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Planning

Josephson Arbitrary Waveform Synthesiser 2V (JAWS) primary voltage standard

NPL Management Limited

UK2: Preliminary market engagement notice - Procurement Act 2023 - [view information about notice types](#)

Notice identifier: 2026/S 000-001546

Procurement identifier (OCID): ocds-h6vhtk-06020f

Published 8 January 2026, 3:18pm

Scope

Description

NPL is procuring a Josephson Arbitrary Waveform Synthesiser (JAWS) primary voltage standard. This is a series array of Josephson junctions in which single pulses of bias current each generate a small but precisely defined quantised voltage across the array. Accurate voltage waveforms are constructed by fast repetition of the pulses with accurately timed intervals between them. In the JAWS system, the output voltage is always precisely defined. This is in contrast to the Programmable Josephson Voltage Standard (PJVS) in which there are time intervals when the voltage output is not precisely known and is not suitable.

NPL intends to award the contract for a 2V JAWS reference system to the manufacturer the U.S. Department of Commerce, National Institute of Standards and Technology.

NPL requires the following specifications:

Range and accuracy of voltage output

Output voltage: Up to 2 V

Upper frequency limit: Up to at least 1 MHz

Lower frequency limit: Down to 5 Hz (lowest frequency component), with the capability to output DC

Pulse repetition rate: At least 10 Gsamples / second

RMS uncertainty with 100 Hz sine wave generation: better than 4 ppm (k=2)

RMS uncertainty with 10 kHz sine wave generation: better than 8 ppm (k=2)

Cooling

The system will not require any liquid cryogenics

Automation

The system will be provided with software for custom waveform design or selecting standard sine waveforms. A detailed knowledge of the techniques used to generate the pulse patterns (e.g. delta-sigma conversion) should not be required of the operators. It is highly desirable that the software is able to perform automatic calibration of AC voltmeters and calibrators such as the Fluke 5700 series.

Training

The system should be simple enough to operate that users already experienced with programmable Josephson voltage standards can operate it after 2-3 days of training. The training will be provided by the supplier at the NPL Teddington site.

Total value (estimated)

- £447,000 excluding VAT
- £536,400 including VAT

Above the relevant threshold

Contract dates (estimated)

- 1 February 2026 to 1 July 2026
- 5 months, 1 day

Main procurement category

Goods

CPV classifications

- 31000000 - Electrical machinery, apparatus, equipment and consumables; lighting
- 38000000 - Laboratory, optical and precision equipments (excl. glasses)

Contract locations

- UK - United Kingdom

Engagement

Engagement deadline

19 January 2026

Engagement process description

This Engagement Notice is intended to act as a Direct Award Notice that NPL will award this contract to U.S. Department of Commerce, National Institute of Standards and Technology at the end of this engagement deadline .

Contracting authority

NPL Management Limited

- Companies House: 02937881
- Public Procurement Organisation Number: PYDB-8862-JBYM

National Physical Laboratory

Teddington

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United Kingdom

Email: etenders@npl.co.uk

Website: <http://www.npl.co.uk>

Region: UKI75 - Hounslow and Richmond upon Thames

Organisation type: Public undertaking (commercial organisation subject to public authority oversight)