NISE

National Institute of Solar Energy

(An Autonomous Institution of MNRE, GOI)
19 K.m Stone, Gurgaon-Faridabad Road, Gwal Phari, Gurgaon (Haryana)-122003

File No 50/2022-2023/LED /CSC/NISE

Dated: 24-11-2022

To,

M/s.SHRI BADRINATH VAIKALPIK URJA.LTD
DAUDWALA, PO-MOTHROWALA
DEHRADUN, UTTARAKHAND-248001.

Subject: Issue of Test Report by National Institute of Solar Energy ('NISE')

Dear Sir,

Please refer to your letter No/Order Form No. 4 Dated 01-11-2022 In this connection, I am directed to enclose herewith the Test Report No: 50/2022-23/LED/CSC/NISE, Dated: 23-11-2022 .In respect of your submitted samples in original, for ready reference and record.

2. Discrepancies, if any observed, in respect of any of the entries contained in the above report should be brought to the notice of this office within 30 days from the date of issue of this letter, falling which it will be presumed that the entries therein are in order and no further correspondence will be entertained thereafter on this particular report.

3. We would like to solicit your views and therefore enclosing a Feedback Form with a request to be filled up by you and then send as soon as possible. Your suggestions are valuable for us to make our further improvements and take corrective action in improving our quality of service.

4. Further, You are also requested to collect your samples at your cost within 60 days, from the date of issue of this letter falling which NISE will dispose of the sample in best possible manner and NISE will not be responsible in any manner for this sample.

Kindly acknowledge the receipt of this letter along with original test report and original Invoice.

Yours faithfully,

(Head, Customer Service Cell)
(National Institute of Solar Energy)

Encl:
1. Test Report-Total Page- 06
2. Feedback Form

Copy forwarded for Information to:
1. Office Copy

राष्ट्रीय सौर ऊर्जा संस्थान

(नवीन और नवीकरणीय ऊर्जा मंत्रालय, भारत सरकार का एक स्वायत्त संस्थान)

National Institute of Solar Energy

(An autonomous Institute of the Ministry of New and Renewable Energy, Govt. of India)

गुरुग्राम - फरीदाबाद मार्ग, ग्वाल पहाड़ी, गुरुग्राम122003 - , हरियाणा, भारत

Gurugram - Faridabad Road, Gwal Pahari, Gurugram – 122003, Haryana, India

ई-मेल / Email: csc@nise.res.in दूरभाष / Phone: 0124-2853110

Test Report

1.	**Service Request No.**	42/0122
2.	**Requested By (Name & Address of the organization)**	SHRI BADRINATH VAIKALPIK URJA LIMITED Daudwala, PO- Mothrowala, Dehradun, Uttarakhand- 248001
3.	**Details of the test item**	
	a) Nomenclature	SLS
	b) Capacity/Rating	12 W
	c) Manufactured By	SHRI BADRINATH VAIKALPIK URJA LIMITED
	d) Model / Type No.	SSSL-12-30-75
	e) Serial No.	220906041
	f) Trademark	-
	g) Testing procedure & Testing parameters	**MNRE specifications for 12 W WHITE-LED BASED SOLAR STREET LIGHTING SYSTEM**
4.	**Date of Submission of Samples**	01/11/2022
5.	**Condition of samples on receipt**	Good
6.	**Date of Completion of Tests**	23/11/2022

NOTE:

1. **This test report refers only to the items submitted for testing as per specifications/requirements stipulated by the MNRE specifications for 12 W WHITE-LED BASED SOLAR STREET LIGHTING SYSTEM.**
2. **The results reported in the Test Report are valid at the time of and under the stipulated conditions of measurements.**
3. **The test report shall not be reproduced except in full unless written permission for the publication of an approved abstract has been obtained from the Director, National Institute of Solar Energy.**
4. **NISE does not accept any liability for any consequences including commercial or otherwise arising out of the utilization of the information contend in this report.**
5. **The center reserves the right to utilize the information contained in this report in the interest of scientific progress without disclosing the identity of the customer.**
6. **The client is requested to collect the tested sample back within 30 days from the date of issue of the report.**

23/11/22
Tested By
Ditipriya Bose

23/11/22
Prepared By
Arup Dhar

CSC NISE

23/11/2022
Authorized Signatory
Birinchi Bora

MAJOR EQUIPMENTS USED

S.No.	Equipment Used	Model
1	Programmable DC power supply	Chroma 62012P-100-50
2	Power meter	Hioki PW3336
3	Solar Array Simulator	Chroma 62020H
4	DC Electronic Load	Chroma 6312A
5	Lux Meter	FT3424 HIOKI
6	Integrating Sphere	Labsphere plus 2600
7	Power meter	Yokogawa WT333E
8	Infra-red Thermometer	Meco IRT 550P
9	Battery Simulator	Chroma 17020

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S. No.	Test Description	MNRE Specifications	NISE Observations	
1.	**PV Module:**			
	i.			
	a) Name of Manufacturer or Company	Should be provided	USHA SHRIRAM ANKUR TRADER & ENGINEERS PVT LTD	
	b) Model or Type No.	Should be provided	POLY US75WP	
	c) Serial No.	Should be provided	USP07509220001	
	d) Year of Make	Should be provided	2022	
	ii. Module Wattage at suitable voltage	75 W Under STC Condition	79.4 W	
	iii. Type of Module	Mono/multi crystalline silicon	Multi crystalline silicon	
	iv. Module Efficiency	14 %	15.4 %	
	v. Voc of PV Module	21.0 V	22.53 V	
2.	**LOAD/LIGHT (White LED based Light**			
	i. Make and Origin of LED	Should be provided	SHRI BADRINATH VAIKALPIK URJA LIMITED	
	ii. No. of LEDs	Should be provided	09	
	iii. Sr. no. of Luminary	Should be provided	220906041	
	iv. Photometry and Color parameters			
	a) Total Luminous Flux	≥1500 lm	1980.2 lm	
	b) Luminous efficacy	≥125 lm/W	155.72 lm/W	
	c) Color Temperature	Between 5500 K to 6500 K	6160 K	
	d) Color Rendering Index (CRI)	≥70	70.73	
	v. Light output (in lux) from 4 metre height	Min 24 Lux at Higher illumination/12Lux at lower illumination (High Light output will be preferred)		
			Higher illumination	Lower illumination
	a) at Centre		35.06	18,58
	b) 1.0 m dia.		34.48	18.26
	c) 2.0 m dia.		33.73	17.85
	d) 4.0 m dia.		32.54	17.14
	vi. Temperature difference between Heat sink and ambient temperature during the dusk to dawn operation(°C)	≤ 20°C	Comply	
	vii. Housing including optics for focusing light	Should have proper housing and optics for uniform intensity.	Provided	
	viii. Dimming Mode	First 04 hrs. Full light (min 24 Lux), rest of the time at lower light level (50%, min. 12 Lux)	Provided	

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3.	**Battery**		
	i. Capacity, Make and type of Battery	Minimum 30Ah, LiFePo4	36.67 Ah, DAS POWER LiFePo4
	ii. Serial No		SHS128360822000847
	iii. Voltage	12.8 V	12.70 V
	iv. Weight		3.70 kg
4.	**Electronic DC-DC converter**		
	i. Parameter at 12.8 V	Should be provided	Provided
	a) Input power (W)	12 W	12.72 W
	b) Output power (W)		11.75 W
	c) Efficiency (%)	Min. 90 %	92.33 %
	ii. Variation in output current with input voltage	No variation in output current with input voltage.	No Variation
	iii. PCB installation	Solder Free	Solder Free
5.	**Protections**		
	i. Charge controller type	MPPT	Provided
	ii. No Load protection	Should be provided	Provided
	iii. Battery Protection	Should be provided	Provided
	(a) Low voltage cut - off (V)		11.28 V
	(b) Load reconnect (V)		12.87 V
	(c) Over charge cut-off (V)		14.68 V
	iv. Battery reverse polarity protection	Should be provided	Provided
	v. Protection for reverse flow of current through the PV Module	Should be provided	Provided
	vi. Load short Circuit Protection	Should be provided	Provided
	vii. No load current	Less than 20 mA	6 mA
	viii. Overall MPPT efficiency	≥ 90%	92.60 %
6.	**Other features**		
	Duty Cycle	Dusk to Dawn	Comply
	Autonomy	3 Days or min 36 hours.	Comply
	Indicator	Two Indicators should be provided (Green indicate Charging and Red indicate Load Cut off.)	Provided

23/11/22
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Ditipriya Bose

23/11/22
Prepared By
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CSC NISE CUSTOMER SERVICE CELL

23/11/2022
Authorized Signatory
Birinchi Bora

Annexure

VISUAL SCREENING

A. Luminaire

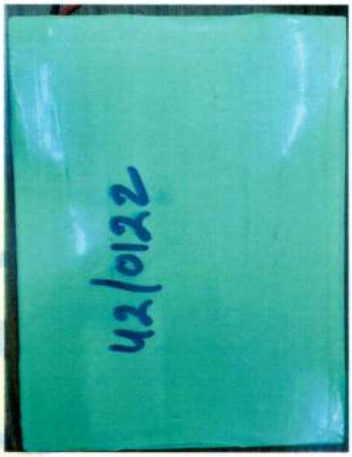
Front view

Back view

B. Battery

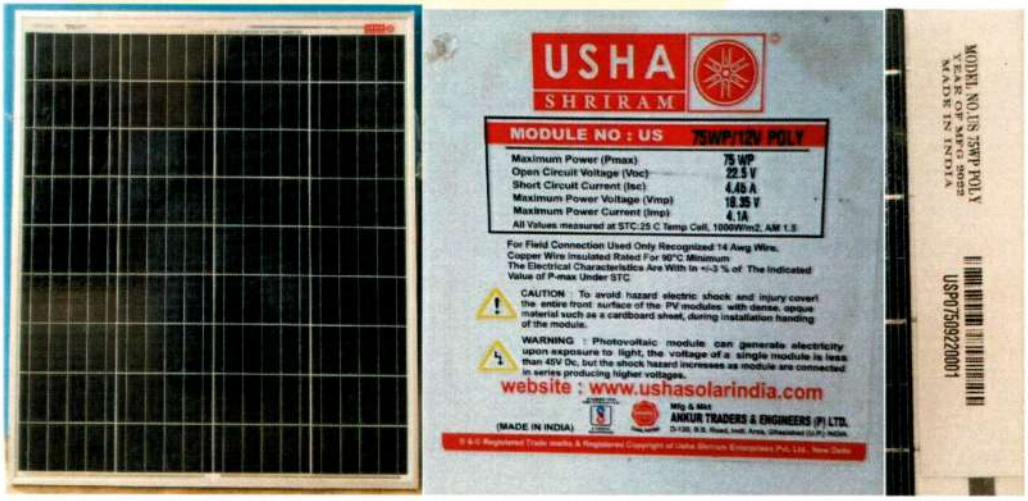
Front view

Back View



C. Module

Name Plate and Details on the frame



End of Report

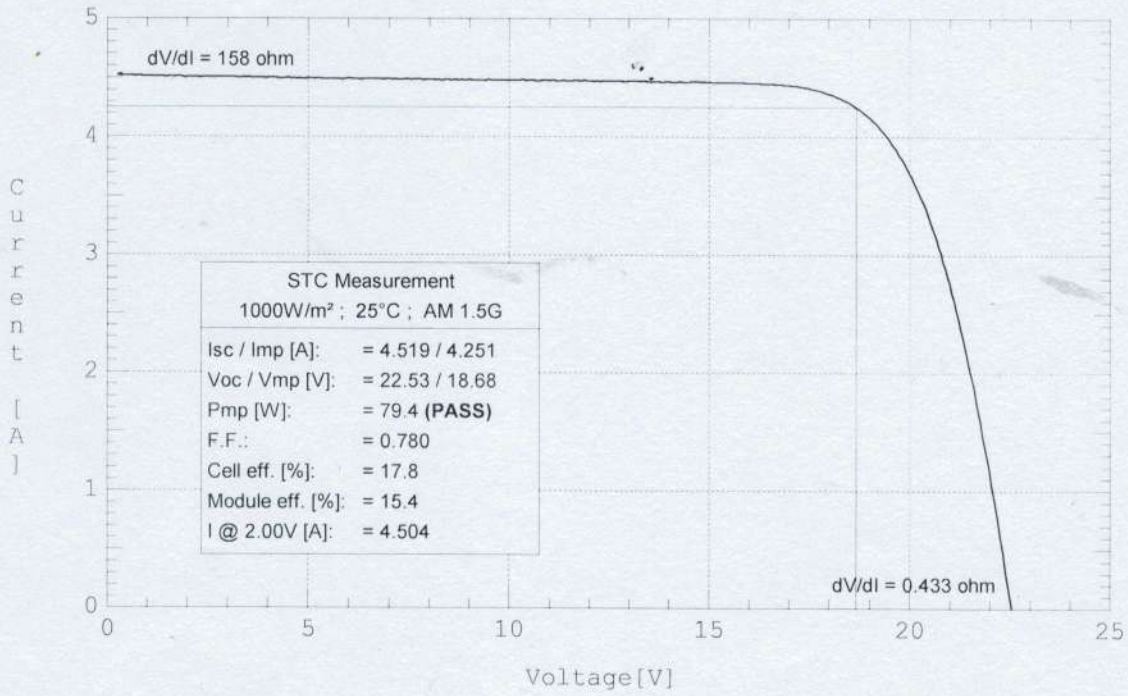
Tested By	Prepared By	Authorized Signatory
23/11/22	23/11/22	23/11/2022
Ditipriya Bose	Arup Dhar	Birinchi Bora

Solar Energy Centre

File: Unnamed
Module: 1

QuickSun Flash Tester
Version 5.18.19

Print Date: 23/11/2022



Module:	1	Operator:	NK(EA)
Name:		#:	
Bin #:			
Manufacturer:	USHA	Product ID:	USP07509220001
Current temp. coeff. (microA/cm²/°C):	15.00	Voltage temp. coeff. (mV/cell/°C):	-2.10
Curve correction fac. (mOhm/cell/°C):	0.00	Series resistance. (mOhm/cell):	10.00
Cell area (cm²):	124.03	Module area (m²):	0.513936
Cells parallel:	1	Cells serial:	36
Ambient temp. (°C):	23.3	Sensor temp. (°C):	21.4
Irradiance (W/m²):	1000	Corrected temp. (°C):	25.0
Isc (A):	4.519	Imp (A):	4.251
Voc (V):	22.53	Vmp (V):	18.68
Pmp (W):	79.4	F.F.:	0.780
Cell eff. (%):	17.8	Module eff. (%):	15.4
Est. shunt resistance: (ohm)	158	Est. series resisrance: (mohm)	433

Notes:

Tested by M. Naveen Kumar
Naveen Kumar
23/11/2022

Verified By:
Arup Dhar
23/11/22

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