



NVLAP

Assessor Training

Measurement Uncertainty



Measurement Uncertainty

- Addressed as a requirement of NIST HB 150, 5.4 *Test and calibration methods and method validation*
 - Specifically 5.4.6 *Estimation of uncertainty of measurement*



Measurement Uncertainty

- Calibration and testing labs performing their own (in-house) calibration shall apply a procedure to estimate the uncertainty of measurement for all calibrations
- Testing labs shall have procedures for estimating uncertainty of measurement



Measurement Uncertainty

- When the nature of the test precludes rigorous calculation
 - Attempt to identify the components of uncertainty
 - Make a reasonable estimation



Measurement Uncertainty

- A Type A evaluation may include:
 - Sample mean
 - Standard deviation



Measurement Uncertainty

- A Type B evaluation of standard uncertainty is usually based on scientific judgment using all of the relevant information available, which may include:
 - previous measurement data,
 - experience with, or general knowledge of, the behavior and property of relevant materials and instruments,
 - manufacturer's specifications,
 - data provided in calibration and other reports, and
 - uncertainties assigned to reference data taken from handbooks.



Measurement Uncertainty

- Materials available
 - APLAC TC 010
 - APLAC TC 005
 - ILAC-G17
 - NIST reference on uncertainty