

Measurement Uncertainty Analysis (MUA)

The latest challenge for laboratory managers is dealing with Measurement Uncertainty Analysis (MUA). Test measurement uncertainty was a concern until the introduction ISO 17025. To comply with ISO 17025, laboratories are required to develop processes and practices for estimating the measurement uncertainty of testing results produced by and reported from testing and simulation systems. With as many as 30 parameters affecting measurement uncertainty, it is important to identify these sources of possible error. Once possible error sources have been identified, the laboratory must quantify and reduce the measurement uncertainty of data and/or results produced by a material testing system.

Measurement uncertainty can arise from multiple sources. The most common sources can be grouped into four categories:

1. Uncertainty due to the calibration equipment and calibration processes
2. Uncertainty of the testing machine as calibrated
3. Uncertainty of the testing machine during use
4. Uncertainty of the test results

Getting a Handle on Measurement Uncertainty

Typically, two conditions will exist when testing materials or components - under testing or over testing.

Under testing - Performing tests on materials or components below the prescribed test criteria can result in false confidence in materials or components.

Over testing - Performing tests on materials or components beyond the prescribed test criteria can result in over design and waste of material and time.

Establishing a true index of system performance through measurement uncertainty analysis is the only way to adequately assess these conditions.

What to Do?

MTS Systems can help you prepare to deal with the important role that measurement uncertainty will play in achieving and maintain laboratory accreditation. MTS has developed two ways to serve our customers:

- ▶ MTS is offering a training class to help you develop processes and procedures to meet the measurement uncertainty requirements of the new ISO 17025 standard for accreditation of testing laboratories. This class, offered at your site, presents the fundamentals of measurement uncertainty and provides details on the many factors that contribute to measurement uncertainty. This training provides the tools necessary to determine, correct, and report measurement uncertainty for your laboratory.
- ▶ As an option, a trained MTS Engineering Specialist can visit your laboratory and provide an evaluation of the relevant measurement uncertainty issues affecting your testing system.

For More Information

To speak with someone from MTS about measurement uncertainty call MTS' Measurement Uncertainty Representative toll free at (1) 800-328-2255, fax to 952-937-4515, or e-mail info@mts.com.