



NIST T.R. EVIDENCE OF TRACEABILITY

A2LA Policy on the Use of NIST Test Report - Numbers as Evidence of Traceability

(The following is adapted from NIST's Calibration Services web site, <http://ts.nist.gov/ts/htdocs/230/233/calibration/trace/index.html>, and NCSL Position Statement 96-1)

The International Vocabulary of Basic and General Terms in Metrology (VIM; 1993) defines traceability as the property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties.

ANSI/NCSL Z540-1-1994 defines traceability as the property of a result of a measurement whereby it can be related to appropriate standards, generally national or international standards, through an unbroken chain of comparisons.

Many government regulations, commercial contracts, and accrediting bodies require regulated or accredited organizations or contractors to verify that the measurements they make are "traceable" and to support the claim of traceability by keeping records that their own measuring equipment has been calibrated by laboratories or testing facilities whose measurements are part of this "unbroken chain." The purpose of requiring traceability is to ensure that measurements are accurate representations of the specific quantity subject to measurement, within the uncertainty of the measurement.

The NIST Calibration Program often receives calls to verify the authenticity of a NIST Report of Test number appearing on another organization's report. *Although NIST can verify the authenticity of its report numbers, having an authentic number does not provide assurance or evidence that the measurement value provided by another organization is traceable.* Not only should there be an unbroken chain of comparisons, each provided measurement should be accompanied by a statement of uncertainty associated with the farthest link in the chain from NIST, that is, the last facility providing the measurement value. NIST does not have that information; only the facilities that provided the measurement values to the customer can provide the associated uncertainties and describe the traceability chain.

In summary, to adequately establish an audit trail for traceability, a proper calibration result should include: the assigned value, a stated uncertainty, identification of the standards used in the calibration, and the specification of any environmental conditions of the calibration where correction factors should be applied, if the standard or equipment were to be used under different environmental conditions.

A2LA's policy on the use of NIST numbers as evidence of traceability is also in line with the policy of the National Conference of Standards Laboratories (NCSL):

"It is the position of the National Conference of Standards Laboratories (NCSL) that:

Test report numbers issued by the National Institute of Standards and Technology (NIST) of the United States Department of Commerce are intended to be used solely for administrative purposes. Although they are often used to uniquely identify documents which bear evidence of traceability, test report numbers should not be used nor required as proof of the adequacy or traceability of a test or measurement.

It should be noted that nationally and internationally recognized standards dealing with test and measurement quality requirements such as ANSI/NCSL Z540-1-1994, ISO 10012, ISO/IEC Guide 25, and the ISO9000 series do not require the use or reporting of NIST test report Numbers to establish traceability..."

(NCSL Position Statement 96-1; emphasis added)