What is the National Voluntary Laboratory Accreditation Program (NVLAP)?

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NVLAP Calibration Laboratories Accreditation Program

The National Voluntary Laboratory Accreditation Program (NVLAP) is a voluntary, fee-supported program to accredit laboratories that are found competent to perform specific tests or calibrations, or types of tests or calibrations. The program was established by NIST in 1976 to serve the needs of the government and private sector (industry, consumers, and other stakeholders) by fostering and promoting a uniformly acceptable base of professional and technical competence in the laboratory community, and to facilitate and promote acceptance of calibration and test results between countries to avoid barriers to trade. The combination of testing and calibration laboratory accreditations by NVLAP provides an infrastructure of competent measurement laboratories supporting domestic and international trade and conformity assessment activities. The program provides an unbiased third-party evaluation and recognition of performance, as well as expert technical guidance to upgrade laboratory performance. NVLAP procedures are contained in 15 CFR Part 285.

NVLAP develops specific laboratory accreditation programs (LAPs) for testing and calibration laboratories in response to legislative or administrative actions, requests from government agencies or, in special circumstances, from private sector entities. NVLAP procedures provide for consultation with interested parties through public workshops and other means to ensure open participation and to determine if there is a need for a requested LAP. NVLAP-accredited laboratories support programs addressing critical health, safety, environmental and security issues in six federal agencies and departments, and two independent commissions.

NVLAP currently offers accreditation in 17 fields of testing involving thousands of test methods; eight fields of calibration covering more than 90 parameters; and two fields of chemical calibration. NVLAP's annual budget is approximately $4.5 million. A staff of 16 technical and administrative personnel manages programs that accredit 749 testing and calibration laboratories. NVLAP directly supports the U.S. measurement infrastructure by accrediting calibration laboratories that disseminate secondary standards and provide measurement results that are traceable to appropriate national and international standards. These laboratories include higher echelon laboratories operated by federal agencies, such as the Department of Defense (DOD), the Department of Energy (DOE), and the Food and Drug Administration (FDA); sixteen state metrology laboratories that provide legal metrology support in their respective and surrounding states; major manufacturers of standards and test equipment; and a mixture of calibration service laboratories, some general and some sector-specific.

International standards-based accreditation programs, such as NVLAP, rely on a uniform approach to determining laboratory competence, promote mutual recognition among accrediting bodies, and support increased acceptance of exported goods in overseas markets. NVLAP, because of its close working relationship with the NIST laboratories, is widely recognized and respected as a technically sound and rigorous accreditation program whose accreditations can be used to reduce trade barriers and facilitate trade. NVLAP has entered into mutual recognition arrangements (MRAs) with other laboratory accreditation bodies through the Asia Pacific Laboratory Accreditation Cooperation (APLAC), and the International Laboratory Accreditation

Cooperation (ILAC). These arrangements provide NVLAP customers with more universal acceptance of their calibration and test data, both domestically and internationally.

Laboratory accreditation is further supported through the MRA among national metrology institutes (NMIs) under the Comité International des Poids et Mesures (CIPM), in which NIST is an active participant. Laboratory accreditation MRAs and the CIPM MRA are complementary functions that are intended to contribute to reducing barriers to trade. The CIPM arrangement ensures that signatory NMIs disseminate measurement results that are traceable to the SI (International System of Units) while laboratory accreditation assures that accredited laboratories are capable and competent to provide measurement results traceable to the SI through standards maintained by those NMIs. Hence, the concept, *one test, one calibration, sell anywhere*, can be realized.

NIST Handbook 150, *NVLAP Procedures and General Requirements*, February 2006, sets forth the basic procedures under which NVLAP operates and the general accreditation requirements for testing and calibration laboratories. NVLAP operates an accreditation system that is compliant with ISO/IEC 17011, *Conformity assessment — General requirements for accreditation bodies accrediting conformity assessment bodies,* 2004. ISO/IEC 17011 requires that the competence of applicant laboratories be assessed by the accreditation body against all of the requirements of ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories.* Additional technical requirements are developed and published as required.

NVLAP accreditation programs fall under two categories; government regulatory programs and industry-requested programs. Summary program descriptions are attached (Attachment I), as well as a breakdown of the number of accredited laboratories by program type (Attachment II).

Attachment I

NVLAP Programs, by Type and Authority

Government Regulatory Programs

Carpet and Carpet Cushion - established in 1981 in response to a request from the U.S. Department of Housing and Urban Development (HUD). HUD requires laboratories that test the suitability of carpet and attached carpet cushion products for use in federal housing programs to be NVLAP-accredited. NVLAP collaborates with NIST's Building and Fire Research Laboratory (BFRL) on proficiency testing for critical radiant flux and flammability.

Ionizing Radiation Dosimetry – established in 1984, the Nuclear Regulatory Commission requires laboratories that process personnel dosimeters to be NVLAP-accredited.

Electromagnetic Compatibility and Telecommunications – established in 1985, laboratories are accredited to conduct certain tests for Emissions, Immunity, Safety, and Telecommunications in support of Federal Communications Commission (FCC) regulations and four trade agreements covering telecommunications equipment. Accreditation is required by the FCC.

Bulk and Airborne Asbestos – developed in partnership with NIST's Chemical Science and Technology Laboratory (CSTL), Microanalysis Science Division in response to the passage of Public Law 99-519, *Asbestos Hazardous Emergency Response Act (AHERA) of 1986*. This law required that NIST (then NBS) develop an accreditation program for laboratories that analyze either bulk samples of asbestos-containing materials or air samples of asbestos collected in public schools using test methods specified by the Environmental Protection Agency (EPA).

Fasteners and Metals – established as required by Public Law 101-592, *the Fastener Quality Act of 1990.*

Energy Efficient Lighting (EEL) and Efficiency of Electric Motors (EEM) – established in anticipation of the passage of Public Law 102-486, *Energy Policy Act of 1992*. Under the EP Act, the Department of Energy (DOE) requires laboratories that perform certain energy efficiency testing to be accredited. NVLAP collaborates with NIST's Physics and Building and Fire Research Laboratories for proficiency testing of EEL test laboratories.

Cryptographic Modules Testing (CMT) – established in 1995 at the request of the NIST Computer Systems Laboratory. NVLAP accreditation is required for laboratories that perform conformance testing for acceptance by the Cryptographic Module Validation Program (CMVP), a product certification program administered jointly by NIST's Information Technology (ITL) and the Communications Security Establishment of the Government of Canada. ITL's Computer Security Division and Software Diagnostics and Conformance Testing Division provide technical support to NVLAP for the operation of this program.

Common Criteria Testing (CCT) – established in 1999 at the request of the National Information Assurance Partnership (NIAP) and the National Security Agency (NSA). NVLAP

accreditation is required for laboratories that perform IT security evaluations using the *Common Criteria* and *Common Methodology*, ensuring that such laboratories are capable and competent to meet the needs of the Common Criteria Scheme (a NIAP program to manage the validation of IT security products). NIAP, a signatory to the international Common Criteria Recognition Agreement (CCRA), uses NVLAP accredited test laboratories to meet its Agreement obligations.

Related to both the CMT and CCT Programs, the National Information Assurance Acquisition Policy No. 11 (NSTISSP No. 11) requires that federal purchases of relevant products be limited to those appearing on a list of approved products, that is, those products that have been tested and deemed suitable by NVLAP-accredited laboratories. The private sector, though not obligated to do so, may choose to purchase products from this same list.

Providers of Proficiency Testing (PPT) – established in 1998 in partnership with CSTL's Analytical Chemistry Division to support the privatization of the U.S. EPA Water Proficiency Evaluation Program. NVLAP accreditation is required for laboratories that conduct proficiency test services to environmental analysis laboratories.

NIST Traceable Reference Materials (NTRM) – established in 1999 at the request of, and in collaboration with the NIST Analytical Chemistry Division (ACD). NVLAP accreditation is required for laboratories wishing to produce, certify and distribute spectrophotometric filter reference materials with the designation NTRM. NIST/ACD provides technical criteria and support.

Voting System Testing – established in 2004 in response to Public Law 107-252, the *Help America Vote Act (HAVA) of 2002*. Section 231 of HAVA requires the Director of NIST to provide for the accreditation of laboratories that conduct testing of the hardware and software of voting systems.

Radiation Detection Instruments –established in 2006 in response to a request from the Department of Homeland Security (DHS) to develop a program to accredit laboratories that test radiation detection instruments used in homeland security applications.

Personal Identity Verification (PIV) – established in 2006 in response to a request from the NIST Personal Identity Verification Program (NPVIP). In support of its effort to meet its responsibilities under Homeland Security Presidential Directive (HSPD) -12, NPVIP requires PIV components and subsystems to be tested in the private sector by accredited laboratories to assure conformance and interoperability.

Industry-Requested Programs

Construction Materials Testing – initially established 1978 to accredit laboratories to test concrete but has gradually expanded to include other testing areas such as admixtures, aggregates, cement, geotextiles, road and paving materials, soil and rock, and steel materials. Specific test methods related to this program are developed by trade, professional, governmental, or standards-writing organizations.

Thermal Insulation – established in 1979 at the request of industry trade associations to accredit laboratories that produce reliable thermal insulation test data by following standard test procedures to measure corrosiveness, thermal resistance, strength, flammability, mass, density and dimensional stability, and water vapor retarder characteristics. BFRL collaborates with NVLAP to provide technical support.

Commercial Product Testing – established in 1984 at the request of the International Coalition for Procurement Standards to accredit laboratories to conduct tests according to standard test methods for Paint and Related Coatings and Materials, Paper and Related Products, Plumbing (Plastic and Fixtures), and Building Seals and Sealants.

Acoustical Testing Services – established in 1987 at the request of Owens-Corning Fiberglass Corporation to accredit laboratories for their ability to conduct tests according to selected standard test methods in acoustical testing in the areas of sound absorption, impedance, attenuation, vibration, power levels, emitted sound, and hearing protection, among others. The program was designed to satisfy the requirements of contracts, state and local governments, and federal agencies that specify accreditation for laboratories that perform testing for compliance to acoustical design specifications and performance testing of acoustical materials and noise protection devices.

Wood Based Products – established in 1992 at the request of the American Plywood Association with support from the National Particle Board Association and HUD. Accreditation is intended to assure that standard test procedures for chemical, physical, mechanical, fire performance, formaldehyde and treated wood characteristics are followed when testing wood based products.

Calibration – established in 1992 at the request of the National Conference of Standard Laboratories (NCSL), now known as NCSLI, to accredit calibration laboratories for their technical competence and capability to provide scientifically sound and appropriate measurement services that are traceable to appropriate stated references, usually the SI.

Further details may be found in NISTIR 6988, *NVLAP Partnerships with NIST Technical Units*, available on the NVLAP web site at http://ts.nist.gov/ts/htdocs/210/214/docs/nistir6988.pdf.

NVLAP continues to look for opportunities to serve other government agencies, the regulators and industry in general. For example, two new programs in support of DHS are under consideration: accreditation of laboratories that test mobile radios for interoperability; and, accreditation of laboratories that test body armor.

Attachment II

Number of NVLAP-accredited Laboratories, by Type

Government Regulatory Programs	# of Labs in Program
Carpet and Carpet Cushion –	9
Ionizing Radiation Dosimetry –	29
Electromagnetic Compatibility and Telecommunications –	197
Bulk and Airborne Asbestos –	252
Fasteners and Metals –	28
Energy Efficient Lighting and Efficiency of Electric Motors –	38
Cryptographic Modules Testing –	14
Common Criteria Testing –	15
Providers of Proficiency Testing –	10
NIST Traceable Reference Materials (NTRM) –	1
Voting System Testing –	5
Radiation Detection Instruments (new) –	0
Personal Identity Verification (PIV) (new) –	0
Total	**598**
Industry Requested Programs	
Construction Materials Testing –	20
Thermal Insulation –	11
Commercial Product Testing –	9
Acoustical Testing Services –	29
Wood Based Products –	3
Total	**72**
Calibration –	**79***
Grand Total	**749**

* includes 7 DOE labs, 2 DOD labs, 1 FDA lab and 16 state metrology labs