

61215/61646 test sequence

Code	Qualification Test	Test Conditions
10.1	Visual Inspection	according defined inspection list
10.2	Performance at STC	cell temperature = 25 °C irradiance = 1000 W/m ² spectral irradiance distribution according to IEC 60904-3
10.3	Insulation Test	1000 VDC + twice the open circuit voltage of the system at STC for 1 min, leakage current < 50 t.tA, isolation resistance >50 MD at 500 VDC
10.4	Measurement of Temperature Coefficients	Determination of the temperature coefficients of short circuit current and open circuit voltage in a 40°C interval
10.5	Measurement of NOCT	total solar irradiance = 800 W/m ² spectral irradiance distribution according to IEC 60904-3 wind speed = 1 m/s
10.6	Performance at NOCT	cell temperature = NOCT irradiance = 800 W/m ² spectral irradiance distribution according to IEC 60904-3
10.7	Performance at low Irradiance	cell temperature = 25 °C irradiance = 200 W/m ² spectral irradiance distribution according to IEC 60904-3
10.8	Outdoor Exposure Test	60 kWh/m ² solar irradiation
10.9	Hot-Spot Endurance Test	5 one hour exposures to 1000 W/m ² irradiance in worst-case hot-spot condition
10.10	UV-Exposure according IEC 61345	7,5 kWh/m ² UV-radiation (280 - 320 nm and 15 kWh/m ² UV-radiation (280 - 400 nm) at 60 °C module temperature
10.11	Thermal Cycling	50 and 200 cycles -40 °C to +85 °C
10.12	Humidity Freeze Test	10 cycles -40 °C to +85 °C, 85% RH
10.13	Damp Heat	1000 h at +85 °C, 85% RH
10.14	Robustness of Terminations	As in IEC 60068-2-21
10.15	Twist Test	Deformation angle 1.2° over the module diagonal
10.16	Mechanical Load Test	Two cycles of 2400 Pa uniform load, applied for 1 h to front and back surfaces in turn
10.17	Hail Test	25 mm diameter ice ball at 23 m/s, directed at 11 impact locations
10.18*	Light soaking	Light exposure of 800 W/m ² to 1000 W/m ² , until Pmax is stable within 2%
10.19*	Annealing	Heat soak at 85 °C until Pmax is stable within 2 %
10.20*	Wet leakage current test	Water spray of terminals and edge immersion with 500 V d.c. applied to determine leakage current

* Tests only relevant for IEC 61646 qualification