



# Measurement Solutions for Wearables

A business of

CallaghanInnovation



## VALUE TO INDUSTRY

- Calibrate your device to international standards of measurement
- Navigate complex regulatory environments more easily
- De-risk the project by building trust and confidence in your device's outputs
- Undertake early quality checks to save time and money
- Help your customers make more informed decisions

Wearable technology is a booming market. 100 million wearable devices were sold in 2016, with each one claiming to measure everything from distance travelled and heart rate, to sleep quality and fertility. But low repeatability of results, as well as accuracy and precision that vary during use, would suggest that wearables have a measurement problem.

As New Zealand's national metrology institute, the Measurement Standards Laboratory (MSL) can help. Whether you need your wearable to measure body temperature, light levels or act as a positioning beacon, we have the expertise to turn a project into a product. As well as offering expert consultancy, our scientists can develop specialist calibrations to support device manufacturers. And, as the source of traceable links to international measurement standards, we can direct you to the documentary regulations that your new device will need to comply with. So, if you're in the business of wearables, get in touch.



## SAMPLE CASE STUDY

**The Challenge:** A device manufacturer is designing a system that will monitor deep-sea divers while they work. The network of sensors includes commercial heart rate monitors, thermistors to measure body temperature, force and pressure gauges, light meters that trigger the divers' torches, and acoustic transponders to locate them. The manufacturer wants this data to be collected by on-board dive computers. And once the divers return to the surface, the data will be sent wirelessly to the research vessel, and to the authorities that manage the region. The manufacturer needs to know that they can rely on the accuracy of each of their sensors, as in this environment, bad measurements could be a matter of life-or-death.

**The Solution:** Early in the development, the manufacturer approaches MSL for guidance on the performance of their sensors. Our experts on light and temperature calibrate their sensors against international standards. Our mass team advise on a robust way to measure pressure, and our length and radio frequency scientists offer comparative measurements, plus advice on the relevant codes of practice.

**The Result:** The manufacturer makes some changes to their initial design, but in the process, ensures that each component of their device delivers the required performance, and met with all regulatory requirements.

## BUILDING TRUST

With so many wearable devices already on the market, you need to find a way to make yours stand out – working with MSL to make your device traceable to international standards is one way to do that. Accurate and reliable measurements, along with a thorough understanding of the uncertainties that influence them, will help you to build trust amongst your investors customers.

By giving people a measure of your system's reliability, you are providing them with a tool that makes your device easier to use. And by including measurement and calibration in your process, from design to operation, you can ensure that your device delivers optimal performance over its lifetime.

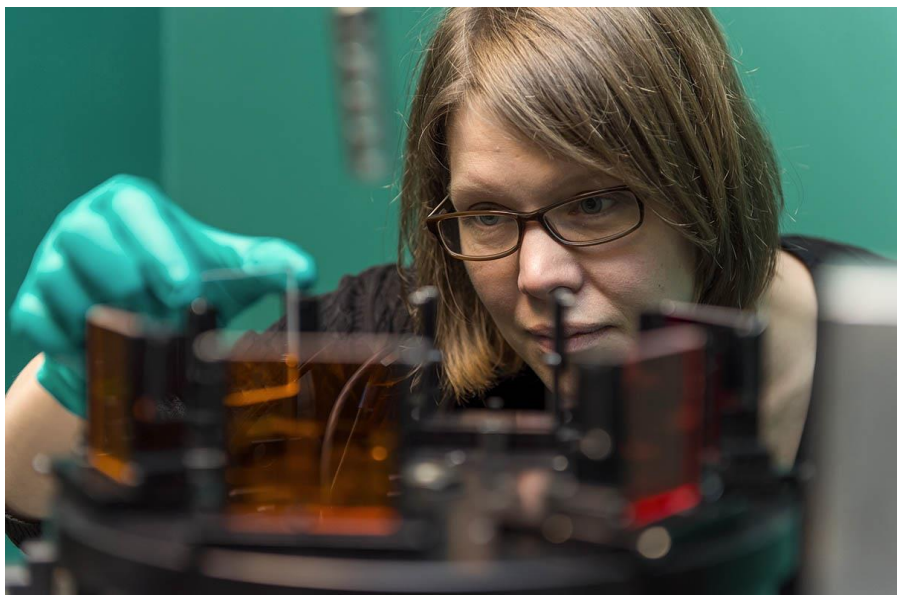


## THE MEASURE OF WEARABLES

The Measurement Standards Laboratory is the home of New Zealand metrology, so we can offer expert measurement advice, training, and calibration services to those working in wearable technology.

We can help you navigate any relevant documentary standards, and determine how your device measures up to internationally-recognised standards. We can compare the performance of your device to non-wearable references, and provide measurement uncertainties that better define a device's performance and reliability.

So, before you undertake a high-risk wearables project, come to us. We can reduce that risk through high-quality measurement science.



### CONTACT US

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