



FULL Range of Services include:

- Certify, Calibrate, Upgrade and Repair Radian Standards
- Certify ANY AC Energy Standard
- Test and Certify Accuracy of:
 - AC Voltmeters
 - AC Ammeters
 - AC Wattmeters
 - Phase Angle Meters
 - Harmonics Waveform Analyzers
- Revenue Meter Analysis
- Remote Accuracy Certification
- Equipment Rental
- Application and Maintenance Training
- Specialized Testing
- Multi-year Certification Packages

Features:

- State of the Art Calibration Equipment
- Experienced, Knowledgeable Staff
- Fast Turnaround Time
- Cost Effective
- Credit Cards Accepted

Radian Laboratory Standards and Certifications

- ISO 9001 Certified Quality Program
- ANSI/NCSL Z540-1-1994 (MIL-STD-45662A plus software control)
- Directly NIST Traceable for Watthours, AC Volts and Time
- NIST Traceable for AC Amps, Watts, VARhours, VAhours, DC Volts and Resistance
- Nuclear Calibration Audited and Certified by multiple Electric Utilities
- NCSL (National Council of Standards Laboratories) Member

Radian Research, Inc is a recognized world leader in the design and manufacturing of high accuracy energy reference standards. It is therefore no surprise that Radian maintains a state of the art, full service calibration laboratory that can meet all of your certification, calibration and testing needs. Radian's calibration laboratory is directly traceable to the National Institute of Standards and Technology (NIST) and thus provides an efficient, economical alternative to NIST for all of your recertification requirements. In addition, the primary and secondary standards Radian uses to perform recertification services are among the most accurate standards in the world. This ensures that using Radian for your NIST traceability contributes minimal added error in your standardization chain.

Radian's wide range of calibration service options enables you to easily choose the approach most conducive to your particular situation. Service options are described on back page.

Recertification, Recalibration, Upgrade and Repair of Radian Standards.

Radian standards have been *the* reference standards in North America for the past 15 years. There is no better alternative for services on your Radian standards than going *directly to the source*. No other laboratory in the world knows more about your Radian standard and can assure that its performance is optimized. Radian will not settle for anything less. Radian standards are tested at voltage, current and phase angle combinations across their entire operating range. Calibration adjustments are made to optimize measurement accuracy at every operating condition. Various upgrades are available to bring older vintage standards up to modern day specifications and functionality. Full service repair and maintenance facilities assure that your investment will be protected for many years. Temperature testing is done on all upgrades and repairs to ensure accuracy at all temperature ranges. Extended warranty and multi-year recertification packages are available to provide comprehensive coverage for the definitive reference standard.

Recertification of non-Radian Energy Standards

Recertification services are available for any AC energy reference standard. These recertification services do not encompass any adjustments of calibration or repairs. Recertify at cardinal test points only or across the entire operating range of the standard. Custom test point options allow you to select exactly what points you want certified. Temperature testing is also offered for an additional charge. Certifiable functions include Wh, VARh, VAh, mAh, mVh, amps squared hours and volts squared hours.

Certification of Other AC Measurement Instruments

Radian can test and certify other AC measurement instruments. These instruments are tested using a state of the art AC metrology system with worst case measurement accuracy of +/-0.01% on all of the following instruments:

AC Voltmeters	60 VAC to 600 VAC (lower AC voltages available at slightly lower accuracy)
AC Ammeters	0.2 amps to 67 amps (lower AC currents available at slightly lower accuracy)
AC Wattmeters	At any combination of above voltage and current points
Phase Angle Meters	Any phase angle from 0 to 360 degrees, or -180 to +180 degrees

Harmonic Waveform Analyzer Testing

Radian's calibration laboratory has the ability to source arbitrary voltage and current waveforms with harmonic components from the 2nd to the 23rd harmonic in any combination. Waveforms of up to 40% THD can be very accurately generated and used to test the accuracy of harmonic waveform analyzers used in power quality applications. Radian's harmonics testing capabilities exceed that of most original equipment manufacturers providing these type of devices. Radian offers the ability to test these devices both at pure sinusoidal waveforms along with providing test data on actual distorted voltage and current waveforms. Accuracy of the harmonics measurement of these types of devices has historically been accepted from the manufacturer without question. There is now a way to actually verify this accuracy.

Revenue Meter Analysis

Radian can provide detailed analysis of revenue billing meters. Note that this service is not geared toward high volume meter testing, but is instead focused on the type of testing and analysis generally done for evaluation of a particular meter type or design. Sensitivity analysis can be performed on

any number of measurement variables including voltage, current, phase angle, fundamental frequency, temperature, and harmonic content. Pre-set testing schemes are available or you can specify a customized testing regimen. This service is a very cost effective way to thoroughly evaluate the many new revenue meters that come on to the market today.

Remote Accuracy Certification

Radian now offers the same benefits of a NIST traceable accuracy certification to those customers unable to send their standard in to Radian's calibration lab. Remote Accuracy Certifications entail sending a certified Radian transfer standard to the customer for a designated period of time. This transfer standard comes with a complete NIST traceable certificate of calibration at test points across its entire operating range. This standard is then used to certify a utility's reference standard(s). This service is ideally suited to those customers having test boards with reference standards that are either "integrated" or not easily removed. Most modern test boards have software built in to facilitate testing against an external reference. Multifunction standards are available so that the voltage, current, frequency and phase angle outputs of the test board can also be tested and certified. As an option, an "as left" test sheet on the transfer reference standard can be run and sent to the customer upon its return to Radian. By comparing the original test results with the as-left data, the user can be assured that the transfer standard's accuracy did not shift as a result of shipment. For older test boards, additional accessories are available to help facilitate the testing manually.

Equipment Rental

Radian offers a variety of rental equipment to help meet your short term testing needs. Renting is a cost effective way of tackling that special project or eliminating downtime during repair or recertification of a reference standard. Available equipment includes laboratory and field standards, portable meter test systems, and test accessories. All equipment comes with operations manuals, NIST traceable certification data and carrying cases. Technical support and guidance can be provided by our friendly and knowledgeable product support staff. Flexible rental terms can accommodate any schedule. Rent for one day, one week, or one month. Whatever your needs are Radian equipment rental has your solution.

Application and Maintenance Training

The best way to get the most out of your Radian standards and test systems is to have your lab and field technicians receive training from Radian. Training can be tailored to your specific needs. Subjects can focus on every aspect of reference standard ownership including product theory, testing applications, routine maintenance and calibration. Training is best facilitated at Radian headquarters. Group discounts are available but group sizes are limited to ensure personal attention to all participants. On-site training at customer location is also available upon request. Radian provides qualified instructors, all needed equipment and course materials. Contact Radian Technical Marketing staff for pricing and scheduling of your training program.

Specialized Testing

Radian maintains a full service, state of the art standards and metrology laboratory. Radian's laboratory has well over one million dollars worth of test and calibration equipment and is fully staffed with experienced, knowledgeable test engineers and technicians. Along with the above detailed testing services, Radian can offer specialized testing services to satisfy your unique testing needs. Whatever your testing needs call for, please contact Radian's Technical Marketing Staff and allow us to provide you with a proposal. In the unlikely event that Radian cannot provide the testing you require, you will be given a referral to another source that can. Please allow Radian Research, Inc. to be your one stop solution for all your testing and calibration needs.