

CATR Design for Automotive Radar Sensor Calibration and Validation

- Corbett Rowell, Rohde & Schwarz, Germany
- Daniel Markert, Rohde & Schwarz, Germany
- Leander Humbert, Rohde & Schwarz, Germany

Abstract:

Automotive radar sensors become more and more important as they enable an increasing number of comfort features, safety features and ultimately as the key technology for autonomous driving.

The state-of-the-art and next generation sensors with advanced processing, higher frequencies and larger apertures pose new challenges to provide very reliable but also effective Over-the-Air (OTA) test solutions.

This workshop will provide an overview and discussion of compact antenna test ranges (CATR) with an application focus on calibration and testing interference mitigation for automotive radars in the 24 and 77 GHz frequency bands.

In conclusion, the benefits of CATR for automotive radar sensor tests will be demonstrated and how the well-established concept is transformed into a test system for the commercial radar industry.

Workshop outline:

- Concepts and measurement data for CATR reflector design will be presented along with some basic theory, both through measurements and numerical modeling. As well as a live demonstration with a CATR Benchtop Antenna Test System.
- Overview of interference impact on and mitigation strategies for automotive radar sensors. Concept for testing the robustness against interferers.
- Basics of MIMO Radar sensors
- Design of a compact CATR system for measurements in far-field conditions for MIMO sensors