

NEW ENGLAND REGION 1110

By Tim Cooke



The updated NCSLI Uncertainty Roadshow came to the NCSLI New England Region on October 6, 2011. Our meeting host was Agilent Technologies. Travis Field and his staff made their training facility available to us for this event.

Measurement uncertainty is an increasingly important concept in the science of measurement and calibration. The meeting was broken up into modules. Experts taught uncertainty principles in several unique measurement disciplines.

Jack Somppi of Fluke Calibration (Everett, Washington) provided the presentation on DC/LF Uncertainty. The presentation was a study of measurement uncertainty and its application to example digital multimeter calibrations. Detailed examples, including the use of software tools, were provided as part of the presentation.

Next up was Bob Stern of Agilent Technologies. Bob discussed with us the Implementation of *ILAC-P14:11/2010* within Agilent, and the ILAC policy for expression of uncertainty in calibration. The ILAC policy is that labs shall report expanded uncertainties with the associated measured values on the calibration reports. Traceability examples were provided for DC volts and also for power sensors. Bob also outlined the guard banding requirements of *ANSI/NCSLI Z540.3-2006*.

To start the afternoon session, Thomas Wiandt of Fluke Calibration (American Fork, Utah) engaged us in the establishment of the uncertainty budget for a platinum resistance

thermometer (PRT). The uncertainty budget was constructed in a standard spreadsheet format. The components covered include reference standard uncertainties, curve fitting errors, reference thermometer error propagation, measurement factors, and statistical process control. The examples included actual data from the Fluke PRT calibration facility in American Fork, Utah.

Frank Liebman, also of Fluke Calibration (American Fork, Utah) wrapped up the presentations with a detail on the science of measurement uncertainty in the field of radiation (infrared) thermometry. Radiation thermometry is becoming more desirable for certain temperature measurements that require a fast response time along with the benefit of non-contact measurements. Frank covered both radiation and infrared thermometer calibration and uncertainty budgets for calibration of these increasingly popular instruments.

We wish to thank Agilent Technologies for once again allowing us to use their facility in Andover, Massachusetts. The meeting was a no-charge event, largely due to the generosity of our host. Lunch was provided compliments of Agilent Technologies and Cal-Tek Co., Inc. (N. Billerica, Massachusetts).

Our appreciation extends equally to the speakers, who took the time to prepare these excellent educational presentations for the benefit of all who attended.

tcooke@repaircalibration.net



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