

	CENTRAL ELECTRONICS LIMITED	(2)
	SOLAR PHOTOVOLTAIC PRODUCTION	(6)
	TECHNICAL SPECIFICATION	
ITEM: MULTI CRYSTALLINE SOLAR CELL 5 BUS BAR		

10. Packing Conditions:

- 10.1. 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.
- 10.2. 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.
- 10.3. CEL Purchase Order (PO) Number and item description to be mentioned on the outer sealed plywood boxes.

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<i>Arumay</i>	<i>Agg</i>	<i>Sanku</i>	ITEM NO : 1
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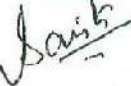
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Annexure-II

Eligibility Criteria:

1. Only original manufacturers or their authorized representatives with their valid authorization letter from original manufacturers are eligible to submit quotations.
2. Supplier shall confirm that the modules manufactured using the supplier's cells conform to IEC 61215 / IS 14286, IEC 61730 and IEC 62804. The aforesaid modules shall be tested in TUV or any other accredited lab.
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 of 30 MW/annum in-house multi crystalline solar cells manufacturing capacity.
6. CEL reserves the right to inspect the material before dispatch at manufacturer's works (Pre dispatch inspection) and/or any NABL/MNRE certified lab to check compliance of solar cells to tendered specification.

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Annexure III

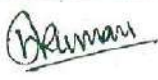

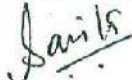
TEST PROTOCOL

(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 8) 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 8 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 8 of Annexure I) are more than 3% then the whole lot shall be rejected.
 - c. In case lot is accepted during sample check, but during production cells are found defective, those cells shall be replaced by the supplier.



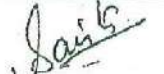
(B) For unapproved vendor:

1. The vendor shall supply sample lot of minimum 200 cells meeting the specification mentioned in Annexure I.
2. The sample cells will be checked at CEL as per the test protocol mentioned above in (A).
3. The sample cells will be evaluated during technical evaluation, if found ok then vendor will become approved vendor for the same tender.
4. The cells supplied against purchase order shall be tested as per the test protocol mentioned above in (A).

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Sl.No (as mentioned in Annexure)	Tender specification	Annexure-IV	
		Supplier compliance (Kindly fill YES/NO only)	Deviated specification offered by vendor (In case compliance in column 3 is marked as NO)
Annexure-I (page 1 of 7)			
1	Dimension : 156.75 x 156.75 ± 0.25 mm or 157 x 157 mm ± 0.25 mm		
2	Cell Wattage : ≥4.68 Wp		
3	Cell Thickness : 200± 20 microns		
4	Front side: Uniform silicon Nitride (SiN) Anti-reflection coating		
5.1	Shift in printing of the fingers along the whole length of cell : ≤0.25 mm for all the cell sides		
5.2	Radial shift in printed fingers : ≤ 1 °		
6	Bow : ≤1.5 mm		
7.1	Peel strength : ≥ 1 N		
7.2.1	All five bus bars should have a width 0.8± 0.2 mm.		
7.2.2	All five bus bars should have a width 1.5± 0.3 mm.		
8.0	All cells should be free from the following defects:		
8.1	Chipping -V shape, edge chip, corner chips.		
8.2	Micro cracks, pin holes and other cracks.		
8.3	Discontinuity of metal printing lines.		
8.4	Colour variation between the cells.		
Annexure II (page 3 of 7)			
1	Only cell manufacturers and their authorized representatives are eligible to submit quotations. The authorized representatives to attach proof of authorization duly signed by the supplier. Bids received from the traders shall be rejected.		
2	Supplier shall confirm that the modules manufactured using the supplier's cells conform to IEC 61215/IS14286, 61730 & 62804.		

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3a	If defective cells are less than 3%, all such cells shall be replaced, free of cost.	
3b	If defective cells are more than 3% then the whole lot shall be rejected.	
3c	In case lot is accepted during sample check, but during production cells are found defective, those cells shall be replaced by the supplier.	

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