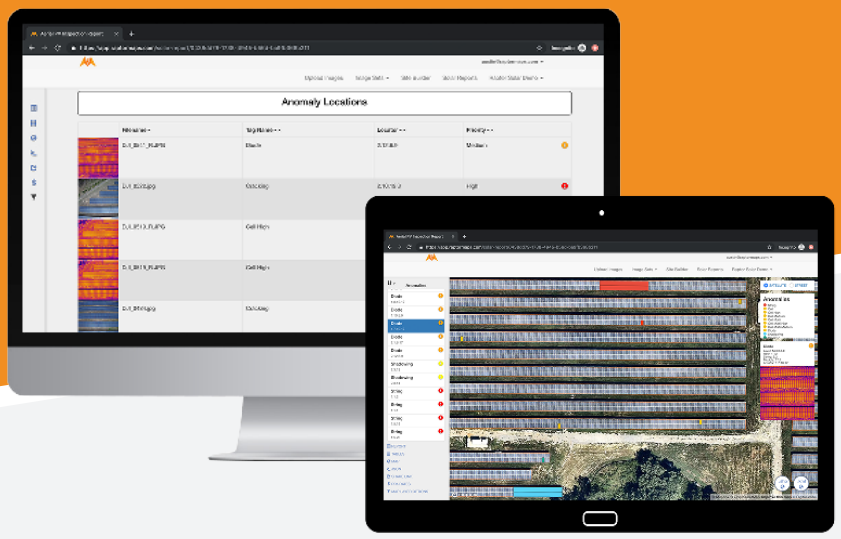
# Thermal Solar Inspections Analytics and Reports

The Raptor Maps thermal solar inspections services, analytics, and reports provides the most efficient way to inspect a PV system. Gather data through an internal drone program or via Raptor Maps' global turnkey services and receive site performance analytics and reports through our cloud-based platform.




## Over 65 GW and 4,000 solar PV sites inspected and analytics delivered.

*"We're excited that Raptor Solar allows us to digitize portfolios, make data-informed decisions and enable a new phase of growth for Cypress Creek and our clients. Output from the software allows us to be more proactive in decision making with a higher degree of confidence. Raptor Solar's productivity tools free up our time to focus on the overall efficiency and returns of our portfolio and those we manage for third parties."*

*- Cypress Creek Renewables, with over 4 GW of solar assets under management*

### INTEGRATION INTO EVERY WORKFLOW

PV system condition analytics and deliverables for Owners, EPCs, Asset Management, and O&M.

### IDENTIFY MORE ANOMALIES EARLIER

Locate anomalies earlier for claims and maintenance with Solar's highest resolution image-processing software.

### ADVANCED ANALYTICS

Increase availability and avoid lost production by combining your aerial inspection findings with a digital-twin model of every asset.

### ACCESS AND DOWNLOAD REPORTS IN THE FORMATS YOU NEED. DELIVERABLES INCLUDE:

A software account where your team and selected organizations can find each PV system inspection and report, available for sharing, editing, and exporting in multiple formats. Discover the anomalies impacting production on a digitized, geo-referenced map, with internal naming conventions for efficient remediation.

**To learn more or schedule a demo, contact us at raptormaps.com**

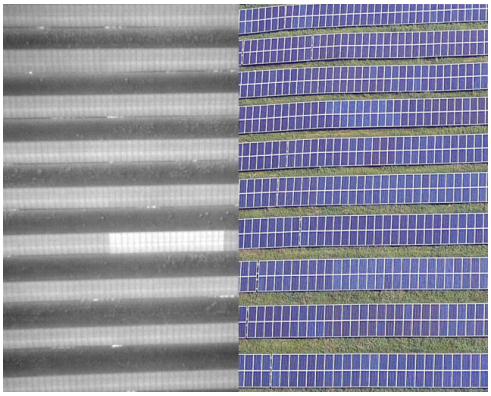
# Raptor Maps Inspection Levels

## Raptor Overview

Summary: An Overview inspection is flown at the highest altitude, inspections are performed very quickly, due to a maximum flight speed of 30 MPH (48 KMH), allowing for very large sites to be inspected quickly.

Infrared thermal imagery: 10-15 cm/px resolution
HD RGB Imagery: 5 cm/px resolution

Identifiable Anomalies Include: Offline Inverters and Combiners, Anomalous Strings, Tracker Off Alignment or in Stow, and Module Level Faults affecting the entire module's performance.

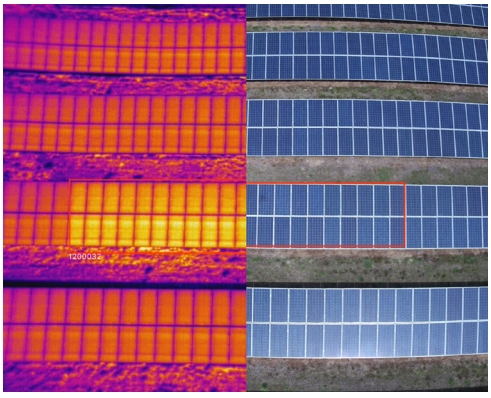


## Raptor Standard

Summary: Standard level aerial inspections are the most common choice globally for PV systems, balancing altitude, speed, and granular site data. Inspections can cover more than 30 MW on an average day in ideal weather conditions. The level of detail in the collected data provides teams an understanding of the performance of 100% of the PV system's modules.

Infrared thermal imagery: 5-6 cm/px resolution
HD RGB Imagery: 1.5-2 cm/px resolution

Identifiable Anomalies Include: All anomalies identified at the Raptor Overview level, as well as physical and visible module damage including cracked/broken modules, thin-film delamination, soiling and surface coverage of the PV module(s). Additional sub-module findings also include: diode faults, cell and multi-cell defects, and faulty junction box. Suspected PID, shading issues due to tree lines, obstructions, or adjacent rows, and damage to rows and tables.

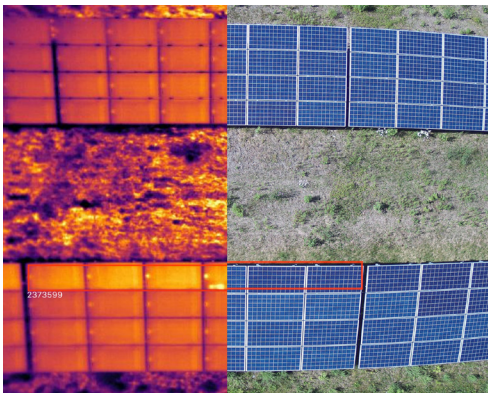


## Raptor Comprehensive

Summary: Comprehensive level aerial IR inspections are performed in compliance with IEC standards. The inspections are performed at a lower altitude and slower speed compared to Standard and Overview level inspections. It provides highly detailed, sub-module level granular data and allows teams to thoroughly understand the performance of each PV module. This inspection level offers absolute temperature accuracy and enables accurate sorting and prioritization of both module and string-level anomalies by temperature intensity.

Infrared thermal imagery: 3 cm/px resolution
HD RGB Imagery: 1 cm/px resolution

Identifiable Anomalies Include: All anomalies identified at the Raptor Overview and Raptor Standard levels as well as data analysis in accordance with IEC TS 62446-3 Technical Specification: Photovoltaic (PV) systems. More detailed classifications of single-cell hot spot with $\Delta T > 10$ K, heated junction box with $\Delta T > 4$ K, and substring in short circuit with $\Delta T > 4$ K.



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