

**CENTRAL POWER RESEARCH INSTITUTE
ENERGY EFFICIENCY AND RENEWABLE ENERGY DIVISION**



Test Report No. : CPRI/ERED/SPV/2883/2013
Sample ID No : CPRI/ERED/SPV/S2955-1/2013
Manufactured by : M/s. KOTAK URJA (P) LTD.
Submitted by : M/s. KOTAK URJA (P) LTD.
378, 10th Cross, 4th phase, Peenya Industrial Area,
Bangalore -58

TEST REPORT ON

**SOLAR STREET LIGHTING SYSTEM
2013-2014**

The Industry is the manufacturer of solar photovoltaic Module and Electronics for Street lighting system

Date of Test : 30/10/2013 to 20/11/2013

Issue Date : 04/12/2013

NOTE

This is a report on measurements carried out on the Street lighting system submitted at Central Power Research Institute as per MNRE specifications 2013-2014. The data reported in this TEST REPORT are valid at the time of and under the stipulated conditions of measurement and the test results are applicable to this system only and do not apply to other street lighting systems even though declared to be identical. The data contents in this report do not constitute a qualification test certificate. CPRI does not accept any liability for any consequences including commercial or otherwise arising out of the utilization of the information contained in this report.

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(M. Siddhartha Bhatt)
Additional Director


Test in-charge


Test Engineer

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TEST REPORT

S. N.	Test Description	Requirement as per MNRE Specifications	Manufacturer's Claim	CPRI observations	Remarks
1	PV Module				
i	a) Name of Manufacturer or Company Logo	Description to be laminated inside the module so as to be clearly visible from the front side.	Provided	Provided M/s. Kotak Urja (P) Ltd	*see below
	b) Model or Type No.	Should be available	Provided	KM 0074	
	c) Serial No.	Should be available	Provided	47500	
	d) Year of Make	Should be available	2013	2013	
ii	No. of modules	Should be available	One x 74 W	One x 74 Wp	
iii	Wattage at 16.4V		≥ 74 W	76.26 Wp	
iv	Type of Module	Crystalline silicon (Multi/Mono)	Multi Crystalline Silicon	Multi Crystalline Silicon	
v	Module efficiency	14 % or more	≥14.00 %	14.26 %	
vi	V _{oc} of module	21 V	≥21.00	22.22 VDC	
2	Lamp				
i	Make and Wattage	One No. of 11 W	One No. of 11W	Osram, 11 W	
ii	No. of Pins	4 pin	4 pin	4 pin	
iii	Light Output	Not Specified	--		
	a) Prior to 1000 On/Off cycles	Total degradation, in the lumen	900 lumen ± 5 %	875 Lumen	
	b)After 1000 on/Off cycles	output, should not be more than 10 %	Not provided	869 lumen	

*PV module is manufactured as per IEC 61215 standards. Vide test report No.12605477 002, dated 07/12/2009 issued by TUV Rheinland

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S. N.	Test Description	Requirement as per MNRE Specifications	Manufacturer's Claim	CPRI observations	Remarks
3	Battery				
	i	Make & Type	Flooded electrolyte type tubular plate low maintenance lead acid battery.	Sakthi Electronics LMLA	Sakthi Electronics LMLA Sl. No. 3H075V0246
	ii	Voltage	12.00 V	12.00 V	12.00 V
	iii	Capacity at c/10 rate of discharge	75.00 Ah	75 Ah	75 Ah
	iv	% of rated capacity between low and high voltage cut off.	80.00 %	80.00 %	65.58 Ah 87.44 %
4	Electronics Inverter (11 W) Sl. No. 10-13-0051				
	i	Wave form type.	Sine/Quasi Sine	Quasi sine Wave	Quasi sine Wave
	ii	Frequency	20-35 KHz	20 – 35 kHz	27.86 kHz
	iii	Efficiency	85 %	88.00 %	86.25 %
	iv	Preheating arrangement	Required	Provided	Provided
5.	PCB installation		Solder free	Solder free	Solder Free
6.	Protections				
	i	No Load protection	Required	Provided	Provided
	ii	Battery Protection			
		(a) Low voltage cut – off	Required	Provided	11.12 VDC
		(b) Load reconnect	Required	Provided	12.38 VDC
		(c) Over charge cut-off	Required	Provided	14.22 VDC
		(d) Module reconnect	Required	Provided	12.30 VDC
	iii	Short circuit	Required	Provided	Provided
	iv	Battery reverse polarity	Required	Provided	Provided
	v	Reverse flow protection	Required	Provided	Provided
	vi	Temp. Compensation.	Required	Provided	Provided
	vii	No Load Current	Less than 20 mA	8.00 mA	7.58 mA

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TEST RESULT

S. N.	Test Description	Requirement as per MNRE Specifications	Manufacturer's Claim	CPRI observations	Remarks
7.	Other features				
i	Duty cycle	Required To qualify	Qualifies	Qualifies	
ii	Indicators	Required (2 LED)	Provided	Provided	
iii	Cable	Required	Provided	Provided	
iv	Marking on module	Required	Provided	Provided	
v	Undertaking of manufacturer in respect of product	Required	Provided	Provided	
vi	Photographs of Manufacturing Unit	Required	Provided	Provided	
	Warranty				
i.	PV Module	25 Years	25 Years	25 Years	
ii.	Street Lighting System	5 years	5 years	5 years	
iii.	Battery	2 years	2 years	2 years	

Note: It is endorsed that the CFL based Solar Street lighting system Submitted by M/s. Kotak Urja (P) Ltd. qualifies the MNRE specification 2013-2014 and M/s. Kotak Urja (P) Ltd. is the Original manufacturer of solar photovoltaic module and electronics.

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