COVER

ILAC-G4:1994

Guidelines on Scopes of Accreditation

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Guidelines on Scopes of Accreditation

PREAMBLE

Resolution No 2 of ILAC 92 proposed that Committee 2 should undertake a number of work activities including proposals for :

> *" . . . continuation of the activities of the Working Group on Scopes of Accreditation and . . . the Group to produce an ILAC document"*

Previously, the Working Group had presented a report to ILAC 92, based on a survey of existing practices of laboratory accreditation bodies in expressing scopes of accreditation.

Accordingly, the Working Group presented a draft *ILAC Guidelines on Scope of Accreditation* to the Washington Meetings of ILAC Committees held on 21-25 March 1994. Written commentary on the draft Guidelines was previously submitted by Telarc and NAMAS and the Working Group was advised in Washington of similar work being undertaken by a joint WELAC/EUROLAB Ad Hoc Group.

The Committee 3 Chairman suggested that a meeting between ILAC representatives and the WELAC/ EUROLAB Ad Hoc Group should be convened as soon as practicable to achieve harmony of work on scopes of accreditation. Such a meeting was held in Florence on 26 April 1994 during a EUROLAB Symposium. For the Florence meeting, the Convenor of the ILAC Working Group had prepared a brief comparison between the work undertaken to date by WELAC/EUROLAB and the draft ILAC Guidelines. (The WELAC/EUROLAB Group had published a document entitled ELA-G9 *Interpreting and Applying the Requirement of Section 4 of EN45002 (Scope of Accreditation).*

The comparison of ELA-G9 with the results of the 1992 ILAC survey and subsequent draft ILAC Guidelines, showed that there was already considerable agreement between the two documents in terms of recommended formats for scopes of accreditation. The major difference between ELA-G9 and the draft ILAC Guidelines was that the WELAC/EUROLAB document was intended to lead eventually to harmonisation of the way in which accreditation bodies *assessed* the scopes of accreditation, whereas the ILAC document was directed at harmonising the *expression* of scopes of accreditation.

At the Florence meeting, it was stressed that the ILAC document should advise laboratory accreditation bodies to have sufficient flexibility in scopes of accreditation to allow for rapid processing of variations and to not be overly-restrictive in terms of detail.

PURPOSE

These guidelines have been prepared to assist laboratory accreditation bodies to harmonise their practices for expressions of scopes of accreditation. Such harmonisation would be of considerable benefit to international users of test, measurement and calibration data. It would also facilitate the process of establishing mutual recognition agreements between laboratory accreditation bodies.

AUTHORSHIP

These guidelines were prepared by a Working Group of ILAC Committee 2 (Accreditation Practice) and endorsed for publication as an ILAC document by Resolution No 17/94 of ILAC 94. The convenor of the Working Group was Mr A J Russell of NATA, Australia.

1. INTRODUCTION

The aims of scopes of accreditation are primarily :

(1) To define the specific areas of a laboratory's activities which are formally recognised by an accreditation body. (It is recognised that other activities may be undertaken by the laboratories for which they have not sought public recognition of their competence); and

(2) To provide the users of laboratories, through accreditation directories and other publications, with an appropriate description of the specific tests for which an accreditation body has recognised their competence.

Historically, there have been considerable differences in the expressions of scopes of accreditation between laboratory accreditation bodies. The level of detail in scopes has also varied considerably.

The level of detail in scopes will always vary from accreditation body to accreditation body, as each system of accreditation will not have an exact match of the types of testing and calibration performed by its accredited laboratories compared with the accredited laboratories of other systems. However, it is feasible to harmonise much of the format and content of scopes of accreditation.

In 1991-1992, ILAC surveyed the practices of existing laboratory accreditation programs for expressions of scopes of accreditation and sought the views of ILAC participants generally on the preferred contents of scopes of accreditation.

At the ILAC 92 Conference held in Ottawa in June 1992, the Conference accepted two preferred formats for presentation of scopes of accreditation. The first format was for *testing laboratories*. The second format was for *calibration laboratories*. These are described in **Sections 3** and **4** of these Guidelines.

2. FLEXIBILITY AND RESPONSIVENESS

Laboratory accreditation bodies need to consider the level of detail included in each scope of accreditation, to ensure that there is a practical balance between the amount of public information needed by the users of accredited laboratories and flexibility on the part of the accredited laboratories to offer their services within appropriate scopes of their recognised competence.

Too much detail in scopes of accreditation may result in unnecessary demands for constant changes in scopes of accreditation, resulting in processing delays by accreditation bodies and restriction of competent services to laboratory clients.

In determining the appropriate balance between detail of scopes and flexibility, consideration could be given to individual laboratories' ability to update or modify generic methods or to implement new methods (to take account of technological progress or to satisfy changing needs of clients), provided such changes do not involved significant deviation from accredited scopes and are made after proper notification to the accreditation body.

3. RECOMMENDED PRACTICE FOR EXPRESSION OF SCOPES OF ACCREDITATION OF TESTING LABORATORIES

ILAC recommends that laboratory accreditation bodies aim to establish consistent practices for expressions of scopes of accreditation of testing laboratories. As a minimum, it is recommended that scopes contain the following elements:

(a) Reference to the general field of testing covered under the scope (eg Chemical Testing, Biological Testing, Medical Testing, Mechanical Testing, etc)

(b) Identification of the group of products, materials or items tested

(c) Identification of the specific tests or types of test performed

(d) Identification of the specification, standard (method), or technique used

Accreditation bodies might also include such additional information as practicable in scopes of accreditation (eg range of testing or measurement, limits of detection, types of equipment, etc).

An example of a format for scope of accreditation of a testing laboratory is shown in APPENDIX A.

4. RECOMMENDED PRACTICE FOR EXPRESSION OF SCOPES OF ACCREDITATION OF CALIBRATION LABORATORIES

ILAC recommends that scopes of accreditation for calibration laboratories be expressed by accreditation bodies as consistently as possible and that, as a minimum they contain the following elements:

(a) Reference to the general field of calibration covered under the scope (eg Electrical, Dimensional, Mass, Radiometry, etc)

(b) Identification of the measuring instrument or type of instrument, measuring system, items or reference materials measured or calibrated

(c) Identification of the specific calibrations performed (properties measured or the quantities measured)

(d) Identification of the specification (where available), standard method or technique used

(e) Identification of the specific ranges of measurement recognised

(f) Identification of the best measurement capability recognised (expressed as an uncertainty) and the appropriate confidence level(s)

Accreditation bodies might also include such additional information as practicable (such as type of equipment used, etc).

An example of a format for scope of accreditation of a calibration laboratory is shown in APPENDIX B.

5. RECOMMENDED DESCRIPTORS

For harmony in expressions of scopes of accreditation, it is also recommended that laboratory accreditation bodies use consistent descriptors for :

(a) Fields of Testing
(b) Fields of Calibration (or Measurement)

5.1 Fields of Testing

The recommended descriptors for fields of *testing* are :

(i) By Technical Discipline

Acoustical Testing
Biological Testing
Chemical Testing
Electrical Testing
Ionising Radiation Testing
Mechanical Testing
Non-destructive Testing
Optical, Photometric and Radiometric Testing
Thermal Testing
Vibration and Shock Testing

While it is desirable that major technical disciplines be used for fields of testing, it is also recognised that many types of laboratories are involved in multi-disciplinary fields of testing covering various areas such as biological, chemical, engineering tests etc.

(ii) Multi-disciplinary Fields of Testing

Environmental Testing
Forensic Testing
Health and Hygiene Testing
Information Technology
Medical Testing
Occupational Testing
Veterinary Testing

All of the above fields may have sub-categories for their applications in various technical sub-disciplines. For example, “corrosion testing” might be considered a subset of Chemical Testing; “fire resistance tests” a subset of Thermal Testing; “electromagnetic compatibility testing (EMC)” a subset of Electrical Testing; “ballistics testing” a subset of either Mechanical Testing or Forensic Testing; microbiological tests a subclass of Biological Testing etc.

Additionally, laboratory accreditation bodies may further sub-classify their fields of testing under product, material or services classifications. For example “Dairy Products” might be a sub-class of testing in both the fields of Chemical and Biological Testing; “Gas cylinder testing” could be a subclass of both the fields of Mechanical Testing and Non-Destructive Testing, etc.

There are an enormous number of possible combinations and interactions between technical sub-disciplines and products, materials and services, and it is not considered practicable at this time for ILAC to recommend a definitive list of descriptors for these combinations. It may be valuable as a future project for ILAC to recommend harmonisation and appropriate descriptors to the level of technical sub-disciplines.

5.2 Fields of Calibration (or Measurement)

Accelerometry Calibration (and/or Measurement)
Acoustic Calibrations (and/or Measurement)
Dimensional Calibrations (and/or Measurement)
Electrical Calibrations (and/or Measurement)
Force Calibrations (and/or Measurement)

Flow Calibrations (and/or Measurement)
Hardness Calibrations (and/or Measurement)
Humidity Calibrations (and/or Measurement)
Magnetic Flux Calibration (and/or Measurement)
Mass Calibrations (and/or Measurement)
Optical and Photometric Calibrations (and/or Measurement)
Pressure and Vacuum Calibrations (and/or Measurement)
Radiological (including Ionising Radiation) Calibrations (and/or Measurement)
Surface Texture Calibrations (and/or Measurement)
Thermal Calibrations (and/or Measurement)
Time and Frequency Calibrations (and/or Measurement)
Vibration Calibrations (and/or Measurement)
Viscosity Calibration (and/or Measurement)
Volume Calibrations (and/or Measurement)

The above calibration fields are drawn from a combination of existing fields of calibration used by various accreditation bodies. Some of those listed above are often used as sub-sets of other fields. Some areas of calibration and measurement also overlap with fields of testing.

APPENDIX A

SCOPE OF ACCREDITATION - TESTING LABORATORIES

An example of a Scope of Accreditation for a *testing laboratory* which complies with the recommended minimum requirements described in these Guidelines, is shown below:

Accreditation Number . . . . . **WORLDWIDE ACCREDITATION SERVICE**
Page 1 of 5

Water Testing Laboratory Ltd
300 Asia Road
Kowloon, Hong Kong

CONTACT : Mrs M D Wong
Chief Chemist

Tel: 888 5555
Fax: 888 8888

FACILITIES : Public testing service

Scope of Accreditation: **Date of issue: 14 February 1994**

FIELD OF TEST	ITEMS, MATERIALS OR PRODUCTS TESTED	SPECIFIC TESTS OR PROPERTIES MEASURED	SPECIFICATION, STANDARD METHOD OR TECHNIQUE USED	DETECTION* LIMIT
CHEMICAL TESTING	Water and Wastewater	Hardness (as $CaCO_3$)	APHA 17c 2340C	1 mg/L
		Non-metallic Anions:-		
		- Chloride	APHA 17c 4500-Cl'B	1 mg/L
		- Nitrite	APHA 17c 4500-NO_2'B	1 µg/L
		- Oxygen-Demand (Chemical)	ASTM D1252-88	40 mg/L

***** *This information is additional detail to the recommended minimum content suggested in these Guidelines.*

APPENDIX B

SCOPE OF ACCREDITATION - CALIBRATION LABORATORIES

An example of a Scope of Accreditation for a *calibration laboratory* which complies with the recommended minimum requirements described in these Guidelines is shown below :

Accreditation Number . . . . . **WORLDWIDE ACCREDITATION SERVICE**
Page 1 of 2

Force Calibration Laboratory Ltd
300 London Road
Leeds, United Kingdom

CONTACT : Mr D Smith - Chief Metrologist

Tel: 999 2222 Fax: 999 1111

FACILITIES : Public calibration service

Scope of Accreditation: **Date of issue: 14 February 1994**

CALIBRATION FIELD	MEASURED QUANTITY INSTRUMENT OR GAUGE	RANGE (AND SPECIFICATION WHERE APPROPRIATE)	BEST MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)
FORCE	UNIVERSAL MATERIALS TESTING MACHINES		
	Verification of testing machines by proving devices in Tension	From 0.10kN up to 500kN Class 0.5,1,2 and 3 machines to BS EN 10002-2:1992 and NIS 0424	0.15% of calibration force
		From 0.05kN up to 4MN for Class 1,2 and 3 machines to BS EN 10002-2:1992 and NIS 0424	0.30% of calibration force
	Verification of testing machines by proving devices in Compression	From 0.10kN up to 500kN Grade 0.5,1.0 and 2.0 machines to BS 1610:Part 1:1992	0.15% of calibration force
		From 0.05kN up to 5MN for Grade 1.0 and 2.0 machines to BS 1610:Part 1:1992	0.30% of calibration force
		From 5MN up to 10MN for Grade 2.0 machines to BS 1610:Part 1:1992	0.30% of calibration force
	Verification of testing machines by calibration masses in Tension	From 0.01N up to 500N for Class 0.5,1,2 and 3 machines to BS EN 10002-2:1992	0.1% of calibration force

Stated uncertainties are based on a 2σ value which approximates a 95% confidence interval.