

TMB: PRACTICAL METHODS FOR DETERMINING THE ACCURACY OF MEASUREMENTS – A REVIEW OF TECHNIQUES BOTH OLD AND NEW

Date & Time: Monday, June 12; 8:00 AM- 5:00 PM

Location: Moscone Convention Center, Room 200

Topics & Speakers:

- A Review of Methods for Establishing the Accuracy of Measurements, **N. Ridler**, National Physical Laboratory (NPL), United Kingdom
- Applying the Guide to the Expression of Uncertainty in Measurement (GUM) to Power Meter Measurements, **K. Wong**, Agilent Technologies, USA
- Old and New Accuracy Estimations of S-Parameter Measurements with the Ripple-Test, **H. Heuermann**, University of Applied Science Aachen, Germany
- Industrial Examples of How to Evaluate Uncertainty, **C. Arnaud**, ST Microelectronics, France
- Determining Uncertainty the Easy Way – Using Random Numbers, a Computer, and Some Intelligent Guesses, **N. Ridler**, National Physical Laboratory (NPL), United Kingdom
- Analysis of Accuracy in Noise Figure Measurements, **J. M. Collantes**, University of the Basque Country, Spain
- Covariance-Based Uncertainty Analysis of the NIST Electro-optic Sampling System: Introducing a New Paradigm for Electrical Waveform Measurement, **D. Williams**, National Institute of Standards and Technology (NIST), USA
- Accommodating Component Uncertainties into Sub-System and System-Level Specifications, **B. Szendrenyi**, Agilent Technologies, USA
- Using an Excel Workbook to Perform Uncertainty Calculations on the Fly, **D. Lewis**, Boeing, USA
- Managing Uncertainty Budgets and Using ‘Buffer Zones’ in Specifications, **B. Szendrenyi**, Agilent Technologies, USA

Organizers:

N. Ridler, National Physical Laboratory (NPL), United Kingdom

B. Szendrenyi, Agilent Technologies, USA

D. Lewis, Boeing, USA

Sponsors: MTT-11, Microwave Measurements
MTT-16, Microwave Systems
67th ARFTG Conference

Topics Level: Tutorial

This workshop will present a review of methods for evaluating uncertainty in RF and microwave measurements. The review will concentrate on the practical aspects of evaluating measurement errors and establishing uncertainty, and so will give practical examples demonstrating evaluation methods. Issues that are specific to RF and microwave measurements will also be covered during the workshop.

The topics covered by this workshop will include:

- How to identify key sources of errors in measurements
- Examples of uncertainty budgets
- Uncertainty representations for vector quantities
- Monte Carlo and other methods for propagating uncertainty
- Using results – e.g. for verifying accuracy, determining specification compliance, etc.

Ample time during the day will be reserved for discussions. Workshop attendees are encouraged to distribute on-the-spot hard copies of selected relevant information intended to enrich the discussions. Brief ad-hoc presentations from the floor are also planned to take place during a ‘Panel Session’ towards the end of the day. Interested ad-hoc presenters are advised to contact the organizers in advance of the workshop.