

Qualification of Antenna Dynamics

RESONATE SYSTEMS were engaged by Hensoldt GmbH to develop two custom data acquisition systems to assist with the qualification of radar antenna performance against specifications.

With a tight schedule, the systems needed to be specified, designed, built and commissioned within 3 months.

RESONATE SYSTEMS applied agile project management techniques and test-driven development to identify and address key technical risk areas and rapidly iterate towards a solution that satisfied Hensoldt's critical requirements within the required timeframe.

Each deployed system consisted of two 20-channel data acquisition system: One attached to rotating components and transmitting data via WiFi; and the other mounted on the radar tower. The systems were to be simultaneously deployed at two sites running continuously for a period of 4 months.

The systems measured a range of signal types from devices including wind sensors, tachometers, AC and DC accelerometers, laser distance sensors, rotary encoders, and tilt sensors.

All data was time synchronous and stored in a common format with meaningful meta-data tailored towards Hensoldt's requirements.

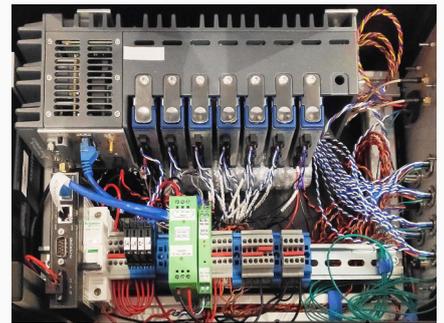
Using open-source tools such as Python and MongoDB, RESONATE SYSTEMS developed a data management process that allowed for effective searching of the data sets during the analysis stage.

Training in the effective use of these software tools was provided to Hensoldt allowing their engineering team to complete their assessment and support the equipment in future installations.

By completion of the monitoring period the systems had characterised over 1.5 million antenna rotations and allowed Hensoldt to develop a deep understanding of the mechanical dynamics of the radar in a range of environmental conditions.



Installation of measurement system and sensors on radar antenna



20 Channel data acquisition system hardware

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