

**Global Tender Notification for the procurement of a multi-channel microwave generator and analyser**

**GTE Approval no:** IISc-GTE-2023-285

**Publishing Date:** 11-Oct-2023

**Reference No:** PH/VBSI/572/2023-24

A request for quotation from interested manufacturers for a multi-channel microwave generator and analyser for microwave measurements of superconducting qubits. The quotation should clearly indicate the terms of delivery, delivery schedule, transportation charges (if any).

All interested vendors shall submit a response demonstrating their capabilities to produce the requested equipment to the primary point of contact listed below. **The last date for submission of proposals is 1<sup>st</sup> Nov-2023, 5:00pm.** Proposals should arrive at the Department of Physics, Indian Institute of Science, Bangalore-560012 (INDIA) with a clear mention of the reference no. on the envelope.

Any question/clarification concerning this tender can be made by sending email to Ms. Rekha Varadaraj at "vrekha@iisc.ac.in"

Enclose a compliance certificate along with the bid. This certificate should have a table that should describe your compliance in a "Yes" or "No" response against each of the items in the specifications listed below. If "No" is selected, the second column should state the extent of deviation. The third column should state the reasons for the deviation (if any). Please enclose a compliance statement along with the technical bid. Bids with no statement of compliance will be considered invalid.

The technical details of the system and general terms and conditions are given below.

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	Ouput 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 6 GHz 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. AWG on the Signal outputs			
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

C		Signal Analyzer (1 ch signal generator and 1 ch analyzer)	
	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 $2.2 \text{ nV}/\sqrt{\text{Hz}}$
	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

**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".
- 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"