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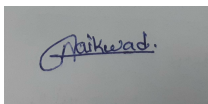
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CIN NO U21014UP1987PTC008956



TEST REPORT

TEST REPORT NO:	URS/LAB/02/RID/25-26/4180		DATE OF ISSUE:	10/06/2025
ULR NUMBER	ULR-TC646825100015397F			
NAME OF LABORATORY:	URS PRODUCTS AND TESTING PRIVATE LIMITED			
ADDRESS OF LABORATORY:	A-29, Sector 5, Noida-201301, India			
TESTING LOCATION:	A-29, Sector 5, Noida-201301, India			
CUSTOMER NAME:	INTEGRATED BATTERIES INDIA PRIVATE LTD			
CUSTOMER ADDRESS:	Plot no. 40 Sector Ecotech 10 Greater Noida Uttar Pradesh 201301.			
TEST ITEM DESCRIPTION				
PRODUCT NAME:	SOLAR PV MODULE			
DATE OF RECEIPT	01/04/2025	SAMPLE CONDITION:	OK	
RECEIPT NUMBER	URS/LAB/MODULE(PV)/25-26/CCC46D04	NO. OF SAMPLE	3	
TRADE MARK		SERIAL NUMBER	IB640082400031 IB640082400001 IB640082400005	
MODEL	Tested Model: IBMPH-640			
RATINGS/SPECIFICATION	See the marking Label			
NAME OF MANUFACTURER	INTEGRATED BATTERIES INDIA PRIVATE LTD			
ADDRESS OF MANUFACTURER	Plot no. 40 Sector Ecotech 10 Greater Noida Uttar Pradesh 201301			
TEST SPECIFICATION				
TEST METHOD / STANDARD	IEC 61701: 2020 (Severity 6)			
TEST START DATE	01/04/2025	TEST END DATE	04/06/2025	
ENVIRONMENTAL CONDITIONS	23±5°C, <70%Rh			
CONCLUSION				
TEST RESULT	The test result Conforms to the requirement of the standard/test protocol based on the obtained test values/results mentioned in this test report.			
REMARK	Compliance statement in this report has been made considering decision rule as inherent in its test standard and latest version of ILAC G-8.			

TESTED BY



Aniket Nandkumar Gaikwad
Analyst



AUTHORIZED SIGNATURE



Paras Singh
Vice President (Technical)

ISSUED BY



Paras Singh
Vice President (Technical)

Note:

1. This test report is valid only for the sample(s) tested in our laboratory. 2. The test report is not permitted to be duplicated/reproduced in part or in extract in any circumstances. 3. URS lab is not responsible for authenticity of photocopied or reproduced test report. 4. The test results reported in this report are valid at the time of and under the stated conditions of measurements. 5. The remnant(Tested Samples)shall be destroyed after 07days from the date of testing unless specified otherwise in writing. 6. Any correction/erasure shall invalidate the test report. 7. This test report pertains to the test(s) carried out as requested by the customer. 8. This test report shall not be utilized for any legal purpose and shall not be produced in the court of law & no responsibility would be attached to URS Lab 9. URS reports, in general, are formally released in soft copy through reports@urs-labs.com , client portal, unless client will specifically request with sign & stamped letter with the intent to issue test reports in hard copy form. URS will not acknowledge for the reports said to be released through other means such as what's app. Test Reports for specific schemes such as BIS CRS/LRS schemes, are issued as per specific scheme requirements.

URS/TEE/F/19 Issue No. 05



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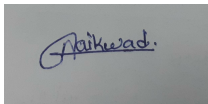
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CUSTOMER NAME: INTEGRATED BATTERIES INDIA PRIVATE LTD

Test item description.....:	Solar PV Module
Trade Mark/Brand.....:	
Manufacturer.....:	INTEGRATED BATTERIES INDIA PRIVATE LTD.
Factory.....:	Plot no. 40 Sector Ecotech 10 Greater Noida Uttar Pradesh 201301
Model/Type reference.....:	IBMPH-640 (Tested Model)
Ratings.....:	Maximum System Voltage: 1500V , Maximum over-current protection rating: 30A See copy of Marking label and General product information.

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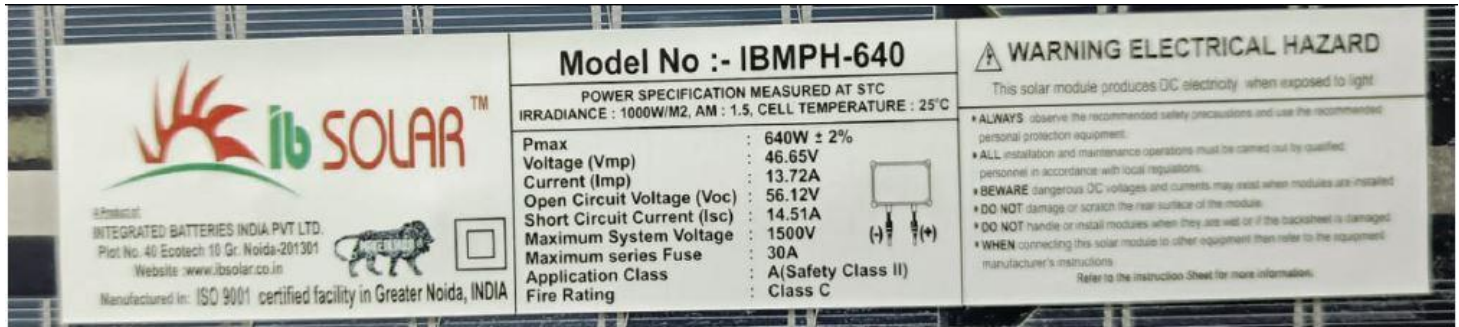
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Copy of Marking Plate (Model No. Tested: IBMPH-640)



Polarity marking on Junction Box



Polarity marking on Connectors



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S. No	TEST PARAMETER (CLAUSE REFERENCE)	
1	Visual Inspection (MQT 01)	Sw{ twh5\$/£{ ! b5 £9{£lbD twL ³ !£9 [La£95 A-29, Sector-5, Noida-201301 India
2	Maximum power determination (MQT 02)	
3	Insulation test (MQT 03)	
4	Wet leakage current test (MST 17)	
5	Continuity test of equipotential bonding (MST 13)	
6	Salt mist corrosion test	

Model	Sample #	Serial Number
IBMPH-640	1	IB640082400031
	2	IB640082400001
	3	IB640082400005

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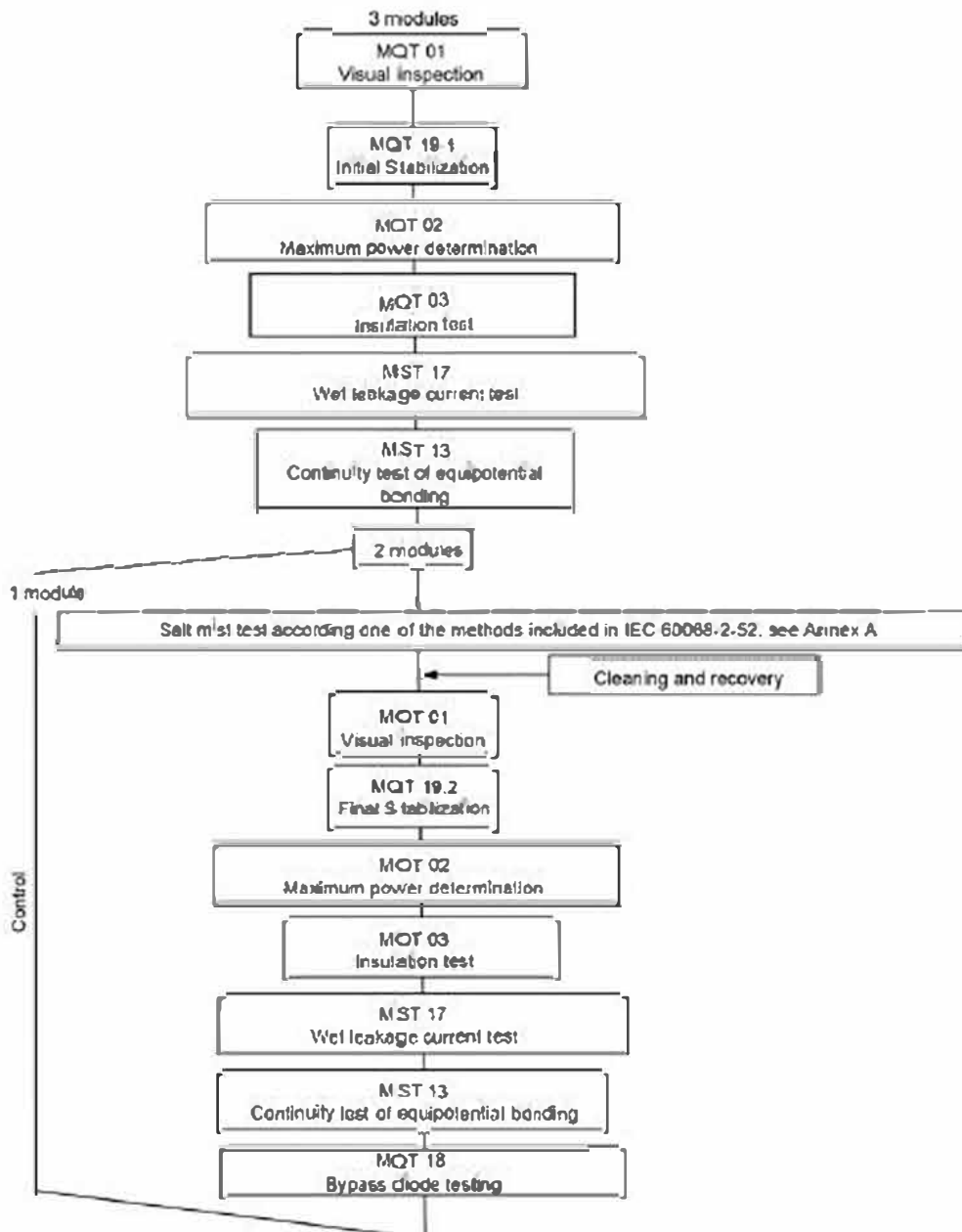
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TABLE 6.3 (a): Initial Visual inspection (MQT 01)							P
Test Date [YYYY-MM-DD] :			2025-04-07				—
Sample #	Nature and position of initial findings – comments or attach photos						—
1	No major visual defects found						P
2	No major visual defects found						P
3	No major visual defects found						P
TABLE 6.3 (c): Initial Maximum power determination (MQT 02)							P
Test Date [YYYY-MM-DD] :			2025-04-07				—
Test method :			☒ Simulator ☐ Natural sunlight				—
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp[W]	FF [%]	Result
1	56.15	46.69	14.514	13.725	640.82	78.63	--
2	56.10	46.67	14.516	13.727	640.64	78.67	--
3	56.13	46.66	14.519	13.724	640.36	78.58	--
Supplementary information: Stabilization (Irradiance exposure of >10KWh/m2) is done.							

TABLE 6.3 (d): Initial Insulation test (MQT 03)				P
Test Date [YYYY-MM-DD] :		2025-04-07		—
Test Voltage applied [V] :		4000 for 1 min/1500 for 2 min		—
Size of module [m²] :		2.80		—
Required Resistance [MΩ]..... :		14.29		—
Sample #	Measured	Dielectric breakdown		Result
	MΩ	Yes (description)	No	
1	>1000	No dielectric breakdown	-	P
2	>1000	No dielectric breakdown	-	P
3	>1000	No dielectric breakdown	-	P
Supplementary information: Minimum requirement according to the standard is 40 MΩ m²				

TABLE 6.3 (e): Initial Wet leakage current test (MQT 17)				P
Test Date [YYYY-MM-DD]		2025-04-07		—
Test Voltage applied [V].....		1500		—
Solution temperature [°C].....		23.5		—
Size of module [m²]		2.80		—
Sample #	Measured [MΩ]		Required Resistance [MΩ]	Result
1	>1000		14.29	P
2	>1000		14.29	P
3	>1000		14.29	P
Supplementary information: Solution resistivity 2245 [Ω-cm]				

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TABLE 6.3 (f): Continuity Test of Equipotential Bonding - MST 13 (Initial)				P
Test Date [YYYY-MM-DD].....:		2025-04-07		-
Maximum system voltage [VDC]		1500		-
Current applied [A].....:		75		-
Location of designated grounding point.....:		On the middle of the longest frame		-
Location of second contacting point.....:		On the other middle of the longest frame		-
Sample No.	Voltage [VDC]	Resistance [Ω]		
1	0.45	0.006		P
2	0.40	0.005		P
3	0.38	0.005		P
Supplementary information: Nil				

	TABLE 6.5: Salt mist corrosion test (Severity 6)		P
	Test Date [YYYY-MM-DD].....:	2025-04-08 to 2025-06-02	-
	Maximum system voltage [VDC]	1500	-
	Sample #	1	P
	Sample #	2	P
	NaCl concentration	5%	
	Course of cycle (7 Days)	- Spraying: 2h / 15-35°C / reaction of Nacl - Humidity storage: 20-22h/40°C/RH 93% - After four periods of spraying and humidity storage, one storage period under standard atmosphere: 3 days / 23°C / RH 45%-55%	-
	Duration	8 cycles = 56 days	-
Supplementary information: Nil			

TABLE 6.3 (a): Final Visual inspection (MQT 01)			P
Test Date [YYYY-MM-DD] :		2025-06-03	—
Sample #	Nature and position of initial findings – comments or attach photos		—
1	No major visual defects found		p
2	No major visual defects found		p
Supplementary information: N/A			

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TABLE 6.3 (c): Maximum power determination (MQT 02) Final								P
Test Date [YYYY-MM-DD]				2025-06-03				—
Test method				☒ Simulator ☐ Natural sunlight				—
Sample #	Voc [V]	Vmp [V]	Isc [A]	Imp [A]	Pmp[W]	FF [%]	Degradation [%]	Result
1	56.16	45.86	14.511	13.723	629.34	77.23	-1.79	--
2	56.12	45.76	14.513	13.715	627.60	77.06	-2.04	--
Supplementary information: Stabilization (Irradiance exposure of >10KWh/m2) is done.								

TABLE 6.3 (d): Final Insulation test (MQT 03)				P
Test Date [YYYY-MM-DD] :		2025-06-03		—
Test Voltage applied [V] :		4000 for 1 min/1500 for 2 min		—
Size of module [m²] :		2.80		—
Required Resistance [MΩ]..... :		14.29		—
Sample #	Measured	Dielectric breakdown		Result
	MΩ	Yes (description)	No	
1	>1000	No dielectric breakdown	-	P
2	>1000	No dielectric breakdown	-	P
Supplementary information: Nil				

TABLE 6.3 (e): Final Wet leakage current test (MQT 17)				P
Test Date [YYYY-MM-DD]		2025-06-03		—
Test Voltage applied [V].....		1500		—
Solution temperature [°C].....		22.7		—
Size of module [m²]		2.80		—
Sample #	Measured [MΩ]		Required Resistance [MΩ]	Result
1	>1000		14.29	P
2	>1000		14.29	P
Supplementary information: Solution resistivity 2425[Ω·cm].				

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6.3 (f)	TABLE: Continuity Test of Equipotential Bonding - MST 13 (Final)			P
	Test Date [YYYY-MM-DD].....:		2025-06-03	-
	Maximum system voltage [VDC]		1500	-
	Current applied [A].....:		75	-
	Location of designated grounding point.....:		On the middle of the longest frame	-
	Location of second contacting point.....:		On the other middle of the longest frame	-
Sample No.		Voltage [VDC]	Resistance [Ω]	
1		0.39	0.005	P
2		0.32	0.004	P
Supplementary information: Nil				

TABLE 6.8: Bypass diode functionality test (MQT 18.2)			P
Test Date [YYYY-MM-DD]		2025-06-04	—
Sample #.....:		1	
	IV curve after shading		Result
Diode 1	Turn on		P
Diode 2	Turn on		P
Diode 3	Turn on		P
Supplementary information: N/A			

TABLE 6.8: Bypass diode functionality test (MQT 18.2)			P
Test Date [YYYY-MM-DD]		2025-06-04	—
Sample #.....:		2	
	IV curve after shading		Result
Diode 1	Turn on		P
Diode 2	Turn on		P
Diode 3	Turn on		P
Supplementary information: N/A			

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ANNEXES:-

- ANNEX 1: EQUIPMENT USED
- ANNEX 2 : Photographs of EUT
- ANNEX 3: BOM Details

ANNEX 1: EQUIPMENT USED

Equipment Used	
Description	Identification#
Sun simulator	URS/LAB/Lab/841
IV Curve tracer	URS/LAB/Lab/1046
Heat chamber	URS/LAB/Lab/1381
Reference Module	URS/LAB/Lab/1653
Temperature data logger	URS/LAB/Lab/925
Solar PV Array	URS/TEE/LAB/633

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Annex 2: Photographs of EUT



Rear view



Front view

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ANNEX-3:BOM Details

A1.1	MODULE TYPE/S	
	Model Tested: IBMPH-640	
	<u>Series Models:</u> <u>156 Half cut cell family</u> IBMPH-635, IBMPH-630, IBMPH-625, IBMPH-620, IBMPH-615, IBMPH-610, IBMPH-605 <u>144 Half cut cell family</u> IBMPH-600, IBMPH-595, IBMPH-590, IBMPH-585, IBMPH-580, IBMPH-575, IBMPH-570, IBMPH-565, IBMPH-560, IBMPH-555, IBMPH-550, IBMPH-545, IBMPH-540, IBMPH-535, IBMPH-530, IBMPH-525, IBMPH-520, IBMPH-515, IBMPH-510, IBMPH-505. <u>132 Half cut cell family</u> IBMPH-500, IBMPH-495, IBMPH-490, IBMPH-485, IBMPH-480, IBMPH-475, IBMPH-470, IBMPH-465, IBMPH-460 <u>120 Half cut cell family</u> IBMPH-455, IBMPH-450, IBMPH-445, IBMPH-440, IBMPH-435, IBMPH-430, IBMPH-425, IBMPH-420, IBMPH-415 <u>108 Half cut cell family</u> IBMPH-410, IBMPH-405, IBMPH-400, IBMPH-395, IBMPH-390, IBMPH-385, IBMPH-380.	
A1.2	MODULE DESIGN –DIMENSIONS	
	Module dimensions (L x W x H) [mm].....:	2466 x 1135x 35 for 156 cell family 2278 x 1134 x 35 for 144 cell family 2094 x1134 x 35 for 132 cell family 1908 x1134 x 35 for 120 cell family 1723 x1134 x 35 for 108 cell family
A1.3	SOLAR CELL	
	Cell type reference.....:	Primary: TN182A-R16D1, Monocrystalline Bifacial TOPCon Cell, Manufactured by: Solar N Plus New Energy Technology Co., Ltd
	Cell dimensions L x W x T (± %) [mm].....:	Primary: 182mmx91mm (±0.5mm)
	Cell thickness [μm].....:	Primary: 130μm (±13μm)
	Cell area [cm ²].....:	Primary: 165.62
A1.4	IDENTIFICATION OF MATERIALS	
	Front cover.....:	Primary: Low Iron Solar AR Coated Patterned Glass; Thickness: 2.0mm ± 0.2mm, Manufactured by: Borosil Renewables Limited Alternative: Low Iron Solar Anti-Reflective Coated Patterned Glass), Thickness: 2.0 mm ± 0.2 mm, Manufactured by: Triveni Renewables Pvt. Limited Alternate Front cover having same strengthening process and same surface treatment and same material all technical details are same as the main model, only change in manufacturer name as per declared by manufacturer .

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	Rear cover.....:	Primary: Low Iron Solar AR Coated Patterned Glass; Thickness: 2.0mm $\pm$ 0.2mm; Manufactured by: Borosil Renewables Limited. Alternative: Low Iron Solar Anti-Reflective Coated Patterned Glass, Thickness: 2.0 mm $\pm$ 0.2 mm, Manufactured by: Triveni Renewables Pvt. Limited Alternate Rear cover having same strengthening process and same surface treatment and same material all technical details are same as the main model, only change in manufacturer name as per declared by manufacturer
	Encapsulation material.....:	Primary: CONSERV P - 14 FC, Thickness: 0.45 $\pm$ 5%, Width: upto 1240 mm, Manufactured by: Renewsys India Private Limited. Alternative: ALISHAN FC, Manufactured by: Alishan Green Energy Pvt. Ltd Alternate Encapsulation material having same technical details as per declared by Manufacturer.
	Frame parts.....:	Primary: 6005 T6, Cross section: 35mm x 35 mm; Manufactured by Perfect Alex Pvt. Ltd. Alternative: DV-A-700, Cross section: 35mm x 35 mmManufactured by: Jiangsu Yuejia Metallic Technology Co.Ltd Alternate Frame having same technical details only change in manufacturer name as per declared by manufacturer
	Mounting parts.....:	as per installation manual
	Adhesive for frame.....:	Primary: 1527 Silicone Sealant For PV Modules, White colour; Manufactured by Tonsan Adhesive, Inc. Alternative: Manufactured by: Shanghai Huitian new material Co., Ltd Alternate Adhesives having same technical details only change in manufacturer name as per declared by manufacturer
	Cell connector.....:	Primary: Type: TPVIR2660, Sn60%/Pb40%, Dimensions [mm]: 0.26 mm; Manufactured by: VALEO PRODUCTS LLP Alternative: Manufactured by: VIDYA WIRES PVT LTD. Alternate cell connector having same technical details only change in manufacturer name as per declared by manufacturer.

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CUSTOMER CITY:Noida

	String connector.....:	Primary: Type: TPV1603580, Sn60%/Pb40%, Dimensions [mm]: 6x 0.35mm Manufactured by: Valeo Products LLP Alternative: Manufactured by: VIDYA WIRES PVT LTD. Alternate string connector having same technical details only change in manufacturer name as per declared by manufacturer.
	Fluxing agent.....:	Primary: 952-S, Low-Solids, No-Clean Liquid Flux, Manufactured by Kester
	Junction box.....:	Primary: GXSB-01, Rated voltage: 1.5KVDC, Rated Current: 45A, IP68, Ambient Temperature: -40°C to +85°C, Manufactured by GENX PV INDIA PRIVATE LIMITED. Certified by TUV SUD; certificate no.: B1157770002
	Cable	Primary: 1X4mm ² , Electric Cables for Photovoltaic Systems for Rated Voltage 1500V d.c., for sizes upto and including 400 Sqmm, Conductor Class-5, Manufactured by APAR INDUSTRIES LTD (CM/L- 7100058704).
	Connector.....:	Primary: GXC-01, Rated voltage: 1500VDC, Rated current: 40A, IP68, Ambient Temperature: -40°C to 85°C, Manufactured by Genx Pv India Private Limited. Certificate no.: B 115777 0001 Rev. 00, Tested by TUV SUD.
	Bypass diode.....:	Primary: MK6045, Tj [°C]: -55 to +200°C, V _{RMS} : 45 V; I _{FSM} : 450A; R _{ΘJC} :1.2°C/W, VDC 45V, Manufactured by Genx Pv India Private Limited.
	Potting material.....:	Primary: 1521 Potting Materials, White colour; Manufactured by Tonsan Adhesive Inc. Alternative: Manufactured by: Shanghai Huitian new material Co., Ltd Alternate Potting material having same technical details only change in manufacturer name as per declared by manufacturer
	Adhesive for junction box.....:	Primary: 1527 Silicone Sealant For PV Modules, White colour; Manufactured by Tonsan Adhesive, Inc. Alternative: Manufactured by: Shanghai Huitian new material Co., Ltd Alternate Adhesives having same technical details only change in manufacturer name as per declared by manufacturer
	Soldering Material.....:	Primary: Alpha Telecore HF-850, Manufactured by: ALPHA Global
	Additional material (e. g. insulation tape)....:	N/A

TESTED BY

Aniket Nandkumar Gaikwad

Aniket Nandkumar Gaikwad
Analyst



AUTHORIZED SIGNATURE



Paras Singh
Vice President (Technical)

ISSUED BY

Paras Singh

Paras Singh
Vice President (Technical)



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TC-6468

TEST REPORT NO.: URS/LAB/02/RID/25-26/4180

DATE OF ISSUE:10/06/2025

ULR: ULR-TC646825100015397F

CUSTOMER NAME: INTEGRATED BATTERIES INDIA PRIVATE LTD

CUSTOMER CITY:Noida

A1.5	MODULE DESIGN - MINIMUM DISTANCES	
	Between cells.....:	1.4 mm
	Between cell and edge of laminate.....:	17 mm
	Between any current carrying part and edge of laminate....:	15 mm

A1.6	MODULE DESIGN - ELECTRICAL CONFIGURATION	
	Total number of cells.....:	156 for 156 cell family 144 for 144 cell family 132 for 132 cell family 120 for 120 cell family 108 for 108 cell family
	Serial-parallel connection of cells.....:	78 cells in series and parallel connection:2 72 cells in series and parallel connection:2 66 cells in series and parallel connection:2 60 cells in series and parallel connection:2 54 cells in series and parallel connection:2
	Cells per bypass diode.....:	52 for 156 cell family 48 for 144 cell family 44 for 132 cell family 40 for 120 cell family 36 for 108 cell family
	No. of bypass diodes.....:	3

Note: Bill of material are same for all series family models.

--END OF TEST REPORT--

TESTED BY

Aniket Nandkumar Gaikwad
Analyst



AUTHORIZED SIGNATURE



Paras Singh
Vice President (Technical)

ISSUED BY

Paras Singh
Vice President (Technical)