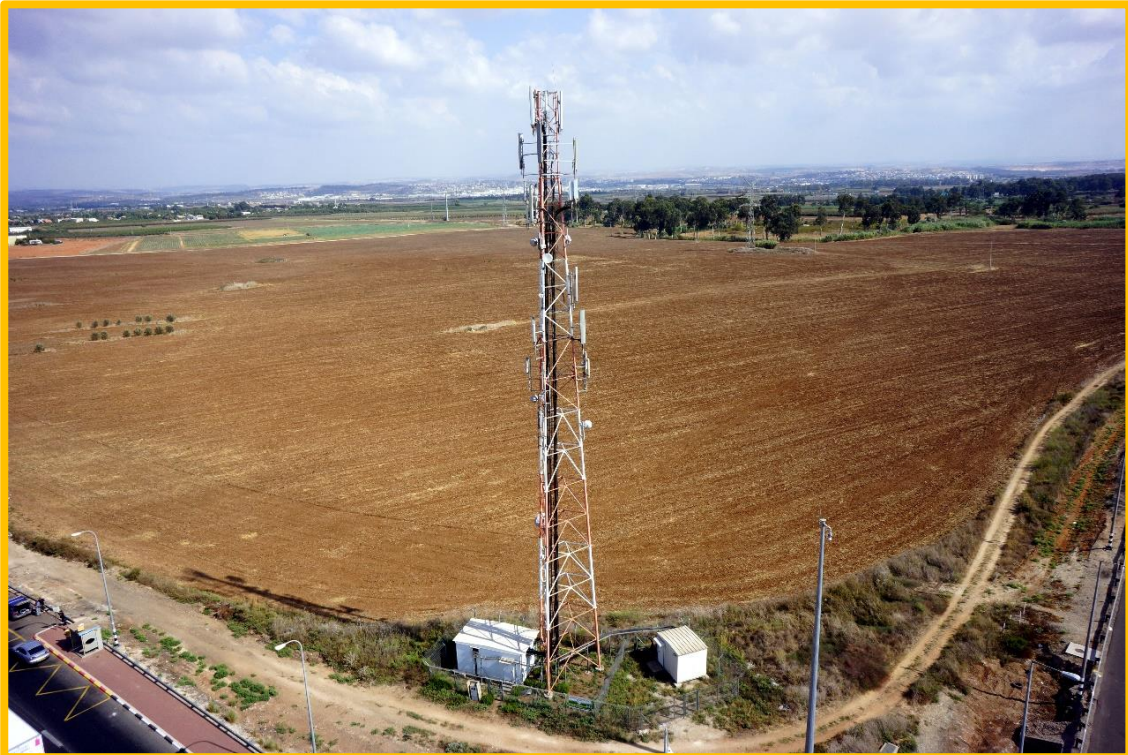


Surveying a Cellular Tower



Company	GeoPoint
Country	Israel
Job Type	Surveying a cellular Tower
Drone	DJI S1000
Pattern of flight	Oblique
Number of Images	36
Accuracy	Better than 2cm (0.05 ft.)
DatuSurvey™ savings	40 min in the field instead of 2 days using prism and prism-less Total Station 4 hours at the office instead of 1 day

Project Description

GeoPoint needed to survey and draft a 3D CAD plan of a tri-pod cellular tower with measurement accuracy better than 2cm (0.05ft).

The estimated effort, using conventional surveying techniques, was 3 days:

- 2 field days using both prism and prism-less Total Station device from four different stations.
- 1 office day to draft the detailed CAD plan, based on the Total Station measurements and a sketch done in the field.



Data Acquisition

Acquiring Images

The tower was photographed using a regular Sony NEX-7 camera (24-megapixel resolution) with a 16mm wide-angle lens, mounted on a DJI S1000 quadcopter that flew at 35 - 45 meters (120 to 150ft) above ground.



A total of 36 images of the cellular tower were captured, from the perimeter around the tower toward its center, with an image taken about every 15 meters (50 feet).

Acquiring Ground Control Points

A total of 20 points were measured on the cellular tower and around it, using a prism-less Total Station device. 10 of these points were used as control points for geo-referencing the images.

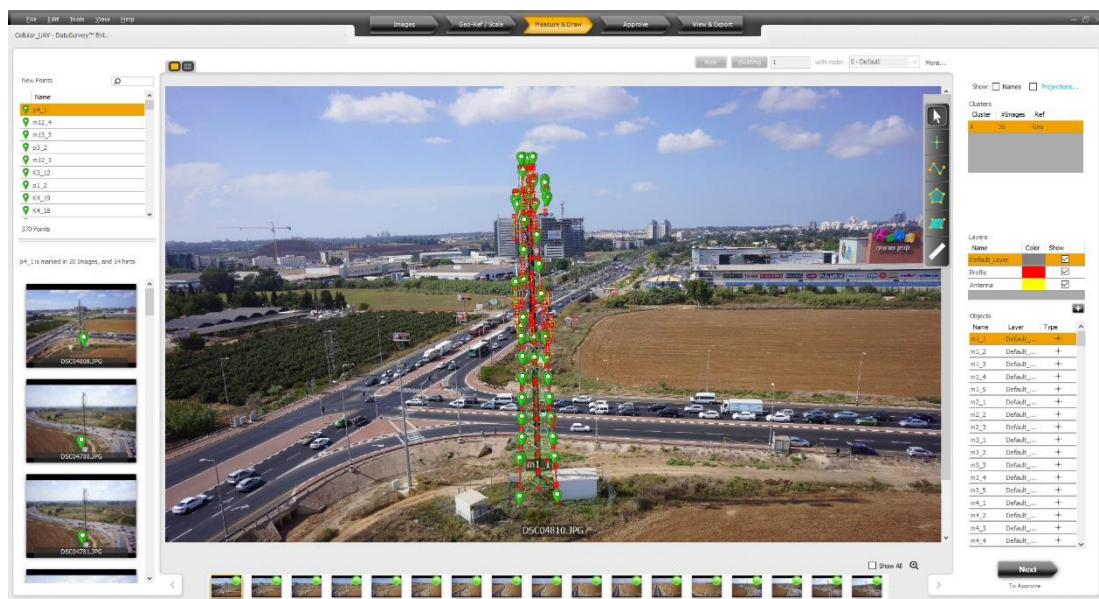
The chosen control points were high-contrast, well-defined objects, such as corners of the tower, devices mounted on it, etc.

DatuSurvey™ Professional (formerly DatuGram™3D)

Savings

Field surveying using a quadcopter proved to be rapid, effective, accurate and, safe, compared to using conventional techniques. The actual time to survey and draft a 3D CAD model of the cellular tower was less than 1/2 a day:

- 40 minutes in the field: 10 minutes to photoshoot the cellular tower, and additional 30 minutes to measure several control points around it.
- 4 office hours to geo-reference the images and draft the 3D CAD model of the cellular tower directly on the images.

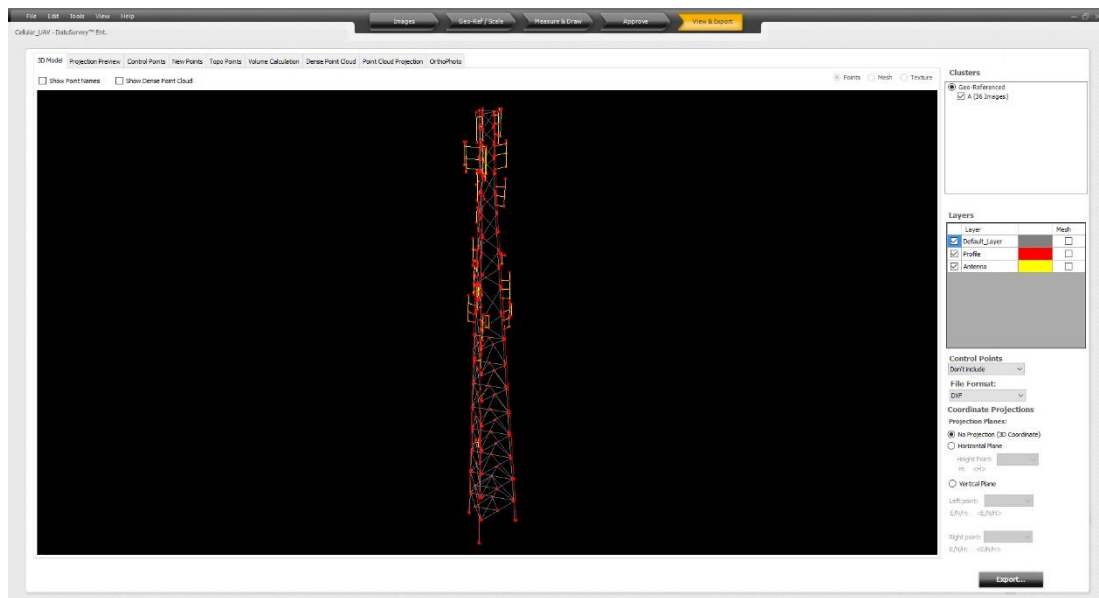


Achieved Results


A 3D CAD model, in DXF format, was generated by drafting directly on the oblique images, using the DatuSurvey™ Professional (formerly DatuGram™3D) photogrammetry software.


A list of all measured points, in PNT format, was generated. This included point names, codes, descriptions, coordinates, and their measurement accuracies in all axes.


215 new measurements were generated using the images. The measurement accuracy of all points was better than **2cm (0.05 ft.)** in both position and elevation.





DatuSurvey™ Professional (formerly DatuGram™3D) Benefits

 **AUTOMATED, INTUITIVE & SIMPLE**
User interface that follows surveyor work process

 **PROFESSIONAL, SURVEY GRADE**
High Precision & reliability

 **STAY SAFE**
Employ aerial and ground images

 **SAVE TIME & CUT COSTS**
Save up to 30% office time

 **MONETIZE YOUR BUSINESS**
Manage more projects, grow your business

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