# Recent Activities of TC-26: Radar Cross-Section Measurements

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This TC is the only one that is devoted to radar related measurements in the I&M Society. The Radar Cross-Section Measurements (RCS) committee has people from industry and academia. It is worth mentioning that detailed RCS measurements are now possible at the Advanced Radar Research Center (ARRC) at the University of Oklahoma (OU) for both on-campus groups and off-campus groups. My research partners at OU have worked to develop the specifications of two anechoic chambers at the University of Oklahoma (note: a special thanks to Dr. Jessica Ruyle). The most exciting recent development for OU's radar program is the construction of the Radar Innovations Laboratory (RIL) building, which is located adjacent to the National Weather Center and was completed in March of 2014. Temporary visitor offices are available in the RIL to external people wishing to complete collaborative experiments. For example, NASA has plans to visit to complete some low-frequency phased-array antenna measurements.

This 35,000 $ft^2$ (3.252 $km^2$) state-of-the-art facility houses all of OU's radar faculty, staff, and students, and affords several new capabilities and opportunities for research. The building has two precision anechoic chambers, both with isolation of at least 100 dB up to 18 GHz of operation. The smaller chamber can also support measurements up to 40 GHz with slightly less isolation. A few more details are: the large chamber is 34 x 24 x 24 ft (10.4 x 7.3 x 7.3 m), with isolation of 300 GHz to 18 GHz. There is a >1.5 m cube quiet zone at 300 MHz, a >2 m cube quiet zone > 900 MHz, a full Az/El positioner. There are RCS measurement capabilities and complete target characterization.

The small chamber is 26 x 13 x 13 ft (7.9 x 4 x 4 m) with isolation of 2 GHz to 40 GHz. There is a >1.5 m cube, a precision near-field antenna system, a full Az/El positioner, and a polarization positioner. It has RCS measurement capabilities and complete target characterization.

Related equipment includes: Agilent PNA and PNA-X network analyzers (up to 50 GHz for two ports, 26.5 GHz for 16-port analysis) with an electronic calibration module; Agilent PSA and EXA spectrum analyzers with phase noise and noise figure personalities (up to 50 GHz); a Tektronix real-time spectrum analyzer with 110 MHz of instantaneous bandwidth (up to 14 GHz); Agilent PSG analog signal generator (up to 50 GHz); and an Agilent PSG vector signal generator (up to 31.8 GHz).

The facilities will support a variety of experiments ranging from wideband ISAR to intricate multi-polarization RCS measurements. Contact: Mark Yeary, yeary@ou.edu