

SOLAR TRON LTD

Solar Inspection Specialists

Advanced Inspection & Testing Services
Contact: info@solartron.org



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Post-Shipment Module Testing



Post-shipment testing is the only stage in the project lifecycle where manufacturing and logistics responsibility can be isolated with certainty. Once modules are installed into the array, liability becomes blurred between the manufacturer, the freight provider and the EPC's handling and installation practices. Solar Tron therefore establishes a forensic baseline of delivered module condition at the point of receipt on site.

Using statistically valid ISO 2859-1 sampling plans, Solar Tron selects representative modules from each delivery batch. These modules are subjected to electroluminescence imaging, IV-curve and flash testing, electrical continuity checks and bypass diode verification. This multi-layered approach allows latent manufacturing defects, micro-cracking, solder joint damage, transport-induced stress and early degradation phenomena to be detected before modules are permanently installed.

Each tested module is judged at cell level against technology-agnostic defect criteria. Results are aggregated into batch-level statistics which quantify defect density, damage patterns and risk exposure. The resulting engineering dataset forms the technical basis for acceptance, rejection, remediation or warranty escalation, providing EPCs and asset owners with defensible, lender-grade evidence.

In-Situ Electroluminescence

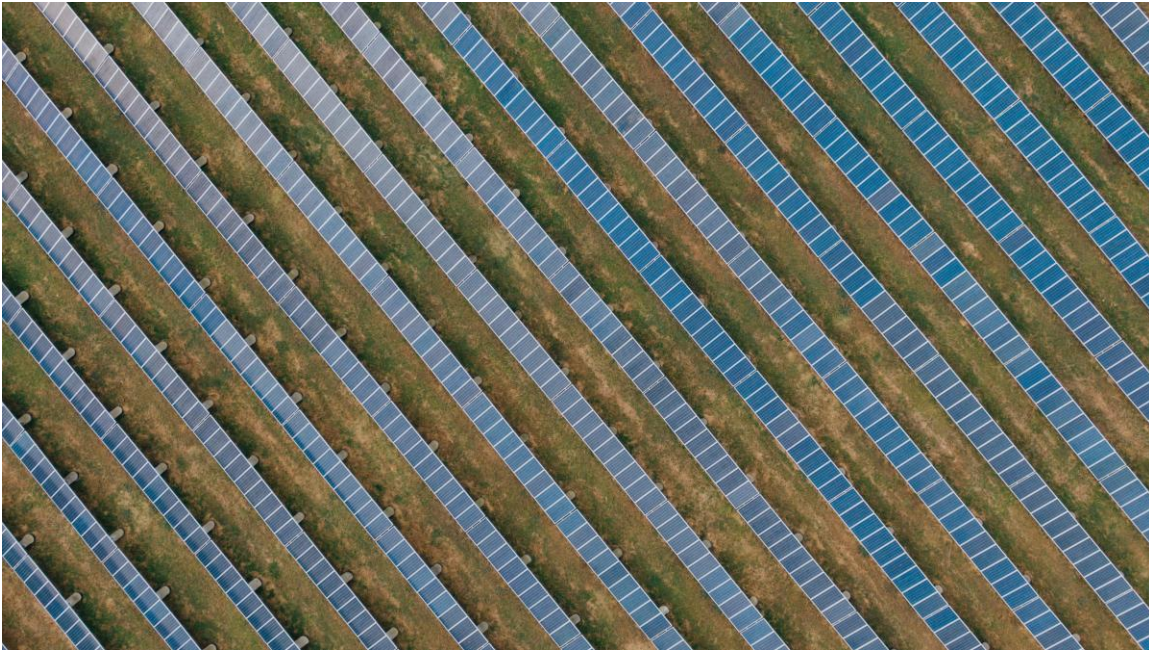


In-situ electroluminescence testing enables Solar Tron to examine installed modules at cell level without removing them from the array. This is critical because many of the most damaging failure modes in modern PV modules, such as micro-cracks, PID, cell fracture and interconnect damage, cannot be detected by visual inspection or thermal imaging alone.

By energising strings and deploying specialist low-light camera systems at night, Solar Tron captures high-resolution EL images of each module. These images reveal the true electrical behaviour of individual cells, allowing identification of cracked wafers, broken fingers, shunts and inactive regions that will drive long-term performance loss.

This data is analysed and reported in an engineering format suitable for EPC handover, dispute resolution and manufacturer warranty claims, giving asset owners objective evidence of installation quality and latent defect risk.

Thermographic Inspection



Thermographic inspection provides a rapid, site-wide assessment of DC system health under operating conditions. Solar Tron deploys aerial thermal imaging platforms to identify hot-spots, open circuits, diode failures, connector defects and string-level abnormalities that indicate electrical stress or failure.

When conducted under controlled irradiance and loading conditions, thermal surveys allow abnormal temperature rise to be quantified and trended across the site. This supports both acceptance testing on new builds and ongoing O&M condition monitoring on operational assets.

Thermal data is geo-referenced, time-stamped and cross-referenced to module serial numbers and string locations, providing actionable evidence for defect investigation, warranty escalation and targeted remediation.

Serial Number Traceability



Serial number capture underpins all modern solar asset management. Solar Tron links every tested or inspected module to its physical position in the array, creating a digital twin of the DC field.

By associating EL images, IV curves, thermal data and visual inspections with individual serial numbers, Solar Tron enables precise batch tracking, defect trending and warranty claim substantiation. This eliminates the ambiguity that typically undermines manufacturer negotiations.

For EPCs and asset owners, this traceability protects commercial position during acceptance, supports long-term asset valuation and provides the data backbone for repowering and lifecycle optimisation.

For all enquiries, acceptance testing and defect investigations, contact: info@solartron.org