

## **Request of quotation (for Domestic suppliers) for the procurement of a multi-channel microwave generator and analyser**

**Last Date for submission of quotation:** July 6<sup>th</sup>, 2023, 5 pm

**Reference No:** PH/VBSI/558/2023-24 dated 15 June 2023

A request for quotation from domestic (India-based) manufacturers for a multi-channel microwave generator and analyser for applications in the measurements of superconducting qubit devices. Quotation should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor. The quotation should clearly indicate the terms of delivery, delivery schedule, transportation charges (if any). The quotations should be on FOR-IISc Bangalore basis in INR only.

With respect to this tender, the rules laid out by the Government of India in order No. P45021/2/2017- PP (BE-II) issued by the Public Procurement Section, Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, dated 4th June 2020, will be followed. Per this order, the government has defined a 'Class-I local supplier' as "a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%". A 'Class-II local supplier' is "a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%". Only 'Class-I' and 'Class-II' local suppliers are eligible to participate in this open domestic tender. Any 'Non-local supplier', i.e., "a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20%" is ineligible to participate in this tender.

1. The Bidder should belong to either Class-1 or Class-2 suppliers distinguished by their "local content" as defined by recent edits to GFR. They should mention clearly which class they belong to in the cover letter. a) Class-1 supplier: Goods and services should have local content of equal to or more than 50%. b) Class-2 supplier: Goods and services should have local content of equal to or more than 20 % and less than 50%.
2. Bidders offering imported products will fall under the category of non-local suppliers. They cannot claim themselves as Class-1 local suppliers/Class-2 local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training, and other sales service support like AMC/CMC, etc., as local value addition.
3. Purchase preference as defined by the recent edits to GFR (within the "margin of purchase preference") will be given to the Class-1 supplier.
4. MSMEs can seek an exemption to some qualification criteria. IISc follows GFR2017 for such details.

### **Technical specifications:**

A.		Signal Generator specifications	
	1	Total number of output channels	6
	2	Frequency Range	DC-8.5 GHz
	3	Output power	-30 dBm to +10 dBm
	4	Output Impedance	50 Ohm
	5	D/A conversion	14 bit or more
	6	D/A sampling rate	6 GSPS nominal

	7	Output accuracy	1dBm or better
	8	Trigger	1 Trig-in and 1 trig-out per channel, impedance 50 Ohm
	9	Trigger logic levels	0V and 3.3V
	10	Phase noise for a 6GHz carrier	-90 dBc/Hz @ 1 kHz -98 dBc/Hz @ 10 kHz -100 dBc/Hz @ 100 kHz
	11	Harmonics (worst case)	-40 dBc @ 1 GHz -40 dBc @ 4 GHz -38 dBc @ 6 GHz -36 dBc @ 8 GHz
	12	SFDR	74 dBc @ 1 GHz 66 dBc @ 4 GHz 60 dBc @ 6 GHz 65 dBc @ 8 GHz
<b>B.</b>		<b>AWG on the Signal outputs</b>	
	1	AWG core	1 per channel
	2	Instructions memory	32,000 per channel
	3	AWG sampling rate	2 GSPS or more
	4	Oscillators	8 per channel
	5	Waveform resolution	14 bit
	6	Waveform memory	98000 Sample or more
<b>C</b>		<b>Signal Analyzer (1 ch signal generator and 1 ch analyzer)</b>	
	1	No. of channels	1 In and 1 Out
	2	Frequency range	1 GHz- 8.5 GHz
	3	Signal Bandwidth	1 GHz or more
	4	Input Noise level	Better than 2.2 nV/ $\sqrt{\text{Hz}}$
	5	Input range	-50 to 10 dBm
		Oscillators	1 for the output of the analyzer
		A/D Conversion	14 bit
		Sampling rate	4 GSPS nominal
		Channel Impedance	50 Ohm
		Trigger	1 Trig-in and 1 Trig-out for each input and output of the analyzer

**Quantity:** Two

**Software:** State of the art software with long term support.

**Warranty:** Comprehensive warranty and support for at least 1 year.

**DELIVERY TIME:** Maximum 4 months from the date of Order Acknowledgment (OA). The vendor must provide the OA within 3 weeks after receiving the purchase order. The delivery time should be mentioned in the technical and commercial bids.

**General terms and conditions:**

- Vendor must have prior experience in manufacturing similar system and must submit list of at least 3 customers with contact information, and details of the supplied system.
- Payment terms should be mentioned in the technical bid.

- The commercial bid and technical bids must be submitted in two separate envelopes. A technical bid must contain a point-by-point technical compliance document. The technical bid must not contain any price information.
- In the commercial bid, the price should be inclusive of all discounts.
- A pre-tender meeting for any technical clarifications can be scheduled by sending an email to "[vrekha@iisc.ac.in](mailto:vrekha@iisc.ac.in)".
- The purchaser reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time before the award of contract without thereby incurring any liability of the affected bidder or bidders.
- The bids can be addressed to "The Chairperson, Dept. of Physics, Indian Institute of Science Bangalore-560012"