

Laboratory **Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-6360 (in lieu of T-3711)**

Page 1 of 14

Validity **03.12.2017 to 02.12.2019**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection	
<b><u>ELECTRONICS TESTING</u></b>					
<b>AT LABORATORY</b>					
<b>I.</b>	<b>POWER SUPPLIES &amp; STABLIZERS</b>				
<b>1</b>	<b>Single phase UPS upto 3KVA</b>	Cable and Interconnection check	IEC 62040-3, 2011, Clause. 6.2.2.2	Qualitative	
		Light load and functional test	IEC 62040-3, 2011, Clause. 6.2.2.3	Qualitative	
		No load test	IEC 62040-3, 2011, Clause. 6.2.2.4	10 V to 750V at 50 Hz	
		Full load	IEC 62040-3, 2011, Clause. 6.2.2.5	10 V to 750V at 50 Hz	
		AC Input failure	IEC 62040-3, 2011, Clause. 6.2.2.7	10 V to 750V at 50 Hz	
		<b>Input Supply Compatibility</b>			
		Steady state input voltage tolerance	IEC 62040-3, 2011, Clause. 6.4.1.1	10 V to 750V at 50 Hz	
		Input Inrush current	IEC 62040-3, 2011, Clause. 6.4.1.3	1mA to 200A	
		Harmonic distortion of input current	IEC 62040-3, 2011, Clause. 6.4.1.4	DC to 99 <sup>th</sup> fundamental	
		Power factor	IEC 62040-3, 2011, Clause. 6.4.1.5	0.1 to unity	
		Efficiency	IEC 62040-3, 2011, Clause. 6.4.1.6	23 W to 11.4kW pk	
		<b>Output-Linear Load</b>			
		Normal mode- No load	IEC 62040-3, 2011, Clause. 6.4.2.1	10 V to 750V at 50 Hz	
		Normal mode- Full load	IEC 62040-3, 2011, Clause. 6.4.2.2	10 V to 750V at 50 Hz	
		Stored Energy mode - No load	IEC 62040-3, 2011, Clause. 6.4.2.3	10 V to 750V at 50 Hz	

**Laboratory**                      **Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra**

**Accreditation Standard**    **ISO/IEC 17025: 2005**

**Certificate Number**        **TC-6360 (in lieu of T-3711)**

**Page 2 of 14**

**Validity**                        **03.12.2017 to 02.12.2019**

**Last Amended on --**

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Stored Energy mode - Full load	IEC 62040-3, 2011, Clause. 6.4.2.4	10 V to 750V at 50 Hz
		DC Voltage Component	IEC 62040-3, 2011, Clause. 6.4.2.6	1mV to 200V
		Output overvoltage test	IEC 62040-3, 2011, Clause. 6.4.2.8	Qualitative 10 V to 750V at 50 Hz
		Periodic Output Voltage Variation test (Modulation)	IEC 62040-3, 2011, Clause. 6.4.2.9	10 V to 750V at 50 Hz
		Overload – Normal mode	IEC 62040-3, 2011, Clause. 6.4.2.10.1	10 V to 750V at 50 Hz
		Overload – Stored Energy mode	IEC 62040-3, 2011, Clause. 6.4.2.10.2	10 V to 750V at 50 Hz
		Fault Clearing Capability – Normal mode	IEC 62040-3, 2011, Clause. 6.4.2.10.3	Qualitative
		Fault Clearing Capability – Stored Energy mode	IEC 62040-3, 2011, Clause. 6.4.2.10.4	Qualitative
		Dynamic performance – Normal to stored energy mode	IEC 62040-3, 2011, Clause. 6.4.2.11.1	10 V to 750V at 50 Hz
		Dynamic performance – stored energy to Normal mode	IEC 62040-3, 2011, Clause. 6.4.2.11.2	2.5 ns to 50 s
		Dynamic performance – Normal to bypass mode-overload	IEC 62040-3, 2011, Clause. 6.4.2.11.3	2.5 ns to 50 s
		Dynamic performance – Step load - Normal mode	IEC 62040-3, 2011, Clause. 6.4.2.11.4	Up to 300 Vrms / 848V p-p
		Dynamic performance – Step load – Stored Energy mode	IEC 62040-3, 2011, Clause. 6.4.2.11.5	Up to 300 Vrms / 848V p-p

**Neeraj Verma  
Convenor**

**N. Venkateswaran  
Program Director**

Laboratory **Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-6360 (in lieu of T-3711)**

Page 3 of 14

Validity **03.12.2017 to 02.12.2019**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		<b>Stored and restored Energy times</b>		
		Stored Energy time	IEC 62040-3, 2011, Clause. 6.4.4.1	Qualitative
		Restored Energy time	IEC 62040-3, 2011, Clause. 6.4.4.2	Qualitative
		Restart test	IEC 62040-3, 2011, Clause. 6.4.4.4	Qualitative
		<b>Environmental</b>		
		Repetitive shock during transportation	IEC 62040-3, 2011, Clause. 6.5.2.1	Acceleration:25g Pulse duration: 11ms
		Free fall during transportation	IEC 62040-3, 2011, Clause. 6.5.2.2	10 mm to 300mm
		Storage in dry heat, damp heat and cold environments	IEC 62040-3, 2011, Clause. 6.5.3	Range for temperature: (-) 40 °C to 180 °C Range for Humidity: Temp: 10 °C to 95 °C RH: 10% to 98%
		Operation in dry heat, damp heat and cold environments	IEC 62040-3, 2011, Clause. 6.5.4	Range for temperature: (-) 40°C to 180 °C Range for Humidity: Temp: 10 °C to 95 °C RH: 10% to 98%
		Acoustic Noise	IEC 62040-3:2011, Clause 6.5.5	30 dBA to 130 dBA
2.	<b>Switch Mode Power Supply (SMPS)</b>	Performance Check	IS:14886:2000 (RA:2003)	Upto 5kVA
		1 Visual Inspection	Clause 7.1	Visual Check
		2 Line regulation	Clause 7.1	10 V to 750V
		3 Load regulation	Clause 7.1	10 V to 750V
		4 Efficiency	Clause 7.1	23W to 11.4kW pk
		5 Indications		Visual Check

Laboratory **Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-6360 (in lieu of T-3711)**

Page 4 of 14

Validity **03.12.2017 to 02.12.2019**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection	
II.	<b>LED Street Light</b>				
1.	<b>Street Light</b>	Moisture resistance test	IS:15885-Part 1:2011 Cl.11	Range : Temperature: 10 °C to 95 °C RH: 10% to 98%	
		Insulation Resistance test	IS:15885-Part 1:2011 cl.11	Upto 50000 MOhm at 500VDC	
		Di-Electric Strength test	IS:15885-Part 1:2011 cl.12	10V to 5kV	
		Harmonic and power factor test	IS:16102-part 2 :2012 cl.15.1.1 & 15.2	Upto 99 <sup>th</sup> fundamental 0.1 PF to 1 PF	
		Total circuit power	IS:16104:2012 cl 8	23 W to 11.4 kW pk	
		Total circuit power factor	IS:16104:2012 cl 9	0.1 to 1 PF	
		Supply current	IS:16104:2012 cl 10	20 mA to 20 A	
		<b>Operational Tests for Abnormal Conditions</b>			
		Test without LED module	IS:16104:2012 cl 12(a)	Qualitative	
		Test for short circuit	IS:16104:2012 cl 12(c)	Qualitative	
		High Voltage test		10V to 5kV (AC/DC)	
		Insulation Resistance test		1000 MΩ, at 500V DC	
		Output Voltage		10 V to 750V	
		No load current		20mA to 20A	
	No load losses		23W to 11.4kW pk		

Laboratory

Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6360 (in lieu of T-3711)

Page 5 of 14

Validity 03.12.2017 to 02.12.2019

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<b>III. SAFETY TESTING FACILITY</b>				
1.	Safety of machinery – Electric Equipments of Machines	Verifications	IEC 60204-1-2009 Ed.5.1	
		Insulation resistance tests	Clause 18.3	1 Mohm at 500V DC
		Voltage Test	Clause 18.4	10 kV to 5kV (AC/DC)
		Protection against residual Voltages	Clause 18.5	10 V to 750 V
<b>IV. ENVIRONMENTAL TESTING</b>				
1.	Environmental Testing (Climatic)	Cold Test	IEC60068-2-1:2007 IS9000-Part-2:2004 JSS 55555 (2000) JSS50101(1996) (RA 2001) QM333(2010):sec-3: Test no.1	Range: Ambient to (-) 40 °C Size : 1m <sup>3</sup>
		Dry Heat Test	IEC60068-2-2:2007 IS9000-Part-3:2004 JSS 55555 (2000) JSS50101(1996) (RA 2001) QM333(2010):sec-3: Test no.2	Range: Ambient to 180 °C Size : 1m <sup>3</sup>
		Damp Heat (Steady State)	IEC60068-2-78:2012 IS9000-Part-4:2008 JSS 55555 (2000) JSS50101(1996) (RA 2001) QM333(2010):sec-3: Test no.5	Range: Temp: 10 °C to 95 °C RH: 10 % to 98% Size : 1m <sup>3</sup>
		Damp Heat (Cyclic)	IEC60068-2-30:2005 IS9000-Part-5:2004 JSS 55555 (2000) JSS50101(1996) (RA 2001) QM333(2010):sec-3: Test no.3	Range: Temp: 10 °C to 95 °C RH: 10 % to 98% Size : 1m <sup>3</sup>

Laboratory

Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6360 (in lieu of T-3711)

Page 6 of 14

Validity 03.12.2017 to 02.12.2019

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Change of temperature test	IEC60068-2-14:2009 IS9000-Part-14:2003 JSS 55555 (2000) JSS50101(1996) (RA 2001) QM333(2010):sec-3: Test no.4	Range: (-) 40 °C to180 °C Size : 1m <sup>3</sup>
		Dust test	IEC60529:2014 IS9000-Part-12:2004 JSS 55555 (2000) JSS50101(1996) (RA 2001)	Temperature: 40 °C Type of Dust: Telcom power Size : 0.8m <sup>3</sup>
2	Environmental Testing (Mechanical durability)	Bump Test	IEC60068-2-27:2008 IS9000-Part-7: (RA 2003 JSS 55555 (2000) JSS50101(1996) (RA 2001) QM333(2010):sec-3: Test no.13	Acceleration: 25g & 40g Pulse duration:6ms Bump rate: 2 to 3 bump per second
		Vibration test (Sinusoidal)	IEC60068-2-6: 2007 IS9000-Part-8: (RA 2003 JSS 55555 (2000) JSS50101(1996) (RA 2001) QM333(2010):sec-3: Test no.6 JIS D1601: 1995	Frequency: 5 Hz to 2000 Hz Acceleration: Upto 40g Amplitude/ Displacement: 30mm pp
		Vibration Test (Random)	IEC60068-2-64: 2008 IS9000-Part-7 JSS 55555 (2000) JSS50101(1996) (RA 2001) QM333(2010) IEC 61373: 2010	Frequency: 5 Hz to 2000 Hz Acceleration: 15g Amplitude/ Displacement: 30mm pp
		Shock test (Sine pulse)	IEC60068-2-27:2008 IS9000-Part-7 JSS50101(1996) (RA 2001), QM333(2010) JSS 55555 (2000)	Acceleration:25g Pulse duration: 11ms

Laboratory **Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-6360 (in lieu of T-3711)**

Page 7 of 14

Validity **03.12.2017 to 02.12.2019**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<b>V.</b>	<b>EMI/EMC TESTING</b>			
1.	<b>Industrial, Scientific, Medical equipment, Household appliances &amp; Portable tools, Lighting, IT, Process control and allied equipment, UPS Measurement control &amp; Lab. Equipment, And all other equipment requiring such tests.</b>	Conducted Emission	CISPR 11:2010 EN 55011:2010 CISPR 14-1:2011 / EN 55014-1:2011 CISPR 15 : 2013 EN 55015 :2013 CISPR 22:2008 EN55022 : 2010	Frequency range: 9 kHz to 30 MHz  Amplitude: 0 to +120 dBuV $\pm$ 2 dB  DC/ Single Phase: Up to 240 VAC,  Three phase: Up to 440 VAC,  Input current: Up to 200 A/phase.
2.	<b>Industrial Scientific, Medical equipment, Process control and allied equipment, Lighting, Household appliances &amp; Portable tools, UPS, IT, Measurement control &amp; laboratory equipment. And all other</b>	Electrical Fast Transient / Burst  On 1. Power lines,  2. I/O & control lines	IEC/EN 61000-4-4:2012	EUT Input Voltage: DC: Up to 100 VDC Single Phase: Up to 240 V AC. Three Phase: Up to 380/440 VAC. Current capability : Up to 32 A. Pulse amplitude: 0.5 to 4.0 kV $\pm$ 10% Polarity: Positive/Negative Pulse repetition: 0.5 to 100 kHz $\pm$ 20% Rise time of pulse : 5 ns $\pm$ 30%

Laboratory **Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-6360 (in lieu of T-3711)**

Page 8 of 14

Validity **03.12.2017 to 02.12.2019**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	equipment requiring such tests.			Pulse duration : 50 ns $\pm$ 30%
3	Industrial, Scientific, Medical equipment, Process control and allied equipment, Lighting, Household appliances & Portable tools.	Surge on 1. Power lines, 2. I/O & control lines	IEC/EN 61000-4-5:2014	EUT Input Voltage: DC: up to 100 VDC Single Phase: Up to 240 VAC Three Phase: Up to 440 VAC, Mains current capability : Up to 32 A Surge Voltage: 0.5 to 4 kV $\pm$ 10% Surge Current: 0.25 to 2 kA $\pm$ 10% Polarity: Positive/Negative Voltage Pulse shape: Rise time : 1.2 $\mu$ s $\pm$ 30% Duration : 50 $\mu$ s $\pm$ 20% Current Pulse shape: Rise time : 8 $\mu$ s $\pm$ 30% Duration : 20 $\mu$ s $\pm$ 20%
4	Industrial, Scientific, Medical equipment, Process control and allied equipment, Lighting. Household appliances &	Electrostatic discharge (ESD)	IEC/EN 61000-4-2 : 2008	Pulse amplitude:  Air discharge:  0 to 15 kV $\pm$ 5% Contact discharge:  0 to 8 kV $\pm$ 5% Polarity: Positive/Negative



Laboratory

Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6360 (in lieu of T-3711)

Page 9 of 14

Validity 03.12.2017 to 02.12.2019

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Portable tools, UPS, IT, Measurement control & laboratory equipment, And all other equipment requiring such tests.			Rise Time: 0.8 ns $\pm$ 30%
5	Industrial, Scientific, Medical equipment, Process control and allied equipment, Lighting, Household appliances & Portable tools. UPS, IT, Measurement control & laboratory equipment. And all other equipment requiring such tests.	Conducted RF Susceptibility On 1.Power lines 2.I/O & control lines	IEC/EN 61000-4-6:2013,	EUT Input Voltage: DC / Single Phase: Up to 240 V  Three Phase: Up to 440 V, Current capability : Up to 32 A Frequency : 150 kHz to 230 MHz

Laboratory                      Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra

Accreditation Standard    ISO/IEC 17025: 2005

Certificate Number        TC-6360 (in lieu of T-3711)

Page 10 of 14

Validity                        03.12.2017 to 02.12.2019

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
6	Equipment installed in Industrial locations, power generation plants & sub-stations, Protection equipment, Alarm systems, Metering equipment, And all other equipment requiring such tests.	Slow Damped oscillatory surge On Power lines	IEC/EN 61000-4-18:2006 + A1: 2011 Cl. 6.6.1.	EUT Input Voltage: DC/ Single Phase: Up to 240 V Three Phase: Up to 440 V, Current capability : Up to 32 A Rise Time: 75 ns $\pm$ 20% Freq : 100 kHz $\pm$ 10% 1 MHz $\pm$ 10% Amplitude : 0.25 to 3.3kV $\pm$ 10% Polarity: Positive/Negative

Laboratory **Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-6360 (in lieu of T-3711)**

Page 11 of 14

Validity **03.12.2017 to 02.12.2019**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
-----	----------------------------	-------------------------	---	--

**AT - SITE TESTING**

<b>I. POWER SUPPLIES &amp; STABILIZERS</b>					
<b>1.</b>	<b>Single phase UPS upto 3 KVA</b>	Cable and Interconnection check	IEC 62040-3, 2011, Clause. 6.2.2.2	Qualitative	
		Light load and functional test	IEC 62040-3, 2011, Clause. 6.2.2.3	Qualitative	
		No load test	IEC 62040-3, 2011, Clause. 6.2.2.4	10 V to 750V at 50 Hz	
		Full load	IEC 62040-3, 2011, Clause. 6.2.2.5	10 V to 750V at 50 Hz	
		AC Input failure	IEC 62040-3, 2011, Clause. 6.2.2.7	10 V to 750V at 50 Hz	
		<b>Input Supply Compatibility</b>			
		Steady state input voltage tolerance	IEC 62040-3, 2011, Clause. 6.4.1.1	10 V to 750V at 50 Hz	
		Input Inrush current	IEC 62040-3, 2011, Clause. 6.4.1.3	1mA to 200A	
		Harmonic distortion of input current	IEC 62040-3, 2011, Clause. 6.4.1.4	DC to 99 <sup>th</sup> fundamental	
		Power factor	IEC 62040-3, 2011, Clause. 6.4.1.5	0.1 to unity	
		Efficiency	IEC 62040-3, 2011, Clause. 6.4.1.6	25mW to 11.5 kW pk	
		<b>Output-Linear Load</b>			
		Normal mode- No load	IEC 62040-3, 2011, Clause. 6.4.2.1	10 V to 750V at 50 Hz	
		Normal mode- Full load	IEC 62040-3, 2011, Clause. 6.4.2.2	10 V to 750V at 50 Hz	
		Stored Energy mode - No load	IEC 62040-3, 2011, Clause. 6.4.2.3	10 V to 750V at 50 Hz	
Stored Energy mode - Full load	IEC 62040-3, 2011, Clause. 6.4.2.4	10 V to 750V at 50 Hz			

Laboratory **Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-6360 (in lieu of T-3711)**

Page 12 of 14

Validity **03.12.2017 to 02.12.2019**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		DC Voltage Component	IEC 62040-3, 2011, Clause. 6.4.2.6	1mV to 200V
		Output overvoltage test	IEC 62040-3, 2011, Clause. 6.4.2.8	Qualitative 10 V to 750V at 50 Hz
		Periodic Output Voltage Variation test (Modulation)	IEC 62040-3, 2011, Clause. 6.4.2.9	10 V to 750V at 50 Hz
		Overload – Normal mode	IEC 62040-3, 2011, Clause. 6.4.2.10.1	10 V to 750V at 50 Hz
		Overload – Stored Energy mode	IEC 62040-3, 2011, Clause. 6.4.2.10.2	10 V to 750V at 50 Hz
		Fault Clearing Capability – Normal mode	IEC 62040-3, 2011, Clause. 6.4.2.10.3	Qualitative
		Fault Clearing Capability – Stored Energy mode	IEC 62040-3, 2011, Clause. 6.4.2.10.4	Qualitative
		Dynamic performance – Normal to stored energy mode	IEC 62040-3, 2011, Clause. 6.4.2.11.1	10 V to 750V at 50 Hz
		Dynamic performance – stored energy to Normal mode	IEC 62040-3, 2011, Clause. 6.4.2.11.2	2.5ns to 50s
		Dynamic performance – Normal to bypass mode - overload	IEC 62040-3, 2011, Clause. 6.4.2.11.3	2.5ns to 50s
		Dynamic performance – Step load - Normal mode	IEC 62040-3, 2011, Clause. 6.4.2.11.4	Up to 300 Vrms / 848V p-p
		Dynamic performance – Step load – Stored Energy mode	IEC 62040-3, 2011, Clause. 6.4.2.11.5	Up to 300 Vrms / 848V p-p
		<b>Stored and restored Energy times</b>		
		Stored Energy time	IEC 62040-3, 2011, Clause. 6.4.4.1	Qualitative

Laboratory **Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-6360 (in lieu of T-3711)**

Page 13 of 14

Validity **03.12.2017 to 02.12.2019**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Restored Energy time	IEC 62040-3, 2011, Clause. 6.4.4.2	Qualitative
		Restart test	IEC 62040-3, 2011, Clause. 6.4.4.4	Qualitative
		<b>Environmental</b>		
		Acoustic noise	IEC 62040-3, 2011, Clause. 6.5.5	30 dBA to 130 dBA
2.	<b>Automatic line Voltage corrector (Servo motor Operated)</b>	Physical examination	IS 9815-1994 (Reaffirmed 2004)	Qualitative tests
		High Voltage test	Cl.11.5 (after temp. rise)	10V to 5kV (AC/DC)
		Insulation Resistance test	Cl.11.4	1000 MΩ, at 500V DC
		Output Voltage	Cl.11.6	10 V to 750V
		No load current	Cl. 11.7	20mA to 20A
		No load losses	Cl. 11.8	25mW – 11.5 kV pk
3.	<b>Switch Mode Power Supply (SMPS)</b>	Performance Check	IS:14886:2000 (RA:2003)	Upto 5kVA
		Visual Inspection	Clause 7.1	Visual Check
		Line regulation	Clause 7.1	10 V to 750V
		Load regulation	Clause 7.1	10 V to 750V
		Efficiency	Clause 7.1	25mW to 11.5 kW pk
		Indications		Visual Check
II.	<b>LED STREET LIGHT</b>			
1.	<b>Led Street Light</b>	Moisture resistance test	IS:15885-Part 1:2011 cl.11	Range : Temperature: 10 °C to 95° C RH: 10 to 98%
		Insulation Resistance test	IS:15885-Part 1:2011 cl.11	Up to 50000 M Ohm at 500VDC
		Di-Electric Strength test	IS:15885-Part 1:2011 cl.12	10V to 5kV
		Harmonic and power factor test	IS:16102-part 2 :2012 cl.15	DC to 99 <sup>th</sup> fundamental 0.1 to 1 PF

Laboratory                      **Electronics Test & Development Centre, Agriculture College  
Campus, Shivaji Nagar, Pune, Maharashtra**

Accreditation Standard    **ISO/IEC 17025: 2005**

Certificate Number        **TC-6360 (in lieu of T-3711)**

Page 14 of 14

Validity                        **03.12.2017 to 02.12.2019**

Last Amended on --

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Total circuit power	IS:16104:2012 cl 8	25mW to 11.5 kW pk
		Total circuit power factor	IS:16104:2012 cl 9	0.1 to 1 PF
		Supply current	IS:16104:2012 cl 10	20mA to 20A
		<b>Operational test for abnormal operation</b>		
		Test without LED module	IS:16104:2012 cl 12	Qualitative
		Test for short circuit	IS:16104:2012 cl 12	Qualitative
<b>III.</b>	<b>SAFETY TESTING FACILITY</b>			
<b>1.</b>	<b>Safety of machinery – Electric Equipments of Machines</b>	Verifications	IEC 60204-1-2009 Ed.5.1	
		Insulation resistance tests	Clause 18.3	1 Mohm at 500V DC
		Voltage Test	Clause 18.4	10 to 5kV (AC/DC)
		Protection against residual voltages	Clause 18.5	10 V to 750V