

IECEx WG (Uncertainty of Measurement)

Terms of Reference

Initially:

- Identify test methods that uncertainty of measurement must apply to.
- Develop guidance notes to assist assessors identify what evidence should be available to substantiate the application of measurement uncertainty to test procedures.

Following the above actions:

- Function as a central repository to facilitate responses to questions from Assessors, ACB's and TL's participating in the scheme.
- Divulge information on uncertainty of measurement, as it becomes available.

Clarification of Terminology used

ISO 1993 "Guide to the expression of uncertainty of measurement" provides an internationally accepted benchmark for the estimation of uncertainty values. The following, based on extracts from the guide, have been collated to provide an explanation of the term "uncertainty of measurement".

Definition: Uncertainty of Measurement

"A parameter, associated with the result of a measurement, that characterises the dispersion of the values that could reasonably be attributed to the measurand."

- It is widely recognised that even after all of the known or suspected components of systematic error have been evaluated and corrections applied to a result of measurement, there remains doubt (uncertainty) about how well the result of the measurement represents the true value of the quantity being measured. This "uncertainty" comes from a dispersion of values, which may be attributed to random or uncorrected systematic variation of results (variations if repeated measurement were applied to the same situation). Systematic errors can be reduced or virtually eliminated by use of good laboratory practice including careful choice of measurement methods. Random error, on the other hand, cannot be reduced or eliminated but is amenable to statistical treatment.
- In general, the result of a measurement is only an approximation or estimate of the value of the measurand and thus is complete only when accompanied by a statement of the uncertainty of that estimate.
- Sources of Uncertainty can be many and varied. An article on sources of uncertainty and their estimation may be found at the NATA Website library <http://www.nata.asn.au/library/sounest.html>.