

DIG-AC A digital traceability chain for ac voltage and current

<https://digac.gum.gov.pl/dig/home/about-projec/2458,A-digital-traceability-chain-for-ac-voltage-and-current.html>
11.11.2024, 15:25

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This website provides information about the Joint Research Project 17RPT03 DIG-AC.

This project will focus on the development of metrological capacity for the transition from analogue to digital measurements for AC voltage and current to enable operation under dynamic conditions.

The specific objectives are:

1. To define the digitiser requirements and metrological grade electrical parameters for digital electrical measurements for AC voltage and current, including identifying the traceability and performance requirements related to the use of AC quantum voltage standards.
2. To develop measurement systems employing digital techniques for use at NMIs and calibration laboratories to achieve a practical realisation of step-up and step-down procedures (scaling) for electrical current and voltage, beginning with a Josephson standard as the fundamental reference.
3. To develop publicly available methods, algorithms and software for the traceability chain of dynamic measurements, including data processing and uncertainty estimation, for use by NMIs and calibration laboratories. The methods should facilitate the quick integration of future improvements.
4. To validate the complete system of digital measurement of AC voltage and current, including passive coaxial current and voltage devices, algorithms, and software. To use the validated system as the basis to define the protocol for a future intercomparison of digital AC voltage and current standards between European NMIs.
5. For each participant, to develop an individual strategy for the long-term operation of the capacity developed, including regulatory support, research collaborations, quality schemes and accreditation. This should include the development of a strategy for offering calibration services from the established facilities to their own country and neighbouring countries. The

individual strategies should be discussed within the consortium and with other EURAMET NMIs/DIs, to ensure that a coordinated and optimised approach to the development of traceability in this field is developed for Europe as a whole.