Annexure A

Criteria	Methodology	Acceptance criteria	Notes
1. STC Power total capacity	Sample Tested according to IEC61215:2016 MQT 6.1 using a class AAA or higher rated sun simulator. The common understanding of Buyer and Seller is that, following outdoor exposure, panels should perform according to their nominal nameplate and warrnaty specification	Average result of module pass/fail. Average power result of module shall pass/fail based on the following formula: $$P_{\text{Average}} \geq P_{\text{max based on warranty}}$$ $$P_{\text{Average}} = \bar{X} \; of \; P_{\text{max lab}} \left(1 + \frac{|m|\ [\%]}{100}\right)$$ Where m is the uncertainty of the test laboratory (3%).	Based on Trina power warranty **1. For Monocrystalline Products:** 3.0% in the first year, thereafter 0.68% per year. **2. For Polycrystalline Products:** 2.5% in the first year, thereafter 0.7% per year. **3. Monocrystalline Duomax / Monocrystalline Duomax twin Products** 3.0 % in the first year, thereafter 0.5% per year **4. Polycrystalline Duomax Products** 2.5 % in the first year, thereafter 0.5% per year
2. STC power individual	Sample Tested according to IEC61215:2016 MQT 6.1 using a class AAA or higher rated sun simulator. The common understanding of Buyer and Seller is that, following outdoor exposure, panels should perform according to their nominal nameplate and warrnaty specification	Individual module pass/fail. Each module shall pass/fail based on the following formula: $$P_{\text{max lab}} \left(1 + \frac{|m|\ [\%]}{100}\right) \geq P_{\text{max based on warranty}}$$ Where m is the uncertainty of the test laboratory (3%). Lot accepted / rejected at AQL 0.15%.	Based on Trina power warranty **1. For Monocrystalline Products:** 3.0% in the first year, thereafter 0.68% per year. **2. For Polycrystalline Products:** 2.5% in the first year, thereafter 0.7% per year. **3. Monocrystalline Duomax / Monocrystalline Duomax twin Products** 3.0 % in the first year, thereafter 0.5% per year **4. Polycrystalline Duomax Products** 2.5 % in the first year, thereafter 0.5% per year
3. EL images	Current used for Electroluminescence, I = Isc Panel and cell defects to be classified as per the published standard by UL and PV Lab Germany in PV magazine 10/2013.	A panel would fail this test with minor defects if it has more than 1 in 12 cells affected with a minor defect. A panel would fail this test with major defects if it has any cells with a major defect.	1 defected cell with minor defects permissible per 12 cells in the module i.e., 5 cells with minor defects for a 60-cell module

4. Visual inspection	IEC 61215-1 Clause 7.3 and Clause 8 (Major visual Defects)	Panel fail if it has a major visual defect as defined by IEC 61215 or if there is a serial number mismatch. Fail if AQL > 0%	Defects that could reasonably be attributed to misuse or normal wear and tear after delivery (Incoterm 2010) will not be counted towards major visual defects
5. Wet leakage	IEC 61215-1 MQT 15,	Panel pass/fail as per IEC61215-2:2016 Clause 4.15.4: The measured insulation resistance times the area of the module shall not be less than 40 MΩ· m^2 Fail if AQL > 0%	1. Wet leakage test requires that the module be completely immersed in water. 2. During module removal and transportation, the back-sheet , cable, connector or other physical materials may be damaged. Damages to these components may also result in wet leakage.

It is not possible to allocate blame for micro-cracks unambiguously on the manufacturer and actually more likely that any micro-cracks we observe were caused during installation. For this reason, we propose that we assume that the manufacturers is able to produce and ship panels with minimal damage visible under EL (micro-cracks). The purpose of this test will be to rule out using micro-cracks as an excuse for panels failing either of the STC power tests. A pass on EL testing should be taken as necessary in order for results for the specific panel to be included in other pass/fail assessments. In order for the results to be meaningful, we propose that EL testing rule out a maximum of 5 panels from either testing batch. If more than 5 panels from either batch are to be excluded from other tests as a result of the EL testing, extra panels should be sourced.

	STC Power Test	**EL Test**	**Wet leakage**	**Overall Result**
Scenario One	STC Power Test Fail	EL Test Fail	Wet Leakage Fail	FAIL
Scenario Two	STC Power Test Fail	EL Test Fail	Wet Leakage Pass	FAIL
Scenario Three	STC Power Test Fail	EL Test Pass	Wet Leakage Fail	FAIL
Scenario Four	STC Power Test Fail	EL Test Pass	Wet Leakage Pass	FAIL
Scenario Five	STC Power Test Pass	EL Test Fail	Wet Leakage Pass	PASS
Scenario Six	STC Power Test Pass	EL Test Fail	Wet Leakage Fail	FAIL
Scenario Seven	STC Power Test Pass	EL Test Pass	Wet Leakage Pass	PASS
Scenario Eight	STC Power Test Pass	EL Test Pass	Wet Leakage Fail	FAIL

Example calculations (Working examples of Criteria 1 & 2) :

	Nameplate rating (W)	Tolerance	Delivery (Incoterms 2010) +3 months	Date of installation	Earliest start date	Date of testing	Total time elapsed (years)	Power output warranty	Allowed power drop (%) based on warrant	Allowed power drop (W) based on warranty	Minimum allowed power based on warranty	Measured power	Laboratory uncertainty	Measured power plus uncertainty	Result for an individual & average panel
Panel X	290	0~+5W	8/01/2018	14/12/2018	8/01/2018	3/03/2022	4.15	TSM-DD05A(II)	5.14%	14.9	275.1	250	3%	257.5	Fail
Panel Y	290	0~+5W	8/01/2018	14/12/2018	8/01/2018	3/03/2022	4.15	TSM-DD05A(II)	5.14%	14.9	275.1	267	3%	275.0	Fail
Panel Z	290	0~+5W	8/01/2018	14/12/2018	8/01/2018	3/03/2022	4.15	TSM-DD05A(II)	5.14%	14.9	275.1	284	3%	292.5	Pass
Average														275	Fail

- The test uncertainty needs to consider positive and negative deviations, so the actual power fluctuation range of each module needs to be calculated by ±3% test uncertainty according to the test results.
- If the test result of fluctuating power can be greater than the minimum allowed power standard, the test passes.