ASSOCIATION OF HOME APPLIANCE MANUFACTURERS

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April 30, 2010

Kathleen Vokes
Energy Star Product Development
Environmental Protection Agency
1310 L Street, NW
Washington, DC 20005

Dear Ms. Vokes,

Re: AHAM Comments on the Energy Star Product Enhanced Testing and Verification Proposal for Appliances

On behalf of the Association of Home Appliance Manufacturers (AHAM), I would like to provide our comments to the Environmental Protection Agency (EPA) Energy Star Program on its proposal for Energy Star Products Enhanced Testing and Verification.

AHAM represents manufacturers of major, portable and floor care home appliances, and suppliers to the industry. AHAM's more than 150 members employ tens of thousands of people in the U.S. and produce more than 95% of the household appliances shipped for sale within the U.S. The factory shipment value of these products is more than $30 billion annually. The home appliance industry, through its products and innovation, is essential to U.S. consumer lifestyle, health, safety and convenience. Through its technology, employees and productivity, the industry contributes significantly to U.S. jobs and economic security. Home appliances also are a success story in terms of energy efficiency and environmental protection. New appliances often represent the most effective choice a consumer can make to reduce home energy use and costs.

AHAM supports EPA in its efforts to provide incentives to manufacturers, retailers and consumers for continual energy efficiency improvement. AHAM understands the need to ensure public confidence in the Energy Star program. We appreciate the opportunity to offer the following comments on EPA's Energy Star Product Enhanced Testing and Verification proposal, as it was presented for our products during several conference calls on March 26 and March 29, 2010. We look forward to working with EPA Energy Star in its continued development of this Program.

Sincerely,

Debra K. Brunk

Debra K. Brunk, Ph.D.
Vice President, Technical Services

AHAM Comments to "Energy Star Products Enhanced Testing and Verification" Proposal Presented on March 26, 2010

AHAM Programs

As you are aware, AHAM currently administers programs for room air conditioners, dehumidifiers and room air cleaners. The room air conditioner and dehumidifier programs verify energy consumption of the product, consistent with the DOE/EPA test procedure. These programs have been in effect for decades and are open to both members and non-members of AHAM. AHAM's room air cleaner program certifies and verifies Clean Air Delivery Rate (CADR), which is the primary component of the Energy Star metric. This program has been offered for over a decade and is also open to members and non-members of AHAM. Each of AHAM's programs contain realistic operating principles and procedures, resulting in value for manufacturers, the government and consumers. More information about these programs is available at www.cadr.org; www.cooloff.org and www.aham.org.

As you know, AHAM is developing a Refrigerator/Freezer Verification Program and expects this program to begin on July 1, 2010. Exhibit A provides a summary of AHAM's current program which we have discussed in detail with you. We are currently evaluating Energy Star's comments and questions on this proposed Program and expect to finalize the Program components no later than the end of May. It is important to AHAM that this, and any product verification, program provides a holistic solution to government agency compliance and regulatory needs, ensuring minimal burden for the government, industry, consumers and program administrators.

Program Scope

While AHAM understands the importance of verification testing and the need to further increase public confidence in the Energy Star brand, EPA, DOE and the industry need to ensure that new programs and/or practices are fully evaluated and not reactive, are rational and are consistent with any other verification or auditing programs already underway. While Energy Star products are an important part of the market, they are just a portion of the entire market. AHAM questions how this program will work in concert with other testing programs already in place, or those being developed. In addition, it is doubtful that there is adequate third party laboratory capacity for all Energy Star categories.

Natural Resources Canada (NRCan) has an Energy Efficiency Verification (EEV) program through which products are tested, certified and listed on the NRCan website. There is a system for auditing test laboratories and ensuring cross-checking of products. Rather than unilaterally increasing industry's burden by creating new or different requirements that may very likely duplicate existing testing and verification programs, AHAM suggests that EPA review the NRCan program and determine how the foundation of the NRCan program might be used, or even enhanced if necessary, to support the EPA Energy Star program.

Verification programs provide the greatest value when all basic models of a given product are included, rather than a subset of basic models (i.e., Energy Star models). AHAM has concerns that creating a verification program only for Energy Star products will result in duplicative requirements, providing little to no additional value.

Product Qualification/Certification

EPA Energy Star proposes that new products must be qualified by an approved, accredited lab. There are several issues with this proposal:

1. There are currently not enough accredited laboratories to handle energy performance testing of all new products – the capacity to test these products is simply not available;
2. In general, an accredited lab (assuming accredited by Standards Council of Canada, ANSI, A2LA, etc.), will be a third party lab. Even with no capacity issues, testing new product through a third party adds significantly to a product's cost and time to market.

EPA does suggest that use of in-house labs that are certified by an accredited lab (defined as Supervised Manufacturers Test (SMT) facilities by the Standards Council of Canada) will be considered on a product-level basis, and AHAM strongly supports this approach for the products we represent. Through the Standards Council of Canada, many of our members' labs have been approved as SMT facilities. Certification of a SMT lab includes annual audits (which includes a ISO 17025 audit), witnessing of an energy consumption test and a comparison of test results between the SMT lab and the accredited lab. Exhibit B includes a supervision template and an audit template utilized by CSA International to annually evaluate SMT facilities.

The Standards Council of Canada recognizes these labs as an extension of an accredited lab's test facility. We believe that this process allows the greatest flexibility, provides for the fastest introduction of new products into the market, addresses accuracy questions of lab test results, and reduces testing and personnel costs, while providing documented oversight of the SMT labs. If this program needs to be enhanced, AHAM will be happy to work with EPA and DOE.

Labs may choose to be certified rather than accredited, as accreditation adds substantial resource and financial costs.

Ultimately, EPA Energy Star will receive a qualification report from either an accredited or a SMT laboratory. AHAM urges EPA Energy Star to ensure prompt turnaround on all reviews so that new product shipments are not affected and suggests that reviews of qualification reports be completed within 5 business days.

Third Party Administrator

In EPA Energy Star's presentation, it proposes the following qualifications for Program Administrators:

1. Proficiency in measurement testing or statistics
2. Demonstrated impartiality regarding the outcome of testing
3. Quality control measures (e.g., ISO/IEC Guide 65:1996)
4. May not require membership for product to be certified
5. Need to be approved by EPA

It is not clear how items 1 and 2 would pertain to a third party administrator. These qualifications would seem to be more applicable to a third party laboratory.

Regarding item 3, AHAM urges EPA to carefully evaluate the requirements for a third party program administrator. AHAM notes specifically that it is a small organization (13 staff). We have specific

procedural guides for each program which detail how the program will operate. These are developed through a consensus process and ultimately approved by the product division's Board of Directors. In addition, we have a comprehensive set of procedures and processes through which we daily administer the programs. ISO/IEC Guide 65 requirements would require a significant increase in resources (staff and monetary) with little if any benefit.

AHAM suggests that EPA further consider its requirements for third party program administrators and develop a clear and concise list in the near future so organizations, such as AHAM, can further evaluate the costs and benefits. In addition, clear requirements for third party laboratories should be developed and be separate and distinct from the requirements for third party program administrators.

Sample selection

EPA Energy Star proposes that products for verification will be selected by the third party program administrator, allowing for input from EPA/DOE and other stakeholders. AHAM requests additional information on how Energy Star would expect this additional input to work with the third party program. In general, units are selected for testing at the beginning of a program year. It is important to balance any requests while maintaining realistic costs and ensuring the random nature of the selection process.

Energy Star proposes that certified products must be tested at least every three years. While this testing frequency may work for some products, due to cost, test time and lab capacity, testing one-third of products each year may not be feasible for all product types. As we propose in our refrigerator/freezer verification program, verification can be undertaken as more of a random "spot-check". The advantage of this approach is that any sample may be selected any year, keeping Licensees vigilant. As such, our program proposes that 6 basic models, or 10% of basic models, whichever is less, is randomly selected each year for verification testing. In addition, we propose selection of a supplemental sample that will be randomly selected from a pre-determined product class/energy platform. The product class/energy platform selected for supplemental testing may be determined by shipments, configuration or new technology.

Selecting higher percentages of product for verification testing (i.e., 30% per year) is equivalent to re-certifying these units. This adds substantial unnecessary cost for little benefit.

Energy Star suggests that selecting samples from the marketplace is the preferable option; however, AHAM suggests that selecting samples from a warehouse or distributor is preferred for the following reasons:

1. Product age may impact the product's energy performance. While manufacturers work to ensure that product aging is minimized, certain components that affect energy consumption could age. The DOE standards and Energy Star requirements utilize testing data that is obtained at the time of manufacture (i.e., when the manufacturer can test the unit). Therefore, it is important that a unit selected for testing be within 6 months of its manufacture date. This is best accomplished by selecting from a manufacturer's warehouse or distribution center.
2. Under Energy Star's proposal, manufacturers will pay for the verification testing of their products. It is unrealistic to expect manufacturers to pay retail prices (with markup) for their own products when they could provide the unit for testing.

AHAM notes that it is quite feasible to ensure random selection from manufacturer's warehouses. Many of the third party laboratories already involved in verification testing have procedures and specific personnel who select samples from manufacturer warehouses around the world.

Verification Testing

AHAM notes that the requirements for verification testing will need to be evaluated for each product, as cost, test procedure repeatability and lab capability/capacity will vary. In addition, Energy Star should evaluate any current verification programs already in use (i.e., NRCan EEV program) to determine if the requirements and testing in this program might be applicable for the Energy Star program.

Regarding the number of units tested, Energy Star proposes that at least the same number of units must be tested for verification as are tested for qualification. The question here (and with regard to the frequency of testing) is what is the purpose of the verification testing? As noted earlier, verification testing should provide a "spot check" of a series of models on the market and act as an "incentive" for products to remain compliant with Energy Star requirements. The verification testing should not be viewed as another level of qualification or certification. Therefore, fewer samples need to be tested.

The issue with testing more than one sample further adds to the capacity concerns noted above. If one third of samples must be tested each year, and a multiple of samples must also be tested, Energy Star has at least doubled the capacity requirements on a third party laboratory. AHAM proposes that Energy Star consider testing one unit and provide a tolerance within which that single test must fall to be considered compliant with Energy Star requirements, as a typical auditing methodology would work. The number of samples tested may need to be varied depending on the product and test repeatability, which can be determined from historical data. Note that DOE, in 10 CFR 430.75 Subpart F Appendix B, accepts a +/- 5% tolerance from the reported measured upper energy consumption limit.

Challenge Testing

AHAM agrees with Energy Star's proposals for challenge testing. However, AHAM suggests that a challenge-only approach may be a valid third party approach for certain products.

Exhibit A

AHAM Refrigerator and Freezer Verification Program

Discussion of April 1 Draft Program Procedural Guide

April 8, 2010

AHAM
ASSOCIATION OF HOME APPLIANCE MANUFACTURERS

Leadership • Knowledge • Innovation

Program Overview & Status

- Objective
  - Implement a voluntary, industry-sponsored verification program for all refrigerator and freezer products to strengthen consumer, retailer and government confidence in reported energy ratings.
  - Program will communicate adverse final tests and determinations to appropriate regulatory agencies within the U.S. and Canada, but government will continue to determine compliance with regulatory or Energy Star program requirements.
- Start Date
  - July 1, 2010
- Status
  - Program Lab Selected CSA International, Toronto
  - Draft Procedural Guide distributed for review and comment to
    - DOE
    - EPA
    - Natural Resources Canada

Background

- Natural Resources Canada Energy Efficiency Verification (EEV) Program
  - Standards Council of Canada (SCC) accredits laboratories to do testing for the EEV program
    - ISO 17025
    - Energy efficiency testing
  - Labs accredited by the SCC can certify secondary labs for product qualification testing
    - Secondary labs are audited at least once per year by the accredited lab to ISO 17025 and energy efficiency testing
    - A test is witnessed by the auditor
    - Secondary labs can submit product qualification or certification results to the accredited lab for review and publication on NRCan's website
    - Requires correlation testing between secondary labs and the accredited lab
  - Accredited labs complete some verification testing
    - Program Labs are responsible for submitting a proposed procedure to NRCan for review and approval
- AHAM Program provides for more rigorous verification of products entering the market

Program Scope

- Factors Verified
  - Annual energy consumption
  - Internal volume
- Test Procedure
  - DOE Test Procedure (10 CFR Part 430, Subpart B, Appendix A-1 and Appendix B-1)
  - Additional specificity provided by 2009 CSA Informs
- Products Covered
  - Refrigerators
  - Refrigerator-Freezers
  - Freezers
- Eligible Models
  - All refrigerator/freezer models for sale within the U.S. and Canada
  - Program requires "all-or-none" participation

Model Selection

- Part 1: Random Selection & Testing
  - Six basic refrigerator/freezer models, or 10% of basic models, whichever is less, per Licensee
  - Expect between 50 – 80 basic models selected for entire program in the first full program year
- Part 2: Supplemental Selection & Testing
  - One basic model selected per manufacturer from specified product class or energy platform
  - Specified product class or energy platform determined by AHAM Program governing committee
- All products randomly selected by Program Laboratory
  - Obtained by a selector from manufacturer or distributor warehouse
  - Selection requires at least ten units of the same basic model be present for the selection to take place
  - Selection process is documented by the Program Lab

Verification Procedure

- Verify AHAM Mark is included on product as specified
- Run-in Period
  - Conducted in test chamber for 24 hours of compressor run-time
- Verification of internal volume
  - Manually completed by Program Lab
- Verification of annual energy consumption

Finding of Compliance

- Internal Volume
  - Verified rating is within 2% (rounded to nearest 0.1 ft^3) or 0.5 cubic feet, whichever is greater, of the certified rating for internal volume
- Annual Energy Consumption
  - Verified rating is within 105% of the certified rating for annual energy consumption
  - Verified rating can be a value less than the certified rating

Finding of Non-Compliance

- Licensee notified and provided with 5 options – one must be selected within 30 days:

Options	Action	Days to comply*
Option 1	• Request testing of additional products by the Program Laboratory or a laboratory accredited by the Program Laboratory • All data must be supplied to Program Laboratory • Between 4 and 8 additional products tested • Compare means with upper and lower control limits	90
Option 2:	• Revise rating using requirements set forth in DOE test procedure. • Provide modified value(s) to Program Laboratory • If original verification test value within 105% of the re-rate value, unit is in compliance and Licensee/Program must notify stakeholders of re-rate	90
Option 3:	• Challenge Program Laboratory • Requires detailed written report, energy trace and calculation spreadsheet/protocol used by Licensee • Program Lab will review and make determination	30
Option 4:	Addition of Components	30
Option 5:	Discontinue Model	30

*After original notification of non-compliance

Notifications & Program Reports

- AHAM will notify appropriate regulatory agencies if final adverse determination has been reached
- Directory
  - Updated weekly
  - Will contain all certified internal volume and annual energy consumption values for all models (basic and derivative)
  - Will list re-rates in addition to models added or removed from the Program
- Annual Report
  - Prepared by Program Laboratory
  - Number of basic models in the Program
  - Number of units tested
  - Number of first sample non-compliances
  - Number of non-compliant samples after one of the five options is chosen
  - Number of re-rates
  - Number of Licensees

Challenge Procedure

- Within Program Licensees
  Must include substantial supporting documentation
- Program Laboratory determines if challenge is warranted, based on information received
- Confidentiality of challenger and challenged manufacturer will be maintained
- Challenged manufacturer may initiate an Expert Panel review if they disagree with the testing results and provide sufficient documentation to support their case

Expert Panel

- Composition
  - Three independent technical experts from outside the appliance industry
  - AHAM and Program Laboratory act as non-voting administrative members
- Review preliminary report prepared by Program Laboratory and ensure active involvement by the appropriate Licensees
- Make finding by majority vote
  - Findings must be consistent with DOE test procedure
- If Expert Panel deems the test procedure may benefit from additional specificity, the Expert Panel will submit a proposal to DOE using the “FAQ” process.

Voluntary Changes in Ratings

- Voluntary rating changes are allowed
- Licensee must submit appropriate paperwork to the Program Laboratory
  - Changes will be made to the Directory
- Licensee responsible for communicating changes to regulatory and voluntary programs.

AHAM Mark & Marketing Claims

- Licensees must include the AHAM Mark on the rating label on the inside of the refrigerator/freezer.
- Mark requirements will be addressed in an appendix to the Procedural Guide
- Licensees are encouraged to promote the Verification Program, ensuring the scope of the Program is appropriately communicated.

Exhibit B

SUPERVISED MANUFACTURER'S TEST (SMT) PROGRAM SUPERVISION REPORT

(Refer to DQD 312)

Date _____ **CSA Facility:** _____

Master Contract No.: _____ **Project No.:** _____

Legacy No.: _____ **SMT No.:** _____

CUSTOMER: _____

FACILITY NAME/LOCATION: _____

PERSON(S) CONTACTED: _____

1.	General Discussion	9.	Proficiency Tests
2.	Organization/Quality Manual	10.	Witnessed Tests
3.	Latest Standards (On Hand)	11.	Calibration of Instruments
4.	CTL Decisions (Updated)	12.	17025 Checklist verified, Clause Numbers (Complete checklist issued every three (3) years)
5.	TRF Correct		
6.	Review of New/Revised Products		
7.	Test Facility and Methods	13.	Review of Previous Deficiencies
8.	Training		

	ACTION

Note: Copy of this report is to be sent to NAC

Signature: _____ Signature: _____ Employee #: _____

Customer's Representative CSA International's Representative

CSA INTERNATIONAL

SUPERVISED MANUFACTURER'S TEST (SMT) PROGRAM SUPERVISION REPORT

(Refer to DQD 312)

Project No.: _____ **Date:** _____

	ACTION

ISO/IEC 17025:2005 TESTING FACILITY ASSESSMENT CHECKLIST

GUIDANCE ASSESSMENT CHECKLIST FOR:

CATEGORY PROGRAM - CPC: ☐

SUPERVISED MANUFACTURERS TESTING FOR CERTIFICATION – SMTC ☑

SUPERVISED MANUFACTURERS TESTING – CB SCHEME – SMT ☐

This Checklist is based on International Standard ISO/IEC 17025:2005, with equivalent numbering. The introductory clauses 1, 2 and 3 of this International Standard have been omitted from this Checklist. Only those sections that apply to the CPC, SMTC or SMT programs are included in this Checklist. All other clauses that have been removed have been determined not to be applicable to the programs.

Laboratory concerned: (name, address, etc.)	
Date of completion:	Completed by:

Legend: **Status:** **Y** = Yes (Acceptable Audit Results) **N** = No (Refer to report for details) **N/A** = Not applicable

Document References / Remarks: Document reference of the relevant laboratory document/details of what was observed during the audit.

4 Management requirements

4.1 Organization and management

	Item	Status	Document Reference / Remarks
4.1.1	Can the laboratory or organization itself be held legally responsible?		Incorporated.
4.1.2	Is responsibility taken by the laboratory to carry out its testing and calibration activities in such a way as to meet the requirements of this International Standard and to satisfy the needs of the customer, the regulatory authorities or organizations providing recognition?		The laboratory has successfully performed prototype testing in conjunction with CSA International. Verified that CSA programs are being conducted in accordance with the applicable procedures.
4.1.3	Does management system cover work carried out in the laboratory:		
	• permanent facilities?		Ensured that no other facilities have been added since last visit.
	• at sites away from its permanent facilities?		If there are remote facilities, provide details.
	• or in associated temporary or mobile facilities?		If there are temporary or mobile facilities provide details
4.1.4	If the laboratory is part of an organization performing activities other than testing and/or calibration, are the responsibilities of key personnel (those involved in or influencing testing and/or calibration) defined in order to identify potential conflicts of interest?		Laboratory staff is independent of production or sales. No management changes since last assessment. Current organization chart attached.

	Item	Status	Document Reference / Remarks
	Note 1 Where a laboratory is part of a larger organization, arrangements should be such that departments having conflicting interests, such as production, commercial marketing, or financing do not adversely influence the laboratory's compliance with the requirements of this International Standard.		
4.1.5	Does the laboratory:		
	a) 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)?		The laboratory has the technical personnel with authority and resources. Person responsible for laboratory is: _____
	b) have arrangements to ensure that management and personnel are free from undue internal or external commercial, financial, and other pressures and influences that may adversely affect the quality of their work?		Organization chart shows that laboratory management is not responsible for conflicting duties.
	c) have policies and procedures to ensure the protection of its customers' confidential information and proprietary rights, including procedures for protecting the electronic storage and transmission of results?		Original test data is maintained and stored, including electronic data backed-up, per document number: _____.
	e) define the organization and management structure of the laboratory, its place in a parent organization, and the relationships between quality management, technical operations and support services?		Organization chart is attached.
	f) specify the responsibility, authority and inter-relationships of all personnel who manage, perform or verify work affecting the quality of the tests and/or calibrations?		Organization chart includes laboratory staff.
	g) provide adequate supervision of testing and calibration staff, including trainees, by persons familiar with methods and procedures, and with the assessment of the test or calibration results?		Laboratory management is familiar with procedures provides adequate supervision of staff.
	h) have the technical management who have overall responsibility for the technical operations and provisions of the resources needed to ensure the required quality of laboratory operations?		Laboratory has adequate technical management.

	Item	Status	Document Reference / Remarks
	i) appoint a member of staff as quality manager (however named) who, irrespective of other duties and responsibilities, has defined responsibility and authority for ensuring that the management system related to quality is implemented and followed at all times?		Staff member responsible for all activities associated with CSA programs is: _____
	Does the quality manager have direct access to the highest level of management where decisions are made on laboratory policy or resources?		Quality Manager reports directly to: _____
	j) appoint deputies for key managerial personnel such as the quality manager (See note)?		Deputy Quality Manager is: _____
	Note Individuals may have more than one function, and it may be impractical to appoint deputies for every function		
	k) 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.		Representatives are in place for all activities associated with CSA programs.
4.1.6	Has top management ensured that appropriate communication processes are established within the laboratory and that communication takes place regarding the effectiveness of the management system?		Representatives are in place for all activities associated with CSA programs.
4.2 Management system			
4.2.1	Has the laboratory established, implemented and maintained a management system appropriate to their scope of activities?		The laboratory has a management system manual that it follows to ensure traceability, accuracy and repeatability of test results. Document number:_____
	Has the laboratory documented policies, systems programs, procedures and instructions to the extent necessary to enable the laboratory to ensure the quality of the test and/or calibration results?		Representatives are in place for all activities associated with CSA programs.
	Is documentation used in this system communicated to, understood by, available to, and implemented by the appropriate personnel?		Representatives are in place for all activities associated with CSA programs.
4.2.2	Are the laboratory's management system policies related to quality, including a quality policy statement, defined in a quality manual (however named)?.		Document number is: _____
	Are the overall objectives established, and reviewed during management review?		Management review checks objectives.
	Is the quality policy statement issued under the authority of top management?		President or equivalent approves and signs off the management system manual that covers the quality statement.
	It shall include at least the following:		

	Item	Status	Document Reference / Remarks
	a) the laboratory management's commitment to best professional practice and to the quality of testing and calibration in servicing customers?		Includes commitment.
	b) management's statement of the laboratory's standard of service?		Includes statement.
	c) the objectives purpose of the management system related to quality?		Includes purpose.
	d) 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?		Includes requirement to implement policy.
	e) the laboratory management's commitment to compliance with this International Standard including the continual improvement of the management system related to quality?		Includes commitment to ISO17025 and continual improvement.
	Note The quality policy statement should be concise and may include the requirement that tests and/or calibrations shall always be carried out in accordance with stated methods and customer requirements. When the test and/or calibration laboratory is part of a larger organization, some quality policy elements may be in other documents.		
4.2.3	Does top management provide evidence of commitment to the continual improvement of the management system?		Commitment to improvement shown by:
4.2.4	Does top management communicate to the organization the importance of meeting customer as well as statutory and regulatory requirements?		Staff is aware of importance of meeting customer and regulatory requirements.
4.2.5	Does the quality manual shall include or make reference to the supporting procedures including technical procedures. It shall outline the structure of the documentation used in the management system?		Quality manual refers to supporting procedures.
4.2.6	Do the roles and responsibilities of technical management and the quality manager, including their responsibility for ensuring compliance with this International Standard, shall be defined in the quality manual?		Quality manual describes Quality Manager and responsibility for ISO 17025.
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		Any changes to management system are planned properly implemented.
4.3 Document control			
4.3.1	**General**		

	Item	Status	Document Reference / Remarks
	Has the laboratory established and maintained procedures to control all documents that form part of its management system (internally generated and from external sources), such as regulations, standards, other normative documents, test and/or calibration methods, as well as drawings, software, specifications, instructions and manuals?		Standards, test procedures, are controlled.
	Note 1 In this context, "document" could be policy statements, procedures, specifications calibration tables, charts, text books, posters, notices, memoranda, software, drawings, plans, etc. These may be on various media, whether hard copy or electronic, and they may be digital, analogue, photographic or written.		
	Note 2 The control of data related to testing and calibration is covered in 5.4.7. The control of records is covered in 4.13		
4.3.2	**Document approval and issue**		
4.3.2.1	As part of the management system, are all documents issued to laboratory staff reviewed and approved for use by authorized personnel prior to issue?		Documents used by laboratory staff approved by: _____
	Is a master list or equivalent document control procedure identifying the current revision status and distribution of documents in the management system established and readily available to preclude the use of invalid and/or obsolete documents?		Document revision list implemented.
4.3.2.2	Do the procedures adapted ensure that:		
	a) authorized editions of appropriate documents are available at all locations where, operations are essential to the effective functioning of the laboratory, are performed?		Authorized documents available at all locations.
	b) documents are periodically reviewed and, where necessary, revised to ensure continuing suitability and compliance with applicable requirements?		CSA provides latest documents.
	c) invalid or obsolete documents are promptly re-moved from all points of issue or use, or otherwise assured against unintended use?		Obsolete documents removed from use.
	d) obsolete documents retained for either legal or knowledge preservation purposes are suitable marked?		Obsolete documents marked or destroyed.
4.3.2.3	Are management system documents generated by the laboratory uniquely identified?		Management system documents numbered.
	Does such identification include the date of issue and/or revision identification, page numbering, the total number of pages or a mark to signify the end of the document, and the issuing authority(ies)?		Management system documents include date, page numbering, and issuer.
4.3.3	**Document changes**		

	Item	Status	Document Reference / Remarks
4.3.3.1	Are changes to documents reviewed and approved by the same function that performed the original review unless specifically designated otherwise?		Document changes approved by: _____
	Do the designated personnel have access to pertinent background information upon which to base their review and approval?		Document changes approved by: _____
4.3.3.2	Where practicable, is the altered or new text identified in the document or the appropriate attachments?		Text changes highlighted or marked in margin.
4.3.3.3	If the laboratory's document control system allows for the amendment of documents by hand pending the re-issue of documents, are the procedures and authorities for such amendments defined?		Handwritten changes are approved and dated.
	Are amendments clearly marked, initialled and dated?		Amendments marked.
	Is a revised document formally re-issued as soon as practicable?		Revised documents reissued after delay of: _____
4.3.3.4	Are procedures established to describe how changes in documents maintained in computerised systems are made and controlled?		Electronic versions controlled by procedure: _____
4.4 Review of request, tender or contract			
4.4.1	Has the laboratory established and maintained procedures for the review of requests, tenders or contracts?		Work order/request initiated by: _____ Work order/request reviewed by: _____
	Do the policies and procedures for these reviews leading to a contract for testing and/or calibration ensure that:		
	a) the requirements, including the methods to be used, are adequately defined, documented and understood? (See 5.4.2)		Requirements are from specified standard(s) or test methods. Ensure latest revision used. No deviations accepted. Ensure that standards and methods are within the scope of the program.
	b) the laboratory has the capability and resources to meet the requirements?		Requirements are from specified standard(s) or test methods. Ensure latest revision used. No deviations accepted. Ensure that standards and methods are within the scope of the program. Laboratory testing personnel schedules and allocates resources to meet the requirements.

	Item	Status	Document Reference / Remarks
	c) the appropriate test and/or calibration method is selected and capable of meeting the customer's requirements? (See 5.4.2)		Requirements are from specified standard(s) or test methods. Ensure latest revision used. No deviations accepted. Ensure that standards and methods are within the scope of the program. Responsible laboratory testing personnel reviews internal requests for the laboratory capability and prepares work orders.
	Are any differences between the request or tender and the contract resolved before any work commences?		Responsible laboratory testing personnel reviews requests, resolves differences with CSA contact, if any, prepares work orders and allocates resources before tests commence.
	Is each contract acceptable to both the laboratory and the customer?		**SMTC, SMT:** CSA and laboratory agree on tests to be conducted prior to testing commencing and a record of decision is maintained. **CPC:** CSA contact has reviewed with laboratory prior to commencing if not reviewed during a previous visit. Review records of decision/review.
4.4.2	Are records maintained of such reviews, including significant changes?		All changes were recorded.
	Are records maintained of pertinent discussions with a customer relating to the customer's requirements or the results of the work during the period of execution of the con-tract?		
4.4.3	Does the review also cover any work that is subcontracted by the laboratory?		**SMT:** No tests are to be subcontracted to test laboratories other than CSA International or a CBTL of CSA International. **CPC, SMTC:** No tests are to be subcontracted to test laboratories other than CSA International or CSA International qualified test laboratories.
4.4.4	Is the customer informed of any deviation from the contract?		Changes documented and recorded.
4.4.5	If a contract needs to be amended after the work has commenced, is the same contract review repeated and amendments communicated to all affected personnel?		Changes documented and recorded.
4.5 Subcontracting of tests and calibrations			

	Item	Status	Document Reference / Remarks
4.5.1	Where 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 this work placed with a competent subcontractor? A competent subcontractor is one that, for example, complies with this International Standard for the work in question.		No tests are to be subcontracted to test laboratories other than CSA International or CSA International qualified test laboratories. EMC testing can be subcontracted if approved by CSA.
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?		No tests are to be subcontracted to test laboratories other than CSA International or CSA International qualified test laboratories. EMC testing can be subcontracted if approved by CSA. No other deviations accepted.
4.5.3	Is the laboratory responsible to the customer for the subcontractor's work, except where the customer or a regulatory authority specifies which subcontractor is to be used?		**SMT:** No tests are to be subcontracted to test laboratories other than CSA International or a CBTL of CSA International. **CPC:, SMTC:** No tests are to be subcontracted to test laboratories other than CSA International or CSA International qualified test laboratories.
4.5.4	Does the laboratory maintain a register of all subcontractors that it uses for tests and/or calibrations and a record of the evidence of compliance with this International Standard for the work in question?		No subcontracting. Reviewed records of EMC testing that were allowed to be subcontracted.
4.6 Purchasing services and supplies			
4.6.1	Does the laboratory have a policy and procedure(s) for the selection and purchasing of services and supplies it uses that affect the quality of the tests and/or calibrations?		Verified procedures in place. Document number:_____
	Do procedures exist for the purchase, reception and storage of reagent and laboratory consumable materials relevant for the tests and calibrations?		Verified procedures in place. Document number: _____
4.6.2	Does the laboratory ensure that purchased supplies and reagents and consumable materials that affect the quality of tests and/or calibrations are not used until they have been inspected or otherwise verified as complying with standard specifications or requirements defined in the methods for the tests and/or calibrations concerned?		Consumables verified by: _____
	Do services and supplies used comply with specified requirements?		Checked verification records.
	Are records maintained of actions taken to check compliance?		Records checked.

	Item	Status	Document Reference / Remarks
4.6.3	Do purchasing documents contain data describing the services and products ordered for items affecting the quality of laboratory output?		Reviewed sample purchasing document _____
	Are these purchasing documents reviewed and approved for technical content prior to release?		Reviewed and signed off by management staff.
	Note The description may include type, class, grade, precise identification, specifications, drawings, inspection instructions, other technical data including approval of test results, the quality required and the management system standard under which they were made.		
4.6.4	Does the laboratory evaluate suppliers of critical consumables, supplies and services which affect the quality of testing and calibration?		Calibration suppliers are accredited or evaluated to ISO/IEC 17025 by technical manager or designate. Verified evaluation of suppliers of critical consumables/supplies, if applicable. Document number: _____
	Does the laboratory maintain records of these evaluations and lists those approved?		Verified record dated: _____
4.7 Service to the customer			
		N/A	
4.8 Complaints–N/A			
		N/A	
4.9 Control of nonconforming testing and/or calibration work			
4.9.1	Does the laboratory have a policy and procedure to be implemented when an aspect of testing and/or calibration work, or the result of this work, do not conform to its own procedures or the agreed requirements of the customer?		Verified. Document number: _____ The laboratory will take remedial actions to address nonconforming work and, as necessary, repeat the tests.
	Does the policy and procedures ensure that:		
	a) the responsibilities and authorities for the management of nonconforming work are designated and actions (including halting of work and withholding of test reports and calibration certificates, as necessary) are defined and taken when nonconforming work is identified?		Verified reporting of nonconforming testing work.
	b) an evaluation of the significance of the nonconforming work is made?		Verified actions taken and communication to CSA International.
	c) corrective actions are taken immediately together with any decision about the acceptability of the nonconforming work?		Verified actions taken and communication to CSA International. Remedial actions are taken to modify the report.
	d) where necessary, the customer is notified and work is recalled?		Verified CSA International was notified.
	e) the responsibility for authorizing the resumption of work is defined?		Verified laboratory management that authorizes the resumption of work.

	Item	Status	Document Reference / Remarks
	Note Identification of nonconforming work or problems with the management system or with testing and/or calibration activities can occur at various places within the management system and technical operations. Examples are customer complaints, quality control, instrument calibration, checking of consumable materials, staff observations or supervision, test report and calibration certificate checking, management reviews and internal or external audits.		
4.9.2	Where the evaluation indicates that the nonconforming work could recur or there is doubt about the compliance of the laboratory's operations with its own policies and procedures are the corrective action procedures given in 4.11 promptly followed?		Verified procedure and any actions reported. Document number: _____
4.10 Improvement			
		N/A	
4.11 Corrective action			
4.11.1	**General**		
	Has the laboratory established policies and procedures 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 identified?		The policy and procedures and designated authorities are specified in document number: _____
	Note A problem with the management system or with the technical operations of the laboratory may be identified through a variety of activities such as control of nonconforming work, internal or external audits, management reviews, feedback from customers or staff observations.		
4.11.2	**Cause analysis**		
	Does the procedure for corrective action start with an investigation to determine the root cause(s) of the problem?		Verified that root cause analysis is used for all program related activities.
	Note Cause analysis is the key and sometimes the most difficult part in the corrective action procedure. Often the root cause is not obvious and thus a careful analysis of all potential causes of the problem is required. Potential causes could include customer requirements, the samples, sample specifications, methods and procedures, staff skills and training, consumables, or equipment and its calibration.		
4.11.3	**Selection and implementation of corrective actions**		
	Where corrective action is needed, has the laboratory identified potential corrective actions?		Verified process in place.
	Does the laboratory select and implement the action(s) most likely to eliminate the problem and to prevent recurrence?		Verified process in place.
	Are corrective actions appropriate to the magnitude of the risk involved with the problem?		Verified process in place.
	Does the laboratory document and implement required changes resulting from corrective action investigations?		Verified process in place.
4.11.4	**Monitoring of corrective actions**		
	Does the laboratory monitor the results to ensure that the actions taken have been effective?		Confirmed that reasonable efforts were made to monitor results of corrective actions.
4.11.5	**Additional audits**		

	Item	Status	Document Reference / Remarks
	Where the identification of nonconformities or departures casts doubt on the laboratory's compliance with its own policies and procedures, or compliance with this International Standard, does the laboratory ensure that the appropriate areas of activity are audited in accordance with 4.14 as soon as possible?		Verified internal audits conducted after corrective action.
	Note Such additional audits often follow the implementation of the corrective actions to confirm their effectiveness. An additional audit would be necessary only when a serious issue or risk to the business is identified.		
4.12 Preventive action			
4.12.1	Are needed improvements and potential sources of nonconformities, either technical or concerning the management system identified?		Verified process for identifying potential sources of non-conformances.
	When improvement opportunities are identified or if preventive action is required, are action plans developed, implemented and monitored to reduce the likelihood of the occurrence of such nonconformities and to take advantage of the opportunities for improvement?		Verified process for taking action.
4.12.2	Do procedures for preventive actions include the initiation of such actions and application of controls to ensure that they are effective?		Confirmed that implementation procedure specified in document number: _____
	Note 1 Preventive action is a proactive process to identify opportunities for improvement rather than a reaction to the identification of problems or complaints.		
	Note 2 Apart from the review of the operational procedures, the preventive action might involve analysis of data, including trend and risk analysis and proficiency testing results.		
4.13 Control of records			
4.13.1	**General**		
4.13.1.1	Has the laboratory established and maintained procedures for identification, collection, indexing, access, filing, storage, maintenance and disposal of quality and technical records?		Confirmed that implementation procedure specified in document number: _____
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?		Records stored in:_____
	Are retention times of records established?		Retention time specified in document number: _____
	Note Records may be in any media, such as hard copy or electronic media.		
4.13.1.3	Are all records held secure and in confidence?		Confirmed that only authorized laboratory personnel can gain access to the records.

	Item	Status	Document Reference / Remarks
4.13.1.4	Does the laboratory have procedures to protect and back-up data records stored electronically and to prevent unauthorized access to or amendment of these records?		Verified procedures and process for data protection.
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 tail, calibration records, staff records and a copy of each test report or calibration certificate issued, for a defined period?		Verified storage of original test records. Verified use of CSA approved test form.
	Do the records for each test or calibration contain sufficient information to facilitate, if possible, identification of factors affecting the uncertainty and to enable the test or calibration to be repeated under conditions as close as possible to the original?		Verified testing records containing sufficient information for repeatability.
	Do the records include the identity of personnel responsible for the sampling, performance of each test, and/ or calibration and checking of results?		Records indicate staff name.
	Note 1 In certain fields it may be impossible or impracticable to retain records of all original observations.		
	Note 2 Technical records are accumulations of data (See 5.4.7) and information which result from carrying out tests and/or calibrations and which indicate whether specified quality or process parameters are achieved. They may include forms, contracts, work sheets, work books, check sheets, work notes, control graphs, external and internal test reports and calibration certificates, customers' notes, papers and feedback.		
4.13.2.2	Are observations, data and calculations recorded at the time they are made and identifiable to the specific task?		Test data sheets include date and model.
4.13.2.3	When mistakes occur in the records, is each mistake crossed out, not erased, made illegible or deleted, and the correct value entered alongside?		All alterations were identified.
	Are all such alterations to records signed or initialled by the person making the correction?		Corrections initialled.
	In case of records stored electronically, are equivalent measures taken to avoid loss or change of original data?		Verified that electronic data are also printed and filed. Electronic data protected by:
4.14 Internal audits			
4.14.1	Does the laboratory periodically and in accordance with a predetermined schedule and procedure conduct internal audits of its activities to verify that operations continue to comply with the requirements of the management system and this International Standard?		Internal audits conducted at least once a year. Last audit dated _____
	Does the internal audit program address all elements of the management system, including the testing and/or calibration activities?		Reviewed initial audit reports and confirmed that they covered all the elements of the quality manual which was written based on ISO/IEC 17025.

	Item	Status	Document Reference / Remarks
	Is the quality manager responsible to plan and organize audits as required by the schedule and requested by management?		Confirmed. Document number: _____
	Are such audits carried out by trained and qualified personnel who are, wherever resources permit, independent of the activity to be audited?		Verified training and qualification records of auditor personnel and independence.
	Note The cycle for internal auditing should normally be completed in one year.		
4.14.2	When audit findings cast doubt on the effectiveness of the operations or on the correctness or validity of the laboratory's test or calibration results, does the laboratory take timely corrective action and notify customers in writing if investigations show that the laboratory results may have been affected?		Document number: _____ covers notification of customer (such as CSA International) if laboratory test results may have been affected.
4.14.3	Is the area of activity, audit findings and corrective actions that arise from them recorded?		Findings and corrective actions recorded, last audit dated_____
4.14.4	Do follow-up audit activities verify and record the implementation and effectiveness of the corrective action taken?		Confirmed. Corrective action taken in a reasonable time.
4.15 Management reviews			
4.15.1	In accordance with a predetermined schedule and procedure, does the laboratory's top management conduct a review of the laboratory management system and testing and/or calibration activities to ensure their continuing suitability and effectiveness, and to introduce necessary changes or improvements?		Confirmed that procedure was implemented in accordance with document number: _____ Management review is conducted at least annually and is participated by the quality manager and technical manager. Results of annual review kept minimum of _____years.
	Does the review take account of:		
	• the suitability of policies and procedures • reports from managerial and supervisory personnel? • the outcome of recent internal audits? • corrective and preventive actions? • assessment by external bodies? • the result of interlaboratory comparisons or proficiency tests? • the suitability of policies and procedures? • recommendations for improvement? • customer feedback? • complaints? • other relevant factors such as quality control activities, resources and staff training?		Contents confirmed.
	Note 1 A typical period for conducting management reviews is once every 12 months.		
	Note 2 Results should feed into the laboratory planning system and should include the goals, objectives and action plans for the coming year.		

	Item	Status	Document Reference / Remarks
	Note 3 A management review includes consideration of related subjects at regular management meetings.		
4.15.2	Are findings from management reviews and the action arising from them recorded?		Reviewed most recent management review documents and confirmed.
	Does the management ensure that those actions are discharged within an appropriate and agreed time scale?		Confirmed results completed in an agreed time scale and reported.
5 Technical requirements			
5.1 General			
5.1.1	Many factors determine the correctness and reliability of the tests and/or calibrations performed by a laboratory. These factors include contributions from: • human factors (5.2); • accommodation and environmental conditions (5.3); • test and calibration methods and method validation (5.4); • equipment (5.5); • measurement traceability (5.6); • sampling (5.7); • the handling of test and calibration items (5.8).		
5.1.2	The extent to which these factors contribute to the total measurement uncertainty differs considerably between (types of) tests and between (types of) calibrations. Does the laboratory take account of these factors in developing test and calibration methods and procedures, in the training and qualification of personnel, and in the selection and calibration of the equipment it uses?		Procedures for evaluating the effects of any changes in factors in 5.1.1 are in place.
5.2 Personnel			
5.2.1	Does laboratory management ensure the competency of all who operate specific equipment, performs tests and/ or calibrations, evaluate results, and sign test reports and calibration certificates?		Testing personnel are trained and qualified by CSA International per Qualification Report or Application Questionnaire.
	When using staff who are undergoing training, is appropriate supervision provided?		CSA International is made aware when staff are undergoing training within the scope of the program.
	Are personnel performing specific tasks qualified on the basis of appropriate education, training, experience and/or demonstrated skills, as required?		Testing personnel are trained and qualified by CSA International per Qualification Report or Application Questionnaire.
	Note 1 In some technical areas (e.g. non-destructive testing) it may be required that personnel performing certain tasks hold personnel certification. The laboratory is responsible for fulfilling specified personnel certification requirements. These requirements might be regulatory, included in the standards for the specific technical field, or required by the customer.		
	Note 2 Personnel responsible for the opinions and interpretation included in test reports should, in addition to the appropriate qualifications, training, experience and satisfactory knowledge of the testing carried out, also have: • relevant knowledge of the technology used for the manufacturing of the items, materials, products, etc., tested, or the way they are used or intended to be used, and the defects or degradations which may occur during or in service; • knowledge of the general requirements expressed in the legislation and standards; and • an understanding of the significance of deviations found with regard to the normal use of the items, materials, products, etc., concerned.		

	Item	Status	Document Reference / Remarks
5.2.2	Has the laboratory management formulated goals with respect to the education, training and skills of the laboratory personnel?		Testing personnel are trained and qualified by CSA International.
	Does the laboratory have a policy and procedures for identifying training needs and providing training of personnel?		Testing personnel are trained and qualified by CSA International.
	Is the training program relevant to present and anticipated tasks of the laboratory?		Testing personnel are trained and qualified by CSA International.
	Is the effectiveness of the training actions taken evaluated?		Testing personnel are trained and qualified by CSA International.
5.2.3	Does the laboratory use personnel who are employed by, or under contract to, the laboratory?		No contract employees. ***or*** Employees under contract meet all the same requirements as full-time employees for education and training.
5.2.4	Does the laboratory maintain current job descriptions for managerial, technical and key support personnel involved in tests and/or calibrations?		Job descriptions document number: _____
	Note Job descriptions can be defined in many ways. As a minimum, the following should be defined: • responsibilities regarding the performance of tests and calibrations; • responsibilities with respect to the planning of tests and/or calibrations and evaluation of results; • the responsibilities reporting opinions and interpretations; • expertise and experience required; • qualifications and training programs; • managerial duties.		
5.2.5	Does the management authorize specific personnel to perform particular types of sampling, test and/or calibration, to issue test reports and calibration certificates, to give opinions and interpretations and to operate particular types of equipment?		Authorized staff listed in Questionnaire/application.
	Does the laboratory maintain records of the relevant authorization(s), competence, educational and professional qualifications, training, skills and experience of all technical personnel, including contractual personnel?		CSA authorizes staff involved.
	Is this information readily available and does it include the date the authorization and/or competence is confirmed?		CSA authorizes staff involved.
5.3 Accommodation and environmental conditions			
5.3.1	Are the laboratory facilities for testing and/or calibration, including but not limited to energy sources, lighting and environmental conditions, such as to facilitate correct performance of tests and/or calibrations?		Laboratory lighting, power distribution system checked.
	Does the laboratory ensure that the environmental conditions do not invalidate the results or adversely affect the required quality of any measurement?		Verified the laboratory environment is controlled with proper air-conditioning and heating.

	Item	Status	Document Reference / Remarks
	Is particular care taken when sampling and tests and/or calibrations are undertaken at sites other than a permanent laboratory facility?		CSA contact is informed if another laboratory is used. Verify acceptance by CSA. If allowed by CSA, verify laboratory complies with ISO 17025
	Are the technical requirements for accommodation and environmental conditions that can affect the results of tests and calibrations documented?		Required range of laboratory ambient: _____
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?		Laboratory environment checked daily/_____ Records:_____
	Is due attention paid, for example, to biological sterility, dust, electromagnetic disturbances, radiation, humidity, electrical supply, temperature, and sound and vibration levels, as appropriate to the technical activities concerned?		Verified conditions applicable to scope of testing. Temperature, humidity, checked: _____ Pressure:_____(e.g. 61010-1) Mains Voltage: Power supply regulated by: _____ Wiring to bench outlets is:_____
	Are tests and calibrations stopped when the environmental conditions jeopardize the results of the tests and/or calibrations?		Verified no tests/calibrations are conducted unless conditions are correct.
5.3.3	Is there effective separation between neighbouring areas in which there are incompatible activities?		Verified no incompatible activities were observed between neighbouring areas where testing activities are conducted.
	Are measures taken to prevent cross-contamination?		Verified no cross-contamination was found that could affect the measurements.
5.3.4	Is access to and use of areas affecting the quality of tests and/ or calibrations controlled?		Verified only authorized personnel can enter the area.
	Has the laboratory decided the extent of control based on its particular circumstances?		Verified the access to testing, test equipment storage and storage of test samples areas are under control.
5.3.5	Are measures taken to ensure good housekeeping in the laboratory?		Good housekeeping and clean.
	Are special procedures prepared where necessary?		No special procedures needed. ***or*** Special procedure used when:
5.4 Test and calibration methods and method validation			
5.4.1	**General**		
	Does the laboratory use appropriate methods and procedures for all tests and/or calibrations within its scope?		Tests are specified in the standards. CSA International provides test methods and procedures with specific scope.

	Item	Status	Document Reference / Remarks
	Do these include sampling, handling, transport, storage and preparation of items to be tested and/or calibrated?		CSA International provides test methods and procedures with specific scope.
	Do these, when appropriate, include an estimation of the measurement uncertainty as well as statistical techniques for analysis of test and/or calibration data?		The laboratory complies with the uncertainty guidelines of CTL 251A and IECEE – CTL Guide 001.
	Does the laboratory have instructions on the use and operation of all relevant equipment, and on the handling and preparation of items for testing and/or calibration, or both, where the absence of such instructions could jeopardise the results of tests and/or calibrations?		Instruction manuals for test equipment are stored in: _____ Test procedures provided by CSA.
	Are all instructions, standards, manuals and reference data relevant to the work of the laboratory kept up to date and made readily available to personnel? (See 4.3)		Verified testing personnel maintain the documents under the direction of CSA International.
	Do deviations from test and calibration methods only occur if the deviations have been documented, technically justified, authorized and accepted by the customer?		Verified no deviations are permitted.
	Note 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 if these standards are written in a way that they can be used as published by the operating staff in a laboratory. It may be necessary to provide additional documentation for optional steps in the method or additional details.		
5.4.2	**Selection of methods**		
	Does the laboratory use test and/or calibration methods, including methods for sampling, which meet the needs of the customer and which are appropriate for the tests and/or calibrations it undertakes?		CSA International specifies tests and test methods to be performed by testing personnel. CSA International approves calibration organizations.
	Are methods published in international, regional or national standards preferably used?		Test methods are specified in standards and prescribed by CSA International.
	Does the laboratory ensure that it uses the latest valid edition of the standards unless it is not appropriate or possible to do so?		Standards are controlled and updated based on information from standard publication organizations. Latest standards are used.
	When necessary, is the standard supplemented with additional details to ensure consistent application?		**CPC, SMTC:** Verified that the use of TIL or other recognized document is authorized by CSA International. **SMT:** Ensured that CTL decisions are followed.
	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?		Only CSA International prescribed method is used.
	Is the customer informed as to the method chosen?		No deviations. No external customers.
	Does the laboratory confirm that it can properly operate standard methods before introducing the tests or calibrations?		Only standard tests specified by CSA International are used.

	Item	Status	Document Reference / Remarks
	If the standard method changes, is the confirmation repeated?		No deviations. Only standard tests specified by CSA International are used.
	Does the laboratory inform the customer when the method proposed by the customer is considered to be inappropriate or out of date?		No deviations. No external customers.
5.4.3	**Laboratory-developed methods**		
	Are introduction of test and calibration methods developed by the laboratory for its own use a planned activity and assigned to qualified personnel equipped with adequate resources?		All test methods are defined in standards. Only standard methods are used.
5.4.4	**Non-standardised methods**		Verified only standard methods are used.
5.4.6	**Estimation of uncertainty of measurement**		
5.4.6.1	Does a calibration laboratory, or a testing laboratory performing its own calibration, have procedures and apply these to estimate the uncertainty of measurement for all calibrations and types of calibrations?		Calibration certificates/reports for all test equipment includes uncertainty calculation and/or statement.
5.4.6.2	Do testing laboratories have and also apply procedures for estimating uncertainties of measurements?		Method for establishing uncertainties for borderline measurements are documented.
	In certain cases the nature of the test method may preclude rigorous, metrological and statistically valid calculations of uncertainty of measurement. In these cases, does the laboratory at least attempt to identify all the components of uncertainty and make a reasonable estimation and ensures that the form of reporting of the results does not give a wrong impression?		All test methods are well defined in the standards.
	Is reasonable estimation based on knowledge of the performance of the method and on the measurement scope by use of, for example, previous experience and validation data?		All test methods are well defined in the standards.
	Note 1 The degree of rigor needed in an estimation of uncertainty of measurement depends on factors such as: • the requirements of the test method; • the requirements of the customer; • the existence of narrow limits on which decisions on conformity to a specification are based.		
	Note 2 In those cases where a well-recognised test method specifies limits to the values of the major sources of uncertainty of measurement and specifies the form of presentation of calculated results, the laboratory is considered to have satisfied this clause by following the test method and reporting instructions (See 5.10).		
5.4.6.3	When estimating the uncertainty of measurement, are all uncertainty components that are of importance in the given situation taken into account by using appropriate methods of analysis?		Refer to CTL procedure IECEE – CTL Guide 001.
	Note 1 Sources contributing to the uncertainty include, but are necessarily limited to, the reference standards and reference materials used, methods and equipment used, environmental conditions, properties and condition of the item being tested or calibrated, and the operator.		
	Note 2 The predicted long-term behaviour of the tested and/or calibrated item is not normally taken into account when estimating the measurement uncertainty.		

	Item	Status	Document Reference / Remarks
	Note 3 For further information, see ISO 5725 and the Guide to the Expression of Uncertainty in Measurement (See bibliography).		
5.4.7	**Control of data**		
5.4.7.1	Are calculations and data transfers subject to appropriate checks in a systematic manner?		All data is checked and verified only by CSA technical staff.
5.4.7.2	When computers or automated equipment are used for the acquisition, processing, recording, reporting, storage or retrieval of test or calibration data, does the laboratory ensure that:		
	a) computer software developed by the user is documented in sufficient detail and is suitable validated as being adequate for use?		Verified that only standard software with the equipment is used.
	b) procedures are established and implemented for protecting the data; such procedures shall include, but not be limited to, integrity and confidentiality of data entry or collection, data storage, data transmission and data processing?		Verified all electronic storage of data requires security checks before they can be accessed. Test data is printed, signed and dated.
	c) computers and automated equipment are maintained to ensure proper functioning and are provided with the environmental conditions necessary to maintain the integrity of test and calibration data?		Proper environmental conditions were observed. Precautions are taken at the beginning of the test to ensure proper functions. Instruments stored appropriately; data stored and protected electronically.
	Note Commercial off-the-shelf software (e.g. word-processing, database and statistical programs) in general use within their designed application range may be considered to be sufficiently validated. However, laboratory software configuration/modifications should be validated as in 5.4.7.2a).		
5.5 Equipment			
5.5.1	Is the laboratory furnished with all items of sampling, measurement and test equipment required for the correct performance of the tests and/or calibrations (including sampling, preparation of test and/or calibration items, processing and analysis of test and/or calibration data)?		Test equipment on the test equipment list that is essential were examined and found acceptable. A list of test equipment is maintained and provided.
	In those cases where the laboratory needs to use equipment outside its permanent control, does the laboratory ensure that the requirements of this International Standard are met?		Verified use of outside test equipment meets all requirements.
5.5.2	Is the equipment and its software used for testing, calibration and sampling capable of achieving the accuracy required and does it comply with specifications relevant to the tests and/or calibrations concerned?		Verified only accepted equipment is used. List of equipment attached.
	Are calibration programs established for key quantities or values of the instruments where these properties have a significant effect on the results?		A calibration program is in place.

	Item	Status	Document Reference / Remarks
	When received, 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?		Verified that the laboratory checks test equipment when received after it has been calibrated externally. Equipment is calibrated before use and only accepted instruments are used.
	Is it checked and/or calibrated before use? (See 5.6)		Verified that performance check was done on test equipment before use. Equipment is calibrated before use and only accepted instruments are used.
5.5.3	Is equipment operated by authorized personnel?		Laboratory testing personnel are authorized based on their training records. Only authorized and trained personnel are allowed to use test equipment.
	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 laboratory personnel?		Verified that equipment operation manuals are kept in the area where the test equipment is used. Operation manuals are maintained.
5.5.4	Is each item of equipment and its software used for testing and calibration and significant to the test result, when practicable, uniquely identified?		Verified that equipment is uniquely identified.
5.5.5	Are records maintained for each item of equipment and its software significant to the tests and/or calibrations performed?		Verified that history records are maintained for all equipment.
	Do these records include at least the following:		
	a) the identity of the item of equipment and its software?		Equipment list and calibration status were verified.
	b) the manufacturer's name, type identification and serial number or other unique identification?		Identified by: _____
	c) checks that equipment complies with the specification? (See 5.5.2)		Verified by: _____
	d) the current location, where appropriate?		Location controlled by: _____
	e) the manufacturer's instructions, if available, or reference to their location?		Verified that manufacturer's instructions are maintained in the central locations accessible as required.
	f) dates, results and copies of reports and certificates of all calibrations, adjustments, acceptance criteria, and due date of next calibration?		Verified records.
	g) the maintenance plan, where appropriate, and maintenance carried out to date?		Verified maintenance information.
	h) any damage, malfunction, modification or repair to the equipment?		Verified. There is a provision in the records for equipment that is damaged, malfunctions, modified and repaired. Use of equipment is suspended until calibrated.

	Item	Status	Document Reference / Remarks
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 in order to prevent contamination or deterioration?		Document number: _____
	Note Additional procedures may be necessary when measuring equipment is used outside the permanent laboratory for tests, calibrations or sampling.		
5.5.7	Is equipment that has either been subjected to over-loading or mishandling, gives suspect results, or has been shown to be defective or outside specified limits, taken out of service?		Verified that a special label is attached to non-functioning equipment or equipment that is not used.
	Is such equipment isolated to prevent its use or clearly labelled or marked as being out of service until it has been repaired and shown by calibration or test to perform correctly?		Verified that a special area is assigned to isolate the test equipment.
	Does the laboratory examine the effect of the defect or departure from specified limits on previous tests and/or calibrations and institutes the "Control of nonconforming work" procedure? (See 4.9)		Verified that there is a traceability procedure to control non-conforming work.
5.5.8	Whenever practicable, is all equipment under the control of the laboratory and requiring calibration labelled, coded or otherwise identified to indicate the status of calibration and the date or expiring criteria when recalibration is due?		Verified that equipment is labelled appropriately and provided with a certificate and history record.
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?		Document number: _____
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?		No in-house calibration. Intermediate checks per Document number: _____
5.5.11	Where calibrations give rise to a set of correction factors, does the laboratory have procedures to ensure that copies (e.g. computer software) are correctly updated?		No in-house calibration Intermediate checks per Document number: _____
5.5.12	Is test and calibration equipment, including both hardware and software, safeguarded from adjustments which would invalidate the test and/or calibration results?		Adjustments prevented by:
5.6 Measurement traceability			

	Item	Status	Document Reference / Remarks
5.6.1	**General**		
	Is all equipment used for tests and/or calibrations, including equipment for subsidiary measurements (e.g. for environmental conditions) having a significant effect on the accuracy or validity of the result of the test, calibration or sampling, calibrated before being put into service?		Verified that equipment is calibrated before putting in service.
	Does the laboratory have an established program and procedure for the calibration of its equipment?		Calibration procedure covered in document number: _____
	Note Such a program should include a system for selecting, using, calibrating, checking, controlling and maintaining measurement standards, reference standards used as measurement standards, and measuring and test equipment used to perform tests and calibrations.		
5.6.2	**Specific requirements**		
5.6.2.1	**Calibration**		
5.6.2.1.1	For calibration laboratories, is the program for calibration of equipment designed and operated so as to ensure that calibrations and measurements made by the laboratory are traceable to the International System of Units SI?		Not a calibration laboratory. Calibration program ensures traceability to SI.
	Has the calibration laboratory established traceability of its own measurement standards and measuring instruments to the SI by means of an unbroken chain of calibrations or comparisons linking them to the relevant primary standards of the SI units of measurement?		Not a calibration laboratory. Traceability to National Standard: _____
	When using external calibration services, are traceability of measurement assured by the use of calibration services for laboratories that can demonstrate competence, measurement capability and traceability?		Verified sample calibration certificates to nationally approved facility.
	Do the calibration certificates issued by these laboratories contain the measurement result, including the measurement uncertainty and/or a statement of compliance with an identified metrological specification? (See also 5.10.4.2).		Verified that all certificates/reports contain: a) the measurement uncertainty; and b) measurement uncertainty statement.
	Is the traceability of measurement assured by the use of calibration services from laboratories that can demonstrate competence, measurement capability and traceability?		Verified that calibration laboratories complied with ISO/IEC 17025 and reference standard is traceable to a primary standard and only approved calibration laboratory is used.
	Do the calibration certificates issued by these laboratories show that there is a link to a primary standard or to a natural constant realising the SI unit by an unbroken chain of calibrations?		Verified that calibration certificates indicate the traceability.

	Item	Status	Document Reference / Remarks
	Do the calibration certificates 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)?		Verified calibration certificates include the measurements.
	Note 1 Calibration laboratories fulfilling the requirements of this International Standard are considered to be competent. A calibration certificate bearing an accreditation body logo from a calibration laboratory accredited to this International Standard for the calibration concerned, is sufficient evidence of traceability of the calibration data report.		
	Note 2 Traceability to SI units of measurement may be achieved by reference to an appropriate primary standard (See VIM:1993, 6.4) or by reference to a natural constant, the value of which in terms of the relevant SI unit is known and recommended by the General Conference of Weights and Measures (CGPM) and the International Committee for Weights and Measures (CIPM).		
	Note 3 Calibration laboratories that maintain their own primary standard or representation of SI units based on fundamental physical constants can claim traceability to the SI system only after these standards have been compared, directly or indirectly, with other similar standards of a national metrology institute.		
	Note 4 The term "identified metrological specification" means that it must be clear from the calibration certificate which specification the measurements have been compared with, by including the specification or by giving an unambiguous reference to the specification.		
	Note 5 When the terms "international standard" or "national standard" are used in connection with traceability, it is assumed that these standards fulfil the properties of primary standards for realisation of SI units.		
	Note 6 Traceability to national measurement standards does not necessarily require the use of the national metrology institute of the country in which the laboratory is located.		
	Note 7 If the calibration laboratory wishes or needs to obtain traceability from a national metrology institute other than in its own country, this laboratory should select a national metrology institute that actively participates in the activities of BIPM either directly or through regional groups.		
	Note 8 The unbroken chain of calibrations or comparisons may be achieved in several steps carried out by different laboratories that can demonstrate traceability.		
5.6.2.2	**Testing**		
5.6.2.2.1	For testing laboratories, the requirements given in 5.6.2.1 apply for measuring and test equipment with measuring functions used, unless it has been established that the associated calibration uncertainty contributes little to the total uncertainty of the test result.		Accuracy method of CTL Guide 001 is used.
	When this situation arises, does the laboratory ensure that equipment used can provide the accuracy of measurement needed?		Verified only equipment within the required accuracy is used.
	Note The extent to which the requirements in 5.6.2.1 should be followed depends on the relative contribution of the calibration uncertainty to the total uncertainty. If calibration is the dominant factor, the requirement should be strictly followed.		
5.6.2.2.2	Where traceability to the SI units of measurement is not possible and/or not relevant, the same requirements for traceability to, for example, certified reference materials, agreed methods and/or consensus standards, are required as for calibration laboratories (See 5.6.2.1.2).		Measurements traceable to SI units.
5.6.3	**Reference standards and reference materials**		
5.6.3.1	**Reference standards**		

	Item	Status	Document Reference / Remarks
	Has the laboratory a program and procedure for the calibration of its reference standards?		No in-house calibration. Verified for in-house calibration Document number: _____
	Are reference standards calibrated by a body that can provide traceability as described in 5.6.2.1?		No in-house calibration. Reference standards traceable by:
	Are such reference standards of measurement held by the laboratory used for calibration only and for no other purposes, unless it can be shown that their performance as reference standards would not be invalidated?		No in-house calibration. Reference standards used only for calibration.
	Are reference standards of measurement calibrated before and after any adjustment?		No in-house calibration Reference standards calibrated before and after adjustment.
5.6.3.2	**Reference materials**		
	Are reference materials, where possible, traceable to SI units of measurement, or to certified reference materials?		Reference materials. _____ are traceable.
	Are internal reference materials checked as far as is technically and economically practicable?		Internal reference materials are checked.
5.6.3.3	**Intermediate checks**		
	If checks are needed to maintain confidence in the calibration status of reference, primary, transfer or working standards and reference materials, are such checks carried out according to defined procedures and schedules?		No reference standards, materials used. References checked with schedule: _____
5.6.3.4	**Transport and storage**		
	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?		Document number: _____
	Note Additional procedures may be necessary when reference standards and reference materials are used outside the permanent laboratory for tests, calibrations or sampling.		
5.7 Sampling (Applicable only where sampling procedure used)			
5.7.1	Does the laboratory have a sampling plan and procedures for sampling when it carries out sampling of substances, materials or products for subsequent testing or calibration?		Sampling plan for:_____
	Is the sampling plan as well as the sampling procedure available at the location where sampling is undertaken?		Sampling plan available at: _____
	Are sampling plans, wherever reasonable, based on appropriate statistical methods?		Sampling plan statistically based.

	Item	Status	Document Reference / Remarks
	Does the sampling process address the factors to be controlled to ensure the validity of the test and calibration results?		Sampling process adequate.
	Note 1 Sampling is a defined procedure whereby a part of a substance, material or product is taken to provide for testing or calibration a representative sample of the whole. Sampling may also be required by the appropriate specification for which the substance, material or product is to be tested or calibrated. In certain cases (e.g. forensic analysis), the sample may not be representative but determined by availability.		
	Note 2 Sampling procedures should describe the selection, sampling plan, withdrawal and preparation of a sample or samples from a substance, material or product to yield the required information.		
5.7.2	Where the customer requires deviations, additions or exclusions from the documented sampling procedure, are these recorded in detail with the appropriate sampling data and included in all documents containing test and/or calibration results, and communicated to the appropriate personnel?		Modifications of sampling plan are recorded and communicated.
5.7.3	Does the laboratory have procedures for recording relevant data and operations relating to sampling that forms part of the testing or calibration that is under taken?		Procedure for recording sampling data: _____
	Do these records include the sampling procedure used, the identification of the sampler, environmental conditions (if relevant) and diagrams or other equivalent means to identify the sampling location as necessary and, if appropriate, the statistics the sampling procedures are based upon?		Sampling records include procedure, conditions.
5.8 Handling of test and calibration items			
5.8.1	Does the laboratory have procedures for the transportation, receipt, handling, protection, storage, retention and/or disposal of test and/or calibration items, including all provisions necessary to protect the integrity of the test or calibration item, and to protect the interests of the laboratory and the customer?		Confirmed procedure is in place for test samples that are required to be examined by CSA during next visit.
5.8.2	Does the laboratory have a system for identifying test and/or calibration items?		All test samples are identified by : _____
	Is the identification retained throughout the life of the item in the laboratory?		Identification marked by: _____
	Is the system designed and operated so as to ensure that items cannot be confused physically, or when referred to in records or other documents?		System adequate to prevent confusion.
	Does the system, if appropriate, accommodate a sub-division of groups of items and the transfer of items within and from the laboratory?		Records are available to determine locations of items. Subsections are also labeled.

	Item	Status	Document Reference / Remarks
5.8.3	Upon receipt of the test or calibration item, are abnormalities or departures from normal or specified conditions, as described in the relevant test or calibration method recorded?		Only standard methods are used.
	When there is any doubt as to the suitability of an item for test or calibration, or when an item does not conform to the description provided, or the test or calibration required is not specified in sufficient detail, does the laboratory consult the customer for further instruction before proceeding and records the discussion?		Verified that CSA staff have been contacted. See procedure number: _____
5.8.4	Does the laboratory have procedures and appropriate facilities for avoiding deterioration, loss or damage to the test or calibration item during storage, handling and preparation?		Verified. See Document number: _____ for procedure for keeping test samples in designated area in the laboratory.
	Are handling instructions provided with the item followed?		Verified. Reviewed any reports on mishandling of test samples.
	When items have to be stored or conditioned under specified environmental conditions, are these conditions maintained, monitored and recorded?		No special conditioning needed. Test samples are kept in a designated area in the laboratory, with conditions recorded on: _____.
	Where a test or calibration item or portion of an item is to be held secure, does the laboratory have arrangements for storage and security that protect the condition and integrity of the secured items or portions concerned?		Verified. Test samples are kept in a designated secured area in the laboratory.
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 and calibrations under-taken?		Verified that the laboratory follows the monitoring procedure for validation of tests in accordance with applicable program, when applicable.
	Are the resulting data recorded in such a way that trends are detectable and, where practicable, statistical techniques applied to the reviewing of results?		Verified trends are monitored.
	Is this monitoring planned and reviewed and may include, but is not limited to, the following:		
	a) regular use of certified reference materials and/or internal quality control using reference materials?		Verified applicability.
	b) participation in interlaboratory comparison or proficiency testing programs?		The laboratory will conduct future interlaboratory or proficiency testing on an as needed when required by the CSA program.
	c) replicate tests or calibrations using the same or different methods?		Verified applicability.
	d) re-testing or re-calibration of retained items?		Verified applicability.
	e) correlation of results for different characteristics of an item?		Verified applicability.

	Item	Status	Document Reference / Remarks
	f) regular checking of equipment for stability and integrity?		Verified applicability.
	Note: The selected methods should be appropriate for the type and volume of the work undertaken.		
5.9.2	Is quality control data analysed and, where it is found to be outside pre-defined action criteria, the defined actions are taken to correct the problem and to prevent incorrect results from being reported.		Verified applicability.
5.10 Reporting the results			
5.10.1	**General**		
	Are the results of each test, calibration, or series of tests or calibrations (See note 1) carried out by the laboratory reported accurately, clearly, unambiguously and objectively, and in accordance with any specific instructions in the test or calibration methods?		Verified that CSA International test forms used.
	Are the results usually reported in a test report or a calibration certificate (See Note 1) and include all the information requested by the customer and necessary for the interpretation of the test or calibration results and all information required by the method used?		Verified that submissions of reports/statement of compliance to CSA International are in accordance with program.
	Is this information normally that required by 5.10.2, 5.10.3 and 5.10.4?		Verified that submissions of reports/statement of compliance to CSA International are in accordance with program.
	In the case of tests or 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. Is the information listed in 5.10.2 to 5.10.4 that is not reported to the customer readily available in the laboratory that carried out the tests and/or calibrations?		Verified that submissions of reports/statement of compliance to CSA International are in accordance with program.
	Note 1 Test reports and calibration certificates are sometimes called test certificates and calibration reports, respectively.		
	Note 2 The test reports or calibration certificates may be issued as hard copy or by electronic data transfer provided that the requirements of this International Standard are met.		
5.10.2	**Test reports and calibration certificates**		
	Unless the laboratory has exceptional reasons for not doing so, does each test report or calibration certificate include at least the following information:		Copies of original data are sent to CSA.
	a) a title, e.g. “Test Report”/”Calibration Certificate”?		Verified contained in original test data.
	b) the name and address of laboratory, and location where the tests and/or calibrations were carried out, if different from the address of the laboratory?		Verified contained in original test data.

	Item	Status	Document Reference / Remarks
	c) unique identification of the report or 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 or calibration certificate, and a clear identification of the end of the test report or calibration certificate?		Verified contained in original test data.
	d) the name and address of the customer?		Verified contained in original test data.
	e) identification of the method used?		Verified contained in original test data.
	f) a description of, the conditions of, and unambiguous identification of the item(s) tested or calibrated?		Verified contained in original test data.
	g) date of receipt of test or 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?		Verified contained in original test data.
	h) reference to the sampling plan and procedures used by the laboratory or other bodies where these are relevant to the validity or application of the results?		Verified contained in original test data.
	i) the test and calibration results with, where appropriate, the units of measurement?		Verified contained in original test data.
	j) the name(s), function(s) and signature(s) or equivalent identification of person(s) authorising the test report or calibration certificate?		Verified contained in original test data.
	k) where relevant, a statement to the effect that the results relate only to the items tested or calibrated?		Verified contained in original test data.
	Note 1 Hard copies of test reports and calibration certificates should also include the page number and total number of pages.		
	Note 2 It is recommended that laboratories include a statement specifying that the test report or calibration certificate shall not be reproduced except in full, without written approval of the laboratory.		
5.10.3	**Test reports**		
5.10.3.1	In addition to the requirements listed in 5.10.2, do test reports, where necessary for the interpretation of the test results include:		Verified contained in original test data.
	a) deviations from, additions to or exclusions from the test method, and information on specific test conditions, such as environmental conditions?		Verified contained in original test data.
	b) where relevant, a statement of compliance/non-compliance with requirements and/or specifications?		Verified contained in original test data.
	c) where applicable, a statement on the estimated uncertainty of measurement?		Accuracy method used. Verified contained in original test data.

	Item	Status	Document Reference / Remarks
	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 uncertainty affects compliance to a specification limit.		Uncertainty included in test report when requested, or if accuracy method not used.
5.10.5	**Opinions and interpretations**		
	When opinions and interpretations are included, does the laboratory document the basis upon which the opinions and interpretations have been made?		Interpretations are verified with CSA International.
	Are opinions ad interpretations clearly marked as such in a test report?		All notes are clearly indicated as required.
	Note 3 In many cases it might be appropriate to communicate the opinions and interpretations by direct dialogue with the customer. Such dialogue should be written down.		
5.10.6	**Testing and calibration results obtained from subcontractors**		
		N/A	No subcontracting.
5.10.7	**Electronic transmission of results**		
	In the case of transmission of test or calibration results by telephone, telex, facsimile or other electronic or electromagnetic means, are the requirements of this International Standard met? (See also 5.4.7)		Verified procedure for the confidentiality in electronic transmission of test results
5.10.8	**Format of reports and certificates**		
	Is the format designed to accommodate each type of test or calibration carried out and to minimise the possibility of misunderstanding or misuse?		Verified standard forms are used as per CSA requirement.
5.10.9	**Amendments to test reports and calibration certificates**		
		N/A	Not applicable. CSA programs require reports to be re-issued.