



Primary Standards Laboratory Electrical Calibration Project

Fact Sheet

The Primary Standards Laboratory's (PSL's) Electrical Calibration Laboratory maintains a wide variety of standards to ensure accurate and traceable calibrations of Measuring and Test Equipment (M&TE) for its customers. The laboratory's standards are traceable to Systeme International through the National Institute of Standards and Technology (NIST), approved commercial vendors, or self-calibration/ratio techniques.

These standards include a resistance bridge system, shunts, high-accuracy multifunction calibration systems, picoamp source and measurement systems, synthesizer/function generators, counters, oscilloscope calibrators, audio analyzers, spectrum analyzers, microwave and frequency counters, capacitance bridges, and Inductance, Capacitance, Resistance (LCR) meters.

The Electrical Laboratory provides single-stop, comprehensive calibrations with excellent uncertainties and ensures reliable, reproducible, and timely calibration of many types of electrical and electronic M&TE. It supports a variety of calibration parameters, including: Alternating Current (AC) volts, AC current, Direct Current (DC) volts, DC current, resistance, capacitance, inductance, attenuation, Radio Frequency (RF) power, frequency, time, and modulation. Examples of the variety of M&TE supported include LCR meters, counters, current probes, power supplies, delay generators, charge amplifiers, resistors, multimeters, capacitors and capacitance meters, inductors, AC and DC calibrators, spectrum analyzers, timers, transconductance amplifiers, signal generators, oscilloscopes, attenuators, and temperature controllers.

PSL's experts consult with customers on the use, capabilities, reliability, and selection of equipment. In addition, the Electrical Laboratory has a Customer Service Representative who coordinates customer requests, ensures the appropriate handling of equipment, and addresses customer concerns.



Metrologist Performing One of over 5000 Calibrations Completed in the Electrical Laboratory Each Year

Capabilities

The Electrical Laboratory has a wide range of capabilities. A sample of key uncertainties is shown below.

Capabilities	k=2
DC Volts	4 ppm
DC Current	40 ppm
AC Volts	24 ppm
AC Current	150 ppm
Resistance	8 ppm
Capacitance	5 ppm
Inductance	280 ppm
Amplitude Modulation	0.4%
Frequency Modulation	1%
Phase Modulation	1%

For detailed ranges and uncertainties, please contact the PSL Electrical Laboratory.



Major Resources

- Automated, bus-controlled, multifunction calibration systems that support power supplies, multimeters, resistance standards, electrometers, micro-voltmeters, PXI and VXI devices, and data acquisition units.
- An extensive library of automated calibration procedures, as well as Metrologists who are trained in developing code for new procedures. Customized procedures.



Electrical Team Members

Contacts

Steven Aragon

Acting Project Lead

Sandia National Laboratories
P. O. Box 5800; M/S 0665
Albuquerque, NM 87185-0665
Phone: (505) 284-2973
FAX: (505) 844-4372
Email: sjarago@sandia.gov

Meaghan Carpenter

Manager

Sandia National Laboratories
P. O. Box 5800; M/S 0521
Albuquerque, NM 87185-0665
Phone: (505) 284-8268
FAX: (505) 844-4372
Email: mscarpe@sandia.gov

