

NAVAIR 17-35FR-06...Revised

(Continued from page 4)

tions to the environmental requirements found in the measurement area tables of Section 4. These changes should be reviewed for relevancy to the measurement accuracy within the specific calibration area.

Of course, the most obvious change is the document title. *Facility Requirements for Navy Calibration Laboratories* has been changed to *Facility Requirements for Navy and Marine Corps Calibration Laboratories*. A list of all of the issues addressed and the changes implemented can be found in Enclosure 7.

Corrections or comments concerning the document are invited and should be sent to the address listed below. You may also e-mail your comments to Brennan Heglar at heglarbs@corona.navy.mil.

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National Magnetic Measurements are Alive and Well at NPSL

by Jim Wheeler and Don Matson (NPSL)

The United States Navy Primary Standards Laboratory (NPSL) is one of the few standards laboratories in the world to provide magnetic calibration services. In the early 1990s, the National Institute of Standards and Technology (NIST) provided traceability for magnetic calibration. In 1995, NIST ended this service as they wished to focus their efforts and equipment on basic research. To provide for continuing traceability in magnetics, Dr. Edwin Williams of NIST worked with Donald W. Matson of NPSL to establish a magnetic metrology facility at NPSL.



Low Level Gauss Measurement System, with Don Matson & Jim Sharp

To increase NPSL's calibration ability, NIST transferred a large precision solenoid to the Navy, which had served in the past as the national inductance standard. This precision solenoid received further improvement with the addition of special windings to improve the uniformity of its central field. Dr. Williams and Donald Matson implemented this improvement at the NIST facility at Gaithersburg, MD before they sent the solenoid to the Navy's Laboratory at Naval Air Depot North Island, San Diego, California.

The March-April 1995 issue of the *Journal of Research of the National Institute of Standards and Technology* (Vol. 100, No. 2, page 190) announced "the installation of the magnetic field calibration facility at the Navy Primary Standards Laboratory (NPSL)." "The completed transfer of this system ensures that U.S. DC magnetic field calibration needs can be met by NPSL since NIST no longer provides this service." The nuclear mag-



Middle Level Gauss Measurement System

netic resonance (NMR) gaussmeter provides traceability to NIST. Later that year, Matson and Williams presented a paper at the 1995 NCSL Workshop & Symposium held in Dallas describing the new magnetic metrology laboratory. He has also written two articles that appeared in the Nov/Dec 1995 issue of *Cal Lab* magazine describing the measurement system used and the historic construction of the inductor by NIST. Don Matson and Jim Sharp are the metrologists responsible for magnetic measurements at NPSL.



High Level Gauss Measurement System

Magnetics is unusual in that the commonly used unit is the Gauss, whereas the official unit is the Tesla. Since there are 10,000 Gauss in a Tesla, the Gauss provides a much more convenient unit for normal activities. Another common non-metric unit is the Gamma, which is used for very small magnetic fields. 100,000 Gammas equal one Gauss. A refrigerator magnet ranges around 800 Gauss in strength.

Additions to METRL

by Doug Sugg (NSWC COR Code MS 00A)

As requirements become known, new Test Instruments (TIs) which require calibration are identified. The calibration requirements for these items are analyzed and calibration intervals are established. The data is then entered into the METRL database and will appear in the next published issue of METRL. Enclosure (2) is a listing of TIs which have been added since the last issue of METBUL.

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