The 17th European Conference on Antennas and Propagation (EuCAP)
26 - 31 March 2023

Metrological Traceability

Abstract

The workshop will stress the need for metrological traceability and its relationship to internationally accepted calibrations. Discussing uncertainties and traceability paths to the NMI and SI units. An example case of an NMI re-establishing a BIPM on-axis antenna gain service will be examined. The use of Rydberg atom-based sensors will show how field strength measurements are directly traceability to the SI (Planks Constant).

Workshop outline:

- The first session would start with a presentation discussing the importance of Metrological traceability, presented by Jeff Guerrieri.
- Followed by how to establish traceability paths to the NMI and or SI, presented by Dennis Lewis
- Closing the session with the process to re-establish the on-axis gain service with the BIPM.
- The rapid progression of Rydberg atomic sensors and their application to electromagnetic measurements and direct traceability to the SI will be presented in the second session.
- Closing out the workshop with panel discussion with the presenters

key speakers

- Dr. Christopher Holloway is a Fellow of the IEEE and has been at NIST for over 25 years. He is an expert in electromagnetic theory and metrology, quantum-optics, Rydberg-atom systems, and atom-based sensors. He is the project leader for the Rydberg-Atom-Sensor Project and is the group leader for the Electromagnetic Fields Group.
- Dr. Joshua Gordon is currently the Antenna Metrology Project Leader at NIST responsible for nearfield antenna measurements and the On-Axis Gain calibration Service at NIST. He holds 4 patents and is an IEEE Senior Member and AMTA Senior Member.
- Dennis Lewis has worked at Boeing for 34 years and is recognized as a Technical Fellow. He currently has leadership and technical responsibility for the RF, Microwave and Antenna test capabilities. Dennis holds 11 patents and is the recipient of the 2013 & 2015 Boeing Special Invention Award.
- Jeff Guerrieri is an AMTA Fellow and Distinguished Service Awardee. He has been at NIST for over 35 years and has received the US DoC Gold, Silver and two Bronze medals. He is currently a Calibration Program Manager for NVLAP.