

Workshop on Validation and Certification of Metrology Software

Wednesday 27th May 2015

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The role of metrology software in traceable measurement and quality systems

Nowadays in metrology, almost every measuring system involves computation. How can we be sure that the software performing these computations is giving the correct results? Poorly performing software can compromise traceability of measurement and, in a quality assurance/industrial inspection setting, put product quality at risk. But what can we do to check if metrology software is fit for purpose?

A new approach to metrology software validation and online certification

This workshop presents the outputs of a European Metrology Research Programme (EMRP) project Traceability for computationally-intensive metrology (TraCIM) that has developed a new approach for assessing the performance and fitness for purpose of metrology software and established an online software certification service.

Workshop scope

- **Specification of computational aims**
Software can only be validated when it is known what task the software is intended to execute. We discuss how computational aims are specified rigorously and made available in a database.
- **Generation of numerical artefacts: reference datasets for software validation**
Reference data is commonly used in software validation and involves the generation of reference input data and reference output data corresponding to the stated computational aim. We discuss how reference data can be generated to provide accurate test data.
- **Performance metrics: is metrology software fit for purpose?**
Software under test will generally not provide exactly the same answers as the reference results. But is the difference significant? Performance metrics provide a quantitative measure of the accuracy of the software that can be compared with other sources of uncertainty associated with the measurement system.
- **An online system for software validation – the TraCIM service**
A major output of the project is an information and communications technology (ICT) system that allows metrology software to be assessed and certified online. The system uses a client-server model allowing information (reference input data, test results, etc.) to be communicated between the instrument requesting the validation service and the TraCIM server.

The TraCIM project outputs are applicable across a wide range of metrology domains but have been most extensively developed for the length domain through the involvement of industrial project partners Hexagon, Mitutoyo, Werth and Zeiss.

Who should attend?

The workshop is intended for developers and users of metrology software, quality professionals and engineers in industry, calibration laboratories and national measurement institutes.

Training course on the TraCIM online software certification system

A training course on how instrument software can be interfaced with the TraCIM system to provide the online certification of metrology software will be held on the following day, 28th May 2015, at the National Physical Laboratory. This course is aimed mainly at software engineers. For more information about the course, visit www.npl.co.uk/events.

If you would like to register for this event please email Louise Brown (louise.brown@npl.co.uk).