



Department of Electrical Engineering
Indian Institute of Technology Madras
Chennai – 600 036, India

Prof. K. GIRIDHAR
Electrical Engineering Department

Ref: No.IITM/GIRI /18-19/Signal Generator

DATE: 22.11.2018

Due date : 13.12.2018

Dear Sir,

1. Quotations are invited in duplicate for the various items shown below/overleaf/enclosed list.
2. The quotations are to be in two parts as **Technical Offer** and as **Commercial offer**: The two parts of the offer are to be clearly marked on the envelopes. The two parts of the offer in separate envelopes must be enclosed in the one bigger envelope duly sealed and super scribed with reference number and due date and must be addressed to the undersigned so as to reach him on or before the due date stipulated above.
3. **Fax and Email quotation are not acceptable.**
4. Quotations should be valid for 60 days from the due date and period of delivery required , warranty terms etc. should also be clearly indicated. A minimum of one year warranty is required from the date of commissioning.
5. Imported supplies should be quoted for **CIF Madras**.
6. Local firms to quote for free delivery to this Institute. If quoted for Ex-Godown delivery charges be indicated separately.
7. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples / machine/ equipment if called for should be submitted / demonstrated at free of charges, and collected back at the supplier's expenses. Compliancy certificate is to be provided indicating conformity to the technical specifications
8. Sales Tax/General Taxes/ED if applicable and such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. If this is not indicated no such claim will be admitted at any stage. The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to Non-Government Educational Institutions run with no profit motive for which a concession is given. Sales Tax Certificate will be issued at the time of final settlement of the bill.
9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
12. The Guarantee period of the item may be indicated clearly.
13. In case of LC. Payment, 90% of the payment will be made after completion of the supply. The balance 10% of the payment will be made after satisfactory installation of the equipment.
14. IIT Madras is exempt from payment of Excise Duty and is eligible for concessional rate of custom duty. Necessary certificate will be issued on demand. IIT Madras will make necessary arrangements for the clearance of imported goods at the Airport/Seaport. Hence the price should not include the above charges.
15. **Acceptance and Rejection:-** I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.

Yours faithfully,

Prof. Giridhar K

Items required: **Signal Generator** as per specifications enclosed. Qty Required - 1 No.

Phone Nos.: (044) 2257 4420/ /5419 FAX: (044) 2257 4402, E-mail: giri@ee.iitm.ac.in

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INDIAN INSTITUTE OF TECHNOLOGY MADRAS
चेन्नै / Chennai - 600 036 भारत / India

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Specifications of 6 GHz Vector Signal Generator

#	Parameter	Specifications
1	Frequency Range	DC to 6 GHz
2	Frequency Resolution	1 μ Hz
3	Power Level @ RF	-110dBm to + 10 dBm
4	Power Resolution	0.01dB
5	Amplitude Accuracy @ 1GHz	$\leq \pm 0.6$ dB @ -30 to +10 dBm level
6	Phase Noise, 1 GHz Carrier @ 20KHz offset	≤ -113 dBc/Hz
7	Harmonics	≤ -40 dBc @ 1GHz
8	Residual FM	1Hz rms
9	Temperature Drift	$< \pm 0.005$ ppm
10	Aging	$< \pm 0.05$ ppm/year
11	Input Impedance	50 Ω
12	VSWR	≤ 1.5
13	Connector Type	Type – N
14	Low Frequency Generation Range	DC to 60MHz
15	Amplitude	1.00 Vrms to 0.001 Vrms
16	Output Connector	BNC
17	Modulation	AM, FM, PM, Pulse
18	Modulation Source	Internal & External
19	Internal Baseband Generator	Should be available
20	Modulation Bandwidth	Internal : 6MHz With External I & Q: 400MHz
21	Supported Modulation	2ASK, 4ASK, 8ASK, 16ASK, BFSK, 4FSK, 8FSK, 16FSK, BPSK, QPSK, 8PSK, 16PSK, 4QAM, 16QAM, 32QAM, 64QAM, 256QAM, OQPSK, DQPSK, $\pi/4$ DQPSK, $3\pi/8$ PSK
22	Carrier Suppression	> -40 dBc
23	Vertical Resolution	14 Bits
24	Symbol Rate	1 Hz to 6 MHz with 1 μ Hz resolution
25	Symbol Mapping	Standard & User Defined Constellation
26	Filters	Raised Cosine, Root Raised Cosine, Gaussian, Rectangular, Linear, linearized Gaussian, C4FM, customized FIR
27	Customize Modulation	It should have software to generate the customize modulation.
28	Matlab Utility	It should have software where matlab (.m) file can be loaded for customized modulation support.
29	Ref IN/OUT	10MHz should be available
30	Interface	USB, LAN, RS-232
31	Operating Temperature	+5°C to +40°C
32	Warranty	3 years
33	Power requirements	230 \pm 10% VAC, 50 Hz

The quotes should be addressed To:

Prof. K. Giridhar, Department of Electrical Engineering,
Indian Institute of Technology Madras, Chennai – 600 036, India

Yours faithfully,


Prof. K. Giridhar / Dr. K. Giridhar

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