

## Outdoor antenna measurements using UASs: beyond radiation pattern measurements

### Abstract:

Unmanned Aerial Systems (UASs) have revolutionized outdoor antenna measurements. Their flexibility, added to the possibility of bringing the measurement range to the measurement object, opens many possibilities for modern outdoor antenna diagnostics.

QuadSAT uses UASs to support the satellite and space communities with *in situ* measurements of large antennas, which until recently were only possible in limited and costly ways.

This workshop consists of two parts:

Part 1: a live demo of a measurement performed using QuadSAT's UAS-APE (UAS for Antenna Pattern Evaluation) is broadcasted from QuadSAT's headquarters in Odense, Denmark.

Part 2: the use of UASs for satellite emulation is presented, with results of a measurement campaign performed at ESA's station in Kiruna, Sweden.

### Workshop outline:

Our keynote speaker is Dr. Cosme Culotta-López. The first part of the workshop consists of a live demo, while the second part consists of a technical presentation. Cosme will connect with QuadSAT's headquarters in Denmark and moderate the live demo. After a short break, Cosme will deliver a technical presentation on the use of UASs for satellite emulation, focusing on the results of the measurement campaign of one of ESA's large antennas.



Dr. Cosme Culotta-López received his doctoral degree (Dr.-Ing.) from RWTH Aachen University, Aachen, Germany, in 2021. He joined QuadSAT as a Senior RF Engineer in 2021. He is a Board Member of Antenna Measurement Techniques Association (AMTA). His work has been awarded the 1st place Best Paper Award at the AMTA annual symposium in 2018 and 2020, and several Best Student Paper Awards as either the main author (2018 and 2019 at AMTA; 2019 at Photonics and Electromagnetics Research Symposium (PIERS)) or co-author (2020 at AMTA). Currently, his main research focuses on antenna measurements using unmanned aerial systems.