RAPTOR MAPS™

O&M Data Requirements & Flight Guidelines

O&M Data Requirements

VISIBLE (RGB) IMAGERY

Field of View:
50 degrees or greater

Gimbal Pitch:
Nadir (straight down) with deviation up to 20 degrees acceptable (to avoid glare)

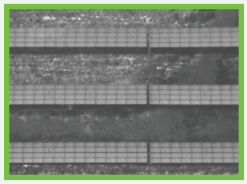
Overlap:
80% front overlap (direction of flight) and 20% side overlap

File Format:
JPEG

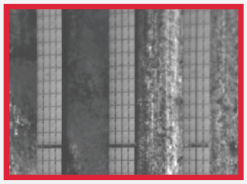
Highest Resolution Accepted:
0.5 cm/px

ESSENTIALS

Image Alignment:
Horizontal (example below)



Correct



Incorrect

Data Capture:
Recommend flying a grid mission with auto-capture (Fly manually if needed)

Motion Blur:
Avoid motion blur in imagery by flying no more than 7 mph (3m/s) during thermal inspection

Note:
If using a dual payload, follow the thermal imagery requirements

THERMAL IMAGERY

Field of View:
Horizontal field of view 30-50 degrees

Gimbal Pitch:
Nadir (straight down) with deviation up to 20 degrees acceptable (to avoid glare)

Overlap:
80% front overlap (direction of flight) and 20% side overlap

File Format:
Radiometric JPEG (R-JPEG) or thermal .tiff

Highest Resolution Accepted:
3 cm/px

ENVIRONMENTAL CONDITIONS

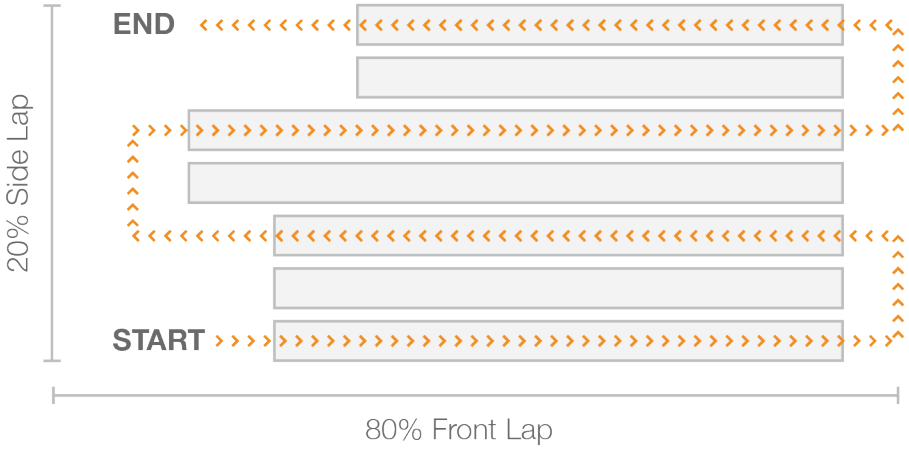
Skies clear and sunny or slightly overcast, ideally with less than 60% humidity

Wind below 15 mph (6.7 m/s)

Irradiance greater or equal to 600 Watts per square meter

FLIGHT PATH

Sample solar site with drone flight path



O&M Flight Guidelines

THERMAL IMAGERY

Inspection Type	Resolution	cm/px	Lens Size/Altitude
Raptor Comprehensive	Minimum 640x512 px	3 ± 0.5 cm/px	9mm: 46 ± 8ft. 13mm: 76 ± 12ft. 19mm: 110 ± 18ft.
Raptor Standard	Minimum 640x512 px	5.5 ± 0.5 cm/px	9mm: 76 ± 12ft. 13mm: 140 ± 12ft. 19mm: 380 ± 126ft.
Raptor Overview	Minimum 640x512 px	15 ± 0.5 cm/px	9mm: 110 ± 18ft. 13mm: 201±18ft. 119mm: 549 ± 183ft.

VISIBLE (RGB) IMAGERY

Inspection Type	Resolution	Altitude
Comprehensive (Thermal at 3cm/px)	Minimum 4000x3000	1cm/px: 121 ± 60ft.
Standard (Thermal at 5cm/px)	Minimum 4000x3000	2cm/px: 241 ± 60ft.
Overview (Thermal at 15cm/px)	Minimum 4000x3000	5cm/px: 604 ± 120ft.

NOTE

For a more in depth overview of our data requirements and flight guidelines visit docs.raptormaps.com

HARDWARE

Popular thermal camera supporting drones:
Matrice 200 series and senseFly eBee X. Other drones include the Inspire 1 and Intel Falcon.

Camera payload suggestion:
FLIR Zenmuse XT2, senseFly Duet T, FLIR Zenmuse XT, FLIR Duo Pro R, and FLIR Vue Pro R

Popular flight mission planning software:
DJI Ground Station Pro (GS Pro, senseFly eMotion, or Pix4Dcapture

BASE LAYER IMAGERY

If you need an RGB base layer (orthomosaic) for your final devlierables, an additional data set is required to create this layer. We STRONGLY recommend collecting this base layer imagery if the site is less than 1 year old and/or satellite imagery of the solar farm is not available. The drone inspection requirements are the same as Visible (RGB) Imagery except the following deviations:

Ground Sample Distance:
5 ± 1 cm/pixel

Gimbal Pitch:
Nadir (straight down) with deviation

Base Layer Overlap:
85% front overlap (direction of flight) and 85% side overlap