

CLAS Requirements for Proficiency Testing

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1.0 Introduction

- 1.1 Proficiency testing to satisfy the requirements of [CAN-P-4 \(ISO/IEC 17025\)](#) is carried out by the Calibration Laboratory Assessment Service (CLAS) using a formal proficiency testing process. The process is designed to verify the measurement capabilities of applicant and CLAS-certified laboratories. Each quantity in the laboratory's scope is subject to one or more of the following proficiency testing techniques, unless decided otherwise by the CLAS program; e.g., the required resources are not available, or the proficiency test would not be conclusive.
- 1.2 Verification of each quantity is normally performed when a laboratory is first assessed and subsequently once per assessment cycle. If the performance of the laboratory is called into question, additional proficiency testing may be performed using these techniques. This is consistent with the frequency requirements published in APLAC MR001 "Procedures for Establishing and Maintaining Mutual Recognition Arrangements amongst Accreditation Bodies". This document is available at <http://www.aplac.org>.
- 1.3 CLAS requirements for proficiency testing follow the general guidelines published in ILAC G22 "Use of Proficiency Testing as a Tool for Accreditation in Testing". This publication is available at www.ilac.org.
- 1.4 In addition to the proficiency activities organised by CLAS, laboratories are encouraged to seek out and to participate in proficiency testing programs offered by recognised proficiency testing providers. It remains the responsibility of applicant and CLAS-certified laboratories to verify their calibration capabilities on an on-going basis through proficiency testing to meet the requirements of CLAS and CAN-P-4 (ISO/IEC 17025).

2.0 Proficiency Testing by Traceability (PTT)

- 2.1 This process of proficiency testing uses the laboratory's reference, transfer, and other appropriate standards. CLAS conducts a measurement capability verification using the standards (reference, transfer, and other standards whose values are within the laboratory's scope) of the laboratory being verified. Laboratories must have their reference, transfer, or other appropriate standards calibrated by a higher-echelon laboratory, that satisfies the traceability criteria of the CLAS program. This verification is an on-going process and is performed when the laboratory has its standards calibrated by a higher-echelon laboratory.
- 2.2 Laboratories are required to provide the CLAS program with two sets of values for these standards; the first is the value of the standard before it

was sent for calibration and the second is the value of the standard after it was returned from calibration.

- 2.3 These standards must be calibrated by NRC or another laboratory acceptable to CLAS (see CLAS Requirements Document 9). By prior arrangement, reference laboratories (i.e. higher-echelon laboratory) shall forward to CLAS a copy of the calibration certificate and not provide the calibration results to their client until notified by CLAS.
- 2.4 The laboratory being evaluated must provide CLAS with a calibration certificate or report similar to the ones that would normally be provided to a typical client. The content of the report must be according to CLAS Requirements Document 6, *CLAS Requirements for Calibration Certificates*. The certificate shall include the value of the standard and a statement of uncertainty. This statement must include a numeric value for the uncertainty. This value should not be smaller than the value of the Best Measurement Capability (BMC) for which the laboratory was certified by CLAS.

3.0 Proficiency Testing by Artefact (PTA)

- 3.1 This technique uses artefacts supplied by CLAS to represent, as much as possible, the typical measurement situation faced by the laboratory. Artefacts may be selected to verify difficult measurement situations such as the extreme ends of ranges.
- 3.2 The reference laboratory (i.e. higher-echelon laboratory) characterizes the appropriate parameters of the artefact under appropriate conditions and CLAS sends it to the laboratory being verified. The measurement results are not disclosed to the participants until the end of the proficiency test. CLAS provides a series of instructions for the laboratory to follow, including a schedule for the calibration of the artefact. The laboratory must follow these instructions and maintain the schedule unless approval has been received from CLAS to deviate from it. The laboratory must calibrate the artefact and provide CLAS with a calibration certificate (see CLAS Requirements Document 6).
- 3.3 Once the laboratory has completed its measurements, the artefact is returned to CLAS using the most appropriate method of transportation. Then the reference laboratory is asked to repeat the measurements on the artefact to confirm its stability.

4.0 Proficiency Testing by Interlaboratory Comparison (PTILC)

- 4.1 This technique is similar to PTA, except more than one laboratory is tested. In addition to mandatory participation in CLAS PTILCs, CLAS-certified laboratories may be required to participate in international interlaboratory comparisons acceptable to CLAS. CLAS may accept the results of other interlaboratory comparisons that meet the requirements of [ISO/IEC Guide 43](#), *Proficiency testing by interlaboratory comparisons*, and CLAS.

5.0 Analysis

- 5.1 The measurement results are analyzed by CLAS based on the guidelines from ISO/IEC Guide 43, *Proficiency testing by interlaboratory comparisons*. The analysis is designed to produce three possible conclusions:
- a) The measurement results are completely in agreement with the laboratory's scope, when the absolute value of the normalized error, E_n , is less than or equal to 0.5;
 - b) The results are in doubt and must be further analyzed, when E_n is greater than 0.5 and less than or equal to 1; and
 - c) The results are not in agreement with the laboratory's scope, when E_n is greater than 1. In this case an investigation shall be carried out to resolve the discrepancy and identify appropriate corrective action.

6.0 Shipping

- 6.1 Unless otherwise specified, each party is responsible for the cost of insurance and shipping of the artefact(s) to the next destination; i.e. to another participating laboratory or to CLAS.