

Measurement Solutions for Electrical Energy

A business of

CallaghanInnovation

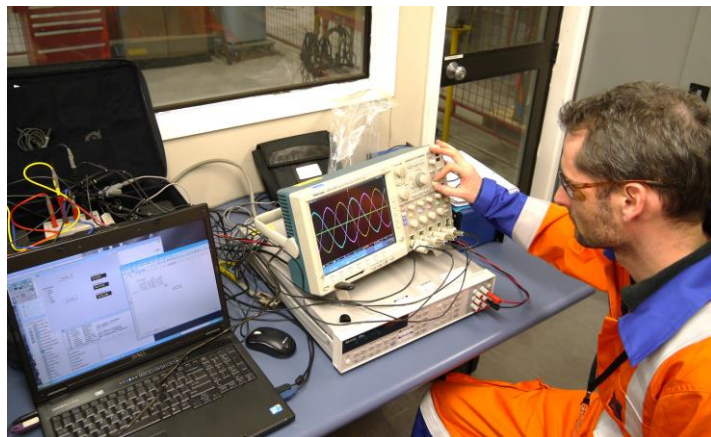


VALUE TO INDUSTRY

- Meet regulatory requirements
- Gain traceability to internationally recognised measurement standards
- Optimise processes through sensitivity analysis
- Minimise waste and save money

Measurement is a key input in the monitoring, control and trading of electrical energy. It is also essential in industrial processes used in manufacturing or provision of services. Whether it involves temperature, light, pressure, volume, or electricity, the Measurement Standards Laboratory of New Zealand (MSL) offers access to internationally accepted and traceable measurements to improve your processes.

We have worked with class A and B Approved Test Houses (ATHs) to ensure their reference meters are traceable. Assistance with the calculation of uncertainties in the errors ensures that the accuracy for determining overall site errors of a metering installation meet Electricity Authority (EA) requirements.



CASE STUDY

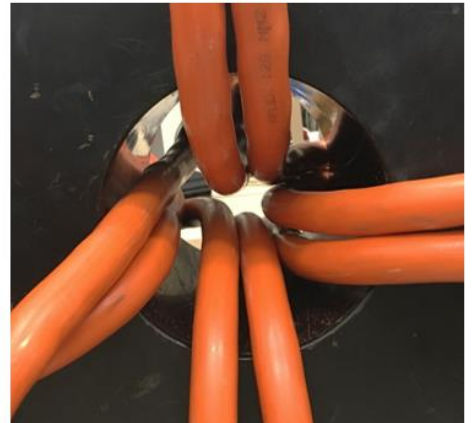
MSL recently supported a manufacturer of power transformers to verify the accuracy of their transformer test system. The test system is required to measure the load losses and no-load losses of each transformer with an accuracy of <math><3\%</math>. To ensure the manufacturer meets *AS/NZS 60076.1:2014 Power Transformers - General*, their test system must "have certified, traceable accuracy".

Measuring power transformer losses involves the measurement of watts and although MSL has experience in this area, this was the first time applying it to power transformers. Based on existing skills with some further development, we were able to create new traceability paths to provide the traceability required. This was non-trivial for the no-load loss tests, as when the voltage is increased the transformer waveform becomes distorted, enough to impact a simple determination of the accuracy. Following our analysis, we could show that their test system did pass the <math><3\%</math> requirement and we certified this as traceable.

ACCURATE ELECTRICITY METERING

If you are involved in the metering side of buying and selling power in New Zealand, you need to ensure that your measurements are trustworthy. Part 10 of the Electricity Industry Participation Code defines the requirements for metering equipment providers, approved test houses and metering installations. These requirements are intended to ensure that all electrical energy measurements are traceable to international standards with a known level of measurement uncertainty.

MSL can help with the regular calibration of your laboratory standards, assessment of the errors relevant to your measuring instruments or installation, and procedures for calculating how these measurement errors combine to inform your decision making.



MORE CONSISTENT PROCESS OUTCOMES

The Measurement Standards Laboratory provides measurement advice, training, and calibration of reference equipment. We can help you think about what you need to do in your next iteration of product development or assist in finding those efficiencies in your process.

Whether it is more consistent outcomes you're looking for from your industrial process or you want more confidence in making decisions based on measurement— contact the Measurement Standards Laboratory at Callaghan Innovation.



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