

Q-WAVE Newsletter

The newsletter from the EMRP project SIB59 Q-WAVE
A quantum standard for sampled electrical measurements



Issue 3
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Q-WAVE: THE PROJECT

Quantum voltage standards based on the Josephson effect currently ensure the traceability to DC and low-frequency AC voltages. Q-WAVE aims to enlarge the frequency range of quantum voltage standards and to provide direct and efficient traceability for precision devices up to 10 MHz. These improvements are required amongst others by the rapid progress of semiconductor industry offering analogue-to-digital converters (ADC) and digital-to-analogue converters (DAC) with higher and higher sampling rates and accuracy.

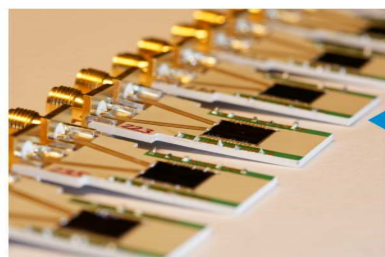
EMRP

European Metrology Research Programme
Programme of EURAMET



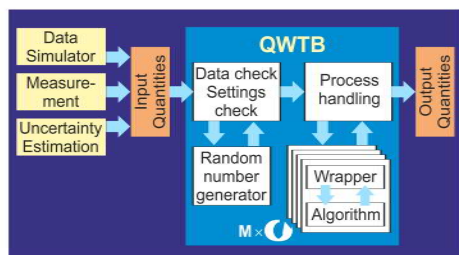
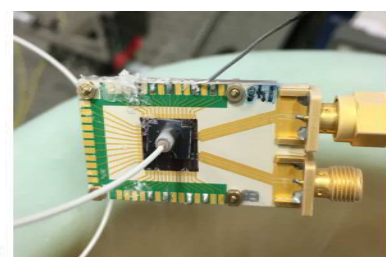
The EMRP is jointly funded by the EMRP participating countries within EURAMET and the European Union

Now, near the end of the project, we would like to send you an update related to the project and to inform you on recent achievements and highlights.



RECENT ACHIEVEMENTS

- First applications of the improved pulse-driven 1 V Josephson voltage standard.
- Demonstration of a delta sigma feedback loop using the electrical components of the quantum-based ADC.
- Selection & mount of photodiodes using a novel procedure.
- Investigation of different sampling measurement methods. Start of an inter-comparison.
- Investigation of error sources towards frequencies of 1 MHz.



HIGHLIGHTS

- Successful operation of a pulse-driven Josephson series arrays in a cryocooler.
- Excellent agreement in a comparison of pulse-driven voltage standard and Quantum Voltmeter.
- Development and implementation of a software toolbox ([➡ qwtb.github.io/qwtb/](https://github.com/qwtb/qwtb)).

FINAL DISSEMINATION WORKSHOP

We will present the project Q-WAVE at the Final Dissemination Workshop held in Prague, Czech Republic on **18 & 19 May 2016**.

Visit our meeting and join us for discussions!

STAKEHOLDER MEETING

We will organise a stakeholder meeting at the Final Dissemination Workshop in Prague. Please take the opportunity to give us feedback!

Let us know if you are interested in attending.

NEXT CONFERENCE

The project will be also present at the Conference on Precision Electromagnetic Measurements (CPEM 2016) in Ottawa, Canada from **10 - 15 July 2016**.

WEBSITE & E-MAIL

More information:

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