Enter Date: **Enter NVLAP Lab Code:**

NIST HANDBOOK 150-8 CHECKLIST
ACOUSTICAL TESTING SERVICES

Instructions to the Assessor: This checklist addresses specific accreditation requirements prescribed in NIST Handbook 150-8, Acoustical Testing Services (ACO).

- All items on this checklist shall be addressed.
- Select “X” for each item that represents a nonconformity.
- Select “C” for each item on which you are commenting for other reasons.
- Select “OK” for each item you observed or verified as compliant at the laboratory.
- Record the item number and the nonconformity explanation and/or comment on the appropriate comment sheet.

Note: The numbering of the checklist items correlates to the numbering scheme in NIST Handbook 150-8, clauses 3, 4, and 5.

3 Accreditation process

3.4 Proficiency testing

___ 3.4.1 The laboratory shall have a plan for participating in proficiency testing (e.g. interlaboratory comparisons).

___ 3.4.2 Laboratories shall participate in interlaboratory comparisons (ILCs) sponsored by standards organizations (ASTM International, ANSI, etc.) when the laboratory is accredited for the test method that is being used in the ILC.

___ 3.4.3 Laboratories shall participate in proficiency testing activities announced by NVLAP.

___ 3.4.4 Procedures for receiving, analyzing, and monitoring the laboratory's proficiency test results shall be in the laboratory's quality manual.

___ 3.4.5 The laboratory shall evaluate the proficiency testing results, identify all outliers, and follow the requirements of NIST Handbook 150 for the control of nonconforming work.

___ 3.4.6 The laboratory shall correct the problems that led to the poor performance in proficiency testing.

4 Management requirements for accreditation

4.2 Management system

___ 4.2.2 The controlled version of the laboratory management system documentation may be paper-based or computer-based. Version control shall be maintained in either case.

___ 4.2.3 If the laboratory uses a computer-based documentation system, the laboratory should consider the ease of usability by the staff. The laboratory shall ensure that staff is knowledgeable of the online documentation system and can readily retrieve appropriate information.

___ 4.2.4 The laboratory shall create a cross-reference document allowing the laboratory and a NVLAP assessor to verify that all requirements of clauses 4 and 5 and annexes A and B of NIST Handbook 150 and the corresponding NIST Handbook 150-8 are addressed in the management system documentation.

___ 4.2.5 The laboratory shall develop, document, and implement procedures covering all the technical requirements of this handbook and the standard test methods for which accreditation has been requested.

___ 4.2.6 The most recent editions of the documents listed in 1.4 shall be available as references in maintaining the management system.

___ 4.2.7 The laboratory shall have readily available the latest published version of all of the test methods for which accreditation has been requested.

___ 4.2.8 If a regulation requires performance against previous versions of a standard test method, then the laboratory shall document that requirement and shall have available the required version of the standard test method.

___ 4.2.9 The laboratory shall have copies of applicable referenced standards, practices and procedures.

4.13 Control of records

___ 4.13.1 Records shall be maintained for at least three years.

___ 4.13.3 All technical records (test/calibration/verification, etc.), in both hardcopy and electronic format, shall include the identity of the personnel responsible for the preparation, calibration, testing, and checking of the results, and, where appropriate, the associated document date.

4.14 Internal audits

___ 4.14.1 The internal audit shall cover compliance with NVLAP, laboratory management system, regulatory, test standard, and contractual requirement.

___ 4.14.2 A laboratory applying to NVLAP for the first time shall conduct at least one complete internal audit and shall submit the audit records to NVLAP with the management system documentation prior to the first on-site assessment.

___ 4.14.3 For accredited laboratories, records of internal audits conducted since the previous on-site assessment shall be available for review during an on-site assessment.

4.15 Management reviews

___ 4.15.1 Periodic reviews of the management system shall reflect adherence to NVLAP requirements and the laboratory's quality objectives.

___ 4.15.2 A laboratory applying to NVLAP for the first time shall conduct at least one complete management review and shall submit the records to NVLAP with the management system documentation prior to the first on-site assessment.

___ 4.15.3 For accredited laboratories, records of management reviews conducted since the previous on-site assessment shall be available for review during an on-site assessment.

5 Technical requirements for accreditation

5.1 General

___ The quality manual shall contain, or refer to, documentation that describes and details the laboratory's implementation of procedures covering all of the technical requirements in NIST Handbook 150 and this handbook.

5.2 Personnel

___ 5.2.1 The laboratory shall maintain a list of personnel designated to fulfill NVLAP requirements including: Laboratory Director, Technical Director, Quality Manager, Team Leaders, NVLAP Authorized Representative, and NVLAP Approved Signatories.

___ 5.2.2 Laboratories shall document the required qualifications for each staff position.

___ 5.2.3 The laboratory shall have a detailed and documented description of its training program for new and current staff members who have an effect on the outcome of acoustical testing.

The laboratory shall establish and document performance criteria to determine when a staff member is qualified to work independently.

___ 5.2.4 Staff members shall be retrained when procedures change, laboratory equipment and/or test chambers change, scope of accreditation changes, or when the individuals are assigned new responsibilities. Each staff member may receive training for assigned duties either through on-the-job training, formal classroom study, attendance at conferences, or another appropriate mechanism.

___ 5.2.5 Training materials that are maintained within the laboratory shall be kept up-to-date and readily available to laboratory staff.

___ 5.2.6 For each staff member, the staff member's immediate supervisor, or a designee appointed by the Laboratory Director, shall conduct annually an assessment and an observation of performance.

___ 5.2.7 A record of the annual review of each staff member shall be dated and signed by the supervisor or designee and the employee.

___ 5.2.8 Individuals hired to perform testing activities are sometimes referred to as "subcontractors." NVLAP does not make a distinction between full-time laboratory employees and individuals hired on a contract. NVLAP requires that the acoustical testing laboratory maintain responsibility for and control of any work performed within its scope of accreditation. The laboratory shall ensure all individuals performing testing activities satisfy all NVLAP requirements, irrespective of the means by which individuals are compensated (e.g., the laboratory must ensure all test personnel receive proper training and are subject to annual performance reviews, etc.).

5.4 Test and calibration methods and method validation

5.4.1 Standard test methods

___ 5.4.1.1 The laboratory shall follow the current version of the standard test method for laboratory methods and field testing methods. (see NIST Handbook 150, 5.4.2).

___ 5.4.1.3 When customers request testing to previous or obsolete versions of a standard test method, the laboratory shall clearly identify to the customer that the testing is not part of their current scope of accreditation.

___ 5.4.1.4 The laboratory shall have written procedures for laboratory personnel to follow when conducting tests. If determined suitable by NVLAP, the laboratory may use the specific standard test method as the only written procedure.

___ 5.4.1.5 The procedures shall address any information not specifically contained in the standard method and any deviations used by the laboratory.

___ 5.4.1.6 The procedures shall include equipment operation, calibration checks, and quality control checks.

5.4.2 Standard field-testing methods

___ 5.4.2.3 If a laboratory selects standard field-testing methods to be included in its scope of accreditation, the laboratory shall provide to the NVLAP assessor the following:

___ a) complete step-by-step procedure for personnel to follow when performing the standard field test;

___ b) demonstration or mock-up of the test procedure;

___ c) folder or file containing raw data for a specific standard field test previously performed by the laboratory;

___ d) test reports and test data sheets.

___ 5.4.2.4 The laboratory shall select an appropriate acoustic component (e.g., office wall partition) within its facility as the designated field testing reference specimen.

All quality control and monitoring procedures outlined both in NIST Handbook 150 and in this handbook shall apply to the field testing reference specimen, including the regularly scheduled analysis of quality control data required in NIST Handbook 150, section 5.9.

5.4.3 Parallel test methods

___ 5.4.3.3 The laboratory shall provide evidence that the laboratory meets the requirements of the parallel standard test method.

5.6 Measurement traceability

___ 5.6.1 Proper performance of calibrated testing equipment shall be periodically verified under routine use and when the test equipment has been shipped or transported.

The performance verification shall be documented in the laboratory calibration/verification log(s) or other suitable record.

___ 5.6.2 The laboratory shall determine equipment calibration intervals based on the equipment's frequency of use and the environment in which it is used, and/or in accordance with standard test methods.

___ 5.6.3 The laboratory shall document that the calibration intervals used by the laboratory are sufficient.

___ 5.6.4 The reference standards used and the environmental conditions at the time of calibration shall be documented for all calibrations.

___ 5.6.6 In addition to the equipment records specified in NIST Handbook 150, testing equipment calibration records shall include the following:

___ a) notation of all equipment variables requiring calibration or verification;

___ b) range of calibration/verification;

___ c) resolution (precision or the number of digits read) of the instrument and its tolerance (allowable error);

___ d) calibration/verification date and schedule;

___ e) identity of the laboratory individual or external service responsible for calibration;

___ f) source of reference standard and traceability.

___ 5.6.7 Calibration records and evidence of the traceability of the reference standards used shall be made available for inspection during the on-site visit.

5.9 Assuring the quality of test and calibration results

___ 5.9.1 The laboratory shall choose an appropriate reference specimen(s) to be used when conducting tests.

The reference specimen(s) shall be tested annually and whenever a change is made to the test chambers or test instrumentation.

___ 5.9.2 The analysis of test data for the purpose of quality control shall be presented in a suitable format, such as a table and/or graph, for review and interpretation by staff and the NVLAP assessor. The quality control data may be presented by hardcopy or electronically.

___ 5.9.3 The laboratory shall provide documentation on the calculation of various test data, such as reverberation times.

___ 5.9.5 When computer software is purchased, updated, and/or algorithms revised, the laboratory shall verify through hand calculations the accuracy of the test results before using the computer software for reporting valid tests.

5.10 Reporting the results

___ 5.10.1 Test report templates shall be developed for each standard test method for which the laboratory requests accreditation.

___ 5.10.2 Test reports shall provide all necessary information to permit the same or another laboratory to reproduce the test plan.

___ 5.10.3 When a test report contains results from tests that are outside the laboratory's scope of accreditation (e.g., testing is performed against previous or obsolete versions of a standard test method) the results shall be clearly identified.

___ 5.10.4 The measurement uncertainty shall be reported numerically in relation to the test results if required by the test method or the customer.

NIST HANDBOOK 150-8 CHECKLIST
COMMENTS AND NONCONFORMITIES

Instructions to the Assessor: Use this sheet to document comments and nonconformities. For each, identify the appropriate item number from the checklist. Identify each comment with a "C" and each nonconformity with an "X." If additional space is needed, make copies of this page or use additional blank sheets.

Item No.	*C or X*	*Comments and/or Nonconformities*

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