

Requirements for Measurement Traceability

CLAS Requirements Document 9 January 2003

1.0 Scope

- 1.1 This document provides detailed requirements for the traceability of measurements performed by CLAS-certified calibration laboratories.
- 1.2 This document conforms to the requirements of [CAN-P-4 \(ISO/IEC 17025\)](#), *General Requirements for the Competence of Testing and Calibration Laboratories*, and to the Program for Accreditation of Laboratories – Canada (PALCAN) traceability policy and to the International Laboratory Accreditation Cooperation ([ILAC](#)) traceability policy.

2.0 Definitions

- 2.1 Traceability
Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties.

Notes:

1. The concept is often expressed by the adjective *traceable*.
2. The unbroken chain of comparisons is called a *traceability chain*.

3.0 Requirements

- 3.1 CLAS-certified calibration laboratories must obtain the calibration of their reference standards used to establish traceability to the International System of Units (SI) for all certified capabilities from any of the following sources:
 - a) [National Research Council of Canada](#);
 - b) [Calibration laboratories accredited by the Standards Council of Canada for the specific measurement capabilities](#) ;
 - c) National laboratory of another country signatory to the [CIPM Mutual Recognition Arrangement](#) (MRA) for the specific measurement capabilities listed in Appendix C of the MRA;
 - d) Calibration laboratory accredited by an accrediting body with which Canada has an equivalence agreement;
 - e) Calibration laboratory accredited by an accrediting body that is a signatory to an MRA where the Standards Council of Canada (SCC) is also a signatory;

such as the International Laboratory Accreditation Cooperation (ILAC) Arrangement, and the Asia Pacific Laboratory Accreditation Cooperation ([APLAC](#)) Arrangement; and

- f) Calibration sources not meeting these requirements will be handled on a case by case basis by CLAS Technical Advisors.

4.0 Traceability Statement for Quality System Documentation of CLAS-Certified Laboratories

- 4.1 It is recommended that the following wording is used in the quality system to satisfy ISO/IEC 17025 requirements for a procedure to achieve measurement traceability. The words do not have to be used verbatim, as long as the message is clear.

"All measurements performed in calibration activities within the laboratory's scope of accreditation shall be traceable to the International System of Units (SI) or to standards acceptable to CLAS. Traceability is established by calibrating working, transfer and reference standards at intervals dictated by their performance taking into account measurement uncertainty at each level. Calibration will be performed internally for all standards except for reference standards which will be calibrated by NRC or a laboratory acceptable to CLAS."