



Indian Institute of Technology Kanpur

Department of Physics

Tender Ref. No.-IITK/PHY/2022-23/RM/17

Date: 17th January 2023

Bid Opening Date: 23/01/2023

Bid Submission Closing Date: 22/01/2023

Sealed quotations (**technical and financial separately**) from prospective vendors are invited by the Department of Physics, IIT Kanpur for “**RF generator and RF detector**” with the following technical specification. All the quotations and tender related documents should be sent by speed post/Courier to inviting officer’s address (mentioned below). We are extending the tender floating date up-to 22.01.2023 so that new bidders can bid. If, no new bidders are joining then we will go with single quotation.

We are looking for

- (1) **High frequency RF generator up to 24 GHz (Quantity: 01)**
- (2) **Low frequency RF generator and detector up to 6 GHz (Quantity: 01)**

Technical Specifications for Dual Channel Microwave Generator

01	No. of channel	2
02	Frequency Range and resolution	10 MHz to 24 GHz in 0.1 Hz steps atleast
03	Power Range and resolution	-40 dBm to +18 dBm (at least) in 0.01 dB steps minimum
04	Coherent phase and resolution	0 to 360 degrees with 0.01 degree steps on each channel
05	Channel specification	Each channel should have independent frequencies and amplitudes
06	Channel specification	Device should stack multiple devices for coherent phase control on every channel
07	Mode of modulation	Pulse, AM, and FM internal modulation including FMCW radar chirp
08	Frequency references	Should allow 10 or 27MHz reference or use external 10-100MHz reference
09	Pulse modulation	The Pulse Modulation with 1uS minimum width and 1uS resolution
10	External modulation	The Pulse, AM, and FM external modulation from DC – 10KHz
11	Power triggering input	Powerful Trigger modes allow external triggering of most functions without a PC connected
12	Channel sweep mode	It must have linear and list mode (frequency and amplitude hopping) sweeps include dual channel differential sweeps.
13	Temperature range	This range is from 0 °C to 60 °C.
14	Saving mode	It should save all settings to the device for use without a PC

15	Compatibility	32 bit ARM processor onboard which should be Arduino compatible
16	Lab-view compatibility	Must have complete Lab-view GUI executable and source code included with purchase
17	Program compatibility	Windows, Linux, and Android compatibility
18	Warranty	At least 1 Year or more
19	Power requirement	230V AC, +/- 10%; 50Hz

Technical Specifications for RF Signal Generator and RF Detector with power meter

01	No. of channel	1
02	Frequency Range and resolution	12 MHz to 6 GHz RF Signal Generator with 100uS large frequency steps (phase lock to phase lock) and at least 0.1Hz frequency step size
03	Amplitude steps	Atleast 0.01dB amplitude step size
04	Harmonic Distortion	Low harmonic distortion
05	Output phase	0.01 degree output phase adjust is needed
06	power measurement	Should allow Instantaneous, Peak, and Average on power measurement input
07	Frequency calibration	Should have built-in frequency dependent calibrations on both TX and RX
08	External modulation	FM, AM, and Pulse via internal and external modulations
09	Power hop lookup table	500 point frequency and power hop lookup table
10	Sweep method	Sweep with constant frequency step, or percentage and Sweep or step modulated wave forms as well
11	Power triggering input	Must have powerful external triggering
12	Input change method	Onboard speaker can change pitch with RF input power (bug sniffing or audible tuning feedback).
13	Temperature range and controller	This range is from 0 °C to 60 °C and Digital temperature compensation
14	Analyzer type	Network Analyzer app must have audio frequency selective feedback
15	LED light	Possible option for an OLED display (TBD)
16	Control unit	Should have option for UART control (through USB-C connector)
17	Other control units	The USB-C adapters should allow RS485, RS232, Wifi and Ethernet to UART bridges
18	Processor	Fast 32 bit ARM processor with floating point math unit
19	ADC power detector	Must provide 12 bit ADC for the power detector < 0.05dB resolution
20	Isolation	Shielded RX for better isolation
21	Power connector	Low power draw via power connector or USB type C
22	Stability	Stack-able high quality milled aluminum enclosure
23	Program compatibility	Windows open source GUI or command line Linux and Android control
24	Warranty	At least 1 Year or more
25	Power requirement	230V AC, +/- 10%; 50Hz

General Terms & Condition

1. Bidder should submit printable technical literature / brochure of the offered model, which should be fully complied with the specification as mentioned above otherwise the bid will be disqualified.
2. All vendors are requested to submit **“technical and financial bids”** online or offline.
3. Evaluation will be done on the basis of technical specifications given in tender document.
4. Financial bid will be open for those only who qualify all the technical specification as per our tender notice.
5. Quotation must be valid for 30 days. Warranty should be clearly mentioned.
6. The quotation should carry proper certifications like proprietary certificate/ authorization certificate from manufacturer, etc.
7. Vendor must be able to perform factory acceptance testing of the product and demonstrate all the features prior to the dispatch.
8. The technical and price bid should indicate the model and part numbers of items quoted.
9. Delivery time 2-4 week from the date of receipt of purchase order.
10. At any time prior to the deadline for submission of bid, the institute may, for any reason, at its own initiative, modify the bid document by amendments. Such amendments shall be uploaded on the website through corrigendum and shall form an integral part of bid document. The relevant clauses of the bid document shall be treated as amended accordingly. It shall be the sole responsibility of the prospective bidders to check the website from time to time for any amendment in the tender document. In case of failure to get the amendments, if any, the Institute shall not be responsible for it.
11. The Penalty @1% per week or part thereof subject to max 10% of the delivery price will be deducted from the balance payment, if supply is not completed within aforesaid delivery period.
12. The indenter reserves the right to withhold placement of final order. The right to reject all or any of the quotations and to split up the requirements or relax any or all the above conditions without assigning any reason is reserved.

Approved by



Dr. Rohit Medwal (PI/Indenter)

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