DATA ACCEPTANCE PROGRAM

Requirements for use of Nonaccredited Calibration Service Providers

Issue 8.1 – Updated document name to cover all nonaccredited calibration. Updated requirements to cover the new OSHA Directive CPL 01-00-004 and reference ISO/IEC 17025:2017. Clarified scope and actions required to use nonaccredited calibration.

For Client Labs

Purpose	• If accredited calibration is available, it must be used. This document provides requirements and details where calibration of test equipment is performed by DAP clients when no accredited calibration for a particular type of testing equipment is available.
Why this requirement is important	• Calibration of equipment has a direct effect on data quality and the repeatability of tests. • Accreditation requirements mandate traceability of measurements to national standards and SI units whenever possible.
Requirements/ Procedures	
Validation of calibration management system	**See attached document below for requirements regarding use of nonaccredited calibration.**
Confirmation of calibration systems	• Before the visit – UL may request details regarding calibration performed for equipment used in testing. • During the visit - Approved nonaccredited calibration systems will be examined for compliance with requirements. If accredited calibration is not available, documentation must be provided showing due diligence in researching an appropriate calibration vendor.
Records	
Certificates, Approval Forms, and Other Documentation	• Certificates and other related documentation associated with calibration are to be processed in accordance with Section 9 of the requirements attachment below. • OSHA Directive CPL 01-00-004 • OSHA Calibration Memorandum July 12, 2021

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1.0 PURPOSE

1.1.1 This document provides the minimum requirements for calibration related processes to be applied where UL Data Acceptance Program participants utilize nonaccredited calibration service providers for specialized equipment or where no accredited calibration services exist.

2.0 SCOPE

2.1.1 These requirements are applicable to all test laboratories participating in a UL Data Acceptance Program when no calibration laboratory is accredited for a particular type of testing equipment

The principle guiding document for requirements relating to nonaccredited calibration activities is *ISO/IEC 17025 - General Requirements for the Competence of Calibration and Testing Laboratories*. **Note – Unless otherwise identified the reference numbers in parenthesis relate to specific sections of *ISO/IEC 17025 (2017) - General Requirements for the Competence of Calibration and Testing Laboratories*.**

3.0 DEFINITIONS

3.1.1 **Calibration Interval** – The defined period of time elapsing before performing recalibration of equipment.

3.1.2 **Calibration Service Provider** – An external organization demonstrating appropriate technical scope and competency of calibration by accreditation to ISO / IEC 17025 through authorized signatories of an international accreditation body.

3.1.3 **Calibration Standard** – An artifact or device having an accepted value that is used as the basis for comparison against similar devices having an unknown value.

3.1.4 **Nonaccredited calibration laboratory (service) –** An internal/external group or organization that provides calibration services for M&TE when no calibration laboratory is available to perform accredited calibration for a particular type of testing equipment.

3.1.5 **Measuring and Test Equipment (M&TE)** - all devices used to gauge, measure, test, inspect, or otherwise determine compliance with prescribed technical requirements.

3.1.6 **Measurement Standard or Reference Standard -** A device or material used to calibrate M&TE and provide traceability of measurements to international standards.

3.1.7 **National Metrological Institute (NMI) –** A national metrology institute's (NMI) role in a country's measurement system is to conduct scientific metrology, realize base units, and maintain primary national standards.

3.1.8 **Nonaccredited Calibration Service Provider** – An internal or external calibration organization having special knowledge of capability in performing certain calibration functions and are preferably accredited in other calibration practices.

3.1.9 **Non-conforming condition** – An occurrence where specifications are not met such as by degradation of an instrument or through human error.

3.1.10 **Scope of Accreditation** – Recognition of competence in specific calibration practices as evaluated by a conformity assessment body having membership in ILAC, APLAC or EA MRA.

3.1.11 **Reference Material -** Material or substance one or more of whose property values are sufficiently homogeneous and well established to be used for the calibration of an apparatus, the assessment of a measurement method, or for assigning values to materials. [1]

3.1.12 **Traceability** - The property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons, all having stated uncertainties. The level of traceability establishes the level of comparability of the measurement – essentially, whether the result of a measurement can be compared to the previous one, a measurement result made a year ago, or to the result of a measurement performed anywhere else in the world.[2]

1 ISO VIM: 1993
2 International Bureau of Weights and Measures (BIPM)

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4.0 GENERAL

4.1 Requirements

Calibration must provide evidence of an assessment showing that it meets all applicable requirements in ISO/IEC 170252005 or ISO/IEC 17025:2017 as part of the accreditation of the laboratory of which it is part. (OSHA Directive (CPL01-00-004) 4.6-A, Annex A.2)

4.2 Exceptions

The calibration laboratory does not need to be accredited to calibrate its own equipment in two situations (OSHA Directive (CPL01-00-004) 4.6-C, Annex A.3):

1. Equipment whose physical properties are unlikely to change and is not used for quantitative measurements (e.g., accessibility probes, impact spheres, rulers/measures, and containers used to measure or hold liquids ***or***;

2. Equipment whose measurement parameters meet any of the following requirements:
   - equipment whose measurement parameters meet any of the following requirements:
     i. mass above 0.5kg and where an accuracy of ±2% or greater is required; or
     ii. linear dimensions not less than 0.5mm and where an accuracy of ±0.1mm or greater is required; or
     iii. time for periods of 60 seconds or more, unless the test standard requires a specific accuracy of measurement
   - Such equipment shall initially be calibrated by an accredited calibration laboratory, or if none, by the manufacturer or a qualified calibration laboratory, before being placed into service.

4.3 Calibration Service Provider – Nonaccredited

4.3.1 If no calibration laboratory is accredited for a particular type of testing equipment, the client's organization may use the equipment manufacturer, or use an unaccredited calibration laboratory, provided the calibration laboratory is qualified by the client's organization or NRTL using the client's organization or NRTL procedures.

4.3.2 Prior to selecting a nonaccredited calibration supplier, the test laboratory must exhaust all potential accredited laboratories first. If the calibration service provider is not accredited for the particular calibration being provided, the test laboratory must audit the calibration document(s) and the traceability of the calibration(s) to confirm traceability to a National Metrology Institution (NMI).

4.3.3 The results of this audit must be documented and retained by the test laboratory. An example of an assessment form is found in Appendix B. Participants may utilize other types of assessment as long as all critical aspects identified in the example form have been documented.

4.3.4 It is highly recommended that a non-accredited calibration service provider be accredited in at least one other calibration activity to assure the implementation of an appropriate quality control system

4.3.5 Citation of a NIST test number, certification of the calibration lab to ISO9001, a simple statement of traceability to NIST (or international standard) by the calibration service provider is not acceptable evidence of traceability. The calibration certificate and related records must provide evidence that the calibration service provider utilized calibration standards that are traceable to national standards. See 5.1.4 below.

5.0 CALIBRATION STANDARDS AND REFERENCE MATERIALS – WHEN NONACCREDITED CALIBRATION IS USED.

5.1.1 **Equipment (calibration standards)** (6.4) – Non-Accredited calibration services must have all the calibration standards and reference materials available for the calibrations performed.

5.1.2 **Calibration of Standards** – (6.5.1) The calibration standards supporting calibration systems are to be calibrated on a regular schedule to maintain accuracy and traceability. Records are to be available to demonstrate compliance with this requirement.

5.1.3 The calibration standards *and any related software* shall be maintained in accordance with the following:

i. Identity of the item and any related software (software version and/or date)

ii. A unique identification number such as the manufacturer's name, an assigned identification number or model and serial number.

iii. The manufacturer's instructions or operating manual.

iv. Calibration records - including adjustments made, certificates, next calibration date and calibration dates.

v. Calibration records and procedures shall clearly specify when the calibration of the instrument expires. For example: a label or recording stating "Calibration Due January 2, 2020" requires calibration to be performed by January 1, 2020. A label or record stating "Calibration expires January 1, 2020" requires calibration by January 2, 2020. Where specific day of month is not provided in calibration records (e.g. "January 2020"), a procedure shall be used to specify how the recalibration dates are determined.

5.1.4 **Measurement Traceability** (6.5.1, 6.5.2) - All calibration equipment is to be calibrated using Measurement Standards traceable to a National Metrological Institute (e.g. National Institute of Standards and Technology in the U.S.) or a government-sponsored / approved national metrology institute participating in Bureau International des Poids et Measures (BIPM) either directly, or through a regional group. Calibration equipment is deemed traceable through an accredited calibration service provider. Refer to Appendix A for MRA's for accreditation bodies of calibration laboratories.

Note: Exception, See ISO/IEC 17025: 2017 clause 6.5.3 for details. In such case, the lab shall demonstrate the compliance to that clause.

5.1.5 The calibration certificates issued by nonaccredited calibration services shall contain the measurement results (calibration data) and must include a measurement uncertainty

statement for the calibration standards or a statement of compliance to an accepted metrological specification.

5.2 Estimation of Measurement Uncertainty - Calibration Equipment

5.2.1 **Uncertainty of Measurement** – Uncertainty calculations are required for all calibrations. These calculations may be performed in accordance with the Guide to the Expression of Uncertainty in Measurement Accuracy of Measurement Methods and Results - Part 2 (ISO 5725-2) - also known as GUM (trueness and precision), or in accordance with General Requirements for Calibration Laboratories and Test Equipment (ANSI/NCSL Z540-2).

5.2.2 Calibration certificates and reports must include statements of the measurement results (calibration data) and the associated uncertainty of measurement value, or a statement of compliance to an accepted metrological specification.

5.3 Physical Environment of Nonaccredited Calibration Service Provider

5.3.1 **Accommodation and environment** (6.3) – Nonaccredited calibration service providers must maintain appropriate environmental conditions as specified by documented calibration procedures or methods being applied to assure the correct performance of calibrations. This requirement includes control and monitoring of parameters that may affect the quality of calibrations including humidity, temperature, vibration, etc.

5.3.2 Other relevant conditions such as biological sterility, dust, electromagnetic disturbances, radiation, electrical supply, sound and vibration levels are to be controlled and monitored as appropriate to the technical activities concerned. Calibrations are to be halted when the environmental conditions may jeopardize the results of the calibrations. Corrective action is to be taken before proceeding with calibrations.

5.3.3 There shall be effective separation between neighboring areas in which there are incompatible activities. Examples: Vibration from an accelerometer calibration may affect a load cell calibration. Drafts from an airflow measurement may affect a thermocouple calibration process. Distance or appropriate barriers must separate these calibration activities.

6.0 CALIBRATION CERTIFICATES / REPORTS (7.8.4, 7.8.2)

6.1.1 Calibration certificates and/or reports provided by nonaccredited calibration service providers must meet the requirements of ISO Standard 17025 *General Requirements for the Competence of Calibration and Testing Laboratories*. Nonaccredited calibration service providers are required to retain the following information if not provided on the certificate. Refer also to the "*Calibration certificate analysis*" job aide for additional information.

1. the name and address of the laboratory, and the location where the calibrations were carried out, if different from the address of the laboratory.

2. Unique identification of the calibration certificate (such as the serial number). Each page of supporting data requires an identification to ensure that the page is recognized as a part of the calibration certificate package. A clearly identified end of the calibration certificate package must be labeled.

3. the name and address of all locations the customer utilizes.

4. identification of the method used.

5. a description of the condition of and unambiguous identification of the item(s) tested or calibrated.

6. the date of receipt of the calibration item(s) if this is critical to the validity and application of the results and the date(s) of performance of the calibration.

7. reference to the sampling plan and procedures used by the laboratory or other bodies if these are relevant to the validity or application of the results.

8. the calibration results with the units of measurement, where appropriate.

9. the name(s), functions(s) and signature(s) or equivalent identification of person(s) authorizing the calibration certificate.

10. where relevant, a statement to the effect that the results relate only to the items calibrated.

11. the conditions (e.g. environmental) under which the calibrations were made that have an influence on the measurement results.

12. the uncertainty of measurement and/or a statement of compliance with an identified metrological specification or clauses.

13. evidence that the measurements are traceable (to national standards).

6.2 Calibration Test Methods and Procedures

6.2.1 **Methods (procedures)** (7.2) – Nonaccredited calibration service providers shall have methods and procedures for all calibrations that are performed. Documents of calibration procedures are to be available to personnel performing calibrations (7.2.1). All instructions, manuals and other information regarding the use of calibration standards and the resulting estimation of measurement uncertainty are required to be available and up-to-date.

6.2.2 Nonaccredited calibration service providers are to have and maintain administrative and measurement-related procedures in a manner readily accessible to equipment staff (hard copy or electronic records are acceptable). Procedures are to be controlled, available and applied to ensure the integrity of administrative duties, calibrations, and test results. These records typically detail the responsibility / authority of calibration services personnel, instructions for performing calibrations and procedures for handling / processing calibration work.

6.2.3 International, regional or national standards, or other recognized specifications, that contain sufficient and concise information on how to perform the tests and/or calibrations do not need to be supplemented or rewritten as internal procedures.

6.3 Computer Software Validation Procedures

6.3.1 Where custom-written computer software is utilized in data recording, retrieval, processing, calculation, analysis, or reporting, the laboratory is to provide proof that the computer software is documented and verified for use with respect to proper function and data manipulation. This proof may be in the form of an analysis of the software output using known input values, comparisons to manual calculations, statistical analysis, etc.

6.3.2 **Software validation/version** (7.11, 6.4.4) – When computers or automated equipment is used for acquisition, processing, recording, storage or retrieval of calibration data:

a) Any custom computer software developed by the user, or by others on behalf of the user, must be validated to assure proper function and adequacy of use before the software is placed into use. The software version, name, model or other unique identification for the software is to be recorded to aid in identifying the software for updates or recalls.

b) Procedures must be in use to protect recorded data. Some examples are: protecting data integrity and confidentiality via passwords in the

software, secure data storage and / or access to data system areas via physical security measures.

c) Commercially available software (purchased “off-the-shelf” requiring no alterations) or software provided with, or embedded into, commercially available calibration equipment is considered to be sufficiently validated. However, software that has been configured or modified by the user must be validated. For example, Microsoft Excel spreadsheet software would not require validation, but *equations entered by the user* would require checks to confirm the formula was entered correctly and provides the correct results.

7.0 CONTROL OF NON-CONFORMING CALIBRATION WORK (7.10)

7.1.1 Each Nonaccredited calibration service provider is to maintain records of every event where non-conforming calibration work is found. A calibration standard found to be out-of-tolerance or data recording errors that require corrective actions are examples of non-conforming work (7.10).

7.1.2 Where non-conforming conditions occur:

a) The Nonaccredited calibration service provider is to determine if there are defects in the processes used or data developed.

b) If the cause of the non-conforming work is found to affect calibration data: (7.10.1)

i. A review of all calibration work since the last successful calibration of the calibration standard is to be made to determine the impact of the nonconforming calibration results.

ii. Further review of any testing project is required, if the affected testing equipment was used in any testing projects.

iii. The results of the review are to be disclosed as quickly as possible to UL that received potentially affected test data;

iv. A notation is to be made in the individual calibration history for the calibration standard and the affected test equipment.

7.1.3 In some cases, the test instrument specifications given by the manufacturer may be many times more accurate than the requirements in the test standard or the UL default tolerance values.

Where an instrument is found to be out of tolerance with the manufacturer's specification(s) but it has been demonstrated through calibration that the instrument is *within* the specification of the test standard or the default tolerances provided by UL, use of the test data acquired with the instrument would be considered acceptable and no further action is required with respect to notification of UL or traceback of prior projects. Where no tolerances are identified for the test method, UL is to be notified of out-of-tolerance conditions relative to the manufacturer's specifications.

The client's procedures in 7.1.2 addressing non-conforming events and the related records required in 7.1.1 are to be applied in each instance of a non-conforming calibration. Corrective actions are to be made within the client's calibration management system to reduce or eliminate reoccurrences of out-of-tolerance conditions that may impact future test data submittals to UL.

8.0 SUPPLIER EVALUATION RECORDS

8.1.1 Laboratories must retain the following supplier evaluation records:

a. Information regarding the accreditation of the calibration service provider who performed calibration. Access to the certificate(s) from the accreditation organization listing the scope of coverage for the calibration service provider is sufficient.

b. An assessment is to be performed for nonaccredited calibration service providers. Results of the survey are to be retained by the test laboratory.

c. records that calibration standards in use by the nonaccredited calibration service provider are traceable to a national metrology institution (e.g. NIST).

d. records from which the non- accredited calibration service provider determines uncertainties of measurement for the calibration standards.

NOTE - The testing laboratory must retain copies of calibration certificates. A documented method of record retention is to be utilized and these records must be readily accessible for review and audit.

The environmental conditions of the nonaccredited calibration facilities is to be recorded to demonstrate that temperature, barometric pressure, humidity, etc are controlled in accordance with the calibrations performed.

9.0 RECORD RETENTION

9.1.1 Client laboratories must provide access to calibration records in accordance with the following:

Calibration records and other related documentation associated with calibration and testing are to be processed in the following manner:

a) For WTDP -

- Copies of all calibration certificates or records and related documentation for the equipment used in testing are to be available upon request by UL at the time of testing.

b) For other DAP programs (CTDP / TPTDP) -

- Clients are to index and retain copies of certificates or equipment records and related documentation for the equipment used in testing as proof of calibration status.
- In lieu of storage of paper copies of the documentation, these may be stored electronically.
- *Retention time for the records is to be retained for 5 years from the date of the signature of the authorized signatory on the data package in which the last time the equipment was used*.

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APPENDIX A ACCREDITATION ENDORSEMENTS

NOTE – THIS INFORMATION IS SUPPLEMENTAL. THIS LIST IS NOT ALL-INCLUSIVE.

Since calibration certificates from accredited laboratories that conduct work within their scope of accreditation can bear an endorsement of accreditation, attention on identifying 1) a suitable endorsement *AND* 2) the unique identification of the calibration certificate (such as the serial number) is to be made. (Each page of supporting data requires an identification to ensure that the page is recognized as a part of the calibration certificate package). This satisfies the need to substantiate a certificate was provided by an accredited calibration laboratory. Examples of International Laboratory Accreditation Cooperation MRA signatories are listed below.

Mutual Recognition Agreement (MRA) Signatories

- International Laboratory Accreditation Cooperation MRA signatories are acceptable accreditor endorsements. A full listing of ILAC MRA signatories can be found at http://www.ilac.org/home.html please look under the “About ILAC” and “Members by Categories” listings. Full Members is the listing of the signatories to the ILAC MRA.

- Asian Pacific Laboratory Accreditation Council MRA signatories are acceptable accreditor endorsements. A full listing of APLAC MRA signatories can be found at http://www.aplac.org/members/fullmembers.htm

- European Accreditation Cooperation Mutual Recognition Agreement (MRA) signatories are acceptable accreditor endorsements. A full listing of EAC MRA signatories can be found at http://www.european-accreditation.org/content/mla/scopes.htm

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APPENDIX B CALIBRATION SURVEY NONACCREDITED CALIBRATION SUPPLIER

Company Name:	
Address:	
City:	
State	
Zip:	

PLEASE COMPLETE THE FOLLOWING INFORMATION:

Technical Manager:	
Phone No.:	
FAX No.:	
Email:	
Person Completing Survey:	
Title:	
Date:	

SCOPE OR TYPE OF CALIBRATIONS TO BE MADE

(Entity conducting survey to complete this information. Include evidence of unavailability of calibration vendors)

Please return the completed survey to:
[Click **here** and type street address]
[Click **here** and type City, State, Zip Code]
[Click **here** and type Country, if applicable]
Attn: [Click **here** and type Attention information]
Email: [Click **here** and type eMail address of Attention To]
Fax: [Click **here** and type Fax number]

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1. **General Questions:**	YES	NO
1.1. Is your organization compliant with ISO/IEC 17025?	☐	☐
1.2. Is your organization currently pursuing accreditation by either NVLAP or A2LA?	☐	☐
1.2.1. Estimated completion date for achieving accreditation?		
1.2.2. Please provide the anticipated scope of accreditation to which you will be accredited.		
1.3. Does your organization have a quality manual describing your operations? A copy of the Table of Contents or Index would be helpful.	☐	☐
2. **Calibration Facilities:**	YES	NO
2.1. Do you use dedicated calibration standards when performing calibrations?	☐	☐
2.2. Are these standards, directly or indirectly, in either case traceable through an unbroken chain to national standards?	☐	☐
2.2.1. Is the traceability documented and can the documentation be reproduced if requested?	☐	☐
2.2.2. Do the calibration standards have an appropriate label identifying their calibration status?	☐	☐
2.2.3. Are reference materials used for calibration?	☐	☐
2.2.4. Are the reference materials certified?	☐	☐
2.2.5. Are there requirements identifying responsibility for internal reference standards, their traceable condition and for the working standards?	☐	☐
2.2.6. Are internal reference standards and if appropriate, working standards, available for all measuring and test instruments and measured quantities which are relevant for the measurement and test results?	☐	☐
2.3. Is all calibration equipment uniquely identified?	☐	☐

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2.4. Is each calibration procedure documented in a step-by-step procedure?	☐	☐
2.4.1. Are calibrations computer aided?	☐	☐
2.4.1.1. Is the software validated?	☐	☐
2.4.1.2. By which method?		
2.4.1.3. Are there requirements identifying responsibility for the reliability of the calibration software?	☐	☐
2.5. Does the laboratory have a system to control and/or monitor environmental conditions to maintain conformance with specified requirements?	☐	☐
2.6. Are relevant environmental conditions recorded during calibrations?	☐	☐
2.7. Are procedures for the calculation of the measurement uncertainty of the calibration process specified and followed?	☐	☐
2.8. Are there methods for ensuring periodic re-calibration of calibration equipment?	☐	☐
2.8.1. Are re-calibration intervals fixed at one standard value (like 1 year)?	☐	☐
2.8.2. Is there an equipment recall system to identify calibration equipment requiring re-calibration?	☐	☐
2.8.3. In the case where calibrations have to be performed before each measurement, is the equipment labeled accordingly?	☐	☐
2.9. Are all instruments that are part of the calibration equipment properly identified?	☐	☐

3. Specific Calibration Procedures	YES	NO	N/A
3.1. Is the measuring equipment of the “self calibration” type?	☐	☐	☐
3.1.1. Is the internal reference calibrated?	☐	☐	☐
3.1.2. Is the process of “self calibration” checked?	☐	☐	☐
3.2. Does the measuring equipment include an internal calibration of a less stable component by means of an internal reference?	☐	☐	☐
3.2.1. Is the internal reference calibrated?	☐	☐	☐

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3.2.2. Is the process of internal calibration checked?	☐	☐	☐
3.3. Is the complete measuring system calibrated as a whole?	☐	☐	☐
3.3.1. Are the single components of the measuring system adjusted, especially with respect to zero settings?	☐	☐	☐
3.3.2. How is the labeling performed for a complete measuring system?			
3.4. Is each single component of a measuring system calibrated?	☐	☐	☐
3.4.1. Are the calibration parameters for the complete measuring system determined from the values of the single components?	☐	☐	☐

4. Documentation of Calibration Results:	YES	NO
4.1. Are the calibration results, including environmental conditions, if applicable, documented?	☐	☐
4.1.1. Are they kept on file?	☐	☐
4.1.2. Are they available to the owner of the equipment being calibrated?	☐	☐
4.1.3. Do you provide a calibration label on the equipment to indicate date of calibration?	☐	☐
4.2. Are seals used to protect calibrated equipment from adjustment by end user?	☐	☐
4.3. Do you maintain records of your own calibration work and have the capability to determine the impact of the error if your measurement standards are found to be out of tolerance?	☐	☐
4.3.1. Do you automatically inform customers of affected equipment?	☐	☐
5. Documentation of estimated uncertainty:	YES	NO
5.1. Do you provide a statement of the estimated uncertainty of the calibration results?	☐	☐
5.2. If no, are the estimated uncertainties documented and kept on file?	☐	☐

5.3. Are they available to the owner of the equipment being calibrated? Please provide a list of best measurement uncertainties for the parameters that you calibrate if possible.	☐	☐
6. Staff qualifications:	YES	NO
6.1. Do you have minimum staff qualifications?	☐	☐
6.2. Do you have continuous training programs for staff?	☐	☐

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SURVEY QUESTION	CRITERIA	NOTES
1.0 General Questions:		
1.1	Recommended	If not 17025 compliant, request complete quality manual for further review. During review look for 17025 correlations taking into consideration other survey answers.
1.2	Recommended	A vendor currently pursuing accreditation with a reasonable estimated completion date will probably be acceptable (review scope). For a negative response continue to review completed survey following criteria guide.
1.2.2		
	Recommended	Review Table of Contents for 17025 compliance or request complete manual per question 1.1 above.
2.0 Calibration Facilities:		
2.1	Required	No Exceptions
2.2	Required	On rare occasions the measurement parameter may not be traceable to NIST for example Lamp Chromaticity. Under these circumstances acceptance may be appropriate based on vendor's expertise.
2.2.1	Required	(exception: see 2.2 above)
2.2.2	Required	No Exceptions
2.2.3	Not Applicable	Reference material not always used
2.2.4	Required	No exceptions if reference material is used.
2.2.5	Required	No Exceptions
2.2.6	Required	No Exceptions
2.3	Required	No Exceptions
2.4	Required	No Exceptions
2.4.1	Not Applicable	Computer aided calibrations not always used.
2.4.1.1	Recommended	When computer aided calibrations are used but not validated the vendor should be questioned further. Simple data acquisition schemes may not require extensive verification.
2.4.1.2	Recommended	
2.4.1.3	Recommended	
2.5	Required	Except when it can be proven by the vendor that environmental conditions would not affect the accuracy of results.
2.6	Required	Except as noted in 2.5

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SURVEY QUESTION	CRITERIA	NOTES
2.7	Recommended	On occasion, when no other acceptable vendor is available, a statement of accuracy ratio may be accepted. Ratios of 4:1 or greater are desired, however, with certain measurement parameters this cannot be achieved. In either case the accuracy ratio must be noted.
2.8	Required	No Exceptions
2.8.1	Not Applicable	Based on 2.8 this is informational, however, if other than fixed at one year additional information should be requested and reviewed.
2.8.2	Required	No Exceptions
2.8.3	Required	No Exceptions
2.9	Required	No Exceptions
3.0 Specific Calibration Procedures		
3.1	Required	Applicable when measurement is of the “self calibration” type.
3.1.1	Required	
3.1.2	Required	
3.2	Required	Applicable when equipment includes internal calibration.
3.2.1	Required	
3.2.2	Required	
3.3	Required	Applicable when the calibration system is to be calibrated as a complete system.
3.3.1	Required	
3.3.2	Required	
3.4	Required	
3.4.1	Required	
4.0 Documentation of Calibration Results:		
4.1	Required	No Exceptions
4.1.1	Required	No Exceptions
4.1.2	Required	No Exceptions
	Recommended	However, calibration labels may be placed on equipment by the end user based on vendors supporting documentation.
4.2	Recommended	However, seals may be placed on the equipment by the end user prior to releasing the equipment for use.
	Required	No Exceptions
4.3.1	Required	No Exceptions
5.0 Documentation of estimated uncertainty:		
	Recommended	See note 2.7
5.1.1		
5.1.2		
6.0 Staff qualifications:		

UL does not endorse any vendors or products referenced herein.

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SURVEY QUESTION	CRITERIA	NOTES
	Required	No Exceptions
	Recommended	Further investigation may be required for a negative response. Confirmation that staff are able to properly perform calibrations is needed. Request written minimum staff qualifications (6.1 in checklist form) for review.