
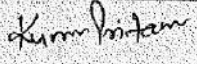
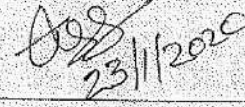
	CENTRAL ELECTRONICS LIMITED	CEL/SPV/SPEC./SOLAR CELL/0310
	SOLAR PHOTOVOLTAIC PRODUCTION	①
	TECHNICAL SPECIFICATION	
ITEM: MONO CRYSTALLINE SOLAR CELL 5 BUS BAR		

Annexure-I

1. Dimension : 156.75 x 156.75 mm \pm 0.25 mm or 157 x 157 mm \pm 0.25 mm
2. Cell Wattage : \geq 5.1 Watt
3. Thickness : 200 \pm 20 microns.
4. Diameter/Diagonal : 210 \pm 0.5mm
5. Front side : Uniform Silicon Nitride (SiN) Anti-reflection coating
6. All printed fingers should meet the below specification:
 - 6.1 Shift in printing of the fingers (on front side) and pads (on front and back side) \leq 0.25 mm along the whole length and breadth of cell from all the cell sides.
 - 6.2 Radial shift in printed fingers: \leq 1°
7. Bow : \leq 1.5 mm
8. Metallization
 - 8.1 Easily solderable having good adhesion/peel strength of \geq 1 N.
 - 8.2 Metallization
 - 8.2.1 Front – Silver bus bar width of 0.8 \pm 0.2 mm.
 - 8.2.2 Back – Silver bus bar width of 1.5 \pm 0.3 mm and Aluminum BSF.
 - 8.2.3 Number of bus bars five (Front & Back).
9. All cells should be free from the following defects:
 - 9.1 Chipping - V shape, edge chip, corner chips.
 - 9.2 Micro cracks, pin holes and other cracks.
 - 9.3 Discontinuity of metal printing lines.
 - 9.4 Colour variation between the cells.
10. The vendor shall attach photographs and drawings of front and back side of the solar cell, clearly indicating all the dimensions meeting the requirements of sl. no. 8.2 given above.

PREPARED BY	CHECKED BY	APPROVED BY	ITEM : SOLAR CELL
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CEL/CPV/SPPS/SOLAR CELL/0303

	CENTRAL ELECTRONICS LIMITED	(5)
	SOLAR PHOTOVOLTAIC PRODUCTION	
	TECHNICAL SPECIFICATION	
ITEM: MONO CRYSTALLINE SOLAR CELL 5 BUS BAR		

11. Packing Conditions:


- 11.1 Packing should be in lots of 100 cells or as per the standard size of the vendors. Cells shall be packed tightly with heat shrinkable sleeves or polythene/polypropylene sachets. Sachets shall be packed in foam/carton boxes with soft pads on both ends or in polyethylene foam packing to absorb transit handling shocks. The final packing of the individual carton boxes shall be in an outer sealed plywood box.
- 11.2 Manufacturer name, Cell type, lot number, wattage/efficiency, quantity, month of manufacture to be identified on each primary packing. Total quantity of cells in each carton and plywood box to be displayed.
- 11.3 CEL Purchase Order (PO) Number and item description to be mentioned on the outer sealed plywood boxes.

PREPARED BY	CHECKED BY	APPROVED BY	ITEM : SOLAR CELL
<i>Deviyani</i> 23/01/2020	<i>Kumar Prithvi</i>	<i>[Signature]</i> 23/1/2020	ITEM No : 1
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ELIGIBILITY CRITERIA

1. Only Original manufacturers or their authorized representatives with their valid authorization letter from original manufacturers are eligible to submit their quotations.
2. Supplier shall provide compliance of Annexure-G.
3. The supplier must meet the conditions mentioned in Annexure-I.
4. The vendor must fill in all the details of Annexure-IV. Incomplete or unclear details filled there in, shall make the bid liable for rejection.
5. Vendor should have a minimum capacity of 30 Mega Watt/ annum in-house mono-crystalline solar cells manufacturing capacity. A declaration on letter head of OEM stating capacity of manufacturing mono crystalline solar cells ≥ 30 Mega Watt should be enclosed with technical bid.

CEL/SPV/SPEC/SOLAR CELL/03(03)

	CENTRAL ELECTRONICS LIMITED
	SOLAR PHOTOVOLTAIC PRODUCTION TECHNICAL SPECIFICATION
	ITEM: MONO CRYSTALLINE SOLAR CELL 5 BUS BAR

Annexure III

TEST PROTOCOL

(A) For approved vendor:

1. All the vendors shall submit copy of specification of cells and their quality report for all parameters mentioned in Annexure V along with each consignment of cells supplies.
2. The cells will be checked for all the specifications (Sl no.1 to 9) of Annexure I on sample basis as per CELs quality plan.
3. Acceptance criteria for cell lots:
 - a. If defective cells (not as per specifications stated in Sl. no. 1 to 9 of Annexure I) are less than 3%, all such cells shall be replaced free of cost.
 - b. If defective cells (not as per specifications stated in Sl. no. 1 to 9 of Annexure I) are more than 3% then the whole lot shall be rejected.
 - c. The modules will be manufactured using the accepted cells (meeting specifications stated in Sr. no 1 to 9 of Annexure I) and with glass having optical loss of approximately 2% and transmittance of 91 % . The total power produced by the modules shall be 2% less than the arithmetic summation of the power(mentioned on the specification sheet and the packing) of all individual cells used therein.
In case, the above is not met, the lot of cells shall be rejected. The entire lot shall be replaced by the supplier.
 - d. In case lot is accepted during sample check, but during production cells are found defective, those cells shall be replaced by the supplier.

PREPARED BY	CHECKED BY	APPROVED BY	ITEM : SOLAR CELL
<i>Prakash</i> 23/01/2020	<i>Kumar Prasad</i>	<i>[Signature]</i> 23/1/20	ITEM NO : 1
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