To whom it may concern

This is a Request for quote (RFQ) for procurement of single-photon detectors consisting of four numbers of single photon avalanche photodetectors working with optimum performance in the Telecom wavelength range at the department of Electrical Communication Engineering (ECE), Indian Institute of Science, Bangalore.

All interested vendors shall submit a response demonstrating their capabilities to produce the requested equipment to the primary point of contact listed below.

The deadline for submission of proposals is **15th July 2020 by 17:00hrs.** Proposals should arrive at the office of **Dr. Varun Raghunathan, Department of Electrical Communication Engineering, Indian Institute of Science, Bangalore, Karnataka 560012, India.**

Direct all questions concerning the acquisition to **Dr. Varun Raghunathan** at: **varunr@iisc.ac.in .**

Terms and Conditions

1. The bid should be submitted in the two-cover system, i.e. technical bid and commercial bid separately in sealed covers. The technical bid should contain all commercial terms and conditions, except the price.
2. In the commercial bid, the price should be inclusive of all discounts.
3. The technical bid must contain a point-by-point technical compliance document. The technical proposal should contain a compliance table that should describe your compliance in a "yes" or "no" response against each of the items in the table listed in this RFQ. If "no" the second column should state the extent of deviation. The third column should state the reason for the deviation, if any. The fourth column can be used to compare your tool with that of your competitors or provide details as requested in the technical requirement table below.
4. Items in addition to that listed in the technical table that you would like to bring to the attention of the committee, such as data sheets, technical plots etc. can be listed at the end of the compliance table.
5. Vendors are encouraged to highlight the advantage of their tools over comparable tools from the competitors.
6. If needed, a meeting for any technical clarifications can be scheduled with the undersigned by sending an email.
7. The lead time for the delivery of the equipment should not be more than 10 months from the date of receipt of our purchase order. It should be clearly mentioned in the technical and commercial bids.
8. The Institute reserves the right to accept or reject any bid, or to annul the bidding process and reject all bids, at any time prior to the award of contract without thereby incurring any liability of the affected bidder or bidders.
9. Warranty terms and additional warranty options is a must for all the components. Please specify the service plan like whether the local distributor will address the issue or the parent company.
10. All the quotations must be valid for at least 60 days at the time of submission.
11. List of customers and references: Proven track record of installation and service to customers based in India and at least five sites globally.
12. Terms and conditions for the annual maintenance contract beyond the warranty period should be mentioned.

13. Payment Terms: The quotation should be in the currency of the country of origin. The payment will be through confirmed irrevocable Letter of Credit (LoC). Alternate modes of payment can be suggested with suitable justification.
14. After the award of purchase order, the vendor must provide an Order Acknowledgement within 30days from the receipt of the Purchase Order.
15. Please quote the price of each optional line item, separately.
16. Custom Duty Exemption and GST exemption --IISc is registered with DSIR for availing custom duty exemption (CDE) for import orders and GST exemption (for INR orders in India). IGST is NIL for import order for IISc. Bidders should consider all these facts while submitting their bid. For import order, the Bill of Entry must be in the name of IISc for availing CDE. GST exemption certificate will be provided subject to submission of proforma invoice.

Technical requirements: Please note that the requirements listed below are only guidelines. It does not disbar bids that do not meet the criteria listed. Vendors are requested to quote for equipment that meet the criteria to the best extent possible and list deviations. Deviations are NOT an automatic reason for disqualification. They will be discussed by the technical committee prior to making an informed decision.

Equipment name: Single-photon detectors Description: Four numbers of single-photon avalanche detectors which operate with optimum performance in the telecom wavelength range to perform single-photon level detection are to be procured. Detectors with high sensitivity, detection efficiency, low dark count and high saturation electron rate are preferred.	
Single photon avalanche photodetectors:	
1.	Number of units to be procured: 4
2.	Wavelength coverage: 900 to 1700 nm
3.	Detection efficiency: greater than or equal to 25% at 1550 nm wavelength
4.	Detector deadtime: 1 micro-second (minimum), Option to adjust dead-time preferred. Also quote if there are detector for high rate detection as an option
5.	Dark count rate: less than or equal to 200 Hz at maximum efficiency at 1550 nm Wavelength and at minimum dead-time
6.	Timing jitter: less than or equal to 150 pico-seconds
7.	Optical input: Fiber-coupled, single-mode fiber (SMF) Option to exchange between SMF, MMF or free-space at customer site to be included, if available
8.	Operating mode: Free-running or Gated mode. Include Gate pulse specifications, if Gated-mode
9.	Output pulse format: TTL/ LV-TTL/ NIM preferred
10.	Output pulse duration: 100 nano-seconds
11.	Detector operating temperature: less than or equal to -50 deg C
12.	Detector cooling mechanism: Sterling or Peltier cooling
13.	Supply voltage: 200 - 240 VAC @ 50 - 60 Hz, with India-compatible power plug
Time-correlated single-photon counter (TCSPC): Propose compatible TCSPC. It is preferable that a compatible TCSPC is quoted as an option with the following specifications. Quoting TCSPC is an option, so even not quoting will not lead to disqualification. However, it is desirable that a compatible TCSPC from other OEMs is proposed.	
14.	Number of channels: 4 (input), 4 (output for ext. trig.)

15.	Clock rate: >= 1 GHz
16.	Time bin width: less than 100 picoseconds
17.	Timing jitter: less than 40 picoseconds
18.	Dead time: less than 10 nano seconds
19.	Maximum data processing: atleast 100 Million Events/second per channel
20.	Input voltage range: +/- 3V maximum
21.	Input pulse delay: 1 picosecond to 1 millisecond (step size to be specified)
22.	Discriminator levels: +/- 2V maximum (step size to be specified)
23.	Output pulse format: TTL/ NIM (pulse width to be specified)
24.	Output pulse frequency: >= 125 MHz
25.	Output pulse delay: 100 picoseconds to 1 millisecond (step size to be specified)
26.	Maximum data transfer rate to be specified
27.	Any latency between input and output to be specified
28.	Number of time-bins of histogram which can be processed to be specified
29.	Software to control and process data from the TCSPC unit to be specified
30.	Any cables, connectors or other accessories required to connect the TCSPC to the single-photon detectors to be specified as options.

Other requirements:	
1.	Compatible operating system for any software should be specified. Suitable software drivers available should be specified.
2.	Please include other options currently available which can be added on in the future.
3.	Training and installation: Different options for training and installation by local or foreign service engineer to be listed and quoted.
4.	The cost of shipping up to IISc should to be included. IISc will help with custom clearance at Bangalore airport.
5.	List of acceptance tests for on-site (vendor) inspection and after installation at IISc.
6.	A set of basic experiments for performing routine checks of acceptable operation with clear instructions to be provided.
7.	The payment terms will be specified in the commercial proposal and is subject to negotiations.
8.	Please provide details of the number of trained personnel in India, number in southern region or in Bangalore who can service the instrument.

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