

# Requirements for Calibration Certificates issued by CLAS Laboratories

## CLAS Requirements Document 6 May 2005

### 1.0 Introduction

- 1.1 This document provides detailed requirements for calibration certificates issued by calibration laboratories under the Standards Council of Canada ([SCC](#)) Program for the Accreditation of Laboratories Canada ([PALCAN](#)), and certified by the Calibration Laboratory Assessment Service ([CLAS](#)) of the National Research Council of Canada ([NRC](#)).

NOTE: These certificates are sometimes called calibration reports. For purposes of this document, the word "certificate" will include both.

- 1.2 General requirements for calibration certificates are given in [ISO/IEC 17025](#), *General Requirements for the Competence of Testing and Calibration Laboratories*.
- 1.3 The details set out below are mandatory for all calibration certificates issued by a laboratory for the calibrations for which it holds CLAS certification and SCC accreditation.

### 2.0 Format and Materials

- 2.1 Printing and other markings may be in black or colour and may be on one or both sides of the paper. Data reported may be in typescript, from a word processor or a computer, or in manuscript provided it is legible and durable. The contents of a calibration certificate must remain fully legible under reasonable storage conditions, including limited exposure to sunlight.

### 3.0 Content

As a minimum, each certificate must contain the following information. For consistency, it is recommended that the wording shown below in *ITALICS* be used.

#### 3.1 First Page

- 3.1.1 The title, such as *Calibration Certificate*.
- 3.1.2 A *certificate number* or other suitable identification.
- 3.1.3 The *date of issue* of the calibration certificate.
- 3.1.4 Page numbering using the format *Page m of n*, where n is the total

number of pages.

- 3.1.5 The *CLAS certification number*. The use of the CLAS logo is optional. The electronic file for the CLAS logo and the CLAS Trademark License Agreement are available through CLAS on request.
- 3.1.6 The *SCC accreditation number*. The use of the SCC logo is optional. The electronic file for the SCC logo and a trademark license agreement are available through SCC on request.
- 3.1.7 The name and address of the client.
- 3.1.8 A description of the equipment calibrated and its unique identification.
- 3.1.9 The date on which the calibration was performed. The certificate should identify the personnel performing the calibration if this information is not maintained elsewhere in the laboratory's quality records.
- 3.1.10 The identity and the address of the issuing laboratory, the address of where the calibration was done if different from the address of the laboratory and an authentication of the report by an authorized signatory. Stamps, graphic images and other forms of authentication marks are acceptable only when adequate quality controls are in place.
- 3.1.11 The traceability statement and a declaration of certification and accreditation:

*The Calibration Laboratory Assessment Service (CLAS) of the National Research Council of Canada (NRC) has assessed and certified specific calibration capabilities of this laboratory and traceability to the International System of Units (SI) or to standards acceptable to the CLAS program. This certificate of calibration is issued in accordance with the conditions of certification granted by CLAS and the conditions of accreditation granted by the Standards Council of Canada (SCC). Neither CLAS nor SCC guarantee the accuracy of individual calibrations by accredited laboratories.*
- 3.1.12 The copyright statement:

*Copyright of this certificate is owned by the issuing laboratory and may not be reproduced other than in full except with the prior written approval of the issuing laboratory.*

### 3.2 Continuation Pages

- 3.2.1 The title such as *Calibration Certificate*.
- 3.2.2 A *certificate number* or other suitable identification.
- 3.2.3 Page numbering using the format *Page m of n*.

### 3.3 Technical Content

- 3.3.1 A statement of the actual range(s) or calibration points covered by the certificate, including units of measurement.
- 3.3.2 A reference to the calibration procedure(s) used; e.g., calibration procedure number and revision number or date of issue.
- 3.3.3 The relevant environmental conditions in which the calibration was carried out.
- 3.3.4 A reference to the standards and standardizing items contributing to traceability and used for the calibration, when practicable. Each reference should include a descriptive name, make and model, and a unique identification number.
- 3.3.5 Any limitations on the ranges or functions of the equipment being calibrated.
- 3.3.6 The calibration results, including units of measurement, and
- a) for Type I calibration services, the measurement results and associated uncertainties, with the appropriate number of significant digits, including the qualifying statement: The uncertainties are expanded using a coverage factor  $k=2$  for a level of confidence of approximately 95%, assuming a normal distribution.
  - b) for Type II and III calibration services, the measurement results and either:
    - associated uncertainties as for Type I measurements; or
    - the limits of error of the instrument, with the appropriate number of significant digits, and the following statement on the adequacy of the measurement system: *For measurement results associated with the conformance to a tolerance, the uncertainty in the measurement system did not exceed 25% (4:1 test uncertainty ratio) of the acceptable tolerance for each characteristic calibrated, unless otherwise noted in the report.*
- Note: See [CSA-Z234.1-00](#), *Metric Practice Guide*, for rules on the expression of measurement results.
- 3.3.7 In agreement with the client, the measurement results and their associated uncertainties may be omitted. In these cases, the laboratory shall document this agreement and retain the results on file. In addition, the calibration certificate shall state that the results are available from the laboratory upon request.

- 3.3.8 Since the result of a calibration is valid only at the time of execution, the predicted long-term behaviour of the measured device is generally not taken into account. At the client's request, an additional allowance for the possible effects of transportation, long-term stability or intended use may be included. If this is done, it must be included in the certificate with adequate details.
- 3.3.9 The stated measurement uncertainty on the certificate shall include the contribution made by the equipment being calibrated. An indiscriminate quote of the laboratory's accredited best measurement capability is not justified when the equipment being calibrated contributes additional components of uncertainty that have not been included in the best measurement capability.

#### 4.0 Special Conditions

##### 4.1 Compliance with a Specification

- 4.1.1 Certain devices require a statement showing compliance with an identified metrological specification. The specification shall be unambiguously identified on the calibration certificate.

NOTE: Such general statements as "meets manufacturer specifications" and "meets all published specifications" are insufficient identification of the test specification. Such statements as "Test Specification: Mfr. Service Manual, rev. 2.1" provide acceptable identification of the test specification.

- 4.1.2 According to ISO/IEC 17025, paragraph 5.10.4.2, when a statement of compliance with a specification is made omitting the measurement results and associated uncertainties, the laboratory shall record and maintain this information. See CLAS Requirements Document 3, *Minimum Requirements for Measurement Standards for Laboratory Certification* for additional requirements on reporting compliance with a specification.

##### 4.2 Adjustment of Instruments

- 4.2.1 If relevant, a statement may be included describing the condition of the equipment when received and details of any maintenance (servicing, adjustment, repairs or modification) that could have affected the calibration status. In this case, "as found" information must be provided, if possible, in the certificate in addition to the "as left" results obtained after maintenance.

##### 4.3 Scope of Accreditation

- 4.3.1 Except as permitted by 4.3.2, calibration certificates which are issued for

services outside their scope of CLAS certification shall **NOT** contain any reference to CLAS certification or SCC accreditation, nor shall they refer to the fact that the issuing laboratory has CLAS certification or SCC accreditation.

4.3.2 A calibration laboratory certified by CLAS and accredited by SCC may be permitted to report measured values outside the scope of its accreditation. However, such occurrences must be clearly identified on the calibration certificate as being outside the scope of accreditation, and shall form only a small portion of the reported results.

4.3.3 Functional tests or checks that are supplementary to the calibration may also be reported under suitable headings to distinguish them from the CLAS-certified measurements.

4.3.4 Where the specification of the instrument for any reason exceeds the laboratory's best measurement capability or range of measurement, a note to this effect shall be included in the certificate.

#### 4.4 Calibration Intervals and Calibration Due Dates

4.4.1 The calibration certificate shall not indicate a recommended calibration interval nor a calibration due date except where this has been agreed with the client or unless required for legal reasons.

#### 4.5 Interpretations and Opinions

4.5.1 Interpretations and opinions of qualified personnel may be included in the certificate but they must be indicated clearly as such. The basis for this subjective information needs to be documented by the laboratory.

### 5.0 Distribution

5.1 The calibration certificate shall be supplied to the client. In circumstances where the client does not need a calibration certificate, this information must be recorded and retained by the issuing laboratory.

5.2 A copy of each calibration certificate shall be retained in the issuing laboratory's records. These records are to be maintained for a period of time based on local legal requirements.

### 6.0 Amendments

6.1 Any correction or addition to a calibration certificate shall be made only by the issue of a further certificate marked "*Supplementary to Calibration Certificate Number...*" or equivalent statement. Each supplementary certificate should be

accompanied by a letter explaining the circumstances which necessitated the amendment.

- 6.2 An accredited laboratory shall notify a client promptly, in writing, in the event of any circumstances that cast doubt on the validity of the measurements reported in any calibration certificate.