

CRITERIA FOR ACCREDITATION OF LEGAL METROLOGY BODIES

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1 PURPOSE AND SCOPE

The purpose of this document is to define general and technical requirements to be met by bodies accredited under the SADCAS Legal Metrology Accreditation Scheme (SADCAS – LMAS).

This document is applicable to Southern African Development Community Accreditation System (SADCAS) accredited legal metrology bodies.

2 ABBREVIATIONS

EU – European Union
IAF – International Accreditation Forum
IEC – International Electrotechnical Commission
ILAC – International Laboratory Accreditation Cooperation
ISO – International Organization for Standardization
LMAS – Legal Metrology Accreditation Scheme
MRA - Mutual Recognition Arrangement
LMA – Multilateral Recognition Arrangement
OIML – International Organization of Legal Metrology
SADCAS – SADC Accreditation Service
SADCMEEL – SADC Cooperation in Legal Metrology

1. BACKGROUND

The SADCAS Legal Metrology Accreditation Scheme (SADCAS LMAS) was established in February 2018. The SADCAS LMAS is a multi-disciplinary accreditation scheme operated in accordance with ISO/IEC 17011: Conformity assessment – General requirements for accreditation bodies accrediting conformity assessment bodies.

2. THE NEED FOR ACCREDITATION

- 2.1. Metrology is defined as the science of measurement and Legal Metrology is the application of legal requirements to measurements and measuring instruments. Metrology is the cornerstone of any credible accreditation process. When we test or inspect, we measure.
- 2.2. The accuracy and metrological traceability of these measurements is paramount and is influenced by the reliability of accredited calibration services and legal metrology conformity assessment services.
- 2.3. Examples of legal metrology conformity assessment services are verification of measuring instruments, inspection goods offered for sale, type evaluation and certification of measuring instruments, certification persons and processes.

- 2.4. For Legal Metrology Bodies concerned with demonstrating competence underpinned by a management system, the appropriate International Standards are ISO/IEC 17025, ISO/IEC 17020, ISO/IEC 17065 or ISO/IEC 17024 which specify the accreditation requirements depending on the nature of the conformity assessment services provided by the Legal Metrology Body.
- 2.5. Accreditation of legal metrology bodies in accordance with international standards provide a number of benefits:
- It assures accuracy, reliability, comparability and traceability of measurements;
 - Is a means of demonstrating competence to clients and regulators;
 - It increases confidence in certificates or reports issued;
 - It limits product or system failure and down time;
 - It helps control costs;
 - It facilitates trade and economic growth;
 - Is a credible and effective marketing tool.
 - It provides assurance to all interested parties that regulations, criteria and prescribed procedures are consistently complied with; and
 - It is a basis for the international recognition of the legal metrology body

3. SCOPES OF THE LEGAL METROLOGY ACCREDITATION SCHEME (LMAS)

3.1. The main scopes the legal metrology scheme are:

- Legal Metrology Verification.
- Legal Metrology Repair and Maintenance.
- Legal Metrology Inspection of products for sale.
- Legal Metrology Quantity Control.
- Legal Metrology Type Testing.
- Legal Metrology OIML Certification Scheme.
- Legal Metrology Certification of Verifiers.
- Legal Metrology Certification of Repairers.

3.2. The main scopes of SADCAS LMAS are listed in *SADCAS TG 03: Area of Accreditation*.

4. ACCREDITATION CRITERIA

4.1. Legal Metrology Bodies seeking to be accredited by SADCAS need to comply with applicable criteria as specified in *Table 1 - SADCAS Legal Metrology Accreditation Criteria*.

4.2. Examples of legal metrology conformity assessment services, as provided by legal metrology bodies in the SADC Region, applicable to different classes/ categories / types of measuring instruments or products subject to legal metrology control and the accreditation criteria based on

ILAC requirements, SADCAS requirements, OIML requirements, international standards, additional technical requirements based on regional harmonized documents and applicable examples of national legislations, are illustrated in *Table 1 - SADCAS Legal Metrology Accreditation Criteria*:

- In order for the accredited conformity assessment service to be internationally recognised under the ILAC MRA or the IAF MLA, the legal metrology body must fully comply with all applicable criteria of the ILAC MRA (R6) and the IAF MLA (PR4).
- Level 3 criteria may be integrated i.e., a legal metrology body may implement an integrated management system.
- Each legal metrology body may have additional Technical Requirements or Regulations applicable in the countries they operate.
- IAF PR4 describes the structure of the IAF MLA. The list of normative documents is available on the IAF MLA status. <https://iaf.nu/wp-content/uploads/2021/09/IAF-MLA-Status.pdf>

4.3. SADCAS LMAS accreditation criteria will continue to evolve in accordance with developments in accreditation and in Legal Metrology at national, regional and international level.

5. REFERENCES

- OIML documents available from the OIML website <https://www.oiml.org/en>
- ILAC documents available from the ILAC website <https://ilac.org/>
- IAF documents available from the IAF website <https://iaf.nu/en/home/>
- ISO standards available from ISO <https://www.iso.org/standards.html> or any National Standards Body.
- EU Directives available from the EUR-Lex website <https://eur-lex.europa.eu/homepage.html>
- SADCMEEL recommendations available from the SADCMEEL secretariat.

TABLE 1. SADCAS LEGAL METROLOGY ACCREDITATION CRITERIA

Option No.	Conformity Assessment Service	Type or class of Instrument/ products (Examples)	Examples of Legal Metrology Body (CABs)	ILAC MRA R6 / IAF MLA PR4 Main Scopes		Sector-specific normative documents (Level 4)	Additional Technical Requirements, Regulations	SADCAS Area of Accreditation (TG 03)	Remark
				Level 2	Level 3				
1	Calibration	Measuring instruments used by the Legal Metrology Authority to verify working standards (Weights, volume measures, balances, etc.)	Calibration Laboratory of Legal Metrology Authority	Calibration	ISO/IEC 17025	ILAC P9, P10 & P14; ILAC G24 Possible guides to be developed i.e. Minimum requirements for the calibration of balances and interpretation of UoM	SADCAS TR 15, TR16, TRX, Relevant OIML Recommendation (e.g. OIML R 111 for weights)	CAL-X	Also available to Legal Metrology Authority within SADC, one of which is accredited
2	Trade Metrology Verification	Measuring instruments used/ regulated for Trade purposes (scales, meters/ meter systems, liquid fuel dispensers, length measures, utility meters)	Trade Metrology Authority	Calibration/ Verification	ISO/IEC 17025/ ISO/IEC 17029	ILAC P9, P10 & P14; ILAC G24. Possible guide for the competence of verification laboratories wrt. trade/ legal metrology technical regulations	Relevant OIML Recommendation (e.g. R49 for water meters; R76 for NAWIs; R129 for multi-dimensional measuring systems; R117 for dynamic measuring systems for liquids other than water; R21 for taxi meters; R46 for	LMV	Most SADC Member States enforce Trade Metrology regulations through a government department; Some Bodies use the term "Inspection" in

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				Level 2	Level 3				
				Inspection	ISO/IEC 17020	ILAC P15	active electrical energy meters) and/ or member state specific trade/ legal metrology Technical Regulations		place of "Verification"
3	Legal Metrology Verification	Measuring instruments used/ regulated for Legal Metrology purposes, in addition to Trade i.e. Health, Safety &	Legal Metrology Authority that has extended its scope beyond Trade Metrology; or designated institutions that verify measuring instruments used for health,	Calibration/ Verification	ISO/IEC 17025/ ISO/IEC 17029	ILAC P9, P10 & P14; ILAC G24 Possible guide for the competence of verification laboratories wrt trade/ legal metrology	Relevant OIML Recommendation (e.g. R49 – water meter; R7 for clinical thermometers; R114/ R115 for clinical electrical thermometers; R76 for person weighers; R99 for	LMV	1st verification Laboratory accredited on 15 October 2019 to ISO/IEC 17025
		Environment (Blood Pressure	safety and environment			technical regulations	instruments for measuring vehicle		

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				Level 2	Level 3				
		measuring instruments, Clinical thermometers, Tyre pressure gauges; Sound/ Air pollution monitoring equipment, instruments for law enforcement)		Inspection	ISO/IEC 17020	ILAC P15; ILAC G27, G28	exhaust emissions; R 58 for sound level meters; R126 for evidential breath analysers; R91 for radar equipment for speed measurement of vehicles; R23 for tyre pressure gauges for vehicles) and/ or member state specific trade/ legal metrology Technical Regulations		
4	Legal Metrology Repair, Testing and	Measuring instruments used/ regulated for	Designated institutions or Private Repair Companies that	Calibration/ verification/ repair and	ISO/IEC 17025	ILAC P9, P10 & P14; ILAC G24	Relevant OIML Recommendation (e.g. see above examples) and/ or	LMRM	Most countries in SADC have separated the verification and
	Maintenance	Legal Metrology purposes, besides Trade i.e. Health, Safety & Environment, Safety) (examples as in 3 above)	verify, repair, test and maintain measuring instruments used for Legal Metrology purposes	maintenance			member state specific trade/ legal metrology Technical Regulations		repair functions to address impartiality and potential conflict of interest
				Inspection	ISO/IEC 17020	ILAC P15; ILAC G27, G28			

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				Level 2	Level 3				
5	Inspection of articles and products	Prepackaged goods subject to legal metrology control (mass, volume, count), including goods measured at the time of sale	Legal Metrology Authority that inspects prepackaged products or articles offered for sale within prescriptions of LM legislation	Inspection	ISO/IEC 17020	ILAC P15; ILAC G27, G28	OIML R79 for labelling requirements; R87 for quantity of product in prepackages / SADCMEI D1 for labelling requirements & SADCMEI D4 for the tolerance permitted for the accuracy of legal measurements and/ or member state specific trade/ legal metrology Technical Regulations	LMIPS	Trade Metrology Inspections of products/ goods / articles offered for sale
6	Inspection of measuring instruments	Measuring instruments used/ regulated for Legal Metrology purposes, besides Trade i.e. Health, Safety & Environment, Safety)	Legal Metrology Authority that inspects measuring instruments that have been verified by approved verification bodies operating as per	Inspection	ISO/IEC 17020	ILAC P9, P10, P14 & P15; ILAC G24, G27, G28;	Relevant OIML Recommendations and / or member state specific trade/ legal metrology Technical Regulations	TBA	Applicable to these Member states whose legal metrology authorities have registered or approved verification bodies whose work is subject to inspection

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				Level 2	Level 3				
		(examples as in 3 above)	item 2 & 3 above						by the authority
7	Certification / Registration/ Supervision of Packers implementing a Legal Metrology Quantity Control Scheme (i.e. E-Mark)	Pre-packed products by an organisation implementing a registered legal metrology quantity control scheme (examples as in 5 above that apply to the Quantity Control Schemes)	Legal Metrology Authorities that register packers and run quantity control schemes	Product Certification	ISO/IEC 17065/ ISO/IEC 17067	TBA	OIML R79 and OIML R87/ SADCME D1 and D4, OIML G21 Guidance document for defining the requirements for a certification system for prepackages and/ or member state specific trade/ legal metrology Technical Regulations	LMQC	This is a novel Accreditation Scheme, never offered anywhere else in the world; May include Examination/ Inspection, Certification, Registration and Supervision

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				Level 2	Level 3				
8	Testing of Measuring Instruments for purposes of Type/ Pattern Approval	Measuring instruments used for any regulated purpose (Any type of measuring instrument, as designated in the regulation)	Testing Laboratories of Manufacturers/ OIML Issuing Authorities, assemblers, importers or regulators of measuring instruments subject to type approval	Testing	ISO/IEC 17025	ILAC P9, P10 & P14; ILAC G24; Joint ILAC-OIML Assessment Procedure in the field of legal metrology	OIML-CS; OIML D30; D34; Relevant OIML Recommendation and/ or Technical Regulation; DIRECTIVE 2014/32/EU (MID)	LMTT	The basic accreditation criteria for this sub-scope are the same as that of SADCAS TLAS. Type approval is a basis for recognition in national or regional metrological controls. Some SADC member states are utilizing authorities.
9	Certification of Measuring Instruments used for purposes of Type/ Pattern Approval	Measuring instruments used for any regulated purpose (Any type of measuring instrument, as designated in the regulation)	Manufacturers/ OIML Issuing Authorities, assemblers, importers or regulators of measuring instruments subject to type approval	Product Certification	ISO/IEC 17065 / ISO/IEC 17067 / ISO/IEC 17020	Joint IAF-OIML Assessment Procedure in the field of legal metrology	OIML-CS; OIML D32; Relevant OIML Recommendation and/ or Technical Regulation; DIRECTIVE 2014/32/EU (MID); OIML Dx (2022)	LMC-1	The basic accreditation criteria for this sub-scope are the same as that of SADCAS CBAS-PROD; OIML Issuing Authorities/ National Legal

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				Level 2	Level 3				
									<p>Metrology Authorities Issuing National Type Approval Certificates are Certification Bodies; <i>OIML-CS recommended to the 56th CIML to approve the use of ISO/IEC 17020 (with additional requirements) by OIML Issuing Authorities as an alternative to ISO/IEC 17065 to demonstrate competence.</i></p>

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				Level 2	Level 3				
10	Certification / Registration/ Supervision of Persons undertaking verification of regulated measuring instruments	Regulated measuring instruments (Any type of measuring instrument, as designated in the regulation)	LM Authority or approved personnel certification body; Verification Officers; verification bodies; Inspectors;	Person Certification	ISO/IEC 17024	TBA	OIML D14, Relevant OIML Recommendation for the class of measuring instrument and/ and/ or member state specific trade/ legal metrology Technical Regulations	LMC-2	The basic accreditation criteria for this sub-scope are the same as that of SADCAS CBAS-PERS
11	Certification / Registration/ Supervision of persons undertaking repairs on regulated measuring instruments	Regulated measuring instruments (Registered Mechanic/ Technician repair bodies)	Persons repairing or maintaining measuring instruments that are subject to regulation	Person Certification	ISO/IEC 17024	TBA	OIML D14, Relevant OIML Recommendation for the class of measuring instrument and/ or member state specific trade/ legal metrology Technical Regulations	LMC-3	The basic accreditation criteria for this sub-scope are the same as that of SADCAS CBAS-PERS

APPENDIX - AMENDMENT RECORD

Revision Status	Change			Approved by	Effective Date
	Page	Clause/ Sub-clause	Description of Change		
Issue 1	-	-	-	CEO	2022-03-29