95 % RH Qualitative

IV. ELECTRO-MEDICAL EQUIPMENTS

1.	Applied	Document Review	IEC 60601-1-6 (3 rd Edition):	Qualitative
	Electromagnetic		2010	
	radiation			
	equipment;			
	Applied			
	Current/Energy			
	Equipment;			
	Ultrasound			
	Equipment;			
	Cardio, Vascular			
	and Pulmonary			
	Equipment;			
	General Medical			
	Equipment;			
	Patient-			
	monitoring			
	Equipment			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standar	d ISO/IEC 17025: 200	5			
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last	Amended on	18.10.2016	18.10.2016		9 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Applied Electromagnetic	Environmental Test conditions of transport and	IEC 60601-1-11 (1 st Edition): 2010	(-)25 °C to (+)70 °C	
radiation equipment;	storage	Sub-Clause. 4.2.1	90 % to 95 % RH			
	Applied Current/Energy Equipment;	Environmental Test operation condition	IEC 60601-1-11 (1 st Edition): 2010	(+)5 °C to (+	•)40 °C	
	Ultrasound Equipment;		Sub-Clause. 4.2.2	15 % to 95 %		
Cardio, and Pul Equipm General Equipm Patient- monitor Equipm	Cardio, Vascular and Pulmonary	Harmful Ingress of Liquids	IEC 60601-1-11 (1 st Edition): 2010	IP22		
	and Pulmonary Equipment; General Medical Equipment; Patient- monitoring Equipment		Sub-Clause. 8.3	1 N to 30 N 150 Tilt Flow rate 3 r 2.5 min IP21 1 to 30 N Enclosures o Flow rate 1 10 min	nm/min n turn table mm/min	
		Free Fall Test	IEC 60601-1-11 (1 st Edition): 2010 Sub Clause: 10.1.3d	1 m 2 falls from s for mass ≤ 1 for mass > 1 ≤ 10 kg, 0.1 for mass > 1 ≤ 50 kg, 0.05 for mass > 50 kg, 0.01	specified altitude. kg, 0.25 m kg and m 0 kg and 5 m m.	

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standar	d ISO/IEC 17025: 200	5			
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last	Amended on	18.10.2016		Page	10 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
2.	Ambulatory electrocardiograp hic systems	Drop Impact Test	IEC 60601-2-47 (2 nd Edition): 2012 Sub-Clause. 201.15.3.4.2	10 mm to 2000 mm, 45 $^{\circ}$		
		Linearity and dynamic range	IEC 60601-2-47 (2 nd Edition): 2012 Sub Clause. 201.12.4.4.101	(±)300 mV 1 0.5 mV to 5n 0.4 Hz to 40	DC, nV, Hz	
		Input Impedance	IEC 60601-2-47 (2 nd Edition): 2012 Sub Clause, 201.12.4.4.102	1 mV to 300 0.67 Hz to 40	mV DC) Hz	
		Common Mode Rejection	IEC 60601-2-47 (2 nd Edition): 2012	1 mm to 300	mm,	
		Gain Accuracy	Sub Clause. 201.12.4.4.103 IEC 60601-2-47 (2 nd Edition): 2012 Sub Clause. 201.12.4.4.104	50 Hz to 60 I 1 l/min to 35	Hz 0 l/min	
		Multichannel Crosstalk	IEC 60601-2-47 (2 nd Edition): 2012 Sub Clause. 201.12.4.4.107	0.5 mV to 2.3 0 .1 mm to 1 1 Hz to 30 H	5 mV, mm z	
		Frequency Response	IEC 60601-2-47 (2 nd Edition): 2012	1 Hz to 40 H	Z,	
			Sub Clause. 201.12.4.4.108	0.1 mV to 1 n 1 mm to 300	mV, mm	

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accre	editation Standar	d ISO/IEC 17025: 200	5				
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016	18.10.2016		11 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Ambulatory electrocardiograp hic systems	Function In the Presence of Pacemaker Pulses	IEC 60601-2-47 (2 nd Edition): 2012 Sub Clause. 201.12.4.4.109	2 mV to 500 2 ms	mV,		
		Timing Accuracy	IEC 60601-2-47 (2 nd Edition): 2012 Sub Clause. 201.12.4.4.110	Qualitative			
		GAIN Settings and Switching	IEC 60601-2-47 (2 nd Edition): 2012 Sub Clause. 201.12.4.4.111	1 mm to 30 r	nm		
3.	Applied Electromagnetic	Power input Test	UL 60601-1 (1 st Edition): 2003 Revision 2006	1 mA to 20 A	a max		
	equipment; Applied		AM 1: 1991, AM 2: 1995 (Clause. 7.1)	2000 W			
	Equipment; Ultrasound	Voltage limitation Test	UL 60601-1 (1 st Edition): 2003 Revision 2006	0.1 V to 800	V peak		
	Cardio, Vascular and Pulmonary Equipment; General Medical		IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995 (Clause. 15)				
	Equipment; Patient-	Earthing and potential equalization Test	UL 60601-1 (1 st Edition): 2003 Revision 2006	$0.001 \ \Omega$ to $0.001 \ \Omega$	3Ω,		
	monitoring Equipment		IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995 (Clause. 18 f)	1 s to 600 s			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standa	rd ISO/IEC 17025: 200	5			
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last	Amended on	18.10.2016	18.10.2016		12 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Applied Electromagnetic radiation equipment; Applied	Dielectric voltage withstand Test	UL 60601-1 (1 st Edition): 2003 Revision 2006 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995 (Clause. 20.4)	10 V to 10 k 10 s to 900 s 1 mA to 100	W AC/DC mA	
	Current/Energy Equipment; Ultrasound Equipment; Cardio, Vascular and Pulmonary	Leakage current Test	UL 60601-1 (1 st Edition): 2003 Revision 2006 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995 (Clause. 19)	0.1 mV to 10	00 mV	
	Equipment; General Medical Equipment; Patient- monitoring Equipment	Temperature Test	UL 60601-1 (1 st Edition): 2003 Revision 2006 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995 (Clause. 42)	17 °C to 400	°C	
		Humidity conditioning Test	UL 60601-1 (1st Edition): 2003 Revision 2006 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995 (Clause. 44.5)	93 %RH to 9 Minus: 20 °C	5 % RH C to 100 °C	
		Abnormal operations and fault conditions Test	UL 60601-1 (1 st Edition): 2003 Revision 2006 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995 (Clause. 52)	17 °C to 400	°C	

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standar	rd ISO/IEC 17025: 200	5			
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last	Amended on	18.10.2016		Page	13 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Applied Electromagnetic radiation equipment; Applied	Marking durability Test	UL 60601-1 (1 st Edition): 2003 Revision 2006 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995 (Clause. 6.1)	0.1 s to 60 s		
	Equipment; Ultrasound Equipment; Cardio, Vascular and Pulmonary	Enclosure mechanical strength	UL 60601-1 (1 st Edition): 2003 Revision 2006 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995 (Clause. 21a,b)	0.2 J to 1.0 J 1 N to 200 N	í	
Equipment; General Medica Equipment; Patient- monitoring Equipment	Equipment; General Medical Equipment; Patient- monitoring Equipment	Stability and transportability Test	UL 60601-1 (1 st Edition): 2003 Revision 2006 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995 (Clause. 24)	1 ° to 15 °		
		Ball pressure Test	UL 60601-1 (1 st Edition): 2003 Revision 2006 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995 (Clause. 59.2)	17 °C to 150 0.01 mm to 1	°C 10 mm	
		Legibility of Markings	IEC 60601-1 (3 rd Edition): 2005 Amd 1: 2012, Clause. 7.1.2 IS 13450 (Part 1): 2008, Clause. 7.1.2	100 lx to 150)0 lx	

Labo	ratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accre	editation Standard	ISO/IEC 17025: 200	ISO/IEC 17025: 2005				
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certif	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	14 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Applied Electromagnetic	Voltage mismatch	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 7.2.6	1 V to 440 V 0.5 V to 24 V	AC /DC		

Applied Electromagnetic radiation equipment; Applied	vonage mismatch	Amd. 1: 2012, Clause. 7.2.6 IS 13450 (Part 1): 2008, Clause. 7.2.6	0.5 V to 24 VDC
Current/Energy	Shorting one MOP	IEC 60601-1 (3rd Edition): 2005	Qualitative
Equipment; Ultrasound Equipment; Cardio, Vascular		Amd. 1: 2012, Clause. 8.1b IS 13450 (Part 1): 2008, Clause. 8.1b	
and Pulmonary Equipment;	Incorrect Polarity	IEC 60601-1 (3 rd Edition): 2005	Qualitative
General Medical Equipment; Patient- monitoring		Amd. 1: 2012, Clause. 8.2.2 IS 13450 (Part 1): 2008, Clause. 8.2.2	
Equipment	Patient Lead Connection	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 8.5.2.3 IS 13450 (Part 1): 2008, Clause. 8.5.2.3	0.2 mm to 300 mm 0.06 kV to 10 kV 0.02 - 50N
	Working Voltage Measurement	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 8.5.4 IS 13450 (Part 1): 2008,	20 V to 1000 Vrms/VDC

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standar	rd ISO/IEC 17025: 200	5			
Disci	pline	Electronics Testing	1	Issue Date	05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last	Amended on	18.10.2016		Page	15 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Applied Electromagnetic radiation equipment; Applied	Thermal Cycling for spaces filled with insulating material,	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 8.9.5 IS 13450 (Part 1): 2008, Clause. 8.9.5	20 °C to 100	°C	
	Current/Energy Equipment; Ultrasound Equipment; Cardio, Vascular and Pulmonary	Temperature and Overload Control Device	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 15.4.2.1 IS 13450 (Part 1): 2008, Clause. 15.4.2.1	10 to 200 Cy	cle	
	Equipment; General Medical Equipment; Patient- monitoring	Reverse Battery Connection/Overcharging by inspection	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 15.4.3 IS 13450 (Part 1): 2008, Clause. 15.4.3	Qualitative		
	Equipment	Transformer Short Circuit	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 15. 5.1.2 IS 13450 (Part 1): 2008, Clause. 15. 5.1.2	1 °C to 400 ° 0.1 kV to 10	°C kV AC/DC	
		Transformer Overload	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 15.5.1.3 IS 13450 (Part 1): 2008, Clause. 15.5.1.3	1 °C to 400 ° 0.1 kV to 10	°C kV AC/DC	
		Transformer Dielectric Voltage Withstand	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 15.5.2 IS 13450 (Part 1): 2008, Clause. 15.5.2	0.1 kV to 10	kV AC	

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standa	rd ISO/IEC 17025: 200	5			
Disci	ipline	Electronics Testing	I	Issue Date	05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last	Amended on	18.10.2016		Page	16 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Applied Electromagnetic radiation equipment; Applied Current/Energy Equipment; Ultrasound Equipment; Cardio, Vascular and Pulmonary Equipment; General Medical Equipment; Patient- monitoring Equipment	ME System Leakage Current Limitation of Voltage, Current or Power Defib-Proof Applied Parts Defib-Proof Applied Parts, Energy Reduction	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 16.6.1 IS 13450 (Part 1): 2008, Clause. 16.6.1 IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 8.4.2 IS 13450 (Part 1): 2008, Clause. 8.4.2 IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 8.5.5 IS 13450 (Part 1): 2008 IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 8.5.5.2 IS 13450 (Part 1): 2008, Clause. 8.5.5.2	0.1 mA to 1.4 0.1 V to 60 V 0.1 V to 800 1 mA to 20 A 1 kV to 5 kV 1 kV to 5 kV	000 mA V VA A max AC/DC	
		Stability and transportability Test	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 9.4.2 IS 13450 (Part 1): 2008	1 ° to 15 ° 0.36 N to 80	0N	
		Cord Anchorage	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 8.11.3.5 IS 13450 (Part 1): 2008, Clause. 8.11.3.5	0.36 N to 10 0.139 mm to 0.03 Nm to 1	0 N 300 mm Nm	

Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accreditation Standard	ISO/IEC 17025: 200	5		
Discipline	Electronics Testing		Issue Date	05.08.2016
Certificate Number	T-1432		Valid Until	04.08.2018
Last Amended on	18.10.2016		Page	17 of 111
S. No. Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of To Limits of Do	esting / etection

		periornica	
Applied Electromagnetic radiation equipment; Applied	Cord Bending	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 8.11.3.6 IS 13450 (Part 1): 2008, Clause. 8.11.3.6	0.13 mm to 300 mm, 0.2 kg to 5 kg 1 ° to 45 °
Current/Energy Equipment;	Measurement of Gaps(Trapping Zones)	IEC 60601-1 (3 rd Edition): 2005	0.13 mm to 300 mm
Ultrasound Equipment; Cardio, Vascular and Pulmonary		Amd. 1: 2012, Clause. 9.2.2.2 IS 13450 (Part 1): 2008, Clause. 9.2.2.2	
Equipment; General Medical	Mobile Equipment Force for Propulsion	IEC 60601-1 (3 rd Edition): 2005	0 .36 N to 500 N
Equipment; Patient- monitoring Equipment		Amd. 1: 2012, Clause. 9.4.2.4.2 IS 13450 (Part 1): 2008	0.79 s to 600 s 1 m to 3 m 1 mm to 4 mm
	Mobile Equipment Over a Threshold	IEC 60601-1 (3 rd Edition): 2005	5 s to 600 s
		Amd. 1: 2012, Clause. 9.4.2.4.3 IS 13450 (Part 1): 2008, Clause. 9.4.2.4.3	1 mm to 80 mm
	Instability from Unwanted Lateral Movement (Including Sliding),	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 9.4.3.1 IS 13450 (Part 1): 2008, Clause. 9.4.3.1	1 ° to 10 ° 1 mm to 300 mm

Laboratory	UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accreditation Standa	ard ISO/IEC 17025: 200	5			
Discipline	Electronics Testing	I	Issue Date	05.08.2016	
Certificate Number	T-1432		Valid Until	04.08.2018	
Last Amended on	18.10.2016	18.10.2016		18 of 111	
S. No. Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
Applied Electromagnetic radiation equipment; Applied Current/Energy Equipment; Ultrasound Equipment; Cardio, Vascular and Pulmonary Equipment; General Medical Equipment; Patient- monitoring Equipment	Instability Excluding Transport Handle Loading Mechanical Strength- Patient Support System Mechanical Strength – Foot	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 9.4.3.2 IS 13450 (Part 1): 2008, Clause. 9.4.3.2 IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 9.4.4 IS 13450 (Part 1): 2008, Clause. 9.4.4 IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 9.8.3.1 IS 13450 (Part 1): 2008, Clause. 9.8.3.1 IEC 60601-1 (3 rd Edition): 2005	1 ° to 10 ° 1 mm to 300 1 N to 150 N 5 s to 600 s 1 N to 500 N 1 kg to 100 k 1 kg to 270 k 1 kg to 135 k	mm g g	
	Mechanical Strength – Foot Rest Mechanical Strength – Dynamic Forces	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 9.8.3.2 IS 13450 (Part 1): 2008, Clause. 9.8.3.2 IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 9.8.3.3 IS 13450 (Part 1): 2008, Clause. 9.8.3.3	1 kg to 135 k 1 kg to 270 k	g g	

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standa	rd ISO/IEC 17025: 200	5			
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last Amended on		18.10.2016	18.10.2016		19 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Applied Electromagnetic radiation equipment; Applied	Suspension system w/Safety Devices Loading	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 9.8.4 IS 13450 (Part 1): 2008, Clause. 9.8.4	1 kg to 100 k	g	
Cu Eq Ult Eq Ca and Eq Ge Eq Pa mo	Current/Energy Equipment; Ultrasound Equipment; Cardio, Vascular and Pulmonary	Harmful Ingress	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 11.6.5 IS 13450 (Part 1): 2008, Clause. 11.6.5	1 mm to 300 0.1 s to 1 hr	mm,	
	Equipment; General Medical Equipment; Patient- monitoring Equipment	Cleaning and Disinfection of ME Equipment's and ME Systems	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 11.6.6 IS 13450 (Part 1): 2008, Clause. 11.6.6	0.1 kV to 10	kV AC/DC	
	L'Amburent,	Actuating Parts of Control of ME Equipment	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 15.4.6 IS 13450 (Part 1): 2008, Clause. 15.4.6	1 N to 100 N 0.2 Nm to 6	Nm	
		Cord – Connected Foot Operated Control Devices	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 15.4.7.1 IS 13450 (Part 1): 2008, Clause. 15.4.7.1	1 N to 1350	Ν	

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disci	pline	Electronics Testing	I	Issue Date 05.08.201			
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016	18.10.2016		20 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Applied Electromagnetic radiation equipment;	Short Circuiting in Lieu of Spacing	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 8.9.2 IS 13450 (Part 1): 2008, 8.9.2	Qualitative (Visual Inspe	ection)		
	Applied Current/Energy	Overflow	IEC 60601-1 (3rd Edition): 2005	1 $^{\circ}$ to 10 $^{\circ}$			
	Equipment; Ultrasound Equipment; Cardio, Vascular and Pulmonary		Amd. 1: 2012, Clause. 11.6.2 IS 13450 (Part 1): 2008, Clause. 11.6.2	1 V to 10 V 1 kV to 10 kV 5 s to 600 s	VAC		
	Equipment; General Medical Equipment; Patient- monitoring	Spillage	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 11.6.3 IS 13450 (Part 1): 2008, Clause. 11.6.3	1 V to 10 V 1 kV to 10 k 1 ml to 200 r	VAC nl.		
	Equipment	Leakage	IEC 60601-1 (3 rd Edition): 2005 Amd. 1: 2012, Clause. 11.6.4	1 ml to 200 r	nl		

IS 13450 (Part 1): 2008, Clause. 11.6.4 IEC 60601-1 (3rd Edition): 2005 Acoustic Energy 2 dB to 100 dB Amd. 1: 2012, Clause. 9.6.2.1 Measurement IS 13450 (Part 1): 2008, Clause. 9.6.2.1 IEC 60601-1 (3rd Edition): 2005 Power input Test 1 mA to 20 A max IS 13450 (Part 1): 1994 10 s to 900 s IS 13450 (Part 1): 2008 (Clause. 4.11)

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standa	rd ISO/IEC 17025: 200	5			
Disci	pline	Electronics Testing	Electronics Testing		05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last Amended on		18.10.2016		Page	21 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Applied Electromagnetic radiation	Voltage or Charge Limitation	IEC 60601-1 (3 rd Edition): 2005 IS13450 (Part 1): 2008 (Clause. 8.4.3)	0.1 V to 800	V peak	
	equipment; Applied	Impedance and Current	IEC 60601-1 (3 rd Edition): 2005	$0.001 \ \Omega$ to $0.$	3Ω,	
	Equipment; Ultrasound	Carrying Capability	IS13450 (Part 1): 2008 (Clause. 8.6.4a)	1 s to 600 s		
	Cardio, Vascular and Pulmonary	Dielectric voltage withstand Test	IEC 60601-1 (3 rd Edition): 2005	10 V to 10 k	V AC/DC	
	Equipment; General Medical		IS13450 (Part 1): 2008 (Clause. 8.8)	10 s to 900 s		
	Patient- monitoring Equipment	Leakage current Test	IEC 60601-1 (3 rd Edition): 2005 IS13450 (Part 1): 2008 (Clause. 8.7)	0.1 mA to 10	00 mA	
		Temperature Test	IEC 60601-1 (3 rd Edition): 2005 IS13450 (Part 1): 2008 (Clause. 11)	17 °C to 400	°C	
		Marking durability Test	IEC 60601-1 (3 rd Edition): 2005 IS13450 (Part 1): 2008 (Clause. 7.1.3)	0.1 s to 60 s		
		Humidity conditioning Test	IEC 60601-1 (3 rd Edition): 2005 IS13450 (Part 1): 2008 (Clause. 5.7)	93 %RH to 9 20 °C to 100	5 % RH °C	

Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accreditation Standard	ISO/IEC 17025: 2005			
Discipline	Electronics Testing		Issue Date	05.08.2016
Certificate Number	T-1432		Valid Until	04.08.2018
Last Amended on	18.10.2016		Page	22 of 111
S. No. Product / Sp Material of Test	pecific Test Performed	Test Method Specification against which tests are performed	Range of To Limits of Do	esting / etection

		performed	
Applied Electromagnetic	Interruption power supply	IEC 60601-1 (3rd Edition): 2005	Qualitative (Visual Inspection)
radiation equipment; Applied	1050	IS13450 (Part 1): 2008 (Clause. 11.8)	(visual hispection)
Current/Energy Equipment;	Abnormal operations and fault conditions Test	IEC 60601-1 (3 rd Edition): 2005	17 °C to 400 °C
Ultrasound Equipment; Cardio, Vascular		IS13450 (Part 1): 2008 (Clause. 13)	
and Pulmonary Equipment:	Enclosure mechanical strength	IEC 60601-1 (3 rd Edition): 2005	10 g to 80 kgf
General Medical Equipment; Patient-	Su vi gui	IS 13450 (Part 1): 2008 (Clause. 15.3)	0.1 s to 1 hr
monitoring Equipment	Instability Hazards	IEC 60601-1 (3 rd Edition): 2005 IS 13450 (Part 1): 2008 (Clause. 9.4.3)	0.1 ° to 15 °
	Ball pressure Test	IEC 60601-1 (3 rd Edition): 2005 IS 13450 (Part 1): 2008 (Clause. 8.8.4.1)	0.1 °C to 150 °C 0.01 mm to 10 mm
	Defibrillation-Proof Applied Parts	IS 13450 (Part 1): 1994, Clause. 17 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 17 UL 60601-1 (1 st Edition): 2003 Revision 2006, Clause. 17	1 kV to 5 kV AC/DC

Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	05.08.2016
Certificate Number	T-1432	Valid Until	04.08.2018
Last Amended on	18.10.2016	Page	23 of 111

Range of Testing / S. No. Product / **Specific Test Performed Test Method Specification** Limits of Detection Material of Test against which tests are performed Applied Handle Loading Test IS 13450 (Part 1): 1994, 5 s to 600 s Electromagnetic Clause. 21 IEC 60601-1 (2nd Edition): 1988 1 N to 500 N radiation AM 1: 1991, AM 2: 1995, equipment; Clause. 21 Applied **Current/Energy** UL 60601-1 (1st Edition): 2003 1 kg to 100 kg Equipment; Revision 2006, Ultrasound Clause. 21 Equipment; Cardio, Vascular Mechanical Strength -IS13450 (Part 1): 1994, 1 kg to 270 kg (min)and Pulmonary Patient Support System Clause. 21.3 IEC 60601-1 (2nd Edition): 1988 Equipment: **General Medical** AM 1: 1991, AM 2: 1995, Clause. 21.3 Equipment; Patient-UL 60601-1 (1st Edition): 2003 monitoring Revision 2006, Equipment Clause. 21.3 Mechanical Strength - Foot IS 13450 (Part 1): 1994, 1 kg to 135 kg (min) Rests/Chairs Clause. 21.3 IEC 60601-1 (2nd Edition): 1988 5 s to 600 s AM 1: 1991, AM 2: 1995, Clause. 21.3 UL 60601-1 (1st Edition): 2003 Revision 2006, Clause. 21.3

Accreditation Standard	Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	05.08.2016
Certificate Number	T-1432	Valid Until	04.08.2018
Last Amended on	18.10.2016	Page	24 of 111
S. No. Product /	Specific Test Performed Test Method Specification	Range of T	esting /

 Material of Test		against which tests are performed	Limits of Detection
Applied Electromagnetic radiation equipment; Applied Current/Energy Equipment; Ultrasound Equipment;	Drop Impact Test	IS 13450 (Part 1): 1994, Clause. 21.5 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 21.5 UL 60601-1 (1 st Edition): 2003 Revision 2006, Clause. 21.5	1 m
Cardio, Vascular and Pulmonary Equipment; General Medical Equipment; Patient- monitoring Equipment	Rough Handling – Drop Test	IS13450 (Part 1): 1994, Clause. 21.6 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 21.6 UL 60601-1 (1 st Edition): 2003 Revision 2006, Clause. 21.6	1 mm to 50 mm
	Rough Handling – Roll Off Step Test	IS 13450 (Part 1): 1994, Clause. 21.6	5 s to 600 s
		IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 21.6 UL 60601-1 (1 st Edition): 2003	1 m to 3 m
		Revision 2006, Clause. 21.6	

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standar	d ISO/IEC 17025: 200	5			
Disci	ipline	Electronics Testing	I	Issue Date	05.08.2016	
Certificate Number Last Amended on		T-1432		Valid Until	04.08.2018	
		18.10.2016		Page	25 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Applied Electromagnetic radiation equipment; Applied Current/Energy Equipment; Ultrasound Equipment:	Suspension System With Safety Devices Loading Test	IS 13450 (Part 1): 1994, Clause. 28.3 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 28.3 UL 60601-1 (1st Edition): 2003 Revision 2006, Clause. 28.3	1 kg to 100 k	sg	
	Cardio, Vascular and Pulmonary Equipment; General Medical Equipment; Patient- monitoring Equipment	Suspension Systems without Safety Device Loading Test	IS 13450 (Part 1): 1994, Clause. 28.4 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 28.4 UL 60601-1 (1 st Edition): 2003 Revision 2006, Clause. 28.4	1 kg to 100 k	sg	
		Harmful Ingress of Liquids Test	IS13450 (Part 1): 1994, Clause. 44.6 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 44.6 UL 60601-1 (1 st Edition): 2003 Revision 2006, Clause. 44.6	(0.1 kg to 7 l	cg)/cm ²	

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disc	ipline	Electronics Testing	I	Issue Date	05.08.2016		
Certificate Number Last Amended on		T-1432		Valid Until	04.08.2018		
		18.10.2016		Page	26 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Applied Electromagnetic radiation equipment; Applied Current/Energy Equipment; Ultrasound Equipment:	Overflow, Spillage, Leakage, Cleaning, Disinfection, Harmful Ingress Of Liquids,	IS13450 (Part 1): 1994, Clause. 44 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 44 UL 60601-1 (1st Edition): 2003 Revision 2006, Clause. 44	(0.1 kg to 7 k	:g)/ cm ²		
	Equipment; Cardio, Vascular and Pulmonary	Actuating Parts of Controls	UL 60601-1 (1 st Edition): 2003 Revision 2006,	1 N to 100 N			
	Equipment; General Medical Equipment; Patient- monitoring Equipment		Clause. 56.10 IS 13450 (Part 1): 1994, Clause. 56.10 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 56.10	1 Nm to 6 Ni	n		
		Cord Connected Foot Switch Test	UL 60601-1 (1 st Edition): 2003 Revision 2006, Clause. 56.11 IS13450 (Part 1): 1994, Clause. 56.11 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 56.11	1 kg to 135 k 5 s to 600 s	g (min)		

S. No. Product /	Specific Test Performed Test Method Specification	Range of T	esting /
Last Amended on	18.10.2016	Page	27 of 111
Certificate Number	T-1432	Valid Until	04.08.2018
Discipline	Electronics Testing	Issue Date	05.08.2016
Accreditation Standar	d ISO/IEC 17025: 2005		
Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka		

Material of Test		against which tests are performed	Limits of Detection
Applied Electromagnetic	Cord Anchorages,	UL 60601-1 (1 st Edition): 2003 Revision 2006,	1 N to 100 N
radiation		Clause. 57.4	1 mm to 300 mm
equipment;		IS 13450 (Part 1): 1994,	1 Nm to 0.35 Nm
Applied		Clause. 57.4	
Current/Energy		IEC 60601-1 (2 nd Edition): 1988	
Equipment;		AM 1: 1991, AM 2: 1995,	
Ultrasound		Clause. 57.4	
Equipment;	Cand Danding	UL (0(01 1 (1st Edition)) 2002	1 mm to 200 mm
and Pulmonary	Cora Benaing	Revision 2006,	1 mm to 300 mm,
Equipment;		Clause. 57.4	1 kg to 5 kg
General Medical		IS 13450 (Part 1): 1994,	1 $^{\circ}$ to 45 $^{\circ}$
Equipment;		Clause. 57.4	
Patient-		IEC 60601-1 (2 nd Edition): 1988	
monitoring		AM 1: 1991, AM 2: 1995,	
Equipment		Clause. 57.4	
	Transformer Overload and Short-Circuit Tests,	UL 60601-1 (1 st Edition): 2003 Revision 2006,	1 °C ~ 400 °C
		Clause. 57.9.1	1 kV to 10 kV AC/DC
		(1313430) (ratt 1) Clause 57.9.1	
		IEC 60601-1 (2 nd Edition): 1988	
		AM 1: 1991. AM 2: 1995.	
		Clause. 57.9.1	

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina mpus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, rnataka cation 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP ne, Phase-II, Whitefield, Bangalore, Karnataka cation 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, ase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standa	rd ISO/IEC 17025: 200	5				
Discipline	Electronics Testing	I	Issue Date	05.08.2016			
Certificate Number Last Amended on	T-1432		Valid Until	04.08.2018			
Last	Amended on	18.10.2016		Page	28 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Applied Electromagnetic radiation equipment; Applied Current/Energy Equipment; Ultrasound Equipment:	Transformer Dielectric Voltage Withstand	UL 60601-1 (1 st Edition): 2003 Revision 2006, Clause. 57.9.4 IS 13450 (Part 1): 1994, Clause. 57.9.4 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 57.9.4	1 kV to 10 k	V AC/DC		
	Cardio, Vascular and Pulmonary Equipment; General Medical Equipment; Patient- monitoring Equipment	Interruption of Power Supply	UL 60601-1 (1 st Edition): 2003 Revision 2006, Clause. 56.7 IS 13450 (Part 1): 1994, Clause. 49 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 49	1 s to 30 s			
		Reversed Battery Connection by inspection	UL 60601-1 (1 st Edition): 2003 Revision 2006, Clause. 56.7 IS13450 (Part 1): 1994, Clause. 56.7 IEC 60601-1 (2 nd Edition): 1988 AM 1: 1991, AM 2: 1995, Clause. 56.7	1 V to 440 V 0.5 V to 24 V	AC /DC		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accreditation Standard ISO/IEC 17025: 2005							
Disci	pline	Electronics Testing	1	Issue Date 05.08.20 ²			
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016		Page	29 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
4.	Medical electrical beds	Instability excluding transport	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010	3 N to 3000	N		
			Clause. 201.9.4.2.2	1 mm to 50 r	nm		
		Instability from horizontal and vertical forces	Ital IEC 60601-2-52 (1 st Edition): 3 N to 11 2009 Corr. 1: 2010 3		Ν		
			Clause. 201.9.4.2.3	1 mm to 50 r	nm		
		Force for propulsion	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.9.4.2.4.2	3 N to 500 N	[
		Movement over a threshold	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010	1 mm to 100	mm		
			Clause. 201.9.4.2.4.3	0.1 m/s to 0.1	8 m/s		
		Instability in transport	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010	1 mm to 100	mm		
			Clause. 201.9.4.3.1	1 ° to 10 °			
		Audible acoustic energy	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.9.6.2.1	2 dB to 100	₫B		
		Static forces due to loading from persons	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.9.8.3.2	3 N to 4000	N		
		Ingress of water	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.11.6.5.101	1 mm to 300 0.1 s to 1 hr	mm,		

Laboratory UL India Lab, UL Campus, Sy. No. Karnataka Location 1: Labora Zone, Phase-II, Whi Location 2: OAK Bu Phase-II, Whitefield		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	dia Pvt. Ltd., Laboratory E 29/4, EPIP Zone, Phase-II, V ry Building, Kalyani Platina C field, Bangalore, Karnataka ding, Kalyani Platina Campu Bangalore, Karnataka	Building, Kaly Whitefield, Ba Campus, Sy. No s, Sy. No 129/4	ani Platina angalore, o. 129/4, EPIP I, EPIP Zone,
Accr	editation Standar	d ISO/IEC 17025: 200	5		
Disc	ipline	Electronics Testing	I	Issue Date	05.08.2016
Certi	ficate Number	T-1432		Valid Until	04.08.2018
Last	Amended on	18.10.2016		Page	30 of 111
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection
	Medical electrical beds	Rough handling Test	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.15.3.5	0.4 m/s	
		Limitation of movement	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.15.4.6.2	1 ° to 90 °	
		Mechanical strength	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010	3 N to 1350	N
			Clause201.15.4.7.1	5 s to 1 min	
		Head/foot board assembly	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.15.4.101	5 s to 1 min	
		The effect of impacts to the mattress support platform	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010	20 kg	
		The effect of loading on the edge of the – Mattress Support Platform	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010	3 N to 750 N 1 mm to 300	mm
		Patient Entrapment in Non- Moving Parts	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.9.1.101	1 mm to 500	mm

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	rd ISO/IEC 17025: 200	ISO/IEC 17025: 2005					
Disci	pline	Electronics Testing	Electronics Testing		05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last Amended on		18.10.2016		Page	31 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	Medical electrical beds	Trapping Zone- Gaps	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.9.2.2.2 & 201.9.2.2.3	1 mm to 300	mm			
		Continuous Activation:	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.9.2.2.5	Qualitative				
		Interruption of the power supply/Supply Mains to me Equipment	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.11.8	1 s to 30s				
		Range of Adjustment of Moveable Sections of the Mattress Support Platform	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010	1 ° to 180 °				
		Dimensions for Handles and Pedals	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010	1 mm to 100	mm			
		Operating Forces for Handles And Pedals	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010	3 N to 300 N	[
		Combination of Medical Bed And Mobile Hoists,	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010	1 mm to 300	mm			
		Combination Of Medical Bed And Mattress	IEC 60601-2-52 (1 st Edition): 2009 Corr. 1: 2010	1 mm to 20 r	nm			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	32 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
5.	Pulse oximeter Equipment	Additional requirements for ingress of water or (Particulate matter into	DS/EN ISO 80601-2-61 (1 st Edition): 2011	1 mm to 300 0.1 s to 1 hr	mm,		
		ME equipment or ME system)	Clause. 201.11.6.5.101				
		Settings and data storage following short interruptions or automatic switchover	DS/EN ISO 80601-2-61 (1 st Edition): 2011 Clause. 201.11.8.101.2	5 s to 30 s			
		Detection of pulse oximeter probe faults and probe cable extender faults	DS/EN ISO 80601-2-61 (1 st Edition): 2011 Clause. 201.13.101	Qualitative			
6.	Electrocardiograp hic monitoring Equipment	Defibrillation protection- common mode Test	IEC 60601-2-27 (3 rd Edition): 2011 Clause. 201.8.5.5.1	1 kV to 5 kV	AC/DC		
		Differential mode Test	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.8.5.5.1	1 kV to 5 kV	AC/DC		
		Ingress of water or (Particulate matter into ME Equipment and ME System)	IEC 60601-2-27 (3 rd Edition): 2011 Clause. 201.11.6.5	1 mm to 300 0.1 s to 1 hr	mm,		
		Interruption): of the power supply / supply mains to ME Equipment	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.11.8	1 s to 30 s			

Laboratory UL India Lab, UL India Pvt. Ltd Campus, Sy. No. 129/4, EPIP Z Karnataka Location 1: Laboratory Building, I Zone, Phase-II, Whitefield, Bangal Location 2: OAK Building, Kalyan Phase-II, Whitefield, Bangalore, K			dia Pvt. Ltd., Laboratory E 29/4, EPIP Zone, Phase-II, V ry Building, Kalyani Platina C field, Bangalore, Karnataka ding, Kalyani Platina Campu Bangalore, Karnataka	aboratory Building, Kalyani Platina a, Phase-II, Whitefield, Bangalore, vani Platina Campus, Sy. No. 129/4, EPIP , Karnataka atina Campus, Sy. No 129/4, EPIP Zone, nataka			
Accreditation Standard ISO/IEC 17025: 2005							
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	33 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
Electrocardiogra hic monitoring	Electrocardiograp hic monitoring	Accuracy of signal reproduction	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.12.1.101.1	1 mm to 24 mm, 0.1 mV to 2 mV, 1 Hz to 20 Hz			
	Equipment	Input dynamic range and differential offset voltage	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.12.1.101.2	(±)300 mV I	DC		
		Input impedance	IEC 60601-2-27 (3 rd Edition): 2011, Clause, 201.12.1.101.3	1 mV to 300 0.67 Hz to 40	mV DC) Hz		
		Input Noise	IEC 60601-2-27 (3 rd Edition): 2011,	1 min to 30 r	nin,		
			Clause. 201.12.1.101.4	1 mm to 10 r	nm		
		Multichannel crosstalk	IEC 60601-2-27 (3 rd Edition): 2011,	0.5 mV to 2.5	5 mV,		
			Clause. 201.12.1.101.5	0 .1 mm to 1 1 Hz to 30 H	mm z		
		GAIN control and stability	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.12.1.101.6	1 mm to 30 r	nm		
		Sweep speed	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.12.1.101.7	1 mm to 30 r	nm		

Laboratory UL India Lab, UL Ir Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Bui Phase-II, Whitefield,		dia Pvt. Ltd., Laboratory E 29/4, EPIP Zone, Phase-II, V ry Building, Kalyani Platina (field, Bangalore, Karnataka ding, Kalyani Platina Campu Bangalore, Karnataka	Building, Kaly Whitefield, Ba Campus, Sy. No s, Sy. No 129/4	ani Platina angalore, o. 129/4, EPIP I, EPIP Zone,	
Accr	editation Standar	d ISO/IEC 17025: 200	5		
Disci	pline	Electronics Testing	1	Issue Date	05.08.2016
Certi	ficate Number	T-1432		Valid Until	04.08.2018
Last Amended on		18.10.2016		Page	34 of 111
S. No. Product / Material of	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection
Elec hic	Electrocardiograp hic monitoring	Frequency and impulse response	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 2 01.12.1.101.8	0.67 Hz to 40 Hz, 0.1 mV to 1 mV, 1 mm to 300 mm	
	Equipment	Gain Indicator	IEC 60601-2-27 (3 rd Edition): 2011, Clause2 01.12.1.101.9	1 mm to 300	mm
		Common mode rejection	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.12.1.101.10	1 mm to 300 50 Hz to 60 I	mm, Hz
		Baseline reset	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.12.1.101.11	0.1 V to 1 V,	10 Hz
		Pacemaker pulse display capability	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.12.1.101.12	2 mV to 700	mV
		Rejection of pacemaker pulses	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.12.1.101.13	0.1 ms to 2 mV to 700	ns mV
		Synchronizing pulse for cardio version	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.12.1.101.14	1 ms to 35 m	S
		Heart rate range, accuracy, and QRS detection range	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.12.1.101.15	1 l/min to 35	0 l/min
		Channel height and aspect ratio	IEC 60601-2-27 (3 rd Edition): 2011	0.1 Hz to 1 H	Iz,
			Clause. 201.12.1.101.16	0.1 mV to 1 1 mm to 300	mV, mm

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disci	pline	Electronics Testing	Electronics Testing		05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016		Page	35 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Electrocardiograp hic monitoring Equipment	Tall T-wave rejection capability	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.12.1.101.17	1 ms to 100 r 0.1 mV to 1 r 1 m to 300 m	ns, mV, im		
		Electrodes and Patient Cables	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 201.15.3.4.101	0.6 m to 1 m			
		Time to alarm for heart rate alarm conditions	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 208.6.6.2.103	1 s to 20 s			
		Technical alarm condition indicating inoperable ME equipment	IEC 60601-2-27 (3 rd Edition): 2011, Clause. 208.6.6.2.104	(-)5 V to (+)5 1 s to 20 s	5 V		
7. E oj	Electrically operated Hospital	Mechanical Strength –	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 21.3.101	3 N to 3000 1	N		
	beus	Bed System: Sub-Clause					
		Mechanical Strength – Lifting Pole: Sub-Clause	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 21.3.102	0.1 min to 2 n 3 N to 1000 1	min N		
		Mechanical Strength – Wall Impact	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 21.6	1 m/s to 60 n 1 kg to 500 k	n/s g		

Laboratory UL Car Kar Loc Zon Loc Pha		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	d ISO/IEC 17025: 200	5					
Discipline Certificate Number		Electronics Testing	I	Issue Date 05.08.201				
		T-1432		Valid Until	04.08.2018			
Last	Amended on	18.10.2016		Page	36 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	Electrically	Mechanical Strength - End	IEC 60601-2-38: 1996 +	3 N to 450 N				
	beds	Panel Test Sub Clause	Clause. 21.6.101	1 mm ² to 700	$) \text{ mm}^2$			
				1 s to 35 s				
		Mechanical Strength - Threshold Test Sub Clause	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 21.4, 21.6.102	1 mm to 100 0.4 m/s	mm			
		Moving (Parts - Exposed Squeezing (Pinch) and Shearing Point Sub Clause.	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 22.2.101	1 mm to 200	mm			
		Moving (Parts Bed Function Deactivation) Control Sub Clause.	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 22.2.102	Qualitative (Visual Inspe	ection)			
		Moving (Parts - Electric Powered Movement - Momentary Switches Sub Clause)	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 22.4.101	Qualitative (Visual Inspe	ection)			
		Surfaces Corners (Edges - Patient Entrapment)	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 23.101, Ref. 28.4.102	1 mm to 500	mm			
		Stability In Normal Use - Lateral Stability, Longitudinal Stability Sub Clause.	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 24.3 AA	3 N to 3000	N			
Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
-----------------	---	--	---	------------------------------	----------------------	--	--	--
Accr	editation Standar	d ISO/IEC 17025: 200	5					
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last Amended on		18.10.2016		Page	37 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	Electrically operated Hospital beds	Stability in Normal use Stability With Lifting Pole	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 24.3 bb	3 N to 1100	N			
		Stability In Normal use Castor Locking	IEC 60601-2-38: 1996 + Amd. 1: 1999 , Clause. 24.4	1 ° to 10 ° 2 mm to 100	mm			
		Vibration and Noise - Noise of Bed < 65db(A)	IEC 60601-2-38: 1996 + Amd. 1: 1999 , Clause26.101	2 dB to 100 d	lB			
		Suspended Bed 2X SWL Masses	IEC 60601-2-38: 1996 + Amd. 1: 1999	3 N to 4000	N			
			Clause. 28.4.2 & 28.4.3	1 Min to 60 I	Min			
		Suspended Masses Accessories 2X SWL	IEC 60601-2-38: 1996 + Amd. 1: 1999	3 N to 4000	N			
			Clause. 28.4.101	I Min to 60 I	Min			
		Suspended Masses Side Rail Strength	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause 28 4 102/103	1 s to 30 s				
				1 to 10 Time	S			
		Abnormal Operation & Fault Conditions Back Rest, Trendelenburg	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 52.5.102, 54.101	Qualitative (Visual Inspe	ection)			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	rd ISO/IEC 17025: 200	5				
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	38 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of To Limits of Do	esting / etection		
	Electrically operated Hospital beds	Components & General Assembly Head Panel Removal (No Tools) –	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 56.1.101	Qualitative (Visual Inspe	ection)		
		Components & General Assembly - Designated 'C' Angle > 90°	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 56.10(C)AA	1 ° to 180 °			
		Components & General Assembly - Power Supply Cord Suspension	IEC 60601-2-38: 1996 + Amd. 1: 1999 Clause. 56.101 AA	1 m to 5 m			
		Moving (Parts -Bed Function Deactivation Control)	IEC 60601-2-38: 1996 + Amd. 1: 1999, Clause. 22.2.102	Qualitative (Visual inspe	ection)		
8.	Multifunction patient monitor Equipment	Part Leakage Current	IEC 60601-2-49 (2 nd Edition): 2011-02 Clause. 201.8.7.1.101	0.1 µA to 100	00 μΑ		
		Ingress of water or (Particulate matter into Medical Equipment and Medical Systems	IEC 60601-2-49 (2 nd Edition): 2011-02 Clause. 201.11.6.5	Up to 7kg/cm	1 ²		
		Interruption): of the power supply / Supply Mains to Medical Equipment	IEC 60601-2-49 (2 nd Edition): 2011-02 Clause. 201.11.8	5 s to 30 s			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standa	rd ISO/IEC 17025: 200	5					
Discipline		Electronics Testing	Electronics Testing		05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last Amended on		18.10.2016		Page	39 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
9.	Electro- cardiograph equipment	Defibrillation protection	IEC 60601-2-25 (2 nd Edition): 2011 Clause. 201.8.5.5.1	1 kV to 5 kV	AC/DC			
		Requirements for amplitude measurements	IEC 60601-2-25 (2 nd Edition): 2011 Clause. 201.12.1.101.2	0.5 mV to 10	mV			
		Requirements for absolute interval and wave duration measurements	IEC 60601-2-25 (2 nd Edition): 2011 Clause. 201.12.1.101.3.1	1 ms to 30 m	S			
		Requirements for interval measurements on biological ECG	IEC 60601-2-25 (2 nd Edition): 2011 Clause. 201.12.1.101.3.2	1 ms to 30 m	S			
		Indication of inoperable Electrocardiograph	IEC 60601-2-25 (2 nd Edition): 2011 Clause. 201.12.4.101	(-)5 V to (+): 1 Hz to 10 H 1 mV to 5 m ²	5 VDC z			
		Goldberger and Wilson Leads	IEC 60601-2-25 (2 nd Edition): 2011 Clause. 201.12.4.102.3.2	0.5 mV to 10	o mV			
		Recovery time	IEC 60601-2-25 (2 nd Edition): 2011	1 mV to 300	mVDC,			
			Clause. 201.12.4.102.4	1 min to 3 m	in			
		Input impedance	IEC 60601-2-25 (2 nd Edition): 2011	1 mV to 100	mV			
			Clause. 201.12.4.103	(sine wave) 1 mV to 300 0.67 Hz to 40	mV DC) Hz			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standa	rd ISO/IEC 17025: 200	5				
Disc	ipline	Electronics Testing)	Issue Date	05.08.2016		
Certificate Number Last Amended on		T-1432		Valid Until	04.08.2018		
		18.10.2016		Page	40 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Electro-	Common Mode Rejection	IEC 60601-2-25 (2 nd Edition):	1 V to 10 Vr	ms,		
	cardiograph equipment		2011 Clause. 201.12.4.105.1	1 Hz to 60 Hz (±)300 mV DC			
		Overload tolerance	IEC 60601-2-25 (2 nd Edition): 2011	0.02 V to 2V	Τ,		
			Clause. 201.12.4.105.2	1 min to 5 m	in		
		Noise Level	IEC 60601-2-25 (2 nd Edition): 2011	1 s to 10 s			
			Clause. 201.12.4.106.1	0.01 mm to 3	l mm		
		Channel crosstalk	IEC 60601-2-25 (2 nd Edition): 2011	1 mV to 2.5	mV,		
			Clause. 201.12.4.106.2	0.01 mm to 1 1 Hz to 30 H	1 mm Iz		
		Low frequency (impulse) response	IEC 60601-2-25 (2 nd Edition): 2011 Clause. 201.12.4.107.1.1.2	0.03 mV to 0).3 mV		
		Test with calibration ECGS	IEC 60601-2-25 (2 nd Edition): 2011 Clause. 201.12.4.107.1.2	2.0 - 5mV			
		Linearity and dynamic	IEC 60601-2-25 (2 nd Edition):	$\pm 300 mV D$	С,		
		range	Clause. 201.12.4.107.2	0.5 mV to 5 0.4 -40Hz	mV,		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	d ISO/IEC 17025: 200	5					
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last Amended on		18.10.2016		Page	41 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	Electro- cardiograph equipment	Recording speed	IEC 60601-2-25 (2 nd Edition): 2011 Clause. 201.12.4.108.3.2	0.015- 100 n	nm			
		Use with cardiac pacemakers	IEC 60601-2-25 (2 nd Edition): 2011 Clause. 201.12.4.109	2 mV to 500 0.1 to 2 ms	mV,			
10.	X-Ray Equipment	Measurement of first HALF-VALUE LAYER	IEC 60601-1-3 (2 nd Edition): 2008 Amd.1: 2013 Clause. 7.1A IS 13450 (Part 1/ Sec 3): 2014 Clause. 7.1A	0.1 mmAl to mGy to 10 G	10 mmAl, 0.01 y			
		Measurement of the thickness of aluminium resulting in the same first Half-Value Layer in accordance with Table 3	IEC 60601-1-3 (2 nd Edition): 2008 Amd. 1: 2013 Clause. 7.5 IS 13450 (Part 1/ Sec 3): 2014 Clause. 7.5	0.1 mmAl to	10 mmAl			
		Measurement of first Half- Value Layer Under Narrow Beam Conditions With X- Ray Equipment Operating At X-Ray Tube Voltages In Table 3 At Corr. Esponding Loading Factors In Normal Use	IEC 60601-1-3 (2 nd Edition): 2008 Amd. 1: 2013 Clause. 7.6 IS 13450 (Part 1/ Sec 3): 2014 Clause. 7.6	0.1 mmAl - 1	l0 mmAl			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	d ISO/IEC 17025: 200	5					
Discipline		Electronics Testing	I	Issue Date	05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last	Amended on	18.10.2016		Page	42 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	X-Ray Equipment	Measurement of Focal Spot To Image Receptor Distance In Selected Configurations And Settings Of Equipment	IEC 60601-1-3 (2nd Edition): 2008 Amd. 1: 2013 Clause. 8.5.2 IS 13450 (Part 1/ Sec 3): 2014 Clause. 8.5.2	1 m to 3 m				
		Measurement Of Leakage Radiation In The Loading State	IEC 60601-1-3 (2nd Edition): 2008 Amd. 1: 2013 Clause. 12.4 IS 13450 (Part 1/ Sec 3): 2014 Clause. 12.4	0.001 μGy/h 1000 μGy/h	to			
		Measurement Of Leakage Radiation When Not In The Loading State	IEC 60601-1-3 (2nd Edition): 2008 Amd. 1: 2013 Clause. 12.5 IS 13450 (Part 1/ Sec 3): 2014 Clause. 12.5	0.001 µGy/h	to 100μGy/h			
		Stray Radiation Of X-Ray Equipment	IEC 60601-1-3 (2nd Edition): 2008 Amd. 1: 2013 Clause. 13.6A IS 13450 (Part 1/ Sec 3): 2014 Clause. 13.6A	0.01 mGy to	1000 mGy			
		Limits Of Air Kerma In One Hr	IEC 60601-1-3 (2nd Edition): 2008; Amd. 1: 2013 Clause. 13.6B IS 13450 (Part 1/ Sec 3): 2014 Clause. 13.6B	0.01 mGy to	1000 mGy			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standa	rd ISO/IEC 17025: 200	5					
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last	Amended on	18.10.2016		Page	43 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
11.	Computed tomography Equipment	Limitation of voltage, current or energy	IEC 60601-2-44 (3 rd Edition): 2009 Corr. 1: 2009 Amd. 1: 2012 Clause. 201.8.4	0.1 V to 800	V peak			
		Leakage Currents And Patient Auxiliary Currents	IEC 60601-2-44 (3 rd Edition): 2009 Corr. 1: 2009 Amd. 1: 2012 Clause. 201.8.7	0.1 mA to 10	000 mA			
		Linear Movements Of The Patient Support And Gantry	IEC 60601-2-44 (3 rd Edition): 2009 Corr. 1: 2009 Amd. 1: 2012 Clause. 201.9.2.4.101.3	0.13 mm to 3	300 mm			
		Reproducibility Of The Radiation Output	IEC 60601-2-44 (3 rd Edition): 2009 Corr. 1: 2009 Amd. 1: 2012 Clause. 203.6.3.2	0.01 mGy to	1000 mGy			
		Test For Half-Value Layer	IEC 60601-2-44 (3 rd Edition): 2009 Corr. 1: 2009 Amd. 1: 2012 Clause. 203.7.6	0.1 mmAl to	10 mmAl			
		Protection Against Residual Radiation	IEC 60601-2-44 (3 rd Edition): 2009 Corr. 1: 2009 Amd. 1: 2012 Clause. 203.11	0.01 mGy to	1000 mGy			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	rd ISO/IEC 17025: 200	5					
Disci	ipline	Electronics Testing	1	Issue Date	05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last	Amended on	18.10.2016		Page	44 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	Computed tomography Equipment	Protection Against Stray Radiation	IEC 60601-2-44 (3 rd Edition): 2009 Corr. 1: 2009 Amd. 1: 2012 Clause. 203.13	0.01 mGy to	1000 mGy			
		CTDI100	IEC 60601-2-44 (3 rd Edition): 2009 Corr. 1: 2009 Amd. 1: 2012 Clause. 203.109.1	0.01 mGy to	1000 mGy			
		CTDI free air	IEC 60601-2-44 (3 rd Edition): 2009 Corr. 1: 2009 Amd. 1: 2012 Clause. 203.109.2	0.01 mGy to	1000 mGy			
12.	X-ray equipment for interventional procedures	Ingress of water or (Particulate matter into ME Equipment and ME Systems (Footswitches)	IEC 60601-2-43 (2 nd Edition): 2010 Clause. 201.11.6.5.101	1 mm to 300 0.1 s to 1 hr	mm,			
		Dosimetric indications	IEC 60601-2-43 (2 nd Edition): 2010 Clause. 203.6.4.5	0.01 mGy to	1000 mGy			
		Range Of Air Kerma Rates In Radioscopy	IEC 60601-2-43 (2 nd Edition): 2010 Clause. 203.6.101	0.01 mGy/h 1000 mGy/h	to			
		Correspondence Between X-Ray Field And Effective Image Reception Area	IEC 60601-2-43 (2 nd Edition): 2010 Clause. 203.8.5.3 IEC 60601-2-54 (3 rd Edition): 2009 Corr. 1: 2010 Clause. 203.8.5.3	1 m to 3 m				

Laboratory		UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	rd ISO/IEC 17025: 200	5				
Disci	ipline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	45 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	X-ray equipment for interventional procedures	Designated Significant Zones Of Occupancy	IEC 60601-2-43 (2 nd Edition): 2010 Clause. 203.13.4	0.001 μGy/h 1000 μGy/h, 0.598 m to 3	to m		
13.	X-ray Equipment for Radiography and Radioscopy	Leakage Currents And Patient Auxiliary Currents	IEC 60601-2-54 (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.8.7 IS 13450 (Part 2/Sec 54): 2016 Clause. 201.8.7	0.1 mA to 10	000 mA		
		Reproducibility Of Radiation Output In Radiography	IEC 60601-2-54 (1 st Edition): 2009 Corr. 1: 2010 Clause. 203.6.3.2.101 IS 13450 (Part 2/Sec 54): 2016 Clause. 203.6.3.2.101	0.01 mGy to	1000 mGy		
		Linearity And Constancy In Radiography	IEC 60601-2-54, (1 st Edition): 2009 Corr. 1: 2010 Clause. 203.6.3.2.102 IS 13450 (Part 2/Sec 54): 2016 Clause. 203.6.3.2.102	0.01 mGy to	1000 mGy		
		Accuracy Of X-Ray Tube Voltage	IEC 60601-2-54, (1 st Edition): 2009 Corr. 1: 2010 Clause. 203.6.4.3.104.30 IS 13450 (Part 2/Sec 54): 2016 Clause. 203.6.4.3.104.30	35 kVp to 12	20 kVp		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	rd ISO/IEC 17025: 200	5					
Disc	pline	Electronics Testing	I	Issue Date	05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last Amended on		18.10.2016		Page	46 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	X-ray Equipment for Radiography and Radioscopy	Accuracy Of X-Ray Tube Current	IEC 60601-2-54(1st Edition): 2009 Corr. 1: 2010 Clause. 203.6.4.3.104.4 IS 13450 (Part 2/Sec 54): 2016 Clause. 203.6.4.3.104.4	0.1 mA to 50	00 mA			
		Accuracy Of Loading Time	IEC 60601-2-54(1st Edition): 2009 Corr. 1: 2010 Clause. 203.6.4.3.104.5 IS 13450 (Part 2/Sec 54): 2016 Clause. 203.6.4.3.104.5	1 ms to 30 m	S			
		Accuracy Of Current Time Product	IEC 60601-2-54, (1st Edition): 2009 Corr. 1: 2010 Clause. 203.6.4.3.104.6 IS 13450 (Part 2/Sec 54): 2016 Clause. 203.6.4.3.104.6	0.1 mA to 50 1 ms to 30 m	00 mA, Is			
		Speed Of Movement(S)	IEC 60601-2-54, (1 st Edition): 2009 Corr. 1: 2010 Clause. 201.9.2.2.6 IS 13450 (Part 2/Sec 54): 2016 Clause. 201.9.2.2.6	1 mm to 300	mm			
		Attenuation Of The X-Ray Beam Between The Patient And The X-Ray Image Receptor	IEC 60601-2-54, (1st Edition): 2009 Corr. 1: 2010 Clause. 203.10.1 IS 13450 (Part 2/Sec 54): 2016 Clause. 203.10.1	0.1 mmAl to	10 mmAl			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accre	editation Standar	rd ISO/IEC 17025: 200	5					
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016			
Certificate Number		T-1432		Valid Until	04.08.2018			
Last	Amended on	18.10.2016		Page	47 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	X-ray Equipment for Radiography and Radioscopy	Determining the attenuation of Residual Radiation	IEC 60601-2-54, (1st Edition): 2009 Corr. 1: 2010 Clause. 203.11.102 IS 13450 (Part 2/Sec 54): 2016 Clause. 203.11.102	0.001 μGy/h 1000 μGy/h	to			
		Stray Radiation In Significant Zones Of Occupancy	IEC 60601-2-54, (1st Edition): 2009 Corr. 1: 2010 Clause. 203.13.4.101 IS 13450 (Part 2/Sec 54): 2016 Clause. 203.13.4.101	0.01 mGy to	1000 mGy			
14.	Dental intra-oral X-ray Equipment	Leakage Currents And Patient Auxiliary Currents	IEC 60601-2-65, (1st Edition): 2012 Clause. 201.8.7 IS 13450 (Part 2/Sec 65): 2016 Clause. 201.8.7	0.1 mA to 10	000 mA			
		Protection Against Excessive Temperatures Of X-Ray Monoblock Assemblies	IEC 60601-2-65, (1st Edition): 2012 Clause. 201.11.101 IS 13450 (Part 2/Sec 65): 2016 Clause. 201.11.101	20 °C to 400	°C			
		Adjustment Of Radiation Dose And Radiation Quality	IEC 60601-2-65, (1st Edition): 2012 Clause. 203.6.3.1 IS 13450 (Part 2/Sec 65): 2016 Clause. 203.6.3.1	0.01 mGy to	1000 mGy			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	rd ISO/IEC 17025: 200	5					
Discipline		Electronics Testing	Electronics Testing		05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last Amended on		18.10.2016		Page	48 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	Dental intra-oral X-ray Equipment	Linearity Of Air Kerma	IEC 60601-2-65, (1 st Edition): 2012 Clause. 203.6.3.1.101 IS 13450 (Part 2/Sec 65): 2016 Clause. 203.6.3.1.101	0.01 mGy to	1000 mGy			
		Coefficient Of Variation Of The Air Kerma	IEC 60601-2-65, (1 st Edition): 2012 Clause. 203.6.3.2.101 IS 13450 (Part 2/Sec 65): 2016 Clause. 203.6.3.2.101	0.01 mGy to	1000 mGy			
		Accuracy Of X-Ray Tube Voltage	IEC 60601-2-65, (1 st Edition): 2012 Clause. 203.6.4.3.102.2 IS 13450 (Part 2/Sec 65): 2016 Clause. 203.6.4.3.102.2	0.01 kVp to	150 kVp			
		Accuracy Of X-Ray Tube Current	IEC 60601-2-65, (1st Edition): 2012 Clause. 203.6.4.3.102.3 IS 13450 (Part 2/Sec 65): 2016 Clause. 203.6.4.3.102.3	0.1 mA to 50	00 mA			
		Accuracy Of Irradiation Time	IEC 60601-2-65, (1st Edition): 2012 Clause. 203.6.4.3.102.4 IS 13450 (Part 2/Sec 65): 2016 Clause. 203.6.4.3.102.4	1 ms to 30 m	15			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accreditation Standard ISO/IEC 17025: 2005		5						
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last Amended on		18.10.2016	18.10.2016		49 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	Dental intra-oral X-ray Equipment	Dosimetric indications	IEC 60601-2-65 (1st Edition): 2012 Clause. 203.6.4.5 IS 13450 (Part 2/Sec 65): 2016 Clause. 203.6.4.5	0.01 mGy to	1000 mGy			
		Half-Value Layers And Total Filtration In X-Ray Equipment	IEC 60601-2-65(1st Edition): 2012 Clause. 203.7.1 IS 13450 (Part 2/Sec 65): 2016 Clause. 203.7.1	0.1 mmAl to 10 mmAl, 0.	01 mGy to 10 Gy			
		Positioning Of The Patient And Restriction Of The Irradiated Area	IEC 60601-2-65, (1st Edition): 2012 Clause. 203.8.5.4 IS 13450 (Part 2/Sec 65): 2016 Clause. 203.8.5.4	1 mm to 300	mm			
		Protection Against Residual Radiation	IEC 60601-2-65, (1st Edition): 2012 Clause. 203.11 IS 13450 (Part 2/Sec 65): 2016 Clause. 203.11	0.001 μGy/h 1000 μGy/h	to			
		Leakage Radiation In The Loading State	IEC 60601-2-65, (1st Edition): 2012 Clause. 203.12.4 IS 13450 (Part 2/Sec 65): 2016 Clause. 203.12.4	0.001 μGy/h 1000 μGy/h	to			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standa	rd ISO/IEC 17025: 200	5				
Disc	ipline	Electronics Testing	3	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016	18.10.2016		50 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
15.	X-ray tube assemblies for medical diagnosis	Maximum temperature during NORMAL USE	IEC 60601-2-28 (2 nd Edition): 2010 Clause. 201.11.1.1	20 °C to 400	°C		
16.	Radiotherapy Simulator Equipment	Allowable values	IEC 60601-2-29 (3 rd Edition): 2008 Clause. 201.8.7.3	0.1 mA to 10	000 mA		
		Angular movements	IEC 60601-2-29 (3 rd Edition): 2008 Clause. 201.9.2.2.6.102	1° to 90 $^\circ$			
		Linear movements	IEC 60601-2-29 (3 rd Edition): 2008 Clause. 201.9.2.2.6.103	1 ° to 90 °			
17.	Photovoltaic	Accuracy of positioning	IEC 60601-2-29 (3 rd Edition): 2008 Clause. 201.9.2.3.102	1 mm to 300 0.1 s to 1 hr	mm,		
a.	Thin-film terrestrial photovoltaic (PV)	Visual inspection	IEC 61646 (2 nd Edition): 2008-05, Clause. 10.1	1 lux to 2000) lux ,		
	modules - Design qualification and type approval	Maximum power determination	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.2	250 V, 24 A			
			IEC 60904-9, IEC 60904-6, IEC 60904-1, IEC 60891				

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standa	rd ISO/IEC 17025: 200	5					
Discipline Certificate Number Last Amended on		Electronics Testing	Electronics Testing		05.08.2016			
		T-1432		Valid Until	04.08.2018			
		18.10.2016		Page	51 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval	Insulation Test	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.3	1 Vdc to 1 kVdc, 1 kΩ to 5000 MΩ				
		Wet leakage current Test	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.15	1 Vdc to 1 kVdc, 1 kΩ to 5000 MΩ				
	cype approval	Measurement of temperature coefficients	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.4 IEC 60904-10, IEC 60904-9, IEC 60904-1.	Low – 10 °C High – 100 ° 250 V, 24 A	С			
		Measurement of nominal operating cell temperature (NOCT)	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.5	Tilt angle: 45	5 °			
				250 V, 24 A Outdoor Tes	ting			
		Performance at STC and NOCT	IEC 61646 (2ndEdition): 2008-05. Clause. 10.6 IEC 60904-9, IEC 60904-1.	Low – 10 °C High – 100 ° Voltage:- 25 Current:- 25	C 0 V A			
		Performance at low irradiance	IEC 61646 (2nd Edition): 2008-05. Clause. 10.7 IEC 60904-9, IEC 60904-1	25 °C 250 V. 24 A				
		Outdoor exposure Test	IEC 61646 (2nd Edition): 2008-05. Clause. 10.8 IEC 60721-2-1.	60 kWh/m ² Tilt angle 45 600 V ac	o			

Laboratory UL India Campus Karnatal Location Zone, Pha Location Phase-II,		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	L India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina ampus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, farnataka ocation 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP one, Phase-II, Whitefield, Bangalore, Karnataka ocation 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, hase-II, Whitefield, Bangalore, Karnataka				
Accreditation Standard ISO/IEC 17025: 2005		5					
Disc	ipline	Electronics Testing	1	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016		Page	52 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval	Hot-spot endurance Test	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.9 IEC 60904-9, IEC 60904-1.	25 °C, 250 V, 24 A			
		UV preconditioning Test	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.10	60 °C ± 5 °C UVA – 15 k ² UVB – 3 % t of UVA	Wh/m ² to 10 %		
		Thermal cycling Test	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.11	(-)65 °C to 1 RH 35 % to	50 °C 95 %		
		Humidity-freeze Test	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.12	(-)65 °C to 1 RH = 35 % t	50 °C, o 95 %		
		Damp heat Test	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.13	20 °C to 85 ° RH= 85 %	°C,		
		Robustness of terminations Test	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.14	200 Nm			
		Mechanical load Test	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.16	2400 Pa 5400 Pa			
		Hail Test	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.17	Ice ball = 25 Mass= 7.53 gm/s.	mm diameter, g, Velocity = 23		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016		Page	53 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval	Bypass diode thermal Test	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.18	10 °C to 75 °C , Current – 30 A			
		Light Soaking	IEC 61646 (2 nd Edition): 2008-05. Clause. 10.19	NA			
b.	Crystalline silicon terrestrial	Preconditioning	IEC 61215 (2 nd Edition): 2005- 04	5.5 kWhrs/m	2		
	modules - Design qualification and	Visual inspection	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.1)	1 lux to 2000	lux		
	type approval		IEC 61730 (1 st Edition): 2004-10 (Clause. 10.1, MST 01) IS 14286 (1 st Edition): 1995-11 (Clause. 10.1)				
		Maximum power determination / Voltage, current and power measurements Test	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.2)	250 V, 24 A			
		incasurements rest	UL 1703 (3 rd Edition): 2002-15 (Clause. 20) IS 14286, (1 st Edition): 1995-11 (Clause. 10.2)				

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	rd ISO/IEC 17025: 200	5					
Disc	ipline	Electronics Testing	Electronics Testing		05.08.2016			
Certificate Number Last Amended on		T-1432		Valid Until	04.08.2018			
		18.10.2016		Page	54 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
Crysi terre photo modu quali type :	Crystalline silicon terrestrial photovoltaic (PV) modules - Design quelification and	Insulation Test	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.3) IS 14286 (1 st Edition): 1995-11 (Clause. 10.3)	1 V to 10 kV 1 V to 1000 1 kΩ to 5000	´ac/dc Vdc,) MΩ			
	qualification and type approval	Wet leakage current Test	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.15) IEC 61730 (1 st Edition): 2004-10 (Clause. 10.15, MST 17) IS 14286, (1 st Edition): 1995-11, Clause. 10.15	1 Vdc to 100 1 kΩ to 5000	0 Vdc) MΩ			
		Measurement of temperature coefficients	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.4) IS 14286, (1 st Edition): 1995-11 (Clause. 10.4)	25 °C to 100 250 V, 24 A	°C			
		Measurement of nominal operating cell temperature (NOCT)	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.5) IS 14286, (1 st Edition): 1995-11, Clause. 10.5	Tilt angle: 45 250 V, 24 A 25 °C to 100	°C			
		Performance at STC and NOCT	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.6) IS 14286, (1 st Edition): 1995-11 (Clause. 10.6)	30 °C to 100 250 V, 24 A	°C			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accreditation Standard ISO/IEC 17025: 2005		5						
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last Amended on		18.10.2016	18.10.2016		55 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval	Performance at low irradiance	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.7) IS 14286 (1 st Edition): 1995-11 (Clause. 10.7)	250 V, 24 A				
C t n q t	type approvar	Outdoor exposure Test	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.8) IS 14286, (1 st Edition): 1995-11 (Clause. 10.8)	Tilt angle: 45 60 kWh/m ² 600 V ac 10	5° A ac			
		Hot-spot endurance Test	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.9) IS 14286 (1 st Edition): 1995-11 (Clause. 10.9) IEC 61730-2 (Edition 1.1): 2012-11, MST 22	250 V, 24 A				
		Thermal cycling Test	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.11) IEC 61730 (1 st Edition): 2004-10 MST 51 IS 14286 (1 st Edition): 1995-11 (Clause. 10.11) UL 1703 (3 rd Edition): 2002-03 (Clause. 35)	(-)65 °C to 1	.50 °C			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accreditation Standard ISC		d ISO/IEC 17025: 200	5					
Discipline Certificate Number Last Amended on		Electronics Testing	Electronics Testing		05.08.2016			
		T-1432		Valid Until	04.08.2018			
		18.10.2016		Page	56 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval	Humidity-freeze Test	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.12) IEC 61730 (1 st Edition): 2004-10 MST 52 UL 1703 (3 rd Edition): 2002-03 (Clause. 36) IS 14286 (1 st Edition): 1995-11 (Clause. 10.12)	(-)65 °C to 1 35 % Rh to 9	150 °C, 95 %Rh			
		Damp heat Test	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.13) IEC 61730 (1 st Edition): 2004-10 MST 53 IS 14286 (1 st Edition): 1995-11 (Clause. 10.13)	20 °C to 150 35 %Rh to 8	°C, 5 % Rh			
		UV preconditioning Test	IEC 61215 (2 nd Edition): 2005-04 (Clause. 10.10) IEC 61730 (1 st Edition): 2004-10 MST 54 IS 14286 (1 st Edition): 1995-11 (Clause. 10.10)	60 °C (±)5 °C UVA – 15 k ² UVB – 3 % t	C., Wh/m ² to 10 % of UVA			
		Bypass diode thermal Test	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.18) IEC 61730 (1 st Edition): 2004-10 MST 25 IS 14286 (1 st Edition): 1995-11 (Clause. 10.18)	10 °C to 75 ° 0.1 A to 60 A	PC, Adc			

Laboratory		UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disc	ipline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016		Page	57 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and	Partial discharge Test	IEC 61730 (1 st Edition): 2004-10 Clause. 11.1 MST 15	1Vdc to 10 k 2.5 pC to 50	V dc pC		
		Impulse voltage Test	IEC 61730 (1 st Edition): 2004-10 (Clause. 10.5 MST 14)	1 kV to 10 k	V dc		
	type approva	Accessibility Test	IEC 61730 (1 st Edition): 2004-10 (Clause. 10.2 MST 11)				
		Cut susceptibility Test	IEC 61730 (1 st Edition): 2004-10 (Clause. 10.3 MST 12)				
		Temperature Test	IEC 61730 (1 st Edition): 2004-10 (Clause. 10.7 MST 21) UL 1703 (3 rd Edition): 2002-03 (Clause. 19)	20 °C to 200 Irradiance <	°C 700 W/m²		
		Leakage Current Test	UL 1703 (3 rd Edition): 2002-03 (Clause. 21)	1000 Vdc Resistor- 500	Ω (
		Cut Test	UL 1703 (3 rd Edition): 2002-03 (Clause. 24)				
		Bonding Path resistance Test / Ground continuity Test	IEC 61730 (Edition 1.1): 2012- 11 (Clause. 10.4) MST 13 UL 1703 (3 rd Edition): 2002-03 (Clause. 25)	1 A to 20 A			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accreditation Standard		d ISO/IEC 17025: 200	5					
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016			
Certificate Number Last Amended on		T-1432		Valid Until	04.08.2018			
		18.10.2016		Page	58 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and	Dielectric Withstand Test	UL 1703 (3 rd Edition): 2002-03 (Clause. 26) IEC 61730 (Edition 1.1): 2012- 11 (Clause. 10.6) MST 16	1 Vdc to 101 10 s to 900 s	cVdc			
	type approvar	Wet Insulation-Resistance Test	UL 1703 (3 rd Edition): 2002-03 (Clause. 27)	1 Vdc to 100 1 kΩ to 5000	0 Vdc) MΩ			
		Reverse Current Overload Test	UL 1703 (3 rd Edition): 2002-03 (Clause. 28) IEC 61730 (Edition 1.1): 2012- 11 (Clause. 10.9 MST 26)	1 A to 30 A	dc			
		Hot-Spot Endurance Test	UL 1703 (3 rd Edition): 2002-03 (Clause. 39)	NA				
		Mechanical load Test	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.16) IEC 61730 (1 st Edition): 2004-10 (Clause. 10.16) IS 14286 (1 st Edition): 1995-11 (Clause. 18)	2400 Pa 5400 Pa				

Laboratory UL India Lab, UL India Pvt. Ltd., Campus, Sy. No. 129/4, EPIP Zor Karnataka Location 1: Laboratory Building, Ka Zone, Phase-II, Whitefield, Bangalo Location 2: OAK Building, Kalyani Phase-II, Whitefield, Bangalore, Ka			dia Pvt. Ltd., Laboratory Bu 29/4, EPIP Zone, Phase-II, W ry Building, Kalyani Platina Ca field, Bangalore, Karnataka ding, Kalyani Platina Campus Bangalore, Karnataka	td., Laboratory Building, Kalyani Platina Zone, Phase-II, Whitefield, Bangalore, J, Kalyani Platina Campus, Sy. No. 129/4, EPIP Jalore, Karnataka ani Platina Campus, Sy. No 129/4, EPIP Zone, , Karnataka		
Accr	editation Standar	d ISO/IEC 17025: 200	5			
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last	Amended on	18.10.2016	18.10.2016		59 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and	Hail Test	IEC 61215 (2 nd Edition): 2005- 04 (Clause. 10.17) IS 14286 (1 st Edition): 1995-11	Ice ball = 25 Mass = 7.53g m/s	mm diameter, g, Velocity = 23	
	type approval		(Clause. 21)			
		Module breakage Test	IEC 61730 (1 st Edition): 2004-10 (Clause. MST 32)	Impactor $= 4$ 300 mm to 30	5.5 kg 000 mm	
		Strain Relief Test	UL 1703 (3 rd Edition): 2002-03 (Clause. 22)	Load = 20 lb		
		Push Test	UL 1703 (3 rd Edition): 2002-03 (Clause. 23)	20 lb (89 N) force applied a 1/2-in (12.7 steel rod 2. A 4 lb (17. applied by a (1.6 mm) dia	by 7 mm) diameter 8 N) force 1/16-in meter steel rod	
		Terminal Torque Test	UL 1703 (3 rd Edition): 2002-03 (Clause. 29)	1 Nm to 200	Nm	
		Impact Test	UL 1703 (3 rd Edition): 2002-03 (Clause. 30)	50 mm Dia, 1.18 lb (535 ;	g)	
		Water Spray Test	UL 1703 (3 rd Edition): 2002-03 (Clause. 33)	10 Psi		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	d ISO/IEC 17025: 200	5					
Disci	ipline	Electronics Testing	I	Issue Date	05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last	Amended on	18.10.2016		Page	60 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
с.	Solar Photovoltaic modules, power conversion units and equipment which are intended for Corrosive environment	Salt Mist Test	IEC 61701 (1 st Edition): 1995-03 (Clause. 4) IEC 61701 (2 nd Edition): 2011- 12 IEC 60068-2-52 (2 nd Edition): 1996 IEC 60068-2-11 (3 rd Edition): 1981 (Clause. 4)	25°C to 50°C 2000 l 40°C, 95 % l Size: W =1.8 D =1.82 m H = 2.38 m	C 95% RH RH 2 m,			
d.	Photovoltaic Systems -Power Conditioners - Procedure for measuring Efficiency (Stand Alone Inverter & Grid Tie Inverter)	Efficiency	IEC 61683 (1 st Edition): 1999-11	Resistive loa 0.8 PF of Inductive loa 50 kVA. Capacitive lo 50 kVA 5 V to 1000 200 mA to 10 60 W to 30 k	d till 50 kW and d till pad till V dc 00 A dc W			
e.	Utility- Interconnected Photovoltaic Inverters-Test Procedure of Islanding Prevention Measures (Grid Tie Inverter)	Test procedure to evaluate the Performance of Islanding Prevention Measures used with Utility- Interconnected PV systems / Un-intentional Islanding Test	IEC 62116 (Edition 2.0): 2014 IEEE 1547.1: 2005, Clause. 5.7	1 V to 1000 200 mA to 10 1.5 V to 1000 6 A to 200 A 54.3 kW L = 54.3 kV C = 54.3 kV	V dc 00 A dc 0 V ., RLC Load: R = A			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accreditation Standard		rd ISO/IEC 17025: 200	5				
Disc	ipline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016	18.10.2016		61 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
f.	Test Procedure for Equipment Interconnecting Distributed Resources with Electric Power Systems	Temperature stability	IEEE 1547.1: 2005, Sec 5.1	RLC Load: R = 54.3 kW L = 54.3 kV C = 54.3 kV 6 A to 200 A ac/dc 15 V to 200 mA to 50 150.00 kW 15 V to 1000 5 mA to 65 A 5 V to 1000 200 mA to 10	A A D 1000 V, ac/dc O A, 3.0000 W to O V ac/dc A ac/dc V dc 00 A dc		
		Over/Under Voltage Test for Response to Abnormal Voltage Conditions	IEC 61727 (2ndEdition): 2004, Clause:- 5.2 IEEE 1547.1: 2005, Sec 5.2	150/300 V ad	;		
		Over/Under frequency Response to abnormal frequency conditions	IEC 61727 (2 nd Edition): 2004, Clause. 5.2 IEEE 1547: 2005 Sec 5.3	16/819 Hz 1 to 30 kVA			
		Synchronization Limitation of dc Injection for Inverters without Interconnection transformers/dc Injection	IEEE 1547.1: 2005 Sec 5.4 IEEE 1547.1: 2005, Sec 5.6, IEC 61727 (2 nd Edition): 2004 Clause. 4.4	1 to 30 kVA			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standa	rd ISO/IEC 17025: 200	5				
Disc	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	62 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Test Procedure for Equipment Interconnecting Distributed Resources with	Reconnect following abnormal condition disconnect or Response to Utility Recovery	IEEE 1547.1: 2005, Clause. 5.10 IEC 61727 (2 nd Edition): 2004, Clause. 5.4	1 to 50 kVA			
	Resources with Electric Power Systems	Harmonics &Waveform Distortion	IEC 61727 (2 nd Edition): 2004- 12, Clause: 4.6 IEEE 1547.1- 2005, Sec 5.11	1 to 50 kVA			
		Flicker	IEC 61727 (2 nd Edition): 2004, Clause: 4.3 IEEE 1547.1: 2005, Sec 5.12,	1 to 50 kVA			
		Dielectric Test for Paralleling device	IEEE 1547.1: 2005, Sec 5.5.3	1 to 50 kVA			
g.	Balance-of- Systems Components for	Visual Inspection Functioning Tests	As per MNRE Guidelines for Solar Charge Controller Testing with reference to clauses from	Upto 2 kW, 4	40 V dc		
	Systems-Design	Voltage Drop Test	Clause 11.1,	Upto max 10) V.		
	Natural Environments	Insulation Test	Clause. 11.2, Clause. 11.3.1.2, Clause. 11.4	500 V, 100 N	MΩ		
	(Solar Photovoltaic Charge Controller)	Protection Against Mechanical Impact(IK- code)	Clause. 11.6, Clause. 11.2.1.2.3.1, Clause. 11.2.1.2.3.3, Clause. 11.3.1.1	0.7 Nm			
	,	Determination of End of Charge Voltages		7.1 V to 35.5	5 V		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standa	rd ISO/IEC 17025: 200	5				
Disc	ipline	Electronics Testing	1	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	63 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	ication Range of Testing / are Limits of Detection			
	Balance-of- Systems Components for Photovoltaic	Determination of Low Charge disconnect and Reconnect Voltages		5.1 V to 35.7	V V		
	Systems-Design Qualification Natural	Temperature Compensation for Thresholds		7.1 V to 35.5 V Temperatur for all ranges defined in standard.			
	Environments (Solar Photovoltaic Charge Controller)	Cold Test (Type Ad)	IEC 60068-2-1 Environmental Testing – (Part 2 to 1): Tests – Test A: COLD Edition 6 Date. 2007/03/01	Test Conditio (-)10 °C (±) 2 hr.	ons: 3 °C for		
		Rapid change of temperature with prescribed time of transfer:	IEC 60068-2-14 Environmental Testing – (Part 2 to 14): Tests – Test N: CHANGE OF TEMPER ATURE – Edition): 6	Test Condition	ons:		
			Issue Date 2009/01/01	(-)5 °C & (+) (±)3 °C)55 °C		
		Dry Heat Test (Type Bd)	IEC 60068-2-2 Environmental Testing – (Part 2 to 2): Tests – Test B: DRY HEAT - Edition): 5 - Issue Date 2007/07/01	Test Condition (+)55 °C (±)	ons: 2 °C		
		Damp Heat (Type Db Variant 1)	IEC 60068-2-30 Environmental Testing (Part 2 to 30): Tests – Test DB: DAMP HEAT, CYCLIC (12 H + 12 H CYCLE) – (Edition 3) Date. 2005/08/01	Test Condition Temperature 25 °C to 55 ° variant 1, Hu 93(±)3 % RF	ons: : °C (±)2 °C, umidity: I		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disci	pline	Electronics Testing	1	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	64 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection			
18.	Measuring Instrum	ents					
a.	Electronic Equipment – Digital millimeter, digital power meter, clamp meter, digital ammeter, Digital voltmeter, Digital panel power meter	Protective impedance Test	UL 61010-1 (2 nd Edition) 2005-07-22. CAN/CSA C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 4.4.2.2)	20 to 400 °C			
			IEC 61010-2-030: 2010, (1 st Edition). (Clause. 101.3.3)				
		Input Test	UL 61010-1 (2 nd Edition): 2005-07-22. CAN/CSA C22.2 No. 61010-1, (2 nd Edition):004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 5.1.3)	0.1 V to 600 10 A max 0.1 V to 600	V AC V DC		
		Temperature Test	UL 61010-1 (2 nd Edition): 2005-07-22. CAN/CSA –C22.2 No. 61010-1 (2 nd Edition): 004-07, IEC 61010-1: 2010 (3 rd Edition) (Clause. 10.1-10.4)	20 to 400 °C Qualitative			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standar	d ISO/IEC 17025: 200	5			
Disc	ipline	Electronics Testing	1	Issue Date	05.08.2016	
Certificate Number Last Amended on		T-1432		Valid Until	04.08.2018	
		18.10.2016		Page	65 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Electronic Equipment – Digital millimeter, digital power meter, clamp meter, digital ammeter, Digital voltmeter	Humidity conditioning	UL 61010-1 (2 nd Edition): 2005-07-22. CAN/CSA –C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 6.8.2)	50 % RH to (-)20 °C to10 Qualitative	98 % RH)0 °C	
	Digital voltineter, Digital panel power meter	Dielectric voltage withstand Test	UL 61010-1 (2 nd Edition): 2005-07-22. CAN/CSA –C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 6.8)	10 V to 10 k 10 s to 900 s Qualitative	V AC/DC	
		Permissible limits Test	UL 61010-1 (2 nd Edition): 2005-07-22. CAN/CSA –C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 6.3)	0.1 V to 300	V AC/DC	
		Transformer overload Test	UL 61010-1 (2 nd Edition): 2005-07-22. CAN/CSA –C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 4.4.2.7.3)	20 to 400 °C Qualitative		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disc	ipline	Electronics Testing	1	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016	18.10.2016		66 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Specific Test Performed Test Method Specification against which tests are performed		esting / etection		
	ElectronicTransformer short circuitEquipment –TestDigital millimeter, digitalTestower meter, clamp meter, digital ammeter, Digital voltmeter, Digital panel power meterInsulation between circuits	Transformer short circuit Test	UL 61010-1 (2 nd Edition): 2005-07-22. CAN/CSA –C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 4.4.2.7.2)	1 to 600 V 1 to 1000 V AC/DC 20 to 400 °C			
		UL 61010-1 (2 nd Edition): 2005-07-22. CAN/CSA –C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 4.4.2.12)	1 to 600 V 1 to 1000 V 20 to 400 °C	AC/DC			
		Output abnormal Test	UL 61010-1 (2 nd Edition): 2005-07-22. CAN/CSA-C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 4.4.2.8)	600 V 1 to 1000 V 20 to 400 °C	AC/DC		
		Applied force Test	UL 61010-1 (2 nd Edition): 005-07-22. CAN/CSA –C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 6.2.2)	1 to 50 kg Qualitative			

Laboratory U C K L Z L P		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	d ISO/IEC 17025: 200	ISO/IEC 17025: 2005					
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016			
Certificate Number		T-1432	T-1432		04.08.2018			
Last Amended on		18.10.2016	18.10.2016		67 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection				
	Electronic Equipment – Digital millimeter, digital power meter, clamp meter, digital ammeter, Digital voltmeter,	Ball pressure Test	UL 61010-1 (2 nd Edition): 005-07-22. CAN/CSA-C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 10.5.3)	20 to 150 °C 0.01 mm to 1 Qualitative	0 mm			
	Digital panel power meter	Static rigidity Test	UL 61010-1 (2 nd Edition): 005-07-22. CAN/CSA-C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 8.2.1)	1 to 50 kg 20 to 150 °C Qualitative				

	()	
Strength of Handle Test	UL 61010-1 (2 nd Edition): 2005-07-22. CAN/CSA-C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 7.5)	10 g to 80 kgs 0.1 s to 1 hr Qualitative
Mechanical abuse Test	UL 61010-1 (2 nd Edition): 2005-07-22. CAN/CSA –C22.2 No. 61010-1, (2 nd Edition): 004-07, IEC 61010-1: 2010, (3 rd Edition) (Clause. 10.5.2)	1 Nm to 6.78 Nm Qualitative

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standar	d ISO/IEC 17025: 200	5			
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last	Amended on	18.10.2016		Page	68 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Electronic Equipment – Digital millimeter, digital power meter, clamp meter, digital ammeter, Digital voltmeter, Digital panel power meter	Impulse voltage Test	IEC 61010-2-030: 2010, (1.0 Edition) (Clause. 14.101)	Upto 15 kV, Impulse Qualitative	1.2/50 μs	
		Current measuring circuit Test	IEC 61010-2-030: 2010, (Edition 1.0) (Clause. 14.101)	Upto 200 A A AC Single Pl Continuous	AC single phase hase 50 Hz	
19.	Electrical & electronics products (IFM modules, Storages, servers)	Sine and random vibration Test, Qualitative	IEC 60068-2-6: 2007 IEC 60068-2-64: 2008	Frequency – 5 Hz to 2300 Acceleration 0.3 g to 100 g from	Hz. level: g for Frequency	
	Cabinets, Racks, Sub racks, Chassis	Sine and random vibration Test, Qualitative	IEC 61587-1: 2011 IEC 62052-11: 2003	5 Hz to 2300 0.1 g to 100 g from 5 Hz to 600 l	Hz, g for Frequency Hz} for weight	
	Printed circuit boards	Sine and random vibration	IEC 60065: 2014 IEC 62133: 2002	Upto 3.5 kg. 0.1 g to 50 g 5 Hz to 600 l	(P-P). Hz for weight	
	Aerospace products (signal trackers, Navigation sensors, voice receivers, Timers)	Sine and random vibration Sine and random vibration	MIL-STD-810G: 2008 (Method 514.6C-I) MIL STD 810F: 2000 Method 514.5(514.6C-1)	Upto 3.5 kg. 0.1 g to 50 g 0.3 g to 6 g f 400 kg. Disp 50.8 mm Frequency – 5 Hz to 2300	(P-P). or weight Upto lacement Upto Hz.	

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standar	d ISO/IEC 17025: 200	5			
Disci	pline	Electronics Testing	J	Issue Date	05.08.2016	
Certificate Number Last Amended on		T-1432		Valid Until	04.08.2018	
		18.10.2016		Page	69 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Consumer products (Amplifier,Mosfet transistors,lumina ires)	Sine and random vibration	MIL STD 883E: 1997 Method 2007.2, 2002 & 2026 MIL STD 202G: 2002 Method 201A (2.4.1-Part 1)	Acceleration {0.3 g to 100 Frequency fr 5 Hz to 2300 0.1 g to 100 from 5 Hz to 600 Upto 3.5 kg. (P-P). 5 Hz to 600 I for weight U to 50 g(P-P). 0.3 g to 6 g f 400 kg. Disp Upto 50.8 m	level:) g for om) Hz, g for Frequency Hz} for weight 0.1 g to 50 g Hz} pto 3.5 kg. 0.1 g for weight Upto lacement m	
	Railway mounted and railway transporting products(AC and exhaust fan)	Random vibration	IEC 61373: 2010	Range		
	Batteries and Cells phones, Laptops, Power banks	Sine vibration	UN38.3 (Edition 6): 2015 (38.3.4.3)	7Hz: 200Hz- mm-1.6 mm)	7Hz,Disp(0.8) Acceleration 8g	

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accreditation Standard		d ISO/IEC 17025: 200	5				
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432	T-1432		04.08.2018		
Last Amended on		18.10.2016		Page	70 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection			
20.	Power adaptors , inverters,Energy meters, Signal control receivers Motors, TV's, laptops, Mobile phones aerospace products (signal trackers, Navigation sensors,	Shock Test (Electro dynamic shaker)-Half sine, rectangular, Trapezoidal, Final peak saw tooth, Initial saw tooth.	IEC 60068-2-27: 2008 IEC 61587-1: 2011 IEC 62052-11: 2003 IEC 62052-11: 2003 MIL-STD-810G: 2008, Method 514.6	Acceleration ms, 1 g, 50 n	level-35 g, 11 15.		
	voice receivers, Tim	ers)					
			MIL STD 810F: 2000 Method 514.5				
			MIL STD 202G: 2002 Method 201A				
	Railway mounted and railway transporting Products(AC and exhaust fan)	Shock Test (Electro dynamic shaker)-Half sine, rectangular, Trapezoidal, Final peak saw tooth, Initial saw tooth	IEC 61373: 2010				

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standar	d ISO/IEC 17025: 200	5			
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last	Amended on	18.10.2016		Page	71 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	PCB mounted Electrical & electronics Products(Energy meters, Control receivers Mobile phones, TV, scanner, Battery chargers) Racks& Chassis	Mechanical Shock-Half sine, Trapezoidal, saw tooth, Qualitative	IEC 60068-2-27: 2008 IEC 62052-11: 2003 IEC 61587-1: 2011	Half sine pul 600 g to 3 m (-)35 ms. Tra range: 75 g to 10 m 10 g to 50 m weight: 50 kg. Table (25 x 25)cm	se range: s; 20 g, apezoidal pulse s; s. Max specimen size:	
	Batteries and Cells	Mechanical Shock-Half sine, Trapezoidal, saw tooth, Qualitative	UN38.3(Edition 6): 2015			
21.	Spares & Assemblies mounted in Defense/ Military/ Aerospace(signal trackers, Navigation sensors,voice receivers, Timers) Locomotive Transport vehicles mounted products (AC, exhaust fan, Diesel filters, ECU)	Mechanical Shock-Half sine, Trapezoidal, saw tooth, Qualitative	MIL-STD-810G: 2008, Method 516.6 MIL STD 810F: 2000 Method 516.5 MIL STD 883E: 1997 Method 2002.3	Half sine pul 600 g to 3 m (-)35 ms. Tra range: 75g-1 ms. Max spe kg. Table siz	se range: s; 20 g, apezoidal pulse 0ms; 10 g to 50 ccimen weight: 50 re: (25 x 25)cm	

Laboratory Accreditation Standard Discipline Certificate Number Last Amended on		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka ISO/IEC 17025: 2005				
		d ISO/IEC 17025: 200					
		Electronics Testing	Electronics Testing T-1432 18.10.2016		05.08.2016 04.08.2018		
		T-1432					
		18.10.2016			72 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection			
	Railway mounted and railway transporting Products(AC and exhaust fan)	Mechanical Shock-Half sine, Trapezoidal, saw tooth, Qualitative	MIL STD 202G: 2002 Method 213 B IEC 61373: 2010				
22.	Batteries & Cells, Spares and assemblies in aircraft (signal trackers, Navigation sensors,voice receivers,Timers). Helicopters and	Altitude Test Qualitative	IEC 60068-2-13-1994 IEC 60721-1: 2002 (1.3) IEC 62133: 2002 MIL STD 810F: 2000 Method 500.4-1 MIL-STD-810F: 2000 Method 507.4	Altitude range: Pressure Upto 25,800 m,10 mbar			
	manned aerospace vehicles(Amplifier Mosfet transistors, Luminaires)	Combined cold/low air pressure Tests-Qualitative	IEC 60068-2-40-1983 MIL-STD-810F: 2000 Method 500.4-1 MIL-STD-810G: 2008 Method 500.5-1 MIL-STD-810G: 2008 Method 520 3	Altitude rang Upto 19,000 Temperature Upto (-) 40 °	ge: Pressure m, 5.3 kPa. range: C.		
Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
------------	--	---	---	---	--	--	--
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	73 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
V.	EMI/EMC AND ES	SD TESTING					
1.	EMI/EMC and ESD Testing EMI-EMC Testing : Electrical and Electronic Instrument	Conducted Emission Test (CE)	IEC 60601-1-2 (Edition 3.0): (2007-03) IEC 60601-1-2 (Edition 4.0) (2014-04) IEC 61000-6-3 (2^{nd} Edition)-1 (2011-02) IEC 61000-6-4 (2^{nd} Edition)-1 (2011-02) IEC 61326-1 (2^{nd} Edition)-0 (2012-07) IEC 62040-2 (2^{nd} Edition)-0 (2005-10) IEC 62052-11 (Edition 1.0) (2003-02) IEC 60034-1 (Edition 12.0): (2010-02) CISPR 11: 2015/Amd. 1: 2016 CISPR 14-1 (Edition 5.0): (2005-11) CISPR 14-1 (Edition 5.1): (2009-02) CISPR 14-1 (Edition 5.2): (2011-11) CISPR 15 (Edition 8): (2013-05) CISPR 22 (Edition 6.0): (2008-09) EN 55011: 2010	Frequency R 9 kHz to 30 l Current limit Max 16 A fo Max 25 A fo	ange: MHz tation): of or 1Phase or 3 Phase		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accr	editation Standar	d ISO/IEC 17025: 200	5					
Disci	ipline	Electronics Testing	I	Issue Date	05.08.2016			
Certi	ficate Number	T-1432		Valid Until	04.08.2018			
Last	Amended on	18.10.2016	18.10.2016		74 of 111			
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
		Radiated Electromagnetic Disturbances	EN 50121-3-2: 2015 EN 55014-1: 2006+ Amd. 2: 2011 EN 55015: 2006+ Amd. 2: 2009 EN 55015: 2013 EN 55022: 2010/AC 2011 EN 60601-1-2: 2007/AC: 2010 EN 61000-6-3: 2007/A1: 2011 EN 61000-6-4: 2007/A1: 2011 EN 61326-1: 2013 EN 62040-2: 2006 EN 62052-11: 2003 EN 50121-4: 2006 CFR 2010 Title 47 Vol.1 (Part 15) CFR 2010 Title 47 Vol.1 (Part 18) IS 16102-2, Clause. 16.1 IS 6873-5 IS 13779: 1999 (RA 2009) IS 6842: 1997 IS 14697: 1999, (RA 2009) CISPR 15 (Edition 7.2): (2009-01) Clause. 4.4.1 EN 55015: 2006+ Amd. 2: 2009 Clause. 4.4.1 IS 16102-2, Clause. 16.1 IS 6873-5	Frequency R 9 kHz to 30 l	ange: MHz			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accreditation Standard		rd ISO/IEC 17025: 200	5				
Discipline		Electronics Testing	Electronics Testing		05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016	18.10.2016		75 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	EMI/EMC and ESD Testing EMI-EMC Testing : Electrical and Electronic Instrument	Harmonic Current Emission Test	IEC 61000-3-2 (Edition 4): (2014-05) IEC 60601-1-2 (Edition 3.0): (2007-03) IEC 60601-1-2 (Edition 4.0): (2014-02) IEC 61000-6-3 (Edition 2.1): (2011-02) IEC 61326-1 (Edition 2.0): (2012-07) EN 60601-1-2: 2007/AC: 2010 EN 61000-3-2: 2006 Amd. 2: 2009 EN 61000-3-2: 2014 EN 61000-6-3: 2007 Amd. 1: 2011 EN 61326-1: 2013	Current limit 16 A, 1phase 40 th Harmon Line to Neut 100 to 120 & 220 V to 250 Frequency 5	tation: e upto ic ral Voltage: z) V 0 Hz/60 Hz		
		Voltage Fluctuation & Flicker Test	IEC 61000-3-3 (Edition 3.0): (2013-05) IEC 60601-1-2 (Edition 3.0): (2007-03) IEC 60601-1-2 (Edition 4.0): (2014-02) IEC 61000-6-3 (Edition 2.1): (2011-02) IEC 61326-1 (Edition 2.0): (2012-07) EN 60601-1-2: 2007/AC: 2010 EN 61000-3-3: 2008 EN 61000-3-3: 2013	Current limit 16 A Single Line to Neut 100 to 120 & 220 V to 250	tation): Phase ral Voltage: 2) V		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standa	rd ISO/IEC 17025: 200	5				
Discipline		Electronics Testing	Electronics Testing		05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016		Page	76 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	EMI/EMC and ESD Testing EMI-EMC Testing : Electrical and Electronic	Voltage Fluctuation & Flicker Test	EN 61000-6-3: 2007, Amd. 1: 2011 EN 61326-1: 2013	Current limit 16 A Single Line to Neut 100 to 120 & 220 V to 250	tation): Phase ral Voltage: z) V		
	Instrument	Electrostatic Discharge Immunity Test	IEC 61000-4-2 (Edition 2.0): (2008-12) IEC 60601-1-2 (Edition 3.0): (2007-03) IEC 60601-1-2 (Edition 4.0): (2014-02) IEC 61000-6-1 (2^{nd} Edition)-0 (2005-03) IEC 61000-6-2 (Edition 2.0) (2005-01) IEC 61326-1 (2^{nd} Edition)-0 (2012-07) IEC 62040-2 (2^{nd} Edition)-0 (2005-10) IEC 62052-11 (Edition 1.0): (2003-02) IEC 61547 (Edition 2.0): 2009- 06 CISPR 14-2(Edition 2.0): 2015 RLV CISPR 24 (Edition 2.0): (2010-08) EN 61000-4-2: 2009 EN 50121-3-2: 2015 EN 50121-4: 2006	Voltage Ran Air discharg 0.2 kV to 16 Contact Disc 0.2 kV to 10	ge: e: kV charge: kV		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	rd ISO/IEC 17025: 200	5				
Disci	pline	Electronics Testing	Electronics Testing		05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016	18.10.2016		77 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection			
	EMI/EMC and ESD Testing EMI-EMC Testing : Electrical and Electronic Instrument	Electrostatic Discharge Immunity Test	EN 55014-2: 1997/ Amd. 2: 2008 EN 55024: 2010 EN 60601-1-2: 2007/AC: 2010 EN 61000-6-1: 2007 EN 61000-6-2: 2005 EN 61326-1: 2013 EN 62040-2: 2006 EN 62052-11: 2003 EN 61547: 2009 IS 13779: 1999 (RA 2009) IS 14697: 1999 (RA 2009)	Voltage Ran Air discharg 0.2 kV to 16 Contact Disc 0.2 kV to 10	ge: e: kV charge: kV		
		Electrical Fast Transient (EFT) / Burst Immunity Test	IEC 61000-4-4 (Edition 3.0): (2012-04) IEC 60601-1-2 (Edition 3.0): (2007-03) IEC 60601-1-2 (Edition 4.0): (2014-02) IEC 61000-6-1 (2 nd Edition): (2005-03) IEC 61000-6-2 (2 nd Edition): (2005-01) IEC 61326-1 (2 nd Edition): (2012-07) IEC 62040-2 (2 nd Edition): (2005-10) IEC 62052-11 (Edition 1.0): (2003-02) IEC 61547: 2009 CISPR 14-2(Edition 2.0):	Current limit Max 16 A fo Max 32 A fo Voltage Lin 0.2 kV to 4 k Max: 0.2 kV	tation: or 1 phase or 3 Phase nitations: cV for 3Ph to 5.5 kV for 1Ph		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standa	rd ISO/IEC 17025: 200	5				
Discipline		Electronics Testing	Electronics Testing		05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016	18.10.2016		78 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	EMI/EMC and ESD Testing EMI-EMC Testing : Electrical and Electronic Instrument	Electrical Fast Transient (EFT) / Burst Immunity Test	2015 RLV CISPR 24 (2 nd Edition): (2010-08) EN 61000-4-4: 2012 EN 55014-2: 1997/ Amd. 2: 2008 EN 55024: 2010 EN 60601-1-2: 2007/AC 2010 EN 61000-6-1: 2007 EN 61000-6-2: 2005 EN 50121-3-2: 2015 EN 50121-4: 2006 EN 61326-1: 2013 EN 62040-2: 2006 EN 62052-11: 2003 EN 61547: 2009 IS 13779: 1999 (RA 2009) IS 14697: 1999 (RA 2009)	Current limit Max 16 A fo Max 32 A fo Voltage Lim 0.2 kV to 4 k Max: 0.2 kV	ation: r 1 phase r 3 Phase itations: V for 3Ph to 5.5 kV for 1Ph		
		Surge Immunity Test	IEC 61000-4-5 (Edition 3.0): (2014-05) IEC 60601-1-2 (Edition 3.0): (2007-03) IEC 60601-1-2 (Edition 4.0): (2014-02) IEC 61000-6-1 (2 nd Edition): (2005-03) IEC 61000-6-2 (2 nd Edition): (2005-01) IEC 61326-1 (2 nd Edition): (2012-07)	Max 16 A fo Max 32 A fo Voltage Rag 0.25 kV to 6 1 Ph 0.25 kV to 6 3 Ph	r 1phase r 3 Phase e : .0 kV for .0 kV for		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432	T-1432		04.08.2018		
Last	Amended on	18.10.2016		Page	79 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
			IEC 62040-2 (2 nd Edition): (2005-10) IEC 62052-11 (Edition 1.0): (2003-02) IEC 61547: 2009 CISPR 14-2(Edition 2.0): 2015 RLV CISPR 24 (2 nd Edition): (2010-08) EN 61000-4-5: 2006 EN 61000-4-5: 2014 EN 55014-2: 1997/ Amd. 2: 2008 EN 55024: 2010 EN 60601-1-2: 2007/AC 2010 EN 61000-6-1: 2007 EN 61000-6-2: 2005 EN 50121-3-2: 2015 EN 50121-4: 2006 EN 61326-1: 2013 EN 62040-2: 2006 EN 62052-11: 2003 EN 61547: 2009				

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	rd ISO/IEC 17025: 200	5				
Discipline		Electronics Testing	Electronics Testing		05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016	18.10.2016		80 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	EMI/EMC and ESD Testing EMI-EMC Testing : Electrical and Electronic Instrument	Conducted RF Immunity Test	IEC 61000-4-6 (Edition 4.0): (2013-10) IEC 60601-1-2 (Edition 3.0): (2007-03) IEC 60601-1-2 (Edition 4.0): (2014-02) IEC 61000-6-1 (2^{nd} Edition): (2005-03) IEC 61000-6-2 (2^{nd} Edition): (2005-01) IEC 61326-1 (2^{nd} Edition): (2012-07) IEC 62040-2 (2^{nd} Edition): (2005-10) IEC 62052-11 (Edition 1.0): (2003-02) IEC 61547: 2009 CISPR 14-2(Edition 2.0): 2015 RLV CISPR 24 (2^{nd} Edition): (2010-08) EN 61000-4-6: 2014 EN 50121-3-2: 2015 EN 50121-4: 2006 EN 55014-2: 1997/ Amd. 2: 2008 EN 55024: 2010 EN 60601-1-2: 2007/AC 2010 EN 61000-6-1: 2007 EN 61000-6-2: 2005	150 kHz to 2 1 Vrms to 10 CDN Method 150 kHz to 2 1 Vrms to 10 EM Clamp I Lines.	230 MHz) Vrms d Power 230 MHz) Vrms, Method for I/O		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standa						
Disci	pline	Electronics Testing	Electronics Testing		05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016	18.10.2016		81 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	EMI/EMC and ESD Testing EMI-EMC Testing : Electrical and Electronic Instrument	Conducted RF Immunity Test	EN 61326-1: 2013 EN 62040-2: 2006 EN 62052-11: 2003 EN 61547: 2009	150 kHz to 2 1 Vrms to 10 CDN Metho 150 kHz to 2 1 Vrms to 10 EM Clamp 1 Lines.	30 MHz Vrms d Power 30 MHz Vrms, Method for I/O		
		Power Frequency Magnetic Field Immunity Test	IEC 61000-4-8 (2^{nd} Edition): (2009-09) IEC 60601-1-2 (Edition 3.0): (2007-03) IEC 60601-1-2 (Edition 4.0): (2014-02) IEC 61000-6-1 (2^{nd} Edition): (2005-03) IEC 61000-6-2 (2^{nd} Edition): (2005-01) IEC 61326-1 (2^{nd} Edition): (2012-07) IEC 62040-2 (2^{nd} Edition): (2005-10) IEC 61547 2009 CISPR 24 (2^{nd} Edition): (2010-08) EN 61000-4-8: 2010 EN 65024: 2010 EN 61000-6-1: 2007 EN 61000-6-2: 2005 EN 61326-1: 2013	1 A/m to 30 50 Hz/60 Hz Continuous f	A/m ñeld		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar						
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016	18.10.2016		82 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	EMI/EMC and ESD Testing EMI-EMC Testing :	Power Frequency Magnetic Field Immunity Test	EN 62040-2: 2006 EN 61547: 2009	1 A/m to 30 50 Hz/60 Hz Continuous f	A/m field		
	Electrical and Electronic Instrument	Voltage Dips, Short Interruption & Voltage variations Immunity Test	IEC 61000-4-11 (2 nd Edition): (2004-03) IEC 60601-1-2 (Edition 3.0): (2007-03) IEC 61000-6-1 (2 nd Edition): (2005-03) IEC 61000-6-2 (2 nd Edition): (2005-01) IEC 61326-1 (2 nd Edition): (2012-07) IEC 62052-11 (Edition 1.0): (2003-02) IEC 61547: 2009 CISPR 14-2(Edition 2.0): 2015 Rlv CISPR 24 (2 nd Edition): (2010-08) EN 61000-4-11: 2004 EN 55014-2: 1997 Amd. 2: 2008 EN 55024: 2010 EN 60601-1-2: 2007/ AC. 2010 EN 61000-6-1: 2007 EN 61000-6-1: 2007	Single Phase Current limit Max 16 A Voltage rang 0.1 to 250 V	; tation): ge :		

Labo	ratory editation Standar	UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield, ISO/IEC 17025: 200	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka ISO/IEC 17025: 2005				
Discipline		Electronics Testing	Electronics Testing		05.08.2016		
Certificate Number		T-1432	T-1432		04.08.2018		
Last Amended on		18.10.2016	18.10.2016		83 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	EMI/EMC and ESD Testing EMI-EMC Testing : Electrical and Electronic	Voltage Dips, Short Interruption & Voltage variations Immunity Test	EN 61326-1: 2013 EN 62040-2: 2006 EN 62052-11: 2003 EN 61547: 2009	Single Phase Current limitation): Max 16 A Voltage range : 0.1 to 250 V			
	Instrument	Ring wave Immunity Test	IEC 61000-4-12: 2006 EN 61000-4-12: 2006	Current limit 16 A for 1 pł 32 A for 3 Pł Max: 6.6 kV	Current limitation of 16 A for 1 phase 32 A for 3 Phase Max: 6.6 kV		

Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EF Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zon Phase-II, Whitefield, Bangalore, Karnataka			ani Platina angalore, o. 129/4, EPIP I, EPIP Zone,
Accreditation Standard	Accreditation Standard ISO/IEC 17025: 2005			
Discipline	Electronics Testing	I	Issue Date	05.08.2016
Certificate Number	T-1432		Valid Until	04.08.2018
Last Amended on	18.10.2016		Page	84 of 111
S. No. Product / S Material of Test	pecific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection

LOCATION: 2

I. INFORMATION TECHNOLOGY EQUIPMENTS

1.	Power adaptors, Mobile Phone, Cash Register, Point of Sale	Input Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 1.6.2)	1.5 V to 300 VAC/DC 1 mA to 20 A AC/DC
	Terminal, Copying Machine, Franking Machine	Thermal requirement	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.5.1)	20 °C to 400 °C
	Passport reader, Computer Systems, Monitors	Overload of operator accessible Parts	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 5.3.7)	1 W to 330 W(max) 0.1 s to 1 hr
	Printers, Scanners, Keyboards, Telephones &	Humidity conditioning	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 2.9.1)	93 % to 95 % RH 20 °C to 100 °C Qualitative
	Automatic Data Processing Machine, Setup Box	Electric strength Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 5.2.2)	50 V to 10 kV AC/DC 1 s to 900 s
	DUX	Touch current Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 5.1)	0.1 mA to 5 mA
		Abnormal operation Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 5.3.1)	25 °C to 400 °C Qualitative

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standar	d ISO/IEC 17025: 200	5			
Disc	ipline	Electronics Testing	Electronics Testing		05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last Amended on		18.10.2016		Page	85 of 111	
S. No.	. Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	nge of Testing / nits of Detection	
	Power adaptors, Mobile Phone, Cash Register, Point of Sala	Capacitance discharge Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 2.1.1.7)	0.1 V to 800	V Peak / DC 5 s	
	Terminal, Copying Machine, Franking	Limited power source measurement Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 2.5)	1 W to 330 V 0.1 s to 1 hr	W(max)	
	Passport reader, Computer Systems,	Working voltage determination	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 2.10.2)	1 V to 1000	V rms/V DC	
	Monitors, Printers, Scanners, Keyboards, Telephones &	Protective bonding Test II	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 2.6.3.4)	0.01 Ω to 0.3 5 s to 600 s A to 60 A	3 Ω 1	
	Automatic Data Processing Machine, Setup Box	Limited current circuit measurements	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 2.4.1)	0.1 mA to 5	mA	
	DUA	Limitation of touch current to a telecommunication and cable distribution system	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 5.1.8.1)	0.1 mA to 5	mA	
		Requirement of separation between telecommunication network from earth	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 6.1.2)	1 V to 2 kV 1-900 s	AC/DC	
		Steady force Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.2.1)	0.1 s to 1 hr 1 N to 900 N Qualitative	ſ	

Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	05.08.2016
Certificate Number	T-1432	Valid Until	04.08.2018
Last Amended on	18.10.2016	Page	86 of 111

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Power adaptors, Mobile Phone, Cash Register, Point of Sale	Impact Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.2.5)	1 mm to 3000 mm 500 g
	Terminal, Copying Machine, Franking Machine.	Strain relief Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 3.2.6)	0.1 s to 1 hr 1 N to 60 N Qualitative
	Passport reader, Computer Systems, Monitors.	Cord guard Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 3.2.8)	5 ° to 90 ° 15.5 mm to 25 mm
	Printers, Scanners, Keyboards, Telephones &	Hazardous moving Parts Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.4.2)	Test finger - Figure 2A Qualitative
	Automatic Data Processing Machine, Setup	Stability Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.1)	5 ° to 60 ° Qualitative
	DUX	Durability of marking Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 1.7.11)	Qualitative (Visual inspection)
		Stress relief Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.2.7)	25°C to 150 °C Qualitative
		Drop Test	IS 13252 (Part 1): 2010 + Amd. 1: 2013 +Amd. 2: 2015 (Clause. 4.2.6)	1 mm to 3000 mm Qualitative

Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	05.08.2016
Certificate Number	T-1432	Valid Until	04.08.2018
Last Amended on	18.10.2016	Page	87 of 111

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Power adaptors, Mobile Phone, Cash Register, Point of Sale Terminal, Copying Machine, Franking Machine, Passport reader, Computer Systems, Monitors, Printers,	Input Test	UL 60950-1 (2 nd Edition):2007 CSA C22.2 No. 60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 ((2 nd Edition):2005+ Amd. 1 Date. 2009-12-01 (Clause. 1.6.2) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1: 2001 (1 st Edition) (Clause. 1.6.2)	1.5 V to 300 VAC 1.5 V to 300 VDC 0.5 mA to 20 A AC/DC
	Scanners, Keyboards, Telephones & Automatic Data Processing Machine, Setup Box	Thermal requirement	UL 60950-1 (2 nd Edition): 2007 CSA C22.2 No.60950-1 2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005- 12-01 + Amd.1 Date. 2009-12-01(Clause. 4.5.1) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1(1 st Edition): 2001 (Clause. 4.5.1)	20 °C to 400 °C Qualitative

Labo	ratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Plati Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, F Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zo Phase-II, Whitefield, Bangalore, Karnataka			ani Platina angalore, o. 129/4, EPIP I, EPIP Zone,		
Accreditation Standard		ISO/IEC 17025: 200	ISO/IEC 17025: 2005				
Discipline		Electronics Testing	Electronics Testing		05.08.2016		
Certificate Number		T-1432	T-1432		04.08.2018		
Last	Amended on	18.10.2016		Page	88 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are	Range of T Limits of D	esting / etection		

		performed	
Power adaptors.	Output overload Test	UL 60950-1 (2 nd Edition):	1 W to 330 W(max)
Mobile Phone,	1	2007/03/27 CSA C22.2	0.1 s to 1 hr
Cash Register,		No.60950-1	
Point of Sale		(2 nd Edition): Date. 2007/03/27	
Terminal,		IEC 60950-1 (2 nd Edition):	
Copying Machine ,		2005/12/01+ Amd. 1	
Franking		Date. 2009-12-01	
Machine,		(Clause. 5.3.7)	
Passport reader,		UL 60950-1 (1 st Edition):	
Computer		2006/07/07 CSA C22.2	
Systems,		No.60950-1-03/ IEC 60950-1	
Monitors,		(1 st Edition): 2001	
Printers,			
Scanners,	Dielectric strength Test	UL 60950-1 (2 nd Edition):	50 V to 10 kV AC/DC
Keyboards,		2007/03/27	1 s to 900 s
Telephones &		CSA C22.2 No.60950-1	Qualitative
Automatic Data		(2 nd Edition)	
Processing		Date. 2007/03/27	
Machine, Setup		IEC 60950-1 (2 nd Edition):	
Box		2005/12/01 + Amd.1	
		Date. 2009-12-01	
		(Clause. 5.2.2)	
		UL 60950-1 (1 st Edition):	
		2006/07/07 CSA C22.2	
		No.60950-1-03/	
		IEC 60950-1(1st Edition): 2001	
		(Clause. 5.2)	

Accreditation Standard	Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campu Phase-II , Whitefield, Bangalore, Karnataka ISO/IEC 17025: 2005	is, Sy. No 129/4	4, EPIP Zone, 05 08 2016
Discipline	Liectionics resting	ISSUE Dale	03.00.2010
Certificate Number	T-1432	Valid Until	04.08.2018
Last Amended on	18.10.2016	Page	89 of 111
S. No. Product /	Specific Test Performed Test Method Specification	Range of T	esting /

Material of Test		against which tests are performed	Limits of Detection
Power adaptors, Mobile Phone, Cash Register, Point of Sale Terminal, Copying Machine, Franking Machine, Passport reader, Computer Systems, Monitors,	Touch current Test	UL 60950-1 (2 nd Edition): 2007 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005 + Amd. 1 Date. 2009-12-01 (Clause. 5.1) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition): 2001 (Clause. 5.1)	0.1 mA to 5 mA
Printers, Scanners, Keyboards, Telephones & Automatic Data Processing Machine, Setup Box	Output short circuit Test	UL 60950-1 (2 nd Edition): 2007/03/27 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd. 1 Date. 2009-12-01 (Clause. 5.3.7) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition): 2001 (Clause. 5.3.7)	20 °C to 400 °C Qualitative

Last Amended on S. No. Product /	18.10.2016 Specific Test Performed Test Method Specification	Page Range of T	90 of 111	
Certificate Number	T-1432	Valid Until	04.08.2018	
Discipline	Electronics Testing	Issue Date	05.08.2016	
Accreditation Standard	ISO/IEC 17025: 2005			
Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			

Material of Test		against which tests are performed	Limits of Detection
Power adaptors, Mobile Phone, Cash Register, Point of Sale Terminal, Copying Machine, Franking Machine, Passport reader, Computer Systems, Monitors	Abnormal operation Test	UL 60950-1 (2 nd Edition): 2007/03/27 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005 + Amd. 1 Date. 2009-12-01 (Clause. 5.3.3) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1(1 st Edition): 2001 (Clause. 5.3.1)	20 °C to 400 °C Qualitative
Printers, Scanners, Keyboards, Telephones & Automatic Data Processing Machine, Setup Box	Component failure Test	UL 60950-1 (2 nd Edition): 2007/03/27 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd. 1 Date. 2009-12-01 (Clause. 5.3.1) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition):2001 (Clause. 5.3.1)	25 °C to 400 °C Qualitative

Laboratory UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Pl Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalo Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129 Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIF Phase-II, Whitefield, Bangalore, Karnataka			ani Platina angalore, o. 129/4, EPIP 4, EPIP Zone,		
Accr	editation Standar	d ISO/IEC 17025: 200	5		
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016
Certi	ficate Number	T-1432		Valid Until	04.08.2018
Last	Amended on	18.10.2016		Page	91 of 111
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection
	Power adaptors, Mobile Phone, Cash Register, Point of Sale Terminal, Copying Machine, Franking Machine, Passport reader, Computer Systems, Monitors, Printers, Scommer	SELV reliability Test	UL 60950-1 (2 nd Edition): 2007/03/27 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd. 1 Date. 2009-12-01 (Clause. 2.2.2) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition): 2001 (Clause. 2.2.2)	0.1 V to 90 V	7 Peak
	Scanners, Keyboards, Telephones & Automatic Data Processing Machine, Setup Box	Max. V, VA, A measurement Test	UL 60950-1 (2 nd Edition): 2007/03/27 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1: (2 nd Edition):2005-12-01+ Amd.1 Date. 2009-12-01 (Clause. 1.2.2.1) UL 60950-1 (1st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1: 2001 (1st Edition) (Clause. 1.2.2.1)	0.1 V to 80 V 0.1 VA to 80 1 mA to 20 A	7 10 VA 4 max

Laboratory UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Pla Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalo Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4 Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Phase-II, Whitefield, Bangalore, Karnataka			ani Platina angalore, o. 129/4, EPIP 4, EPIP Zone,		
Accr	editation Standar	d ISO/IEC 17025: 200	5		
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016
Certi	ficate Number	T-1432		Valid Until	04.08.2018
Last	Amended on	18.10.2016		Page	92 of 111
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection
	Power adaptors, Mobile Phone, Cash Register, Point of Sale Terminal, Copying Machine, Franking Machine, Passport reader, Computer Systems, Monitors	Capacitance discharge Test	UL 60950-1 (2 nd Edition):2007 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005 + Amd.1 Date. 2009-12-01 (Clause. 2.1.1.7) UL 60950-1 (1 st Edition): 2006/ CSA C22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition): 2001 (Clause. 2.1.1.7)	0.1 V to 800 DC 5 s	V Peak /
	Printers, Scanners, Keyboards, Telephones & Automatic Data Processing Machine, Setup Box	Energy hazard measurement Test	UL 60950-1 (2 nd Edition):2007/03/27 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd.1 Date. 2009-12-01 (Clause. 2.1.1.8) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1: 2001 (1st Edition): (Clause. 2.1.1.8)	0.1 V to 800	V Peak

Laboratory UL India Lab, UL India Pvt. Ltd., Laboratory Campus, Sy. No. 129/4, EPIP Zone, Phase-II Karnataka Location 1: Laboratory Building, Kalyani Platina Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Camp Phase-II, Whitefield, Bangalore, Karnataka			Building, Kalyani Platina Whitefield, Bangalore, Campus, Sy. No. 129/4, EPIP Is, Sy. No 129/4, EPIP Zone,		
Accr	editation Standar	d ISO/IEC 17025: 200	5		
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016
Certi	ficate Number	T-1432		Valid Until	04.08.2018
Last	Amended on	18.10.2016		Page	93 of 111
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection
	Power adaptors,	Limited power source	UL 60950-1 (2 nd Edition):	1 W to 330 V	W(max)
	Mobile Phone, Cash Register, Point of Sale Terminal, Copying Machine, Franking Machine, Passport reader, Computer Systems, Monitors, Printers, Scanners,	measurement Test	2007/03/27 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd.1 Date. 2009-12-01 (Clause. 2.5) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition): 2001 (Clause. 2.5)	0.1 s to 1 hr	
	Keyboards, Telephones & Automatic Data Processing Machine, Setup Box	Working voltage measurement Test	UL 60950-1 (2 nd Edition): 2007/03/27 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005 12-01+ Amd.1 Date. 2009-12-01 (Clause. 2.10.2) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1: 2001 (1 st Edition): (Clause. 2.10.2)	1 V to 1000	V rms/VDC

Laboratory UL India Lab, UL India Pvt. Lte Campus, Sy. No. 129/4, EPIP 2 Karnataka Location 1: Laboratory Building, Zone, Phase-II, Whitefield, Banga Location 2: OAK Building, Kalya Phase-II, Whitefield, Bangalore,		dia Pvt. Ltd., Laboratory B 29/4, EPIP Zone, Phase-II, N ry Building, Kalyani Platina C field, Bangalore, Karnataka ding, Kalyani Platina Campus Bangalore, Karnataka	uilding, Kaly Whitefield, Ba campus, Sy. No s, Sy. No 129/4	ani Platina angalore, o. 129/4, EPIP I, EPIP Zone,	
Accr	editation Standar	d ISO/IEC 17025: 200	5		
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016
Certi	ficate Number	T-1432		Valid Until	04.08.2018
Last	Amended on	18.10.2016		Page	94 of 111
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection
	Power adaptors, Mobile Phone, Cash Register, Point of Sale Terminal, Copying Machine, Franking Machine, Passport reader, Computer Systems, Monitors, Drinters	Transformer and wire insulation electric strength Test	UL 60950-1 (2 nd Edition): 2007 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd.1 Date. 2009-12-01 (Clause. 2.10.5.13) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1: 2001 (1 st Edition): (Clause. 2.10.5.13)	10 V to 10 k ³ 1 s to 900 s Qualitative	V AC/DC
	Scanners, Scanners, Keyboards, Telephones & Automatic Data Processing Machine, Setup Box	Steady force Test	UL 60950-1 (2 nd Edition): 2007 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition):2005/12/01 + Amd.1 Date. 2009-12-01 (Clause. 4.2.1) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition): 2001 (Clause. 4.2.1)	0.1 s to 1 hr 1 N to 900 N	Qualitative

Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	05.08.2016
Certificate Number	T-1432	Valid Until	04.08.2018
Last Amended on	18.10.2016	Page	95 of 111

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Power adaptors, Mobile Phone, Cash Register, Point of Sale Terminal, Copying Machine, Franking Machine, Passport reader, Computer Systems, Monitors, Printers,	Impact Test	UL 60950-1 (2 nd Edition): 2007 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd.1 Date. 2009-12-01 (Clause. 4.2.5) UL 60950-1 (1 st Edition): 2006/07/07 CSA C 22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition): 2001 (Clause. 4.2.5)	50 mm Dia 500 g Qualitative
	Scanners, Keyboards, Telephones & Automatic Data Processing Machine, Setup Box	Stress relief Test	UL 60950-1 (2 nd Edition): 2007 CSA C22.2 No.60950-1 (2 nd Edition) Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd.1 Date. 2009-12-01 (Clause. 4.2.7) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1(1 st Edition): 2001 (Clause. 4.2.7)	25 °C to 150 °C Qualitative

Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accreditation Standard ISO/IEC 17025: 2005				
Discipline	Electronics Testing		Issue Date	05.08.2016
Certificate Number	T-1432		Valid Until	04.08.2018
Last Amended on	18.10.2016		Page	96 of 111
S. No. Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are	Range of T Limits of D	esting / etection

			performed	
2.	Power adaptors, Mobile Phone, Cash Register,	Ball pressure Test	UL 60950-1 (2 nd Edition): 2007 CSA C22.2 No.60950-1 (2 nd Edition):	Loading Device
	Point of Sale Terminal, Copying Machine, Franking		Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01+ Amd.1 Date. 2009-12-01	Diameter 5 mm, 20 N max
	Machine, Passport reader, Computer		(Clause. 4.5.5) UL 60950-1 (1 st Edition): 2006 /CSA C22.2 No.60950-1-03/	0.01 mm to 10 mm
	Systems, Monitors, Printers		IEC 60950-1(1 st Edition): 2001 (Clause. 4.5.5)	0.1 hr to 1 hr Qualitative
	Scanners, Scanners, Keyboards, Telephones &	Accessible connector overload Test	UL 60950-1 (2 nd Edition): 2007 CSA C22.2 No.60950-1 (2 nd Edition):	1 W to 330 W(max) 0.1 s to 1 hr
	Automatic Data Processing Machine, Setup		Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd.1	
	Box (Thermoplastic, Thermoset,		Date. 2009-12-01 (Clause. 5.3.7) UL 60950-1 (1 st Edition):	Qualitative
	Composite Material)		2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition): 2001 (Clause. 5.3.7)	

Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	05.08.2016
Certificate Number	T-1432	Valid Until	04.08.2018
Last Amended on	18.10.2016	Page	97 of 111

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Power adaptors, Mobile Phone, Cash Register, Point of Sale Terminal, Copying Machine, Franking Machine, Passport reader, Computer Systems, Monitors, Printers,	Earthing Test	UL 60950-1 (2 nd Edition): 2007 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd.1 Date. 2009-12-01 (Clause. 2.6.3.4) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition): 2001 (Clause. 2.6.3.4)	0.001 Ω to 0.3 Ω 5 s to 600 s 0.1 A to 60A
	Scanners, Keyboards, Telephones & Automatic Data Processing Machine, Setup Box (Thermoplastic, Thermoset, Composite Material)	Limited power source measurement Test	UL 60950-1 (2 nd Edition): 2007 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd.1 Date. 2009-12-01 (Clause. 2.5) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition): 2001 (Clause. 2.5)	1 W to 330 W(max) 0.1 s to 1 hr

Laboratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	05.08.2016
Certificate Number	T-1432	Valid Until	04.08.2018
Last Amended on	18.10.2016	Page	98 of 111

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Power adaptors, Mobile Phone, Cash Register, Point of Sale Terminal, Copying Machine, Franking Machine, Passport reader, Computer Systems, Monitors,	Stability Test	UL 60950-1 (2 nd Edition): 2007 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd.1 Date. 2009-12-01 (Clause. 4.1) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition): 2001(Clause. 4.1)	5 ° to 90 ° Qualitative
	Printers, Scanners, Keyboards, Telephones & Automatic Data Processing Machine, Setup Box (Thermoplastic, Thermoset, Composite Material)	Component failure Test	UL 60950-1 (2 nd Edition): 2007 CSA C22.2 No.60950-1 (2 nd Edition): Date. 2007/03/27 IEC 60950-1 (2 nd Edition): 2005/12/01 + Amd.1 Date. 2009-12-01 (Clause. 5.3.1) UL 60950-1 (1 st Edition): 2006/07/07 CSA C22.2 No.60950-1-03/ IEC 60950-1 (1 st Edition): 2001 (Clause. 5.3.1)	(-)100 °C to 400 °C

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disci	ipline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016	18.10.2016		99 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
3.	Desktop Computer, Notebook computers, Tablets, Small- scale servers, Thin Client	Off mode	ENERGY STAR Computer Test Method, Version 6.1 UUT preparation shall be performed according to IEC 62623 (Edition 1.0): 2012- 10, Section 5.2: Test Setup	0.1 Wh to 50 5 s to 15 min	0Wh		
	Chent, Workstations and Monitors	Sleep Mode	ENERGY STAR Computer Test Method, Sleep Mode power shall be measured according to IEC 62623 (Edition 1.0): 2012 10, Section 5.3.3: Measuring Sleep Mode	0.1 Wh to 50 5 s to 15 min	0Wh		
		Idle State	ENERGY STAR Computer Test Method, Long Idle Mode power shall be measured according to IEC 62623 (Edition 1.0): 2012- 10, (Section 5.3.4): Measuring Long Idle Mode;	0.1 Wh to 50 5 s to 15 min	0 Wh		
		Active State	ENERGY STAR Computer Test Method, Short Idle Mode power shall be measured according to IEC 62623 (Edition 1.0): 2012- 10, (Section 5.3.5): Measuring Short Idle Mode	0.1 Wh to 50 5 s to 15 min	0 Wh		

Labo	ratory	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platin Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, El Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zor Phase-II , Whitefield, Bangalore, Karnataka			ani Platina angalore, o. 129/4, EPIP I, EPIP Zone,		
Accre	editation Standard	d ISO/IEC 17025: 200	ISO/IEC 17025: 2005				
Discipline		Electronics Testing	Electronics Testing		05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016		Page	100 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Desktop Computer,	Idle State	ENERGY STAR Test Method for Computer Servers,	0.1 Wh to 50 5 s to 15 min	0 Wh		

	Computer, Notebook computers, Tablets, Small- scale servers, Thin Client,		for Computer Servers, Off Mode power shall be measured according to IEC 62623 (Edition 1.0): 2012- 10, (Section 5.3.2): Measuring Off Mode	5 s to 15 min
	Workstations and Monitors	Full Load	ENERGY STAR Test Method for Computer Servers, ENERGY STAR Program Requirements Product Specification for Computer Servers, Version 1.1, Appendix A	0.1 Wh to 500 Wh 5 s to 10 min
4.	Energy efficiency of Internal/ External AC-DC and DC-DC Power supplies	Active Mode power consumption): for single Output power supply	Generalized Test Protocol for calculating the Energy Efficiency of Internal AC-DC and DC-DC Power supplies: Revision 6.4.2, 22 nd October 2008 & Revision 6.5, July 07, 2010. according to IEC 62623 (Edition 1.0): 2012-10 Test Method for Calculating the Energy Efficiency of Single- Voltage External Ac-Dc and AC-AC Power Supplies August 11, 2004.	0.1 Wh to 500 Wh 5 s to 10 min

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	d ISO/IEC 17025: 200	5				
Disci	ipline	Electronics Testing	1	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	101 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Energy efficiency of Internal/ External AC-DC and DC-DC Power supplies	Active Mode power consumption for multiple Output power supply	Generalized Test Protocol for calculating the Energy Efficiency of Internal AC-DC and DC-DC Power supplies: Revision 6.4.2, 22 nd October 2008 & Revision 6.5, July 07, 2010. According to IEC 62623 (Edition 1.0): 2012-10 Test Method for Calculating the Energy Efficiency of Single- Voltage External AC-DC and AC-AC Power Supplies August 11, 2004	0.1 Wh to 50 5 s to 10 min	00 Wh 1		
		Standby Mode Power consumption	Generalized Test Protocol for calculating the Energy Efficiency of Internal AC-DC and DC-DC Power supplies: Revision 6.4.2, 22 nd October 2008 & Revision 6.5, July 07, 2010.according to IEC 62623 (Edition 1.0): 2012-10 Test Method for Calculating the Energy Efficiency of Single- Voltage External AC-DC and AC-AC Power Supplies August 11, 2004	0.1 Wh to 50 5 s to 10 min	00 Wh ι		

Laboratory	dia Pvt. Ltd., Laboratory E 29/4, EPIP Zone, Phase-II, V ry Building, Kalyani Platina C field, Bangalore, Karnataka ding, Kalyani Platina Campu Bangalore, Karnataka	Building, Kaly Whitefield, Ba Campus, Sy. No s, Sy. No 129/4	ani Platina angalore, o. 129/4, EPIP I, EPIP Zone,			
Accreditation Standard	ISO/IEC 17025: 200	ISO/IEC 17025: 2005				
Discipline	Electronics Testing		Issue Date	05.08.2016		
Certificate Number	T-1432		Valid Until	04.08.2018		
Last Amended on	18.10.2016		Page	102 of 111		
S. No. Product / S Material of Test	pecific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		

II. AUDIO/ VIDEO COMPONENTS AND PRODUCTS

1.	House Hold Electronic Appliances – CRT TV; LCD; Plasma displays	Standby power measurement	IEC 62301 (Edition 2): 2011-01 IS 13384 (Part 1): 1992 IS 13384 (Part 2): 1997	0.1 Wh to 500 Wh
		On mode Power measurement	IEC 62087 (Edition 3): 2011-04 IS 13384 (Part 1): 1992 IS 13384 (Part 2): 1997	0.1 Wh to 500 Wh
2.	Power adaptor, Televisions, Optical Disc Players, Amplifier.	Normal operating conditions – Input Test	EN/IEC 60065: 2005, Clause. 4.2 IS 616: 2010 Clause. 4.2	1.5 V to 300 VAC 1.5 V to 300 VDC 0.5 mA to 20 A AC/DC
	Electronic Musical System	Marking Legibility	EN/IEC 60065: 2005, Clause. 5 IS 616: 2010, Clause. 5	0.1 s to 600 s Qualitative
		Heating under normal operating conditions	EN/IEC 60065: 2005, Clause. 7 IS 616: 2010, Clause. 7	Upto 400 °C Qualitative
		Hygroscopic materials	EN/IEC 60065: 2005, Clause. 8.3 IS 616: 2010, Clause. 8.3	42 °C 90 % to 95 % Qualitative

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka			
Accr	editation Standa	rd ISO/IEC 17025: 200	5			
Disc	ipline	Electronics Testing	I	Issue Date	05.08.2016	
Certi	ficate Number	T-1432		Valid Until	04.08.2018	
Last	Amended on	18.10.2016	18.10.2016		103 of 111	
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection	
	Power adaptor, Televisions, Optical Disc Players, Amplifier, Electronic Musical System	Winding insulation Test External forces – windows & covers	EN/IEC 60065: 2005, Clause. 8.8 IS 616: 2010, Clause. 8.8 EN/IEC 60065: 2005, Clause. 8.13, 8.14	10 V to 10 k ² 10 s to 900 s Qualitative 1 N to 50 N 1 S to 10 S	V AC/DC	
	Wiusical System		IS 616: 2010, Clause. 8.13, 8.14	Qualitative		
		Internal forces	EN/IEC 60065: 2005, Clause. 8.15 IS 616: 2010, Clause. 8.15	1 N to 2 N Qualitative		
		Determination of hazardous live Parts	EN/IEC 60065: 2005, Clause. 9.1.1.1 IS 616: 2010, Clause. 9.1.1.1	1 V to 300 V 0.1 mA to 5 r	rms/Vdc mA	
		Protection): against electric shock - Accessibility	EN/IEC 60065: 2005, Clause. 9, 9.1.1.2, 9.2 IS 616: 2010, Clause. 9, 9.1.1.2, 9.2	1 N to 3 N 1 N to 22 N Qualitative		
		Protection against electric shock – Opening in enclosure	EN/IEC 60065: 2005, Clause. 9.1.3 IS 616: 2010, Clause. 9.1.3	Test probe (4 mm x 100 Qualitative	mm)	

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standa	rd ISO/IEC 17025: 200	5				
Disci	ipline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016	18.10.2016		104 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	cation Range of Testing / are Limits of Detection			
	Power adaptor, Televisions, Optical Disc Players, Amplifier	Protection against electric shock – Terminals	EN/IEC 60065: 2005, Clause. 9.1.4 IS 616: 2010, Clause. 9.1.4	1 mm to 30 n 1 N to 11 N Qualitative	nm		
	Amplifier, Electronic Musical System	Preset controls	EN/IEC 60065: 2005, Clause. 9.1.5 IS 616: 2010, Clause. 9.1.5	1 N to 150 N Qualitative	ſ		
		Withdrawal of main plug	EN/IEC 60065: 2005, Clause. 9.1.6 IS 616: 2010, Clause. 9.1.6	0.1 V to 800 0.1 s to 10 s	V Peak / DC		
		Resistance to external forces	EN/IEC 60065: 2005, Clause. 9.1.7 IS 616: 2010, Clause. 9.1.7	1 N to 250 N 1 s to 600 s Qualitative	ſ		
		Surge Test	EN/IEC 60065: 2005, Clause. 10.1 IS 616: 2010, Clause. 10.1	1 kV to 10 k Qualitative	V peak		
		Humidity treatment	EN/IEC 60065: 2005, Clause. 10.2 IS 616: 2010, Clause. 10.2	28 °C to 50 ° 90 % to 95 % Qualitative	°C 6 RH		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standa	rd ISO/IEC 17025: 200	5				
Disc	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last Amended on		18.10.2016	18.10.2016		105 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Power adaptor, Televisions, Optical Disc Players, Amplifier, Electronic Musical System	aptor, Insulation resistance is, isc	EN/IEC 60065: 2005,	1 V to 500 VDC			
			IS 616: 2010,	1 s to 600 s			
			Clause. 10.5	$0.05 \text{ M}\Omega$ to 2	2000 ΜΩ		
		Dielectric strength	EN/IEC 60065: 2005, Clause. 10.3	1 V to 10 kV	AC/DC		
			IS 616: 2010,	1 s to 900 s Qualitative			
			Clause. 10.5	Quantative			
		Fault conditions Tests	EN/IEC 60065: 2005, Clause 11	1 V to 400 V	(peak) AC		
			IS 616: 2010,	1 V to 20 V	DC		
				1 °C to 400 ° Oualitative	C		
		Mechanical strength –	EN/IEC 60065: 2005, Clause 12.1.1	0.1 cm to 5 c	m		
		Ծանթ	IS 616: 2010, Clause. 12.1.1	Qualitative			
		Mechanical strength – Impact	EN/IEC 60065: 2005, Clause, 12.1.3	0.2 J to 1 J			
			IS 616: 2010, Clause 12.1.3	0.1 m to 1 m			
				Qualitative			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standa	rd ISO/IEC 17025: 200	5				
Disc	ipline	Electronics Testing	1	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	106 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Power adaptor, Televisions, Optical Disc Players,	Drop Test	EN/IEC 60065: 2005, Clause. 12.1.4 IS 616: 2010, Clause. 12.1.4	0.1 m to 1 m Qualitative			
	Ampinter, Electronic Musical System	Mechanical strength – Stress relief	EN/IEC 60065: 2005, Clause. 12.1.5 IS 616: 2010, Clause. 12.1.5	1 °C to 350 ° Qualitative	ΡĊ		
		Torque Test – Rod antenna	EN/IEC 60065: 2005,	1 N to 20 N			
			IS 616: 2010, Clause 12.6	1 s to 600 s			
				Qualitative			
		Creepage and Clearance distances	EN/IEC 60065: 2005, Clause. 13 IS 616: 2010, Clause. 13	1 mm to 150	mm		
		Determination of operating voltage	EN/IEC 60065: 2005, Clause. 13.2 IS 616: 2010, Clause. 13.2	1 V to 1000	V rms/VDC		
		Component - Resistors	EN/IEC 60065: 2005, Clause. 14.1	40 (±)2 °C			
			IS 616: 2010, Clause. 14.1	90 % to 96 % 1 kV to 10 k	6 RH V AC		

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	rd ISO/IEC 17025: 200	5				
Disc	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016	18.10.2016		107 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Power adaptor, Televisions, Optical Disc Players	Provisions for protective resistance	EN/IEC 60065: 2005, Clause. 15.2 IS 616: 2010, Clause. 15.2	0.001 Ω to 0 5 s to 600 s	.3 Ω		
	Amplifier, Electronic Musical System		Clause. 13.2	0.1 A to 60 A			
		cal System Strain relief Test	EN/IEC 60065: 2005, Clause. 16.5 IS 616: 2010, Clause. 16.5	1 N to 40 N			
				1 Nm to 25 Nm			
				1 s to 600 s Qualitative			
		Torque Test on screw	EN/IEC 60065: 2005, Clause 17.1	1 mm to 6 m	m		
			IS 616: 2010, Clause. 17.1	1 Nm to 2.5	Nm		
				Qualitative			
		Torque Test on covers	EN/IEC 60065: 2005, Clause. 17.7	1 N to 10 N			
			IS 616: 2010, Clause. 17.7	1 Nm to 2.5	Nm		
				Qualitative			
		Stability Test	EN/IEC 60065: 2005, Clause. 19.1	$1 \circ$ to $10 \circ$ and	gle		
			IS 616: 2010, Clause, 19.1	Qualitative			

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborator Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accr	editation Standar	rd ISO/IEC 17025: 200	5				
Disci	pline	Electronics Testing	I	Issue Date	05.08.2016		
Certi	ficate Number	T-1432		Valid Until	04.08.2018		
Last	Amended on	18.10.2016		Page	108 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Power adaptor, Televisions, Optical Disc Players, Amplifier, Electropia	Vertical force stability	EN/IEC 60065: 2005, Clause. 19.2 IS 616: 2010, Clause. 19.2	1 cm to 75 ci	n		
				1 N to 100 N			
				Qualitative			
	Musical System	em Horizontal force stability	EN/IEC 60065: 2005, Clause, 19.3	1 N to 250 N			
			IS 616: 2010, Clause, 19.3	0.1 m to 3 m			
				Qualitative			
	Wall C	Wall Or Ceiling Or	EN/IEC 60065: 2005,	1 kg to 100 k	g		
		Test	IS 616: 2010, Clause. 19.6	Qualitative			
		Resistance to Heat, Fire and	EN/IEC 60065: 2005,	Upto 850 °C			
		Tracking (Glow wire Test)	IS 616: 2010, Clause. 20, Annexure. G	Qualitative			
		Resistance to Heat, Fire and Tracking (Needle flame)	EN/IEC 60065: 2005, Clause. 20, Annexure. G	1 min to 1 hr 2 mm,12 mm	1		
			IS 616: 2010, Clause. 20, Annexure. G	100 °C to 70 Qualitative	0 °C		
		Resistance to Heat, Fire and Tracking (Flame Test)	EN/IEC 60065: 2005, Clause. 20, Annexure. G	1 mm to 50 r Qualitative	nm		
Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
---	--	--	---	--	--	--	--
Accr	editation Standa	rd ISO/IEC 17025: 200	5				
Discipline Certificate Number Last Amended on		Electronics Testing	Electronics Testing T-1432 18.10.2016		05.08.2016		
		T-1432			04.08.2018		
		18.10.2016			109 of 111		
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
3.	Secondary cells &	Batteries					
a.	Lithium Ion cells & batteries, Ni- MH cells & batteries	Insulation and wiring	IS 16046: 2015 Rev 1 (Clause. 5.2)	5 MΩ at 500 60 s	VDC for		
	Datteries	Low-rate charging	IS 16046: 2015 Rev 1 (Clause. 7.2.1)	0.50 V to 60 V / 0.30 A to 25 A Qualitative			
		Vibration	IS 16046: 2015 Rev 1 (Clause. 7.2.2)	10 Hz to 60 1 5 Hz to 2300 Amplitude-1 (P-P)/50.8 m 0.19 g to 4.6 Qualitative	Hz/ Hz .6 mm m(P-P) g Acceleration		
		Moulded case stress at high ambient temperature (Batteries)	IS 16046: 2015 Rev 1 (Clause. 7.2.3)	20 °C to 350 Qualitative	°C		
		Temperature cycling	IS 16046: 2015 Rev 1 (Clause. 7.2.4)	150 °C to (-)40 °C Qualitative			
		External short circuit	IS 16046: 2015 Rev 1 (Clause. 7.3.2)	$0.1 \text{ m}\Omega$ to 20 Qualitative	000 Ω		

Labo	ratory	UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka					
Accreditation Standard Discipline Certificate Number		rd ISO/IEC 17025: 200	ISO/IEC 17025: 2005					
		Electronics Testing	Electronics Testing T-1432		05.08.2016			
		T-1432			04.08.2018			
Last Amended on	18.10.2016		Page 110 of 111					
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection			
	Lithium Ion cells & batteries, Ni- MH cells & batteries	Free fall	IS 16046: 2015 Rev 1 (Clause. 7.3.3)	100 mm to 1 Qualitative	000 mm			
	batteries	Mechanical shock(Crash hazard)	IS 16046: 2015 Rev 1 (Clause. 7.3.4)	1 g to 200 g, 5 Hz to 5000 Hz Qualitative				
		Overcharge	IS 16046: 2015 Rev 1 (Clause. 7.3.8)	0.50 V to 60 0.30 A to 20 Qualitative	V/ A			
		Charging-2nd procedure	IS 16046: 2015 Rev 1 (Clause. 8.1.2)	0.50 V to 60 0.30 A to 20 Qualitative	V/ A			
		Incorrect installation	IS 16046: 2015 Rev 1 (Clause. 7.3.1)	Resistor of 1 Qualitative	Ω			
		Thermal abuse(Cells)	IS 16046: 2015 Rev 1 (Clause. 7.3.5)	20 °C to 200 Qualitative	°C			
		Forced discharge(Cell)	IS 16046: 2015 Rev 1 (Clause. 7.3.9)	0.50 V to 60 0.30 A to 20 Qualitative	V/ A			
		Transport Tests	UN38.3 (6th Edition), 2015					

Laboratory		UL India Lab, UL In Campus, Sy. No. 12 Karnataka Location 1: Laborato Zone, Phase-II, White Location 2: OAK Buil Phase-II, Whitefield,	UL India Lab, UL India Pvt. Ltd., Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 1: Laboratory Building, Kalyani Platina Campus, Sy. No. 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka Location 2: OAK Building, Kalyani Platina Campus, Sy. No 129/4, EPIP Zone, Phase-II, Whitefield, Bangalore, Karnataka				
Accreditation Standard ISO/IEC 17025: 2005							
DisciplineElectronics TestingCertificate NumberT-1432Last Amended on18.10.2016]	Issue Date	05.08.2016 04.08.2018 111 of 111			
		T-1432	T-1432 18.10.2016				
		18.10.2016					
S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of T Limits of D	esting / etection		
	Lithium Ion cells & batteries, Ni-	T1 : Altitude Simulation	UN 38.3 Clause. 4.1	10 mBar to 930 mBar Qualitative			
	MH cells & batteries	T2 : Thermal Test	UN 38.3 Clause. 4.2	150 °C to (-)40 °C Qualitative			
		T3 : Vibration	UN 38.3 Clause. 4.3	5 Hz to 2300 Hz Amplitude 0.1 mm to 50.8 mm (P-P) Qualitative			
		T4 : Shock	UN 38.3 Clause. 4.4	1 g to 200 g, 5 Hz to 5000 Qualitative	Hz		
		T5: External Short Circuit	UN 38.3 Clause. 4.5	$0.1 \text{ m}\Omega$ to 2000 Qualitative	000 Ω		
		T6 (a) : Impact & (Crush)	UN 38.3 Clause. 4.6	200 Nw to 18 Qualitative	8 kNw		
		T7 : Over Charge	UN 38.3 Clause. 4.7	0.50 V to 60 0.30 A to 20 Qualitative	V/ A		
		T8 : Forced Discharge	UN 38.3 Clause. 4.8	0.50 V to 60 0.30 A to 20 Qualitative	V/ A		