



Flight Guidelines for PV Construction Monitoring



Flight Guidelines

I MAPPING FLIGHT

Ground Sample Distance (GSD):

2.7 cm/pxr (1.1in/px)

Approx. altitude 91.4 m (300 ft.) AGL

Gimbal Pitch:

Nadir (straight down)

-90 degrees from horizon

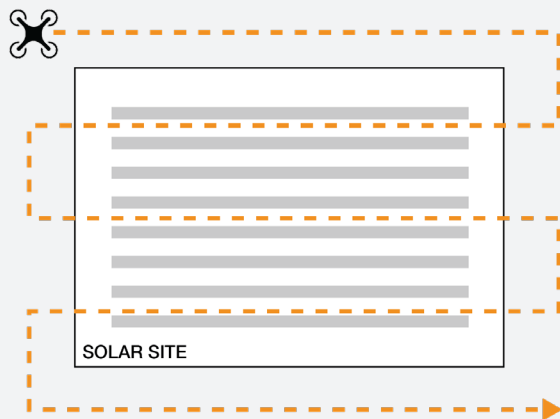
Overlap:

70% front overlap, 70% side overlap

Flight Area:

24 hectares (60 acres) per mission

Approx. 12 megawatts or less



I UAS REQUIREMENTS

Flight Area:

Images must be JPEG and contain metadata (GPS, relative altitude, gimbal attitude, and timestamp)

Drone:

Obliques captured with multi-copter UAS with gimbal mounted camera (e.g. DJI Phantom 4 Pro)

High-Resolution Camera:

5472x3648 pixel resolution minimum

e.g. Phantom 4 Pro camera, Zenmuse X4S

Relative Position Accuracy:

Horizontal: 1.5 m, Vertical: 0.5 m

Absolute Position Accuracy:

Horizontal: 5 m, Vertical: N/A

I OBLIQUE FLIGHT

Altitude:

76.2 to 91.4 m (250 to 300 ft) above ground level

Gimbal Pitch:

Oblique, -15.0 to -45.0 degrees from horizon

Flight Area:

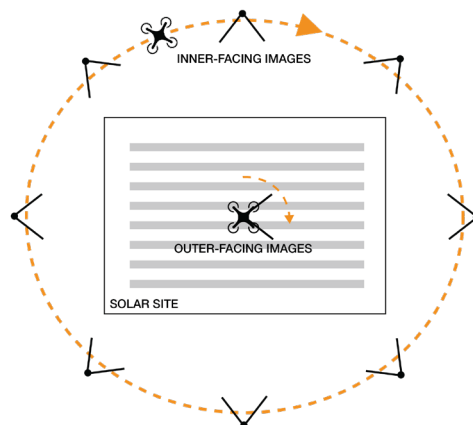
6.1 hectares (15 acres), approx. 3 megawatts or less

Inner-Facing Images:

Typically 8 images captured at 130 m (600 ft) radius from the center in 8 principal compass directions.

Outer-Facing Images:

Typically 8 images captured from the center of the site in 8 principal compass directions.



I HIGH ACCURACY OPTION

RTK/PPK Relative Position Accuracy:

Horizontal: 1 cm + 1 ppm (RMS)

Vertical: 2 cm + 1 ppm (RMS)

RTK/PPK Absolute Position Accuracy:

Horizontal 1.5 m (RMS), Vertical 3.0 m (RMS)

Ground Control Points:

6 to 10 GCPs (or 2 when using RTK UAS)

Absolute position accuracy similar or better than RTK/PPK system