



ONE TECHNOLOGY - ANY MEASUREMENT

DPA

3D Rapid surveying of Solar Panels at Eurocopter Deutschland GmbH

At Eurocopter Deutschland GmbH the component testing under burdening of solar panels is part of a vast standard testing routine. In this context, also parameters for stiffness and flatness of the panel are determined.

For the necessary measurement system Eurocopter now relies on the AICON photogrammetric measurement technique and has been using the successfully the mobile 3D measurement system DPA.

The measurement task

When testing solar panels, both stiffness as well as flatness are determined by measurement in burdened and unburdened condition. For doing so, the object had to be transported to a coordinate measurement machine (KMG). On this KMG, both the test and the measurement had to be performed. The dimensions of the object of approx 2 x 2.5 meters or 4 x 2.3 meters made a mobile measurement system highly desirable.

Rapid measurement with DPA

When using the mobile 3D industrial measurement system DPA, measurements can now be carried out at the testing site. To determine the stiffness, the panel is placed on the ground and fixed in each of its four corners.

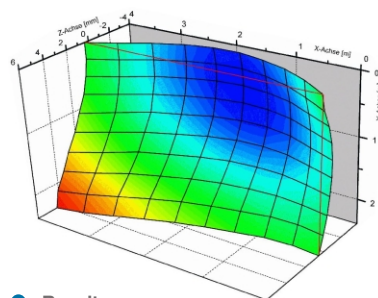


Measurement

Then, the necessary quantity of retro reflecting target points is fixed followed by the measurement in unburdened condition.

To check stiffness, a weight of approximately 5 kilos is placed in the center of the panel and a new measurement is done to record the deformation which ranges between 10 to 20 mm.

In a third test, the flatness of the panel is measured. It is hung up in two corners of the longer side, a condition closest to that in space. After it has come to a rest, the measurement can be started.



Result

With a high resolution digital camera the pictures are taken in minutes without using a tripod. The ring flash which is fixed on the camera assures the even illumination of the retro reflecting target marks.



DPA Measuring System

Calculating the 3D coordinates, graphical output of results

The evaluation of the measurement pictures and the calculation of the 3D coordinates is an automatic process in the AICON 3D Studio with DPA.

For the user, it is not necessary to interact during the photogrammetric calculation procedure. The results are combined in a standardised co-ordinate system.

Within the AICON 3D Studio, the deformation vectors between burdened and unburdened condition are calculated. The graphical output of AICON 3D Studio makes it easy to interpret the results and to produce the required measurement protocols.

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