



FAD

Danish Defence and Security Industries Association
Forsvars- & Aerospaceindustrien i Danmark



QUADSAT

FAD FEATURED MEMBER - JANUARY 2021

Drones create new opportunities for antenna measurement

On a normal day in Odense Airport, QuadSAT spends time testing satellite antennas and optimizing their drone-based measurement system. An interesting journey that now has led them to radar systems.

Even though QuadSAT may not have been in the game for that long, their achievements should not be mistaken. QuadSAT was founded back in 2017 and has accomplished developing knowledge and products to a level that creates new opportunities in the Defence Industry by others. Chief Executive Officer Joakim Espeland and Chief Technology Officer Andrian Buchi are the co-founders of QuadSAT; a company that took off as a university project. Now the antenna testing company consists of 20 employees managing positions within anything from robotics engineers to software engineers.

A team of diversity, with 16 different nationalities, that strikes for a common goal: Flexible antenna measurements independent of location and setting.

Drones = an ingenious idea

Mr. Espeland and Mr. Buchi identified a gap in the industry when it comes to testing satellite antennas and decided to work towards a solution that can scale up the amount of testing especially concerning the massive amounts of satellites being launched at the moment.

Continued on next page



Photo: Stina Dueholt



To that Mr. Espelund explains:

- Status quo of antenna diagnostics is expensive and logistically heavy as radio frequency equipment must be brought to advanced testing facilities. With our system, diagnostics can be performed on-site with the added benefit of data being of actual on-site system performance in contrast to a controlled testing environment.

The need for better performing tests could be essential for The Danish Armed Forces in the longer term as well. QuadSAT enables testing no matter the circumstances and location. This way, the tests can be performed without having to move the antenna to the test range. The drone-based system for antenna diagnostics introduces flexibility and versatility meaning that a wide range of equipment can be tested using the same system. Using a drone to achieve this has seemed to be the perfect solution, as this creates lightweight and easily accessible test equipment.

On-site radar measurements

But the adventure does not stop there. In November 2020, QuadSAT demonstrated on-site radar measurements for the Defence and Aerospace Manufacturer TERMA Group. The demonstration was a success, and it is now official that QuadSAT is able to provide on-site measurements for not only satellite antennas but radars as well.

- Working with Terma is really important for us. Terma is leading the way in Danish Aerospace and Defence industry and we are happy and proud that the team sees the innovativeness and value of our system, states Mr. Espeland.

QuadSAT tested two different radars at TERMA Group; one at land and one at the coast. TERMA Group executed simulations, which QuadSAT measured through the radar systems and thereby validated the simulations. This showed how the radar systems may be affected for example by reflections from ground and water.

The future for QuadSAT

The future looks bright for QuadSAT as they have their commercial launch in Q1 2021. Right now QuadSAT performs service assignments and companies can already order their system now with delivery in a couple of months.

- The need for better access to insights on antenna performance is present across various industries. Talking to defence and industry actors it is clear that there is need for improved radio frequency diagnostics both on land, in the air, and in the maritime environment. Already now we see that 2021 will be a busy year and we will be exploring a lot of different new use cases - Mr. Espeland declares. From March 2021 QuadSAT's drone-based antenna diagnostics system will be available for purchase as a product allowing customers to get their own automated system.

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- QuadSAT's mobile antenna testing system provides users with affordable, accessible and accurate antenna testing and calibration.
- QuadSAT's system is a custom-built payload integrated on a UAS.
- QuadSAT's system has been developed to meet industry-wide standards.