ACCREDITATION SCHEME FOR LABORATORIES

Technical Notes EL 002

Specific Policy for Uncertainty Measurement for Electrical Testing Laboratories

Technical Notes EL 002, 01 August 2022
The SAC Accreditation Programme is managed by Enterprise Singapore

1. Introduction

1.1 This document, EL 002, shall be read in conjunction with ISO/IEC 17025[2] – General Requirements for the Competence of Testing and Calibration Laboratories.

1.2 Testing laboratories shall fulfill the requirements outlined in clause 7.6.3 of ISO/IEC 17025[2], which relates to the estimation of uncertainty of measurement.

1.3 For reporting of measurement uncertainty in test reports, laboratories can refer to the ILAC G17[3] – Guidelines for Measurement Uncertainty in Testing.

1.3 In addition to the specific policies as prescribed in this document, a guidance document Guidance Note EL–001[4] has been developed to provide guidelines and approaches for the computation of measurement uncertainty for electrical testing.

2. Definition of Terms

2.1 The definitions given below are extracted from the International Vocabulary of Basic and General Terms in Metrology[1].

2.2 **True Value** (of a quantity)
The value consistent with the definition of a quantity.

2.3 **Conventional Quantity Value**
Quantity value attributed by agreement to a quantity for a given purpose. This value is generally accepted as being associated with a suitably small measurement uncertainty, which might be zero.

2.4 **Measurement Accuracy**
The closeness of the agreement between the result of a measurement and the true value of the measurand.

2.5 **Resolution** (of a displaying device)
The smallest difference between displayed indications that can be meaningfully distinguished.

2.6 **Uncertainty of Measurement**
A non-negative parameter characterizing the dispersion being attributed to the measurand, based on the information used.

3. Policy Statement

3.1 The following are the scenarios which determine if measurement uncertainty needs to be applied.

(a) If test parameters have specified tolerance such as Rating test, then the uncertainty of measurement is required

(b) Performance test for product compliance:
- Case 1: If readings are obtainable from test or measuring equipment, then uncertainty of measurement is required
- Case 2: For compliance by visual inspection, then uncertainty of measurement is NOT required

(c) If test parameters do not have quantitative value such as glow wire test, then uncertainty of measurement is **NOT** required at the moment.

4. Recording Procedure

4.1 The estimation for the uncertainty of measurement should follow the guidelines as laid down in Guidance Note EL 001[3].

4.2 The derivation of estimated measurement uncertainties should be documented.

5. References

1 International Vocabulary of Metrology - Basic and General Concepts and associated terms (VIM), 3rd Edition, JCGM 200:2012

2 ISO/IEC 17025:2017 – General requirement for the competence of testing and calibration laboratories

3 ILAC G17:01/2021 – Guidelines for Measurement Uncertainty in Testing

4 Guidance Note EL 001 – Guidelines on the Evaluation and Expression of Measurement Uncertainty for Electrical Testing Field