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Georgian Accreditation Centre

## **Policy on traceability of measurements**

### **PL - 04**

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## 1. General

1.1 This document applies to conformity assessment bodies (CABs) accredited by GAC (or seeking for accreditation) carrying out measurements and calibrations.

1.2 It defines acceptable sources of traceability of measurements and provisions in conformance with EA and ILAC policies and principles *after transitional period* and *for transitional period*.

## 2. Sources of traceability of measurements and provisions *after transitional period* – from 1<sup>st</sup> of January 2015

2.1 All measurements and calibrations carried out by accredited by GAC (or seeking for accreditation) CABs shall be traceable to SI units.

2.2 Dissemination of the units of physical quantities shall be done through unbroken calibration chain.

2.3 CABs shall define appropriate intervals of calibration of the reference standards and of the other important measurement instruments.

2.4 All measurement standards, measurement instruments and measurement equipment used by accredited CABs (or seeking for accreditation) and which have a direct importance and impact to the quality of measurement results, shall be calibrated by:

- a) the National Metrology Institutes (NMI), including Georgian NMI – GEOSTM, that participates in CIPM/BIPM Mutual Recognition Arrangement (MRA) in the fields, measurement uncertainty levels of which are published in the CIPM Calibration and Measurement Capabilities (CMCs) tables that comprise integral part of MRA (<http://kcdb.bipm.org/appendixC>) or
- b) calibration laboratories accredited by GAC and calibration laboratories that have been accredited by accreditation bodies that are signatories of EA MLA or ILAC MRA in calibration field.

### Notes:

If the calibration certificate issued by NMI contains CIPM MRA logo, it is the sufficient evidence about the signatory of NMI to CIPM MRA in corresponding area. If the certificate does not contain the CIPM MRA logo, the BIPM KCDB remains the authoritative source of verification.

If calibration certificate issued by accredited calibration laboratory contains the ILAC Laboratory Combined MRA or text reference to signatory of accreditation body to ILAC MRA, it is sufficient evidence that accreditation body, which accredited calibration laboratory, is signatory to ILAC MRA for calibration. Otherwise, the reference to the signatory of accreditation body in ILAC website is



the possible source of verification.

2.5 A NMI, which service is suitable for the intended use, but is not covered by CIPM MRA or calibration laboratory, which service is suitable for the intended use, but is not covered by ILAC MRA agreement or regional agreement of MLA recognized by ILAC for the field of calibration. In this case, CAB has to ensure the appropriate evidence of required traceability and measurement uncertainty and the accreditation body will assess this evidence.

2.5.1 It is required from CAB:

- a) to perform the customer audit with the presence of **GAC** representative or another accreditation body, which is signatory of ILAC MRA (recognized regional MLA) in the field of calibration and
- b) to ensure that output record/certificate of performed calibration includes at least:
- c) date of calibration,
- d) identification of the object on which the calibration was performed,
- e) measured values and results, including uncertainty,
- f) information about the traceability (or a reference to where the data can be found).

2.5.1 As appropriate proofs are considered to the possibility 2.x, for example:

- a) the results of interlaboratory comparisons in corresponding field,
- b) demonstration of internationally agreed consensus standard/standard,
- c) records of validation of calibration method,
- d) procedures and records about estimation of the uncertainty of measurement results,
- e) documentation relating to the traceability of measurements, assuring the quality of calibration results, competence of staff, premises, environment and equipment's,
- g) audits of calibration/testing laboratory, etc.

2.6 The possibility in 2.x can be used only in the case that the calibration cannot be ensured in the way given in 2.4 or services given in 2.4 are not available in Georgia or in neighboring countries. There are certain calibrations that currently cannot be strictly made in SI units. In these cases traceability of measurements shall be established by:

- a) The use of certified reference materials provided by a competent supplier to give a reliable physical or chemical characterization of a material;
- b) The use of specified methods and/or consensus standards that are clearly described and agreed by all parties concerned.

2.7 In case a CAB decides to perform its own calibrations (in-house calibrations) this is acceptable under the following conditions:

- a) Measurement traceability of the reference standards and /or reference material used (see Articles 2.4 and 2.5);
- b) Application of calibration procedures (as published e.g. by EURAMET or ISO etc.); if in-house procedures are used, these shall be appropriately validated;



- c) Estimation of measurement uncertainties for all calibrations (physical quantities and types of instruments) shall be performed according to the EA/4-02 [1];
- d) The performance of the internal calibrations will be assessed during assessments.

2.8 For traceability of certified reference and reference materials applies the following:

- a) Values associated with the reference materials (RM) may not be metrological traceable
- b) Values associated with certified reference materials (CRM) are metrological traceable.

2.8.1 GAC policy in the given field is the following:

- a) values of CRM produced by NMIs, which are included in the database BIPM KCDB, or values of CRM specified in the database JCTLM on BIPM website, or values of CRM produced by an accredited reference material producers ( ISO Guide 34:2009 [2])
- b) other RM and CRM, which do not meet the above listed conditions are considered as critical consumables and CAB has to demonstrate that every used RM or CRM is suitable for given use as required by the relevant standards used for the accreditation.

2.8.2 For this possibility the following is required:

- a) demonstration of the appropriateness of RM and CRM,
- b) participation in proficiency testing or other appropriate interlaboratory comparison,
- c) interlaboratory comparison among CABs in the event of unavailability of official comparisons,
- d) comparison of used RM/CRM with CRM, which is included in the database KCDB of JCTLM,
- e) comparison of RM/CRM from different producers,
- f) the use of two independent methods to confirm the values of RM/CRM,
- g) comparison of newly used RM/CRM with already used one which was tested by the above listed methods, etc.

### **3. Sources of traceability of measurements and provisions for *transitional period* – until 1<sup>st</sup> of January 2015**

3.1 The national metrology infrastructure of Georgia is currently implementing internationally recognized rules and procedures to establish measurement traceability. During the phase of implementation GAC defines the following minimum conditions for establishing measurement traceability for accredited CABs and for CABs under the accreditation:

- Calibration certificates issued by the NMI of Georgia, fulfilling the requirements of ISO/IEC 17025 [3], will be accepted by GAC assessment teams as evidence on measurement traceability until 1<sup>st</sup> of January 2015;
- After 1<sup>st</sup> of January 2015 CABs shall prove measurement traceability according to the articles 2.1 – 2.6 of this documents



#### 4. References

- [1] EA/4-02 – Expression of the Uncertainty of Measurement in Calibration;  
[2] ISO Guide 34:2009 General Requirements for the Competence of Reference Material producers;  
[3] ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories.

#### List of familiarizing with document

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#### List of changes

Revision	Actual Chapter	Date	Content	Signature of the responsible person
1		03.10.16	PL was restructured	
1		03.10.16	PL was numbered	
1	Chapter 2.4 sub-point b)	03.10.16	Modified EA MLA and ILAC MRA was added instead of national metrology centers of other countries.	
1	Chapter 2.5	03.10.16	New chapter was added	
1	Chapter 2.6	03.10.16	1 <sup>st</sup> Paragraph was modified	
1	Chapter 2.8	03.10.16	New chapter was added	
1	Chapter 4	03.10.16	References were added	
2	Article 2, clause 2.4	27.01.2017	New "Note" was added.	