ISO/IEC 17025 – General Accreditation Requirements

Laboratory Information

Company Name	Trident Systems & Engineering (TSE)
Laboratory Location(s)	2646 Palma Dr. Ste 130 Ventura CA 93003
Completed By / Date	12/28/2017

Assessor Information

Assessor Name(s)	Charles S Sharp
Assessment Type	Annual
Date of Assessment	12/28/2017

- This checklist is to be used as part of the ANAB 17025 General Accreditation Requirements.
- This checklist includes the requirements of:
    - ISO/IEC 17025:2005 - General Requirements for the Competence of Testing and Calibration Laboratories;
    - Accreditation Requirements (AR) for calibration, testing and use of accredited symbol.
- The requirements identified within this checklist are summarized from the referenced standards.
- This checklist will be used for the following assessment activities:
    - AADR – Accreditation Assessment Document Review;
    - AA – Accreditation Assessment (initial);
    - TRA – Transfer Reassessment;
    - RA – Reassessment.

17025 Element	Requirement	Customer Document Reference	Conformance C | NC | NA	Comments on Conformance
4	**Management Requirements**			
4.1	**Organization**			
4.1.1	Is the laboratory/parent organization an entity that can be held legally responsible?	QAM 1-5.5 sec 5.1.1	C	Sole proprietorship, Charles S Sharp dba Trident Systems & Engineering licensed for business in Ventura California.
4.1.2	Is the laboratory carrying out testing/calibration activities to meet the requirements of the International Standard and satisfying the needs of customers, regulatory authorities, or organizations providing recognition?	QAM 1-5.5 sec 5.2.2	C	meets the requirements of ISO/IEC 17025 and/or NCSL Z540-1 and our quality manual, it satisfy the needs of our Customer and/or organizations providing authorization and/or accreditation
4.1.3	Does the laboratory's management system cover work carried out in the laboratory's permanent facilities, at sites away from its permanent facilities, or in associated temporary/mobile facilities?	QAM 1-5.5 sec 5.2.3	C	We perform some performance evaluations of measuring and testing devices at sites that are outside the permanent laboratory facilities. These sites are located at the owner's facility and may be either within a building or outdoors – no accredited on-site work performed we have 3 levels of service – NIST cal, Z540 cal, 17025 cal.
4.1.4	If the laboratory is part of an organization performing activities other than testing or calibration, are the responsibilities of key personnel in the organization that have an involvement or influence on testing or calibration activities defined in order to identify potential conflicts of interest? ***Objective evidence is required**	QAM 1-5.5 sec 5.2.4	C	Our only activities are Calibration related services. Our organizational structure is defined There are no conflicts
4.1.5	The laboratory shall:			
a)	Does the laboratory have managerial and technical personnel who, irrespective of other responsibilities, have the authority and resources needed to carry out their duties, including the implementation, maintenance, and improvement of the management system, and to identify the occurrence of departures from the management system or from the **procedures** for performing tests and/or calibrations, and to initiate actions to prevent or minimize such departures (see also 5.2)?	QAM 1-5.5 sec 5.3	C	Management and technical personnel of TSE are equipped with the authority and resources to perform their duties and are aware of the importance of their activities.
* b)	Does the laboratory have arrangements to ensure	QAM 1-5.5 sec 5.4	C	Management ensures that TSE is independent from

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	management and personnel are free from any undue internal/external commercial, financial and other pressures and influences that may adversely affect the quality of their work?			any pressures – commercial, financial, or others, which adversely affect the quality of test and resulting reports
* c)	Does the laboratory have **policies** and **procedures** to ensure protection of customers' confidential information and proprietary rights, including **procedures** for protecting electronic storage and transmission of results? ***Objective evidence is required**	QAM 1-5.5 sec 5.5	C	TSE maintains the confidentiality and proprietary rights of all information, including the type of work performed and the results of tests to the extent allowable by law and in accordance with the administrative procedures. (See Appendix H, AP No. 1, Procedures for Customer Confidentiality and Proprietary Rights.)
* d)	Does the laboratory have **policies** and **procedures** to avoid involvement in any activities that would diminish confidence in its competence, impartiality, judgment, or operational integrity? ***Objective evidence is required**	QAM 1-5.5 sec 3.1.1	C	It is the policy of TSE to avoid involvement in activities that diminish confidence in competence, impartiality, judgment or operational integrity. Procedure is that employees report any breeches Signed conflict policy in place.
* e)	Does the laboratory define the organization and management structure of the laboratory, its place in any parent organization, and relationships among quality management, technical operations, and support services? ***Objective evidence is required**	QAM 1-5.5 sec 5.0	C	Organizational Structure – OK See Appendix B
* f)	Does the laboratory specify the responsibility, authority, and interrelationships of all personnel who manage, perform, or verify work affecting the quality of tests/calibrations? ***Objective evidence is required**	QAM 1-5.5 sec 5.0	C	Defined in Quality Management System
* g)	Does the laboratory provide adequate supervision of testing and calibration staff, including trainees, by persons familiar with methods and **procedures**, the purpose of each test and/or calibration, and with the assessment of the test or calibration results?	QAM 1-5.5 sec 5.0	C	Lab manager supervises
* h)	Does the laboratory have technical management which has overall responsibility for technical operations and the	QAM 1-5.5 sec 5.3.2	C	Charles S Sharp

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	provision of the resources needed to ensure the required quality of laboratory operations?			
* i)	Does the laboratory have a member of staff who is appointed as quality manager (however named) who, irrespective of other duties and responsibilities, has the defined responsibility and authority for ensuring that the management system related to quality is implemented and followed at all times; does the quality manager have direct access to the highest level of management at which decisions are made on laboratory **Policy** or resources? ***Objective evidence is required**	QAM 1-5.5 sec 5.3.4	C	Charles S Sharp See Appendix B See Tech# List
j)	Does the laboratory have deputies appointed for key managerial personnel (see note)? ***Objective evidence is required**	QAM 1-5.5 sec 5.0	C	Chad Sharp See Tech# List
k)	Does the laboratory ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the objectives of the management system?	QAM 1-5.5 sec 5.3	C	No 5.3 in QAM
* 4.1.6	Does top management ensure that appropriate communication processes are established in the laboratory and that communication occurs regarding the effectiveness of the management system?	QAM 1-5.5 sec 5.0	C	A Management Review is held annually with all Management and Technical personnel
4.2	**Quality System**			
4.2.1	Has the laboratory established, implemented and maintained a quality system appropriate to its scope of activity and communicated, understood, available and implemented by appropriate personnel?	QAM 1-5.5 sec3.0 / 6.0	C	Quality Management System is appropriate to size of lab
4.2.2	Are the laboratory's management system **policies** defined in a quality manual (however named), including a quality **policy** statement? ***Objective evidence is required**	QAM 1-5.5 sec 6.0 / 3.0	C	Defined in QAM
4.2.2	Is the quality **policy** statement issued under the authority of top management? ***Objective evidence is required**	QAM 1-5.5 sec 3.1.1	C	Charles Sharp

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4.2.2	Are overall objectives established in the management system and reviewed during management review? ***Objective evidence is required**	QAM 1-5.5 sec 1.1	C	The objective of our quality manual is to establish a documented quality system that provides for continuous improvement of that quality system to ensure reliable and accurate test results. See the Company Review
* 4.2.2	A quality **Policy** statement shall be issued under the authority of the chief executive and shall include:			
* a)	Does the quality **policy** statement include management's commitment to good professional practice and to the quality of its testing and calibration in servicing its customers?	QAM 1-5.5 sec 3.0	C	Our policy is to provide the highest reasonable quality performance evaluation services attainable to Customers through continuous improvement of the quality system
* b)	Does the quality **policy** statement include management's statement of the laboratory's standard of service?	QAM 1-5.5 sec 3.0	C	Quality in our services is a constant effort and focus.
* c)	Does the quality **policy** statement include the purpose of the management system related to quality?	QAM 1-5.5 sec 3.0	C	Quality in our services is a constant effort and focus.
* d)	Does the quality **policy** statement include a requirement that all personnel concerned with testing and calibration activities within the laboratory familiarize themselves with the quality documentation and implement the **policies** and **procedures** in their work?	QAM 1-5.5 sec 3.1.4	C	TSE personnel who perform performance evaluation testing are familiar with the quality documentation, which is implemented in their work, policies and procedures
* e)	Does the quality **policy** statement include laboratory management's commitment to comply with the International Standard and to continually improve the effectiveness of the management system?	QAM 1-5.5 sec 3.0	C	continuous improvement of the quality system
4.2.3	Does evidence exist showing top management is committed to the development and implementation of the management system and to continually improving its effectiveness?	QAM 1-5.5 sec 3.1.2	C	Commitment to Improvements are recorded and defined in our Management Review
4.2.4	Does top management communicate to the organization the importance of meeting customer requirements as well as statutory and regulatory requirements?	QAM 1-5.5 sec 4.0	C	On SO for each job - OK

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* 4.2.5	Does the quality manual include or make reference to supporting **procedures** including technical **procedures** and outline the structure of documentation used in the management system? ***Objective evidence is required**	QAM 1-5.5 sec 3.1.5	C	Various citations noted Also see SOP and SOI
4.2.6	Are the roles/responsibilities of technical management and the quality manager, including their responsibility for ensuring compliance with the International Standard, defined in the quality manual? ***Objective evidence is required**	QAM 1-5.5 sec 5.0 / 7.0	C	Defined in QAM
4.2.7	Does top management ensure that the integrity of the management system is maintained when changes to the management system are planned and implemented?	QAM 1-5.5 sec 3.1.1.2	C	It is the Policy of TSE that the integrity of the management system is maintained by top management especially when changes are made.
4.3	**Document Control**			
* 4.3.1	Does the laboratory establish and maintain **procedures** to control all documents that form part of its management system (internally generated or from external sources), such as regulations, standards, other normative documents, test/calibration methods, as well as drawings, software, specifications, instructions, and manuals? ***Objective evidence is required** *NOTE – This includes ANAB Accreditation Requirements.*	QAM 1-5.5 sec 6.0	C	Appendix H AP No. 3, Document Control
4.3.2	**Document Approval & Issue**			
4.3.2.1	Are all documents issued to personnel in the lab as part of the management system reviewed and approved for use by authorized personnel prior to issue?	QAM 1-5.5 sec 6.1	C	All documents are reviewed and approved for use by authorized personnel prior to issuing the document to personnel in the laboratory
* 4.3.2.1	Is a master list or an equivalent document control **procedure** identifying current revision status and distribution of documents in the management system established and readily available to preclude use of invalid and/or obsolete documents? ***Objective evidence is required**	QAM 1-5.5 sec 6.3.2 appendix N	C	Appendix N – show current revisions and a verification date. with links to the ANAB website and current documents

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4.3.2.2	The **procedure** shall ensure:			
* a)	Does the **procedure** adopted ensure that authorized editions of appropriate documents are available at all locations where operations essential to effective functioning of the laboratory are performed?	QAM 1-5.5 sec 6.1 / 6.3.2.1.1 c	C	assurance that authorized editions of appropriate documents are available at all locations that are essential to the proper functioning of the laboratory
* b)	Does the **procedure** adopted ensure that documents are periodically reviewed and, where necessary, revised to ensure continuing suitability and compliance with applicable requirements?	QAM 1-5.5 sec 6.3.2	C	periodic review and, as necessary, revision of the documents to ensure suitability Last review 12/26/2017
* c)	Does the **procedure** adopted ensure that invalid or obsolete documents are promptly removed from all points of issue or use, or otherwise assured against unintended use?	QAM 1-5.5 sec 6.3.2.1.1.e	C	removal of invalid or obsolete documents
* d)	Does the **procedure** adopted ensure that obsolete documents retained for either legal or knowledge preservation purposes are suitably marked?	QAM 1-5.5 sec 6.3.2.1.1.f	C	removal of invalid or obsolete documents
4.3.2.3	Are management system documents generated by the lab uniquely identified and does such identification include the date of issue and/or revision identification, page numbering, total number of pages or a mark to signify the end of the document, and issuing authority(ies)?	QAM 1-5.5 sec 6.3.2.1.1	C	Appendix N provides a list of controlled documents. The procedures for document control includes information on document control numbers
4.3.3	**Document Changes**			
4.3.3.1	How are changes reviewed and approved by the same function? Does the designated person shall have access to background information?	QAM 1-5.5 sec 6.3.2.1.3	C	Document changes are reviewed and approved following the same procedures for the original review process
4.3.3.2	Is (where practicable) the altered or new text identified in the document or appropriate attachments?	QAM 1-5.5 sec 6.3.2.1.3	C	Changes in electronic documents are a different color than the original and are tracked by the word processing system and are accepted by authorized laboratory staff
* 4.3.3.3	If the lab's documentation control system allows for amendment of documents by hand pending re-issue of documents, are **procedures** and authorities for such amendments defined and are amendments clearly marked, initialed, and dated? ***Objective**	QAM 1-5.5 sec 6.3.2	C	Handwritten changes Rarely if ever happen to hard copy documents but if it should occur they are clearly marked, initialed and dated by laboratory staff authorized to make changes to the documents

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	evidence is required			
* 4.3.3.4	Are **procedures** established to describe how changes in documents maintained in computerized systems are made and controlled? ***Objective evidence is required**	QAM 1-5.5 sec 6.3.2.1.3	C	Procedure in place - checked
4.4	**Review of requests, tenders and contracts**			
* 4.4.1	Does the laboratory establish and maintain **policies** and **procedures** for review of requests, tenders, and contracts? ***Objective evidence is required**	QAM 1-5.5 sec 4.0	C	Contracts, tenders, and work requests received by TSE are in the form of request for calibration. Calibration request are received by the Operation manager. Procedure in QAM SOP and SOI
* a)	Do the **policies** and **procedures** for these reviews leading to a contract for testing and/or calibration ensure that requirements, including methods to be used, are adequately defined, documented, and understood (see 5.4.2)?	QAM 1-5.5 sec 4.1	C	The type of calibration is understood
* b)	Do the **policies** and **procedures** for these reviews leading to a contract for testing and/or calibration ensure that the laboratory has the capability and resources to meet the requirements?	QAM 1-5.5 sec 4.2	C	TSE is capable of meeting the requirements and has the necessary resources for accepted request
* c)	Do the **policies** and **procedures** for these reviews leading to a contract for testing and/or calibration ensure that the appropriate test and/or calibration method is selected and capable of meeting customers' requirements (see 5.4.2)?	QAM 1-5.5 sec 4.2	C	TSE cooperates with the Customer to ensure that the application is understood.
4.4.1	Are any differences between the request or tender and the contract resolved before any work commences? Is each contract acceptable to the laboratory and the customer?	QAM 1-5.5 sec 4.2.1.5	C	TSE calls the Customer upon receipt of equipment and or the PO and reviews the application with the Customer
4.4.2	Are records of review, including any significant changes and maintained of pertinent discussions with a customer relating to the customer's requirements or results of the work during the period of execution of the contract? ***Objective evidence is required**	Appendix H AP no. 22	C	Checked records – Ref No 2172975 – Dec. 2017 – OK Recall notices – Various checked – Dec 2017 – OK

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4.4.3	Does the review also cover any work that is subcontracted by the lab?	QAM 1-5.5 sec 4.2.1.4	C	The Customer is informed of any subcontracted work is to be done and a formal document is presented to the Customer for approval before it is accepted
4.4.4	Is the customer informed of any deviation from the contract?	QAM 1-5.5 sec 4.1	C	Customer discuss any abnormalities
* 4.4.5	If a contract needs to be amended after work has commenced, is the same contract review process repeated and are any amendments communicated to all affected personnel?	QAM 1-5.5 sec 4.2	C	Repairs checked - OK
4.5	**Subcontracting of Tests & Calibrations**			
4.5.1	When a laboratory subcontracts work whether because of unforeseen reasons (e.g., workload, need for further expertise, or temporary incapacity) or on a continuing basis (e.g., through permanent subcontracting, agency, or franchising arrangements), is work placed with a competent subcontractor? A competent subcontractor is one that, for example, complies with the International Standard for the work in question. ***Objective evidence is required**	QAM 1-5.5 sec 15.0	C	Subcontracting is only conducted with the OEM or authorized laboratories capable of performing the Performance Verification. Purchasing-Vendor List
4.5.2	Does the laboratory advise the customer of the arrangement in writing and, when appropriate, gain the approval of the customer (preferably in writing)? ***Objective evidence is required**	QAM 1-5.5 sec 4.2.1.4	C	TSE notifies the Customer of the arrangements for subcontracting Quote 1-2170921 (0613 E4402B 2F6344)
4.5.3	Is the laboratory responsible to the customer for the subcontractor's work, except in the case where the customer or a regulatory authority specifies which subcontractor is to be used?	QAM 1-5.5 sec 15.2	C	TSE is responsible for the subcontractor's work
* 4.5.4	Does the laboratory maintain a register of all subcontractors that it uses for tests and/or calibrations and a record of evidence of compliance with the International Standard for the work in question? ***Objective evidence is required**	Purchasing-Vendor List in K1990	C	TSE maintains a list of all subcontractors used by the laboratory, along with evidence of their compliance to the laboratory's quality system

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4.6	**Purchasing Services and Supplies**			
* 4.6.1	Does the laboratory have a **Policy** and **procedure** for the selection and purchasing of services and supplies it uses that affect the quality of tests and/or calibrations and do **procedures** exist for purchase, reception, and storage of reagents and laboratory consumable materials relevant for tests and calibrations? ***Objective evidence is required**	QAM 1-5.5 sec 16.0 AP no. 9	C	TSE uses services and supplies of adequate quality where the specifications of outside services and supplies are relevant to the integrity of tests AP No. 9 – Procedure
4.6.2	Have purchased supplies and reagents and consumables are inspected or otherwise verified prior to use. Records of such actions are recorded. ***Objective evidence is required**	QAM 1-5.5 sec 16.0 AP no. 9	C	Access database updated with info from accredited cal provider – checked records for 4808 Precision Metrology 1002063228
* 4.6.3	Do purchasing documents contain data describing the services and supplies ordered and be reviewed and approved for technical content prior to release? ***Objective evidence is required**	QAM 1-5.5 sec 16.0 AP no. 9	C	PO's checked – Precision Metrology – 4808 – 17025 , 12 month cal cycle, before / after data Keysight – 3458A - 17025 , 12 month cal cycle, before / after data
4.6.4	Does the laboratory evaluate suppliers of critical consumables, supplies, and services which affect the quality of testing and calibration, and maintain records of these evaluations and a list of those approved? ***Objective evidence is required**	QAM 1-5.5 sec 16.0 AP no. 9	C	Approved vendor list – The records of the evaluation were updated 12/26/2017.
4.7	**Service to the Client**			
4.7.1	Is the laboratory willing to cooperate with customers or their representatives in clarifying the customer's request to monitor the laboratory's performance in relation to work performed, provided the laboratory ensures confidentiality to other customers? ***Objective evidence is required**	QAM 1-5.5 sec 4.1.1	C	TSE works with the Customer to clarify test requests, device operation and test results. See email from (JPL) Raul P Padilla on Tue 12/12/2017 3:47 PM

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4.7.2	Does evidence exist that the laboratory encourages feedback, both positive and negative, from customers or other parties and how is feedback used to improve the management system, testing/calibration activities, and customer service?	QAM 1-5.5 sec 4.1.1 / 17.0 AP no. 6 AP no. 10 and customer surveys	C	Survey form in place –Negative feedback recorded as complaints Positive feedback recorded as compliments
4.8	**Complaints**			
* 4.8	Does the laboratory have a **policy** and **procedure** for resolution of complaints received from customers or other parties? ***Objective evidence is required**	QAM 1-5.5 sec 17.2 AP no. 6 AP no. 10 AP no. 16	C	Policy - Lab Manager will be responsible for the handling of customer complaints, and with the help of any or all of the staff to find a solution to the problem complaint and solution are documented in 96so database and filed
4.8	Are records maintained of all complaints and of investigations and corrective actions taken by the laboratory? (see also 4.11) ***Objective evidence is required**	QAM 1-5.5 sec 17.2 AP no. 6 AP no. 10 AP no. 16 96so	C	Complaints log – 2017 – 11 complaints
4.9	**Control of Nonconforming Work**			
* 4.9.1	Does the laboratory have a **policy** and **procedures** that shall be implemented when any aspect of its testing/calibration work, or results of this work, do not conform to its own **procedures** or the agreed requirements of the customer? ***Objective evidence is required**	QAM 1-5.5 sec 9.0 / 14.0 / 16.0 AP no. 18 AP no. 14	C	Any Calibrated Equipment or Measurement Standard that is Out of Tolerance By 25% over the rated accuracy will be considered to be Significantly Out of Tolerance. Control of Non-conforming Work - AP No. 18
* 4.9.1	Do the **policies**/**procedures** ensure that responsibilities and authorities for management of nonconforming work are designated and actions (including halting of work and withholding of test reports/calibration certificates, as necessary) are defined and taken when nonconforming work is discovered?			
* a)	Do the **policies**/**procedures** ensure that an evaluation of the significance of nonconforming work is made?	AP no. 14 / 18	C	delegated to the appropriate management authorities

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* b)	Do the **policies**/**procedures** ensure that corrective actions are taken immediately, together with any decision about the acceptability of nonconforming work?	AP no14 / 18	C	When a non-conformance is detected, TSE's data is held and not released until the problem is resolved and verified by laboratory management
* c)	Do the **policies**/**procedures** ensure that, where necessary, the customer is notified and work is recalled?	AP no. 14 /18	C	Resumption of work is performed after the corrective action has been taken and approved. If required the customer is notified and any UUT impacted is recalled
* d)	Do the **policies**/**procedures** ensure that the responsibility for authorizing resumption of work is defined?	AP no. 14	C	QA Manager has sole responsibility
* e)	Do the **policies**/**procedures** ensure that an evaluation of the significance of nonconforming work is made?	AP no.14 / 18	C	Identified non-conformances with any procedure, quality control parameter or customer requirement are documented and the TSE's corrective action is initiated. This process involves the evaluation of the impact on quality and operations
* 4.9.2	Where the evaluation indicates that nonconforming work could recur or that there is doubt about the compliance of the laboratory's operations with its own **policies** and **procedures**, are corrective action **procedures** given in 4.11 promptly followed? ***Objective evidence is required**	AP no. 6	C	Compliant # 158 11/8/2017
4.10	**Improvement**			
4.10	Does the lab continually improve the effectiveness of its management system through the use of: the quality **policy**, quality objectives, audit results, analysis of data, corrective/preventive actions, management review?	QAM 1-5.5 sec 3.4	C	TSE uses the quality policy and objectives, audit results, data analysis, corrective and preventive actions and management review to improve its management system
4.11	**Corrective Action**			
4.11.1	**General**			
* 4.11.1	Has the laboratory established a **policy** and a **procedure** and designated appropriate authorities for implementing corrective action when nonconforming work or departures from the **policies** and **procedures** in the management system or technical operations have been	QAM 1-5.5 sec 17.0 AP no. 6 / 10	C	TSE promptly investigates complaints, adverse findings during audits, or any other circumstance that raises doubts concerning the laboratory's competence or compliance with required procedures

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	identified? ***Objective evidence is required**			AP No 6 - Preventive / Corrective Action / Feedback Compliant # 158 11/8/2017
4.11.2	**Cause Analysis (CA)**			
* 4.11.2	Does the **procedure** for corrective action start with an investigation to determine the root cause(s) of the problem?	AP no. 6	C	The "Complaints data base" includes root cause field for recording the results of the investigation
4.11.3	**Selection and Implementation of Corrective Action.**			
4.11.3	Where corrective action is needed, does the laboratory identify potential corrective actions? Does it select and implement the action(s) most likely to eliminate the problem and to prevent recurrence?	AP no. 6	C	The "Complaints data base" includes Corrective Action field for recording the results of the Implementation of the CA Compliant as reviewed
4.11.3	Are corrective actions to a degree appropriate to the magnitude and risk of the problem?	AP no. 6	C	Compliant as reviewed
4.11.3	Does the laboratory document and implement any required changes resulting from corrective action investigations? ***Objective evidence is required**	AP no. 6	C	Compliant # 158 11/8/2017
4.11.4	**Monitoring of CA**			
4.11.4	Does the laboratory monitor the results to ensure that the corrective actions taken have been effective?	AP no. 6	C	The "Complaints data base" includes QA check box for recording the QA managers compliance Compliant as reviewed
4.11.5	**Additional Audits**			
* 4.11.5	Where identification of non-conformances or departures casts doubts on the laboratory's compliance with its own **policies** and **procedures** or on its compliance with the International Standard, does the lab ensure the appropriate areas of activity are audited in accordance with 4.14 as soon as possible?	QAM 1-5.5 sec 17.0 AP no. 16	C	Compliant as reviewed
Effective implementation of Corrective Actions from previous assessment or surveillance, if applicable.			C	Checked NC1 from 2017 assessment – Implemented adequately.

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17025 Element	Requirement	Customer Document Reference	Conformance C | NC | NA	Comments on Conformance
4.12	**Preventive Action**			
4.12.1	Are needed improvements and potential sources of non-conformances, either technical or concerning the management system, identified?	QAM 1-5.5 sec 17.1	C	AP 6 - Preventive / Corrective Action / Feedback
4.12.1	If preventive action is required, are action plans developed, implemented, and monitored to reduce the likelihood of occurrence of such non-conformances and to take advantage of opportunities for improvement?	AP no. 6	C	Compliant as reviewed
* 4.12.2	Do **procedures** for preventive actions include initiation of such actions and application of controls to ensure that they are effective? ***Objective evidence is required**	AP no. 6	C	During repeatability testing (a preventive action) Standard M438 was found to be non repeatable and has been replaced with TR295
4.13	**Control of Records**			
4.13.1	**General**			
* 4.13.1.1	Does the laboratory establish and maintain **procedures** for identification, collection, indexing, access, filing, storage, maintenance, and disposal of quality and technical records? ***Objective evidence is required**	QAM 1-5.5 sec 13.0 AP no. 22	C	TSE maintains procedures for the identification, collection, indexing, access, filing, storage, maintenance and disposal of administrative and measurement-related records. (See Appendix H, AP No. 22.)
4.13.1.1	Do quality records include reports from internal audits and management reviews as well as records of corrective and preventive actions? ***Objective evidence is required**	QAM 1-5.5 sec 13.0 AP no. 22	C	When and as required
4.13.1.2	Are all records legible and stored and retained in such a way that they are readily retrievable in facilities that provide a suitable environment to prevent damage or deterioration and to prevent loss?	QAM 1-5.5 sec 13.0 AP no. 22	C	All records are readily retrievable and maintained in a suitable environment
4.13.1.2	Are retention times of records established? ***Objective evidence is required**	AP no. 22	C	Manufacture manuals are kept in the library minimum of two years Completed Documents stored in filing cabinets for a minimum of two years after which it is put into filing boxes and for a minimum of fifteen years

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				Electronic documents / records are kept for minimum of two years
4.13.1.3	Are all records held secure and in confidence?	AP no. 22	C	Compliant as reviewed
4.13.1.4	Does the laboratory have **procedures** to protect/back-up records stored electronically and to prevent unauthorized access to or amendment of these records? ***Objective evidence is required**	AP no. 22	C	Critical data bases (TSE1.accdb, tse.qbw)are backed up daily All other files are backed up weekly and stored in fire proof containers. See Flash Drives and External SSD
4.13.2	**Technical Records**			
4.13.2.1	Does the laboratory retain records of original observations, derived data, and sufficient information to establish an audit trail, calibration records, staff records, and a copy of each test report/calibration certificate issued, for a defined period? ***Objective evidence is required**	QAM 1-5.5 sec 13.0 / 14.0 AP no. 22	C	Original excel files are kept on Opman in data folder. Original SO are kept in filing cabinet. PDF copies are of combined certificate and data are kept on Opman customer PO
4.13.2.1	Do records for each test/calibration contain sufficient information to facilitate, if possible, identification of factors affecting the uncertainty and to enable the test/calibration to be repeated under conditions as close as possible to the original? ***Objective evidence is required**	QAM 1-5.5 sec 14.0	C	Certificate checked - Compliant
4.13.2.1	Do records include the identity of personnel responsible for the performance of the sampling, test/calibration and checking of results? ***Objective evidence is required**	QAM 1-5.5 sec 13.2.12	C	Certificate checked - Compliant
4.13.2.2	Are observations, data, and calculations recorded at the time they are made and identifiable to the specific task?	QAM 1-5.5 sec 13.2	C	Compliant as reviewed
4.13.2.3	Are mistakes single-line crossed out, correct entry made, and signed or initialed by person making correction? In the case of records stored electronically, are equivalent measures taken to avoid loss or change of original data?	QAM 1-5.5 sec 13.2	C	Compliant as reviewed

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4.14	**Internal Audits**			
* 4.14.1	Does the lab periodically, and in accordance with a predetermined schedule and **procedure**, conduct internal audits of its activities to verify that its operations continue to comply with requirements of the management system and the International Standard? ***Objective evidence is required**	QAM 1-5.5 sec 6. AP no. 7	C	Internal audits are conducted monthly to verify that operations continue to comply with the quality system. QAM Cal witnessing procedure SOI QA 1002 Technical witnessing procedure SOI QA 1003
4.14.1	Does the internal audit program address all elements of the management system, including the testing/calibration activities? It is the responsibility of the quality manager to plan/organize audits as required by the schedule and requested by management.	QAM 1-5.5 sec 6. AP no. 7	C	Each area and activity is audited at least once per year and recorded in J TSE PT and Internal Audit Tracking file
4.14.1	Are such audits carried out by trained/qualified personnel who are, wherever resources permit, independent of the activity to be audited?	QAM 1-5.5 sec 6. AP no. 7	C	By QA Manager or designee
4.14.2	If audit findings cast doubt on the effectiveness of operations or on the correctness or validity of the laboratory's test/calibration results, does the laboratory take timely corrective action and notify customers in writing if investigations show that the lab results may have been affected? ***Objective evidence is required**	QAM 1-5.5 sec 6. AP no. 7	C	None Found but should they occur per Non conforming
4.14.3	Are the areas of activity audited, the audit findings, and corrective actions that arise from them recorded?	QAM 1-5.5 sec 6. AP no. 7	C	12 Technical witnessing activities – performed monthly – Compliant 12 Cal witnessing activities – performed monthly – Compliant
4.14.4	Do follow-up audit activities verify and record the implementation and effectiveness of the corrective action taken? ***Objective evidence is required**	QAM 1-5.5 sec 6. AP no. 7	C	None Found but should they occur per Non conforming
4.15	**Management Review**			
* 4.15.1	In accordance with a predetermined schedule and **procedure**, does the laboratory's top management periodically conduct a review of the laboratory's	QAM 1-5.5 sec 6.4	C	Laboratory Manager conducts annual management reviews of the quality system

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	management system and testing/calibration activities?			Procedure in place – OK Scheduled for 29 Dec 2017
4.15.1	Review shall include:			
4.15.1	Does the review ensure their continuing suitability and effectiveness, and to introduce necessary changes or improvements and does the review take account of the suitability of **policies** and **procedures**? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review
4.15.1	Does the review take account of reports from managerial and supervisory personnel? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review
4.15.1	Does the review take account of the outcome of recent internal audits? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review
4.15.1	Does the review take account of corrective and preventive actions? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review
4.15.1	Does the review take account of assessments by external bodies? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review
4.15.1	Does the review take account of the results of inter-laboratory comparisons/ proficiency tests? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review
4.15.1	Does the review take account of changes in volume and type of work? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review
4.15.1	Does the review take account of customer feedback? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review
4.15.1	Does the review take account of complaints? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review
4.15.1	Does the review take account of reports from managerial and supervisory personnel? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review
4.15.1	Does the review take account of recommendations for improvement? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review

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4.15.1	Does the review take account of other relevant factors, such as quality control activities, resources, and staff training? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review
4.15.2	Are findings from management reviews and actions that arise from them recorded and how does management ensure that those actions are carried out within an appropriate/agreed timescale? ***Objective evidence is required**	AP no. 7	C	Addressed in 2016 review
5.0	**Technical Requirements**			
5.1	**General**			
5.1.1	Many factors determine correctness and reliability.			
5.1.2	Extent to which factors contribute to total uncertainty differs considerably between tests and calibrations.			
5.2	**Personnel**			
5.2.1	Ensure competence of all who operate equipment, perform test/calibrations (t/c), evaluate results & sign reports/certificates.	QAM 1-5.5 sec 7.0 AP no. 17	C	Members of TSE staff are selected for employment based on their professional qualifications, including education and relevant experience AP 17 - Training / Qualifications
5.2.2	Does management formulate goals with respect to the education, training, and skills of laboratory personnel?	AP no. 17	C	TSE Manager with the assistance of the QA manager Formulates goals for education, training and skill of personnel
* 5.2.2	Does the laboratory have a **Policy** and **procedures** for identifying training needs and providing training of personnel? ***Objective evidence is required**	AP no. 17	C	Compliant as reviewed AP 17
5.2.2	Are training programs relevant to the present and anticipated tasks of the lab and how is the effectiveness of the training actions taken evaluated?	AP no. 17	C	Compliant as reviewed AP 17
5.2.3	Does the laboratory use personnel who are employed by, or under contract to the lab and where contracted and additional technical and key support personnel are used,	QAM 1-5.5 sec 7.1.3	C	Personnel who are in the process of training are supervised until training is completed.

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	does the laboratory ensure such personnel are supervised and competent and that they work in accordance with the laboratory's management system?			Contracted personnel are also trained or experienced in testing measuring and testing devices
* 5.2.4	Does the laboratory maintain current job descriptions for managerial, technical, and key support personnel involved in tests/calibrations? ***Objective evidence is required**	QAM 1-5.5 sec 5.3.2 / 5.3.4	C	Defined in QAM
5.2.5	Does management authorize specific personnel to perform particular types of sampling, tests/calibrations, to issue test reports/calibration certificates, to give opinions and interpretations, and to operate particular types of equipment? ***Objective evidence is required**	AP no. 17 Appendix L QAM 1-5.5 sec 14.5.11 AP no. 26	C	Training records checked – Chad Sharp – OJT and attendance certificates for various classes attended – changes to systems – Scales – Fluke webinars – Uncertainty of measurement – MSC conference – 17025 – Up to date. Jose Dionicio – OJT up to 2008, RF and microwave fundamentals, various training classes from Fluke – Temperature, DMM, Ring gages, ESD certified, IR Thermometers, RF Microwave – Up to date Victor Arevalo – OJT training up to 2008, Gage black class, Torque wrench, Micrometer, Pin gages – Up to date. Authorizations for Chad and Charles Sharp to issue certificates AP No 26
5.2.5	Does the laboratory maintain records of relevant authorizations, competence, educational and professional qualifications, training, skills, and experience of all technical personnel, including contracted personnel and is this information readily available and does it include the date on which authorization and/or competence is	AP no. 17 Appendix L	C	Records checked - Complaint

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	confirmed? ***Objective evidence is required**			
5.3	**Accommodation & Environmental Conditions**			
5.3.1	Do laboratory facilities for testing/calibration (including but not limited to energy sources, lighting, and environmental conditions), facilitate correct performance of tests/calibrations?	QAM 1-5.5 sec 8.0	C	Electrical Standards Lab Temperature 23 +/- 5 degrees C Relative Humidity is maintained between 20 - 80% Physical Dimensional Standards Lab Temperature 20 +/- 3 deg. C Relative Humidity is maintained between 20 - 80%
* 5.3.2	Does the laboratory monitor, control, and record environmental conditions as required by relevant specifications, methods, and **procedures** or where they influence the quality of the results? ***Objective evidence is required**	AP no. 11 Appendix E	C	Control Company 6050 Temp/Humidity data loggers Compliant as reviewed
5.3.3	Is there effective separation between neighboring areas in which there are incompatible activities and are measures taken to prevent cross-contamination?	QAM 1-5.5 sec 8.1.3.4 Appendix D	C	Compliant as reviewed
5.3.4	Is access to and use of areas affecting the quality of the tests/calibrations controlled and does the lab determine the extent of control based on its particular circumstances?	QAM 1-5.5 sec 18.2	C	Compliant as reviewed
5.3.5	Are measures taken to ensure good housekeeping in the lab and are special **procedures** prepared where necessary? ***Objective evidence is required**	QAM 1-5.5 sec 8.1.3.2 AP no. 11	C	Compliant as reviewed
5.4	**Test & Calibration Methods and Method Validation**			
5.4.1	**General**			
5.4.1	Does the laboratory use appropriate methods and **procedures** for all tests/calibrations within its scope? Do these include handling, transport, storage, and preparation of items to be tested or calibrated, and, where appropriate, an estimation of the measurement	QAM 1-5.5 sec 11	C	TSE selects test procedures that are appropriate for the device under test, and the appropriate edition of the procedure is used to test the device.

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	uncertainty as well as statistical techniques for analysis of test/calibration data?			
5.4.1	Does the laboratory have instructions on use and operation of all relevant equipment, and on handling and preparation of items for testing and/or calibration, or both, where the absence of such instructions could jeopardize the results of tests/calibrations? ***Objective evidence is required**	QAM 1-5.5 sec 11 AP no. 14 pg 8	C	Equipment manuals, operating instructions, reference data, specifications, and tolerance tables relevant to TSE are maintained in The laboratory and are readily available.
5.4.1	Are all instructions, standards, manuals, and reference data relevant to the work of the lab kept up to date and made readily available to personnel? (see 4.3)	AP no. 14	C	Compliant as reviewed
5.4.1	Do deviations from test/calibration methods occur only if the deviation has been documented, technically justified, authorized, and accepted by the customer?	AP no. 14	C	Compliant as reviewed
5.4.2	**Selection of Methods**			
* 5.4.2	Does the laboratory use test/calibration methods, including methods for sampling, which meet the needs of the customer and which are appropriate for the tests/calibrations it undertakes?	AP no. 14	C	When documented or published procedures are unavailable, or when deviations from documented procedures occur, procedures for a specific test are developed, validated, and agreed to by TSE and all concerned parties.
5.4.2	Are the preferred methods published in international, regional, or national standards used?	QAM 1-5.5 sec 11 AP no. 14 pg 8	C	Compliant as reviewed
5.4.2	Does the laboratory ensure that it uses the latest valid edition of a standard unless it is not appropriate or possible to do so?	QAM 1-5.5 sec 11.2 AP no. 14	C	Compliant as reviewed
5.4.2	When necessary, is the standard supplemented with additional details to ensure consistent application?	QAM 1-5.5 sec 11.2 AP no. 14	C	Compliant as reviewed
5.4.2	When the customer does not specify the method to be used, does the laboratory select appropriate methods that have been published either in international, regional, or national standards, or by reputable technical organizations, or in relevant scientific texts or journals, or as specified by the manufacturer of the equipment? Lab-	QAM 1-5.5 sec 11 AP no. 14	C	Compliant as reviewed

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	developed methods or methods adopted by the lab may also be used if they are appropriate for the intended use and if they are validated.			
5.4.3	**Laboratory-developed Methods**			
5.4.3	Is introduction of test/calibration methods developed by lab for its own use a planned activity and assigned to qualified personnel equipped with adequate resources?	QAM 1-5.5 sec 11 AP no. 14 AP no.15 AP no.19	C	Compliant as reviewed
5.4.3	Are plans updated as development proceeds and is effective communication among all personnel involved ensured?	QAM 1-5.5 sec 11 AP no. 14 AP no.15 AP no.19	C	Compliant as reviewed
5.4.4	**Non-standard Methods**			
5.4.4	When it is necessary to use methods not covered by standard methods, are these subject to agreement with the customer and do they include a clear specification of the customer's requirements and the purpose of the test/calibration and has the method developed validated appropriately before use?	AP no. 19	C	Compliant as reviewed
5.4.5	**Validation of Methods**			
5.4.5.1	Is the validation specific for intended use?	QAM 1-5.5 sec 11.2	C	Compliant as reviewed
5.4.5.2	Does the laboratory validate non-standard methods, laboratory-designed/developed methods, standard methods used outside their intended scope, and amplifications and modifications of standard methods to confirm that the methods are fit for the intended use?	QAM 1-5.5 sec 11.2	C	Before a new test is conducted, TSE reviews the test procedure to ensure that the test can be performed adequately. If the test procedure is revised, the review is repeated.
5.4.5.2	Is validation as extensive as is necessary to meet the needs of the given application or field of application?	QAM 1-5.5 sec 11.2	C	Compliant as reviewed
5.4.5.2	Does the laboratory record the results obtained, the **procedure** used for the validation, and a statement as to whether the method is fit for the intended use? ***Objective evidence is required**	QAM 1-5.5 sec 11.2	C	Compliant as reviewed
5.4.5.3	The range and accuracy of the values obtainable from validated methods shall be relevant to the	QAM 1-5.5 sec 11.2	C	Compliant as reviewed

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	client's needs.			
5.4.6	**Estimate of Uncertainty of Measurement**			
* 5.4.6.1	Does the calibration laboratory or a testing laboratory performing its own calibrations, have and apply a **procedure** to estimate the uncertainty of measurement for all calibrations/types of calibrations? ***Objective evidence is required**	QAM 1-5.5 sec 11.3.2	C	NIST TN 1297 and MSC T11-2011
5.4.6.2	Do testing labs have and apply **procedures** for estimating uncertainty of measurement? In certain cases the nature of the test method may preclude rigorous, metrologically and statistically valid, calculation of uncertainty of measurement.		Na	Not a test lab
5.4.6.3	When estimating the uncertainty of measurement, are all uncertainty components which are of importance in the given situation taken into account using appropriate methods of analysis?	QAM 1-5.5 sec 11.3.2	C	Compliant as reviewed
5.4.7	**Control of Data**			
5.4.7.1	Are calculations and data transfers subject to appropriate checks in a systematic manner?	QAM 1-5.5 sec 11.5	C	Compliant as reviewed
* 5.4.7.2	When computers or automated equipment are used, the lab shall ensure that:			
* a)	When computers or automated equipment are used for acquisition, processing, recording, reporting, storage, or retrieval of test/calibration data, does the laboratory ensure that computer software developed by the user is documented in sufficient detail and is suitably validated as being adequate for use?	QAM 1-5.5 sec 11.5.2	C	UB sheet – E = mc^3 developed - Complaint
* b)	Are **procedures** established and implemented for protecting the data and do such **procedures** include, at a minimum, integrity and confidentiality of data entry or collection, data storage, data transmission, and data processing?	QAM 1-5.5 sec 11.5.2	C	Compliant as reviewed

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c)	Are computers and automated equipment maintained to ensure proper functioning and are provided with the environmental and operating conditions necessary to maintain the integrity of test/calibration data?	QAM 1-5.5 sec 11.5.2	C	Compliant as reviewed
5.5	**Equipment**			
* 5.5.1	Is the laboratory furnished with all items of measurement and test equipment required for the correct performance of the tests/calibrations (including sampling, preparation of test/calibration items and processing and analysis of test/calibration data)?	QAM 1-5.5 sec 9 AP no. 13	C	Laboratory standards, equipment, and associated apparatus are maintained suitable for the correct performance of tests and are maintained in accordance with TSE procedures (see Appendix H, AP No. 13), equipment maintenance and operational manuals, and this quality manual.
5.5.1	In those cases, where the laboratory needs to use equipment outside its permanent control, does it ensure that the requirements of the International Standard are met?	QAM 1-5.5 sec 9 AP no. 14	C	Compliant as reviewed
5.5.2	Is equipment/software used for testing, calibration, and sampling capable of achieving the accuracy required and does it comply with the specifications relevant to tests/calibrations concerned?	QAM 1-5.5 sec 9.3.1.5	C	Equipment list checked – Compliant as reviewed
5.5.2	Are calibration programs established for key quantities or values of the instruments where these properties have a significant effect on the results?	QAM 1-5.5 sec 9.3	C	Compliant as reviewed
5.5.2	Before being placed into service, is equipment (including that used for sampling) calibrated or checked to establish that it meets the laboratory's specification requirements and complies with the relevant standard specifications? Is it checked or calibrated before use? (see 5.6)	QAM 1-5.5 sec 9.3	C	Compliant as reviewed
5.5.3	Is equipment operated by authorized personnel and are up-to-date instructions on the use and maintenance of equipment (including any relevant manuals provided by the manufacturer of the equipment) readily available for use by the appropriate lab personnel?	QAM 1-5.5 sec 9.3.1.6	C	Compliant as reviewed
5.5.4	Is each item of equipment and its software used for testing/calibration and significant to the result, when	QAM 1-5.5 sec 9.3.1.8	C	Compliant as reviewed

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	practicable, uniquely identified?			
5.5.5	Records shall be maintained for each item of equipment, and shall include:			
a)	Do the records include at least the identity of the item of equipment and its software?	QAM 1-5.5 sec 9.2	C	Compliant as reviewed
b)	Do the records include at least the manufacturer's name, type identification, and serial number or other unique identification?	QAM 1-5.5 sec 9.2	C	Compliant as reviewed
c)	Do the records include at least the checks that equipment complies with specifications? (see 5.5.2)	QAM 1-5.5 sec 9.2	C	Compliant as reviewed
d)	Do the records include at least the current location, where appropriate?	AP No. 13 pg 4	C	Compliant as reviewed
e)	Do the records include at least the manufacturer's instructions, if available, or reference to their location?	QAM 1-5.5 sec 9.3.1.4	C	Compliant as reviewed
f)	Do the records include at least the dates, results, and copies of reports and certificates of all calibrations, adjustments, acceptance criteria, and the due date of next calibration?	QAM 1-5.5 sec 9.2	C	Compliant as reviewed
g)	Do the records include at least the maintenance plan, where appropriate, and maintenance carried out to date?	QAM 1-5.5 sec 9.2	C	Compliant as reviewed
h)	Do the records include at least the damage, malfunction, modification, or repair to the equipment?	QAM 1-5.5 sec 9.2	C	Compliant as reviewed
* 5.5.6	Does the laboratory have **procedures** for safe handling, transport, storage, use, and planned maintenance of measuring equipment to ensure proper functioning and to prevent contamination or deterioration? ***Objective evidence is required**	QAM 1-5.5 sec 10.1 AP No. 13, 14	C	Standards, measuring and test equipment significantly affecting the integrity of the measurements conducted by TSE are monitored for stability as part of the measurement control program Procedures for safe handling, transport, storage and use of reference standards, materials and equipment (see Appendix H, AP No. 13and AP No. 14).

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5.5.7	Is equipment that has been subjected to overloading or mishandling, gives suspect results, or has been shown to be defective or outside specified limits, taken out of service?	QAM 1-5.5 sec 9.3.1.2.d AP No. 13 pg 2	C	Compliant as reviewed
5.5.7	Does the laboratory examine the effect of the defect or departure from specified limits on previous tests/calibrations and institute the "Control of nonconforming work" **procedure**? (see 4.9).	QAM 1-5.5 sec 9.3.1.3 AP No. 18	C	Compliant as reviewed
5.5.8	Whenever practicable, is all equipment under the control of the lab and requiring calibration labeled, coded, or otherwise identified to indicate the status of calibration, including the date of the last calibration and the date or expiration criteria when re-calibration is due?	QAM 1-5.5 sec 9.3.1.8 AP No. 14	C	Compliant as reviewed
5.5.9	When, for whatever reason, equipment goes outside the direct control of the laboratory, does the laboratory ensure that the function and calibration status of the equipment are checked and shown to be satisfactory before the equipment is returned to service?	QAM 1-5.5 sec 9.3.1.7	C	Compliant as reviewed
* 5.5.10	When intermediate checks are needed to maintain confidence in the calibration status of the equipment, are these checks carried out according to a defined **procedure**? ***Objective evidence is required**	AP No. 14 pg 14	C	SOI QA 1004,1005,1006,1007,1008 and 1009
* 5.5.11	Where calibrations give rise to a set of correction factors, does the laboratory have **procedures** to ensure that copies (e.g., in computer software) are correctly updated? ***Objective evidence is required**	QAM 1-5.5 sec 9.3.1.10 AP No. 14 pg 10	C	Power Sensor Data at RF Bench
5.5.12	Is test/calibration equipment, including both hardware and software, safeguarded from adjustments which would invalidate the test/calibration results?	QAM 1-5.5 sec 9.3.1.11 11.5.2 AP No. 8	C	Compliant as reviewed
5.6	**Measurement Traceability**			
5.6.1	**General**			
5.6.1	Is all equipment used for test/calibrations, including equipment for subsidiary measurements (e.g., for environmental conditions) having a significant effect on	QAM 1-5.5 sec 10.1	C	Calibrated and/or verified before use to ensure the recall or removal from service of any equipment or

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17025 Element	Requirement	Customer Document Reference	Conformance C | NC | NA	Comments on Conformance
	the accuracy or validity of the result of the test, calibration, or sampling, calibrated before being put into service?			standards that are unreliable or that have exceeded the calibration interval.
* 5.6.1	Does the laboratory have an established program and **procedure** for the calibration of it equipment? ***Objective evidence is required**	QAM 1-5.5 sec 10.0 AP13 pg 8	C	The performance test procedures and check list data sheet supplied in the Maintenance and Repair section of the Instrument Operating and Service Manual or Navy/GIDEP procedures
5.6.2	**Specific Requirements**			
5.6.2.1	**Calibration**			
5.6.2.1.1	Does the calibration laboratory's program for calibration ensure traceability to the International System of Units (SI)?	QAM 1-5.5 sec 10.2 Appendix R	C	Measurements of TSE are traceable to the international system of measurements (SI) through an unbroken chain of measurements. Measurement traceability for TSE tests are documented in traceability charts (see Appendix R and SOP 1006 SOP1006A).
5.6.2.1.1	Do the calibration certificates issued by these laboratories contain the measurement results, including the measurement uncertainty and/or a statement of compliance with an identified metrological specification? (See also 5.10.4.2). ***Objective evidence is required**	QAM 1-5.5 sec 14.0	C	Precision Metrology Cert 1002063228 Rice Lake Cert 2611112B Keysight Cert 1-8854078306-1
5.6.2.1.2	There are certain calibrations that currently cannot be strictly made in SI units. In these cases, does the laboratory provide confidence in measurements by establishing traceability to appropriate measurement standards such as: • the use of certified reference materials provided by a competent supplier to give a reliable physical or chemical characterization of material? • the use of specified methods and/or consensus standards that are clearly described and agreed to by all parties concerned? • participation in a suitable program of inter-laboratory comparisons where possible?	QAM 1-5.5 sec 10.3.1.4 AP No. 4	C	Compliant as reviewed
5.6.2.2	**Testing**			

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5.6.2.2.1	For testing laboratories, does the laboratory meet the requirements given in 5.6.2.1 for measuring/test equipment with measuring functions used unless it has been established that the associated contribution from the calibration contributes little to the total uncertainty of the test result?		NA	Not a testing Lab
5.6.2.2.1	When this situation arises, does the laboratory ensure that the equipment used can provide the uncertainty of measurement needed?		NA	Not a testing Lab
5.6.2.2.2	When traceability of measurements to SI units is not possible and/or not relevant, does the laboratory meet the same requirements for traceability to, for example, certified reference materials, agreed methods and/or consensus standards as required for calibration labs? (see 5.6.2.1.2).		NA	Not a testing Lab
5.6.3	**Reference Standards & Reference Materials**			
5.6.3.1	**Reference Standards**			
* 5.6.3.1	Does the laboratory have a program and **procedure** for the calibration of its reference standards? ***Objective evidence is required**	QAM 1-5.5 sec 10.3	C	TSE uses accredited or approved laboratory with traceability to a national laboratory to calibrate working standards
* 5.6.3.1	Are reference standards calibrated by a body that can provide traceability as described in 5.6.2.1? ***Objective evidence is required**	QAM 1-5.5 sec 10.3.1.1	C	Precision Metrology Cert 1002063228 Rice Lake Cert 2611112B Keysight Cert 1-8854078306-1
5.6.3.1	Are such reference standards of measurement held by the lab used for calibration only and for no other purpose, unless it can be shown that their performance as reference standards would not be invalidated?	AP No. 13 pg 2	C	Compliant as reviewed
5.6.3.1	Are reference standards calibrated before and after any adjustment?	QAM 1-5.5 sec 10.3.1.3 AP No. 13 pg 7	C	Compliant as reviewed
5.6.3.2	**Reference Materials**			
5.6.3.2	Are reference materials, where possible, traceable to SI units of measurement, or to certified reference materials?	QAM 1-5.5 sec 10.3.2.2 AP No. 13 pg 8	C	Compliant as reviewed

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5.6.3.2	Are internal reference materials checked as far as is technically and economically practicable?	QAM 1-5.5 sec 10.3.2.2 AP No. 13 pg 8	C	Compliant as reviewed
5.6.3.3	**Intermediate Checks**			
* 5.6.3.3	Are checks needed to maintain confidence in the calibration status of reference, primary, transfer, or working standards and reference materials carried out according to defined **procedures** and schedules? ***Objective evidence is required**	QAM 1-5.5 sec 9.3.1.9 & 6.0 AP No. 7	C	TSE performs intermediate checks of equipment calibration status See: SOI QA 1004, SOI QA 1005, SOI QA 1006, SOI QA 1007, SOI QA 1008, and SOI QA 1009
5.6.3.4	**Transportation and Storage**			
* 5.6.3.4	Does the laboratory have **procedures** for safe handling, transport, storage, and use of reference standards and reference materials in order to prevent contamination or deterioration and in order to protect their integrity? ***Objective evidence is required**	AP No. 13 pg 11	C	Procedure OK
5.7	**Sampling**			
* 5.7.1	Does the lab have a sampling plan and **procedures** for sampling when it carries out sampling of substances, materials or products for subsequent testing/calibration?		NA	No Sampling
5.7.1	Sampling plan and **procedure** are available where sampling takes place.		NA	No Sampling
5.7.2	Where the customer requires deviations from, additions to, or exclusions from the documented sampling **procedure**, are these recorded in detail with the appropriate sampling data, included in all documents containing test/calibration results, and communicated to the appropriate personnel?		NA	No Sampling
* 5.7.3	Does the laboratory have **procedures** for recording relevant data and operations relating to sampling that forms part of the testing/calibration that is undertaken?		NA	No Sampling
5.8	**Handling of Test and Calibration Items**			
* 5.8.1	Does the laboratory have **procedures** for the transportation, receipt, handling, protection, storage,	QAM 1-5.5 sec 12.0	C	Items received for test are recorded in a laboratory work log and assigned a Service Order (SO) number

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	retention, and/or disposal of test/calibration items, including all provisions necessary to protect the integrity of the test/calibration item, and to protect the interests of the laboratory and the customer? ***Objective evidence is required**			that uniquely identifies the item during its stay in the laboratory. Service Orders are maintained in the laboratory. A Service Order is completed to include: the item received for test, name of company submitting the test items, and date of receipt.
* 5.8.2	Does the laboratory have a system for identifying test/calibration items?	AP No. 5	C	Service Orders travel with items while at TSE
5.8.3	Upon receipt of the test/calibration items, are abnormalities or departures from normal or specified conditions, as described in the test or calibration method, recorded? ***Objective evidence is required**	AP No. 5	C	SOI AD 1005 SO# 2172993
* 5.8.4	Does the laboratory have **procedures** and appropriate facilities for avoiding deterioration, loss, or damage to the test/calibration item during storage, handling, and preparation? ***Objective evidence is required**	AP No. 5	C	Compliant as reviewed
5.9	**Assuring the Quality of Test and Calibration Results**			
* 5.9.1	Does the laboratory have quality control **procedures** for monitoring the validity of tests/calibrations undertaken? ***Objective evidence is required**	AP No. 20	C	12 Cal witness SOI QA 1002 12 Technical witness SOI QA 1003
a)	Does the laboratory regularly use certified reference materials and/or internal quality control using secondary reference materials?	QAM 1-5.5 sec 11.0 AP No. 20	C	TSE follows the procedures and checklist for measuring and testing instruments listed in the TSE Service guide.
b)	Does the laboratory participate in inter-laboratory comparison or proficiency-testing programs?	QAM 1-5.5 sec 11.0 AP No. 20	C	Compliant as reviewed
c)	Is replicating tests/calibrations using the same or different methods?	QAM 1-5.5 sec 11.5	C	Compliant as reviewed
d)	Is the laboratory retesting or recalibration of retained items?	QAM 1-5.5 sec 11.5	C	Compliant as reviewed
e)	Is the laboratory correlating results for different characteristics of an item?	QAM 1-5.5 sec 11.0 AP No. 20	C	Compliant as reviewed
5.9.2	Is quality control data analyzed and if the data analyzed is found outside pre-defined criteria, is planned action taken	QAM 1-5.5 sec 11.0 AP No. 20	C	Compliant as reviewed

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	to correct the problem and to prevent incorrect results from being reported?			
5.10	**Reporting the Results**			
5.10.1	**General**			
5.10.1	Are results of each test/calibration (or series of tests/calibrations carried out by the lab) reported accurately, clearly, unambiguously, objectively, and in accordance with any specific instructions in the test/calibration methods?	QAM 1-5.5 sec 14.3	C	Certificate checked - Compliant
* 5.10.1	Are the results reported, usually in a test report/calibration certificate, and do they include all theinformation requested by the customer and necessary for the interpretation of the test/calibration results and all information required by the method used? This information is normally that required by 5.10.2, and 5.10.3 or 5.10.4. In case of tests/calibrations performed for internal customers, or in the case of a written agreement with the customer, the results may be reported in a simplified way.	QAM 1-5.5 sec 14.3	C	Certificate checked - Compliant
5.10.1	If any information listed in 5.10.2 to 5.10.4 is not reported to the customer, is it readily available in the laboratory which carried out the tests/calibrations?	QAM 1-5.5 sec 14.3	C	Certificate checked – Compliant
5.10.2	**Test Reports and Calibration Certificates**			
5.10.2	Test reports and calibration certificates include 17025 listed information, unless they have a valid reason for not doing so.	QAM 1-5.5 sec 14.1	C	Certificate checked - Compliant
a)	Unless the lab has valid reasons for not doing so, does each test report/calibration certificate include a title (e.g., “Test Report” or “Calibration Certificate”)?	QAM 1-5.5 sec 14.5.2	C	Certificate checked - Compliant
b)	Unless the lab has valid reasons for not doing so, does each test report/calibration certificate include the name and address of the lab, and the location where the tests/calibrations were carried out, if different from	QAM 1-5.5 sec 14.5.2	C	Certificate checked - Compliant

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	the address of the lab?			
c)	Unless the lab has valid reasons for not doing so, does each test report/calibration certificate include unique identification of the test report/calibration certificate (such as the serial number), and on each page an identification in order to ensure that the page is recognized as a part of the test report/calibration certificate, and a clear identification of the end of the test report or calibration certificate?	QAM 1-5.5 sec 14.5.2	C	Certificate checked - Compliant
d)	Unless the lab has valid reasons for not doing so, does each test report/calibration certificate include the name and address of the customer?	QAM 1-5.5 sec 14.5.3	C	Certificate checked - Compliant
e)	Unless the lab has valid reasons for not doing so, does each test report/calibration certificate include identification of the method used?	QAM 1-5.5 sec 14.5.7	C	Certificate checked - Compliant
f)	Unless the lab has valid reasons for not doing so, does each test report/calibration certificate include a description of, the condition of, and unambiguous identification of the item(s) tested or calibrated?	QAM 1-5.5 sec 14.5.4	C	Certificate checked - Compliant
g)	Unless the lab has valid reasons for not doing so, does each test report/calibration certificate include the date of receipt of the test/calibration item(s) where this is critical to the validity and application of the results, and the date(s) of performance of the test or calibration?	QAM 1-5.5 sec 14.5.5	C	Certificate checked - Compliant
h)	Unless the lab has valid reasons for not doing so, does each test report/calibration certificate include reference to the sampling plan and **procedures** used by the lab or other bodies where these are relevant to the validity or application of the results?	QAM 1-5.5 sec 14.5.4 & 20	C	Certificate checked - Compliant
i)	Unless the lab has valid reasons for not doing so, does each test report/calibration certificate include the test/calibration results with, where appropriate, the units	QAM 1-5.5 sec 14.5.10	C	Certificate checked - Compliant

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	of measurement?			
j)	Unless the lab has valid reasons for not doing so, does each test report/calibration certificate include the name(s), function(s) and signature(s) or equivalent identification of person(s) authorizing the test report or calibration certificate?	QAM 1-5.5 sec 14.5.11	C	Certificate checked - Compliant
k)	Where relevant, does the laboratory provide a statement that the results relate only to the items t/c?	QAM 1-5.5 sec 14.5.12	C	Certificate checked - Compliant
5.10.3	**Test Reports**			
5.10.3.1	Where necessary for the interpretation of results, the following shall be included in test reports:		NA	Not a test Lab
a)	In addition to the requirements listed in 5.10.2, do test reports, where necessary for the interpretation of the test results, include deviations from, additions to, or exclusions from the test method, and information on specific test conditions, such as environmental conditions?		NA	Not a test Lab
b)	Do test reports include, where relevant, a statement of compliance/non-compliance with requirements and/or specifications?		NA	Not a test Lab
c)	Do test reports include, where applicable, a statement on the estimated uncertainty of measurement? Information on uncertainty is needed in test reports when it is relevant to the validity or application of the test results, when a customer's instruction so requires, or when the uncertainty affects compliance to a specification limit.		NA	Not a test Lab
d)	Do test reports include, where appropriate and needed, opinions and interpretations (see 5.10.5)?		NA	Not a test Lab
e)	Do test reports include additional information which may be required by specific methods, customers, or groups of customers?		NA	Not a test Lab

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5.10.3.2	Sampling in reports shall include:			
a)	Where necessary for the interpretation of test results, do test reports containing the results of sampling include the date of sampling?		NA	Not a test Lab
b)	Where necessary for the interpretation of test results, do test reports containing the results of sampling include an unambiguous identification of the substance, material or product sampled (including the name of the manufacturer, the model or type of designation, and serial numbers as appropriate)?		NA	Not a test Lab
c)	Where necessary for the interpretation of test results, do test reports containing the results of sampling include the location of sampling, including any diagrams, sketches or photographs?		NA	Not a test Lab
d)	Where necessary for the interpretation of test results, do test reports containing the results of sampling include a reference to the sampling plan and **procedures** used?		NA	Not a test Lab
e)	Where necessary for the interpretation of test results, do test reports containing the results of sampling include details of any environmental conditions during sampling that may affect the interpretation of the test results?		NA	Not a test Lab
f)	Where necessary for the interpretation of test results, do test reports containing the results of sampling include any standard or other specification for the sampling method or **procedure**, and deviations, additions to or exclusions from the specification concerned?		NA	Not a test Lab
5.10.4	**Calibration Certificates**			
5.10.4.1	Calibration certificates shall also include:			
a)	Where necessary for the interpretation of calibration results, do calibration certificates include the conditions (e.g., environmental) under which the	QAM 1-5.5 sec 14.5.8 AP Note 14 pg 5	C	Certificate checked - Compliant

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	calibrations were made that have an influence on the measurement results?			
b)	Where necessary for the interpretation of calibration results, do calibration certificates include the uncertainty of measurement and/or a statement of compliance with an identified metrological specification or clauses thereof?	AP Note 14 pg 5	C	Certificate checked - Compliant
c)	Where necessary for the interpretation of calibration results, do calibration certificates include evidence that the measurements are traceable? (see note in 5.6.2.1.1)	AP Note 14 pg 5	C	Certificate checked - Compliant
5.10.4.2	Does the calibration certificate relate only to quantities and results of functional tests?	AP Note 14 pg 5	C	Certificate checked - Compliant
5.10.4.2	When a statement of compliance is made omitting the results and associated uncertainties, the does the laboratory record those results and maintain them for future reference?	AP Note 14 pg 5	C	Certificate checked - Compliant
5.10.4.2	When a statement of compliance is made, does the laboratory take uncertainty into consideration?	AP Note 14 pg 5	C	Certificate checked - Compliant
5.10.4.3	When an instrument for calibration has been adjusted or repaired, are the calibration results before and after adjustment or repair (if available) reported?	AP Note 14 pg 5	C	Certificate checked - Compliant
5.10.4.4	Does the laboratory ensure its calibration certificate (or calibration label) contains no recommendation on the calibration interval except where this has been agreed with the customer? This requirement may be superseded by legal regulations.	AP Note 14 pg 5	C	Certificate checked - Compliant
5.10.5	**Opinions and Interpretations**			
5.10.5	When opinions and interpretations are included, does the laboratory document the basis upon which the opinions and interpretations have been made and Are opinions and interpretations clearly marked as such in a test report?	QAM 1-5.5 sec 14.4	C	Any opinions and interpretations included in test reports are clearly marked as such and indicate the basis upon which the opinions and interpretations were made. Any opinions and interpretations that are communicated through conversation with the Customer are documented on the test report.

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5.10.6	**Testing and Calibration Results Obtained from Subcontractors**			
5.10.6	When the test report contains results of tests performed by subcontractors, are these results clearly identified? Does the subcontractor report the results in writing or electronically?	QAM 1-5.5 sec 14.5	C	Clear identification of reported results or test if performed by subcontractors.
5.10.6	When a calibration has been subcontracted, does the laboratory performing the work issue the calibration certificate to the contracting lab?	AP Note 14 pg 5	C	Clear identification of reported results or test if performed by subcontractors.
5.10.7	**Electronic Transmission of Results**			
5.10.7	In the case of transmission of test/calibration results by telephone, telex, facsimile, or other electronic or electromagnetic means, are the requirements of the International Standard met? (see also 5.4.7).	QAM 1-5.5 sec 14.11	C	Protect test data transmission and processing usually as a pdf.
5.10.8	**Format of Reports and Certificates**			
5.10.8	Is the format designed to accommodate each type of test/calibration carried out and to minimize the possibility of misunderstanding or misuse?	QAM 1-5.5 sec 14.12	C	Compliant as reviewed
5.10.9	**Amendments to Reports or Certificates**			
5.10.9	Are material amendments to a test report/calibration certificate after issue made only in the form of a further document, or data transfer, which includes the statement: "Supplement to Test Report (or Calibration Certificate), serial number...(or as otherwise identified)", or an equivalent form of wording?	QAM 1-5.5 sec 14.8	C	Amendments are made in the form of an additional document or data transfer and the Certificate is labeled with an amendment number for each amendment
5.10.9	Do such amendments meet all requirements of the International Standard?	QAM 1-5.5 sec 14.8	C	Compliant as reviewed
5.10.9	When it is necessary to issue a complete new test report or calibration certificate, is it uniquely identified and does it contain a reference to the original that it replaces?	QAM 1-5.5 sec 14.8	C	If a new document is issued, it contains a reference to the original that it replaces. "Replaces Certificate printed on (date)"

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ANAB Accreditation Requirements

Document Number	Document Name	Customer Document Reference	Conformance C | NC | NA	Comments on Compliance
*** Accreditation Requirements for Calibration Laboratories** ➢ Proficiency Testing ➢ Traceability ➢ Traceability using RM's ➢ Uncertainty of Measurement ➢ In House Calibrations			C	Compliant as reviewed
*** Accreditation Requirements for Testing Laboratories** ➢ Proficiency Testing ➢ Traceability ➢ Traceability using RM's ➢ Uncertainty of Measurement ➢ In House Calibrations			C	Compliant as reviewed
*** Accreditation Requirements for Control and Use of Accreditation Symbol** ➢ Verify appropriate use on reports and certificates. ➢ Verify appropriate use on marketing materials. ➢ Verify appropriate use on website ➢ Verify use of combined symbol with ILAC mark if used ➢ Confirm calibration stickers requirements			C	Compliant as reviewed
Scope of Accreditation & associated uncertainty budgets. Assure appropriate uncertainties are complete and note if changed.			C	Compliant as reviewed
Areas of Concern				

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