Supply & Installation of Communication Laboratory Equipments

NIT SIKKIM

Tender No.: NITS(S)/ELECTRONICS COMMUNICATION/LAB EQ. & INST. /2014-15

Tender date: 23.06.2014
Pre-bid meeting : 30.6.2014
Last Date of submission: 14.07.2014
Date of Opening Technical Bid: 15.7.2014

National Institute of Technology Sikkim Ravangla Campus, Barfung Block, South Sikkim 737139

National Institute of Technology (NIT) Sikkim, Ravangla, South Sikkim invites tender for supply, installation and commissioning, testing and demonstration of communication laboratory equipments, as per the items and specifications given in the Schedule attached to the Tender form annexed hereto. **Bidders may quote for all or any of the items mentioned here.** All offers should be made in English and should be written in both figures and words. Tender forms can be downloaded from the website (www.nitsikkim.ac.in) of the Institute.

The bidders are requested to read the tender document carefully and ensure compliance with all specifications/instructions herein. Noncompliance with specifications/ instructions in this document may disqualify the bidders from the tender process.

The Institute reserves the right to accept or reject any quotations or to select the item (in single or multiple units) or to reject the bidding process or any quotation wholly or partly without assigning any reason.

Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected.

Terms and conditions:

1.   The technical and financial bids should be quoted separately and put in different sealed envelopes marked "**Technical bid**" and "**Financial bid**" as applicable **for each item** and are to be put in separate envelopes, which should also be sealed. The respective EMD as per items mentioned in the table should be enclosed in the financial bid in the formed of A/C payee DD in favors of **"Director, NIT Sikkim"**.

Sl. No.	Item	Tender Notice No.	EMD
1	Analog oscilloscope with probes & accessories	NITS /ECE lab equipments/01-CRO /2014-15	Rs. 7500/-

2	Digital Storage Oscilloscope (DSO) with probes and accessories	NITS /ECE lab equipments/02-DSO /2014-15	Rs. 55000/-
3	Arbitrary Function/Waveform Generator with probes and accessories	NITS /ECE lab equipments/03-AWG /2014-15	Rs. 50000/-

2.   The financial bid should include the cost of main equipment/item and its accessories. If there is any separate cost for installation etc. that should be quoted separately. The quotations shall be submitted in a sealed envelope duly marked "Quotation against Tender No.: NITS(S)/ECE-LAB EQ./………… /2014-15, Dated 23.06.2014 due on 14.07.2014 on the corner of the envelope.

3.   The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance. The rates should be quoted in figures (typed or printed) and cutting should be avoided. The final amount should be in figures as well as in words. If there are overwriting, they should be duly initialed, failing which the bids are liable to be rejected. No alternate price will be entertained in the quotation.

The technical and financial bids should be addressed to

Officer on Special Duty,
National Institute of Technology Sikkim
Ravangla Campus, Barfung Block,
South Sikkim 737139.
Email: osd@nitsikkim.ac.in

4.   All tender documents should have to be sent through courier, speed post or registered post only or may be dropped in the tender box at NIT Sikkim. All tender documents received after this specified date and time should not be considered.

5.   Quotation received after the closing date/time will not be considered.

6.   While sending rates, the firm shall give an undertaking to the effect that "*the terms/conditions mentioned in the inquiry letter/Tender Notice against which the rates are being given are acceptable to the firm.*" In case the firms do not give this undertaking, their rates will not be considered.

7.   If a supplier/firm is original equipment manufacturer (OEM)/authorized dealer/sole distributor of any item, the certificate to this effect must be attached.

8.   The quantity shown against the item is tentative and may vary as per dynamic requirement of the Institute.

9.   In the event of any dispute or difference(s) between the vendee Institute (NIT Sikkim) and the vendor(s) arising out of non-supply of material or supplies not found according to specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to "The Director, NIT Sikkim", Sikkim who may decide the matter himself.

10.   All tenders in which any of the prescribed conditions is not fulfilled or any condition is put forth by the tendered shall be summarily rejected.

11.   If the successful bidder fails to supply the kits/Product within stipulated time, then the EMD may be forfeited.

12.   Successful bidder shall have to deposit PBG of 10% after the P.O. is endorsed to the suppliers.

The Technical bid will be opened on 15.07.2014. The bidders or their authorized representative may also be present during the opening of the Technical Bid, if they desire so, at their own expenses.

Price bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose. Date and time of opening of price bids will be decided after the committee has evaluated technical bids. In exceptional situation, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract.

Clarifications:

In case the bidder requires any clarification regarding the tender documents, they are requested to contact Mr. Surajit Kundu (e-mail: surajit.kundu@nitsikkim.ac.in, mob: +91-9832271039), Assistant Professor, NIT Sikkim on or before 10.07.2014.

Pre – Qualification Criteria:

a. Bidders should be the manufacturer / authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed.

b. An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well. In case of proprietary items, suitable declaration documents from the manufacturer to be submitted.

Prices:

The Prices quoted should be inclusive of all taxes or duties, packing, forwarding, freight, insurance, delivery and commissioning etc. at destination site (NIT Sikkim, Ravangla, Sikkim). **Prices should be quoted separately inclusive and exclusive of Customs/Excise Duty**. The rates shall be firm and final. Nothing extra shall be paid on any account.

Validity:

The bid should be valid for acceptance for a period of 120 Days. The Bidders should be ready to extend the validity, if required.

Delivery:

The Equipment should be delivered and installed within the period as specified in the purchase order and be ready for use within 12 weeks of the issue of purchase order unless otherwise prescribed.

Liquidated Damage:

If the bidder fails to deliver and place any or all the Equipment or perform the service by the specified date, penalty at the rate of 1% per week of the total order value subject to the maximum of 10% of total order value will be deducted.

Warranty

Bidders must give the comprehensive onsite warranty as required from the date of successful installation of Equipment against any manufacturing defects and also give the warranty declaration that "*everything to be supplied by us hereunder shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type*

ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document."   P.T.O

Any deviation in the material, and the specifications from the accepted terms may liable to be rejected and the bidders need to supply all the goods in the specified form to the satisfaction / specifications specified in the order / contract and demonstrate at the their own cost.

Detailed Technical specification

Sl No	QTY	ITEM: Analog oscilloscope with probes & accessories
1	05	Mention SPECIFICATIONs against these parameters (One may extend their specifications beyond these parameters) 1. Manufacturer (Make) 2. Bandwidth: 30 MHz / 50 MHz 3. No. of Channels: 2 4. Sensitivity (Vertical): 1 mV/div. – 5 V/div. 5. Maximum Sweep: 5 ns/div. – 20 ns/div. 6. Power: AC 100-230 V ; 50 Hz 7. Trigger: Auto 8. Phase error: $< 3^0$ 9. Time base range 10. Screen dimension and display: >= 6 inch 11. Calibration 12. Accuracy: less than $\pm$ 5% at $\times$10 MAG, $\pm$10% at $\times$20 MAG 13. Input Coupling: AC, DC, GND 14. Dimension: $<$ (320mm $\times$ 170mm $\times$ 420mm) 15. Weight: $<$ 10 Kg 16. Temperature variation: -10^0 to 50^0 **17. Warranty: at least 3 years**
2.	10	ITEM: Digital Storage Oscilloscope (DSO) with probes and accessories Mention SPECIFICATIONs against these parameters (One may extend their specifications beyond these parameters) 1. Manufacturer (Make) 2. Sample mode: Real time 3. Sample Rate: 2 GSa/S (1 GSa/S for each dual channel or 500 MSa/S for each four-channel). 4. Number of channels: 2/4 5. Input Coupling: DC, AC, GND 6. Input Impedance: 1 MΩ $\pm$ 2% ; 12 pF $\pm$ 2 pF 7. Max input voltage: 400 V (peak), 300V (rms). 8. Time base range: 5 ns to 50 s/div. 9. Memory Depth: Max. 50Kpts - 24 Mpts 10. Time based accuracy: 25 ppm 11. Time based drift: $\pm$5 ppm / year 12. Waveform update rate: 50000 / second 13. Bandwidth: DC to 100 MHz (Upgradable to higher frequency) 14. Bandwidth Limit: 20 MHz 15. Vertical Resolutions: 8 bits 16. Vertical sensitivity: 1mV/div to 5V/div.

		17. Rise time: 3.5ns 18. Trigger: Edge, Pulse Width, Pattern, Video 19. Waveform math: FFT 20. Parameter measurement (auto): Max 25 21. Display: >= 8 inch, High definition wide range LED/LCD 22. I/O Connectivity: USB 2.0 / USB 3.0, LAN, XGA, GPIB. 23. Dimension: Less than 400mm (W) × 220mm (H) × 150mm (D) 24. Weight: < 5 Kg 25. Operating system 26. Optional mixed signal / digital analyzer of 8/16 input channel 27. Built in wave form generator (Sine, Square, Pulse, Ramp, Noise, Gaussian, Sinc) 28. Temperature variation: -10^0 to 50^0 **29. Warranty: at least 3 years**
3.	15	ITEM: Arbitrary Function/Waveform Generator with probes and accessories
		Mention SPECIFICATIONs against these parameters (One may extend their specifications beyond these parameters)

		1. Manufacturer (Make)
		2. No. of channels: Two
		3. Bandwidth: 20/30 MHz
		4. Waveforms: Sine, Square, Ramp, Pulse, Triangle, Gaussian Noise, Pseudo Binary sequence, DC, Arbitrary (Exponential, Gaussian and its derivatives, Sinc, Lorentz etc.)
		5. Operating modes: Continuous, modulate, frequency sweep, burst, output gate
		6. Modulation: AM, FM, PM, FSK, BPSK, PWM, Sum (carrier + modulation)
		7. Memory: 1M points
		8. Sine Wave characteristics:
		   a. Harmonic Distortion: < -70 dBc (< 100 KHz); < -50dBc (< 1 MHz); < -40 dBc (<25/30 MHz)
		   b. Amplitude flatness: ±0.15dB(in KHz); ±0.4dB (in MHz)
		   c. Phase Noise (SSB): -110dBc/Hz (1KHz offset)
		9. Square Wave characteristics:
		   a. Rise/Fall Time: 10ns (50Ω load)
		   b. Overshoot: 2%
		   c. Duty Cycle: 0.1% to 99.99%
		10. Ramp & Triangle characteristics:
		
		   a. Ramp symmetry: 0.0% to 100.0%, 0.1% resolution (0% is negative ramp, 100% is positive ramp, 50% is Triangle)
		   b. Nonlinearity: < 0.05% from 5% to 95% of the signal amplitude.
		11. Pulse characteristics:
		   a. Period: 10ns to 2000s
		   b. Width: 10ns to 2000s
		   c. Overshoot: <2%
		   d. Jitter: < 40ps rms

12. Gaussian Noise characteristics:
    a. Crest Factor: 4.6
13. Pseudo Random sequence:
    a. Bit rate: 1Mbps – 50 Mbps
    b. Rise/Fall time: 10ns - 1μs
14. Signal Output: 50Ω impedance, overload protection
15. Output amplitude(peak) range: 1mV to 10V (50Ω loaded); 1mV to 20V (Open)
16. Resolution: 8 bits
17. Units: selectable, V(peak), V (rms), dBm
18. Accuracy: ±1mV(peak) at 1 KHz
19. AM Modulation
    a. Source: Internal/External (for all modulation)
    b. Depth: 0% to 120%
    c. Type: Full carrier and suppressed carrier
20. FM Modulation
    a. Deviation: DC to max. frequency (around 20MHz)
21. PM Modulation: Phase Deviation: 0^0 to 360^0
22. FSK: Phase deviation: DC to max frequency; Mark & Space: Carrier freq range; Rate: upto 1MHz
23. BPSK: Phase shift: 0^0 to 360^0
24. PWM: Deviation: 0% to 100% of pulse width
25. SUM: Ratio: 0% to 100% of carrier amplitude; phase deviation: 0% to 100%
26. Burst:
    a. Waveform: Sine, square, Ramp
    b. Count: 1 to 10^8 or infinity
    c. Gate: Ext. trigger
    d. Start/ stop phase: -360^0 to 360^0
    e. Trigger Source: Internal/External
    f. Internal period: 1ms to 500s
    g. Marker: adjustable
27. Sweep:
    a. Type: Linear/Logarithmic
    b. Start/Stop freq.: any frequency within the range
    c. Direction: Up/Down
    d. Sweep time: 1ms to 3600s (Linear); 1 ms to 500s (Logarithmic)
    e. Hold time & Return time: upto 3600 ms
    f. Trigger: Continuous, External, Timer
28. External Trigger:
    a. Function: Input/Output
    b. Polarity: positive/negative slope
    c. Impedance: 10KΩ, DC Coupled (for input); 50Ω (output)
    d. TTL compatibility
    e. Minimum pulse width: 200ns
    f. Rate: DC to 1MHz
    g. Duty cycle: 50%
    h. Input jitter: < 3.5 ns, rms
29. Modulation Input: Voltage level (±5 V), Input impedance: Max 10KΩ; Bandwidth (-3 dB): DC to 100KHz

		30. Memory: 10^{16} samples / channel (volatile); 32 Mb (non volatile)
		31. Save/Recall
		32. Interface: USB 2.0
		33. Power source: AC 100 to 240V; 50 Hz
		34. Power consumption: not more than 25 Watt
		35. Temperature variation: -10^0 to 50^0
		36. Display: >= 3.5 inch; HD/TFT LED/LCD
		37. Dimension: <= 280mm (W) $\times$ 110mm (H) $\times$ 300mm (D)
		38. Weight: not more than 4Kg.
		39. should have the required optional Software for control and generation of arbitrary waveform from PC
		40. Warranty: at least 3 years