Object:

ALGERAC, as an associate member of EA and a full member of ILAC, is committed to harmonising its policies and practices so as to maintain its membership status of mutual recognition .

The traceability of measurement results is one of the key matters for which a harmonised policy has been established and implemented.

Scope:

This document defines ALGERAC's policy with regard to its commitment to meet the requirements of ISO/IEC 17025 on metrological traceability.

The policy shall apply to testing/analytical , and calibration laboratories as well as inspection bodies and certification bodies if applicable.

References:

- ISO/IEC 17011 : Conformity assessment-Requirements for accreditation bodies accrediting conformity assessment bodies.
- ISO/IEC 17025: Conformity assessment-General requirements for the competence of testing and calibration laboratories.
- ILAC-P10: ILAC policy on traceability and measurement results.

Terms and definitions:

- ✓ Measurement, measure, VIM 2.1 (2.1) : a process which consists of experimentally obtaining one or more values which can reasonably be attributed to a metric.
- ✓ Measurement uncertainty, WIM 2.26 (3.9): a parameter which charecterises the dispersion of the values attributed to a measurand on the basis of the information used.

  An operation which establishes, in one first step and under specified conditions, a relationship between the values and the associated measurement uncertainties which are provided by measurement standards and corresponding indications with the associated uncertainties; and then uses this information, in a second step, to establish a relationship which shall allow to obtain the measurement result from an indication.
- ✓ **Metrological traceability, VIM 2.41**

  A property of a measurement result according to which that result can be linked to a reference which is determined using an unbroken and documented chain of calibrations where each one contributes to measurement uncertainty..
- ✓ **Reference standard VIM 5.6**

  A standard designated to calibrate working measurement standards for metrics of the same kind in a given organisation, and at a given location.
- ✓ **Reference materials VIM 5.13**

  A material sufficiently homogeneous and stable with regard to one or more properties, used for calibrations, with the aim of assigning a value to another material, or assuring the quality.

✓ **Certified refernce materials VIM 5.14 (6.14)**

A reference material supported by a documentation issued by a body enjoying an authoritative status and referring to validated procedures in order to obtain the value of a specific property, with associated uncertainty and traceability.

Abbreviations

IBWM KCDB : International Bureau of Weights and Measures – Key Comparison Database
ICWM: International Convention on Weights and Measures
MCC : Measurement and Calibration Capability
ILAC : International Laboratory Accreditation Cooperation
NMI : National Metrology Institute
MRA : Mutual Recognition Agreement
CAB : Conformity Assessment Body
RM : Reference Material
CRM: Certified Reference Material

ALGERAC's policy

1- Metrological traceability

- Any measuring instrument used for the purpose of calibrating, testing, or analysing shall significantly influence the accuracy or validity of calibration/testing results. Therefore, it should be calibrated through an unbroken chain of comparisons related to national and international measurement standards.

- Bodies: accredited or applicant for accreditation shall justify their need for calibration for each measuring equipment used in a given scope.

- If the CAB finds out that some of the equipment it uses to perform its measurement activities contributes a little to the uncertainty of the results, then the metrological adjustment is not necessary. That arrangement shall be justified by the CAB, and the corresponding records shall be kept.

2- Traceability of a calibration laboratory's measurement results.

The measuring equipment and reference measurement standards, which contribute to obtaining results and may influence the quality of the results, shall be calibrated by the following:

2.1- An accredited national metrology institute « NMI » providing adequate services, and being a signatory member of the mutual recognition agreement of the ICWM MRA committee.

2.2- A calibration laboratory accredited by a body which is an MRA signatory member Geographically accessible: (Maghreb region, a Medeterranean zone, Eurpoe, etc)

2.3- A national metrology institute« NMI » which is not a signatory member of the mutual recognition agreement of ICWM MRA,but provides adequate services

2.4- A calibration laboratory which is not accredited, but provides adequate services.

***Important**: situations 2.3 and 2.4 are tolerated if, and only if, the adjustment according to 2.1 and 2.2 is not possible; and in this case, the laboratory shall justify the choice to make with regard to traceability chain and provide the assessing team with the evidence that justifies the traceability and uncertainty it has declared.*

The service providers' technical competence (cases 2.3 and 2.4), which is requested for the asserted metrological traceability, shall be evaluated by the laboratory and the corresponding records shall be kept.

The relevant requirements specified both in the standard and this document shall be applicable and relate, but not limited, to the following: (the paragraphs cited below refer to the standard ISO/IEC 17025/2017)

- *Calibration method validation (§ 7.2)*
- *Evaluation of measurement uncertainty (§ 7.6)*
- *Measurement traceability (§ 6.5)*
- *Ensuring the validation of calibration results, including the results from the participations in relevant interlaboratory comparisons. (§ 7.7)*
- *Competence of personnel (§ 6.2)*
- *Facilities and environmental conditions*
- *Internal audits of calibration laboratories*

3- Traceability of measurement results for a testing and analytical laboratory (including medical biology and inspection bodies)

If measurement accuracy or measurement uncertainty affect the validity of testing/analytical results, instrument calibration used by the inspection laboratory/body, the same policy as for calibration laboratories applies (Chapter 2).

Otherwise, inspection laboratory/body shall have quantitaive evidences that justify the negligible effect calibration has on measurement uncertainty; as a result, metrological traceability is evident,

4- Use of reference materials:

When traceability to the SI is not technically or reasonably possible, the laboratory may agree on the use of reference materials.

- Reference materials being certified products by a national metrological laboratory, and appearing on BIPM KCDB, or made by a producer of reference materials under the frame of its accreditation scope and in accordance with the standard ISO 17034 , are considered as having metrological traceability.

- Metrological traceability of other reference materials, or reference materials certified products by other producers of reference materials, shall be demonstrated by the laboratory.

-

5- Metrology carried out internally

The metrological adjustment of the measuring equipment that produce the reported result and may affect this result, may in particular be carried out by the testing, calibrating, or sampling laboratory for its own account, or by the metrological department belonging to the entity.

The provisions below are to be applied :

A report on the results (calibration certificate, verification report, etc.) is to be made after a calibration/adjustment has been performed.

The accreditation scope of the laboratory , accredited or applicant for accreditation, does not include a description of the internal possibilities of calibaration or verication, except in the case of a specific accreditation as a laboratory calibration.

A body may issue a calibration certificate or verification report bearing ALGERAC's accreditation symbol only if the calibration operation is part of its accreditation scope; stated explicitly in the technical annex of the accreditation certificate.

The competence required to ensure metrology internally shall be evaluated by ALGERAC's assessing team.

The relevant requirements of the standard and this document apply to metrology activities carried out internally are, but not limited to (the paragraphs below are taken from the standard ISO/IEC 17025:2017):

- Validity of the calibration method(§ 7.2) ;
- Evaluation of measurement uncertainty (§ 7.6) ;
- Measurement traceability (§ 6.5) ;
- Ensuring the validity of calibration results (§ 7.7.1) ;
- Competence of personnel (§ 6.2) ;
- The Installations and environmental conditions (§ 6.3);
- The Internal audits of the internal metrology activity

Annex:

a) **See annex A of the standard ISO/IEC 17025 :2017.**
b) **Information on recognised accredited calibration laboratories**

The list of the accreditation bodies which are parties to EA MLA or ILAC MRA for calibration is available on EA/ILAC websites

The list of the accredited laboratories can be found on the website of each AB which is a signatory of the recognition agreements

c) **The main websites for reference materials**

-https://ec.europa.eu/jrc/en/about/jrc-site/geel
-www.comar.bam.de

d) RM standards and guides (always use the latest version of the applicable document)

- ISO Guide 30 Terms and definitions used in connection with reference materials
- ISO Guide 31 Contents of certificates of reference materials
- ISO Guide 32 Calibration of chemical analysis and use of certified reference materials
- ISO Guide 33 Uses of certified reference materials
- ISO Guide 34 General requirements for the competence of reference materials producers
- ISO Guide 35 Reference materials - General and statistical principals for certification
- ISO/TR 10989 Reference materials -- Guidance on, and keywords used for, RM categorization

Directeur Général
N.BOUDISSA
General Director
Mr N.Boudissa