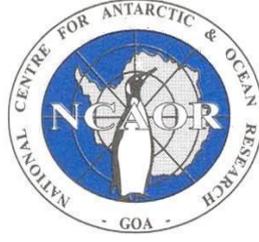


राष्ट्रीय अंटार्कटिक एवं
समुद्री अनुसंधान केन्द्र
पृथ्वी विज्ञान मंत्रालय
भारत सरकार)
हेड लैण्ड सडा, वास्को डा गामा
गोवा- ४०३ ८०४ भारत



**NATIONAL CENTRE FOR
ANTARCTIC & OCEAN RESEARCH**

Ministry of Earth Sciences
Government of India)
Headland Sada, Vasco da Gama
Goa - 403 804 - INDIA

**Tel/Fax No.: 0091 0832 2525573
Email: procurement@ncaor.gov.in**

(प्रापण विभाग)

INDIGENOUS ENQUIRY

Ref. No.:

PR-1447

Date:

11.01.2018

Due Date:

08.02.2018

M/s.

Dear Sirs,

You are requested to send your offer in your official letter head (to be quoted in the price bid format as at Annexure-XII) on FOR N.C.A.O.R, basis for the following items as per the terms and conditions given below and as mentioned in Annexure-XIII.

Sl. No.	Description	Quantity
	SUPPLY, INSTALLATION & COMMISSIONING OF LAN & ITS ACCESSORIES AT NCAOR	
1	6 U Wall Mount Switch Rack Technical Specifications (Refer Annexure-I)	02
2	9 U Wall Mount Switch Rack Technical Specifications (Refer Annexure-II)	02
3	Patch Panel 24 Port fully loaded Technical Specifications (Refer Annexure-III)	03
4	1 Meter patch Chord	100
5	2 Meter patch Chord	100
6	PoE 24 Port L2 Manage Switch Technical Specifications (Refer Annexure-IX)	04
7	12 Port LIU Technical Specifications (Refer Annexure-IV)	02
8	Fiber Pigtails Single Mode Technical Specifications (Refer Annexure-VIII)	24
9	Adapters SC Single Mode Technical Specifications (Refer Annexure-VII)	24

10	SM Patch cord LC SC 1 Meter Technical Specifications (Refer Annexure-VI)	04
11	OFC 12 Core Cable Single Mode Technical Specifications (Refer Annexure-V)	400 Meter
12	Fiber Transceiver Module Technical Specifications (Refer Annexure-XI)	04
13	Adapter Panel	04
14	AC1750 Wireless AP Technical Specifications (Refer Annexure X)	02
15	Laying OFC /CAT-6 cables via conduit	250/Actuals
16	Mounting 4 Racks of 6U & 9U	02+02

Your offer should contain the following information:

1. Terms of Price: To be quoted as per price bid format at Annexure -XII.
2. Validity period of quotation: 90 days from due date.
3. Delivery within 30 days, please indicate delivery date.
4. Mode of Dispatch: Door delivery to NCAOR, Vasco-Da-Gama, Goa.
5. 'C' / 'D' form is not available; Copy of Registration certificate for GST and PAN card to be provided.
6. Specify Brand/Make Model of the quoted item (Catalogue, brochures & leaflets etc. of the quoted item to be enclosed)

Yours faithfully

Sd/-

**Joint Manager (Procurement & Stores)
For and on behalf of Director, NCAOR**

Annexure I

Sr.	Technical specification of 6U size Network Wall Mount Rack	
1	Type of Rack	Wall Mount type
2	Rack Standard	Should confirm to DIN 41494 or Equivalent
3	Construction type	Should be Welded
4	Front door	Lockable front door with toughened glass
5	Rear door	None
6	Side Panels	Fixed
7	Mounting Angle	19 inch mounting angle made of formed steel
8	Equipment Mounting	DIN standard 10mm sq. slots/Direct M6 tap
9	Standard finish	Powder coated Grey
10	PDU	Should have 5A, 5 point Power Distribution unit
11	Fans	Should have at least 1 ceiling mounted fans
12	Static Load	Min 40KG
13	Dimensions	347mm X 550mm X 450mm

Annexure II

Sr.	The specification of 9U size Network Wall Mount Rack	
1	Type of Rack	Wall Mount type
2	Rack Standard	Should confirm to DIN 41494 or Equivalent
3	Construction type	Should be Welded
4	Front door	Lockable front door with toughened glass
5	Rear door	None
6	Side Panels	Fixed
7	Mounting Angle	19 inch mounting angle made of formed steel
8	Equipment Mounting	DIN standard 10mm sq. slots/Direct M6 tap
9	Standard finish	Powder coated Grey
10	PDU	Should have 5A, 5 point Power Distribution unit
11	Fans	Should have at least 1 ceiling mounted fans
12	Static Load	Min 40KG
13	Dimensions	480mm X 550mm X 450mm

Annexure III

Sr	The specification of UTP Jack Panels LOADED should be meet standards as specified below:	
1	Type	24-port, Keystone type, PCB based, Unshielded Twisted Pair, Category 6, TIA / EIA 568-B.2
2	Ports	24 Ports loaded keystone.
3	Port arrangement	Module of 8
4	Category	Category 6
5	Circuit Identification Scheme	Icons on each of 24-ports
6	Port Identification	9mm or 12mm Labels on each of 24-ports (to be included in supply)
7	Height	1 U (1.75 inches)
8	Modular Jack	750 mating cycles
9	Wire terminal (110 block)	200 termination cycles
10	Accessories	Strain relief and bend limiting boot for cable
11	Housing	Polyphenylene oxide, 94V-0 rated
12	Wiring blocks	Polycarbonate, 94V-0 rated
13	Jack contacts	Phosphorous bronze, plated with 1.27micrometer thick gold
14	Panel	Fully powder coated pencil grey
15	Approvals	UL listed
16	Termination Pattern	TIA / EIA 568 A and B;
17	Performance Characteristics to be provided along with bid	Attenuation, NEXT, PS NEXT, FEXT and Return Loss

FIBER LIGHT INTERFACE UNIT (LIU)

Characteristic	Min. Required Specification
	Have sufficient slots accommodate Simplex/duplex SC adapters individually.
	Aluminum base material for light mounting
	Should have Splice Tray & Cable Spool provision inside
	Accessory kit consists of cable ties, mounting ear screw earthing and spiral wrap tube.
	Panel cover should be slide out for easy maintenance
	Can Include 24 SC Terminations
	Removable Rear & Front cover for better access to interior of LIU

Technical Specification for OFC

GENERAL:	The fiber type should be Matched Cladding Single Mode	
	Low water peak fiber	
	The fiber should be optimized for operation at 1310 nm and at 1550 nm.	
	Should fulfill the requirements of: <ul style="list-style-type: none"> • IEC 793-2: 1992, • EN 188101 • ITU-T Recommendation G.652D 	
	Testing methods are in accordance with the following standards: <ul style="list-style-type: none"> • ITU-T G.652.D • IEC 793-1 • EN 188 000 	
No of Cores	12 □	
GEOMETRICAL PROPERTIES:	Nominal mode field diameter	9.2 μm
	Mode field diameter tolerance	$\pm 4\%$
	Cladding diameter	125 μm
	Cladding diameter tolerance	$\pm 1 \mu\text{m}$
	Mode field concentricity error	$< 1 \mu\text{m}$
	Cladding non-circularity	$< 2 \%$
MATERIALS	CORE	Germanium doped core with no phosphorus i.e. reduced tendency for hydrogen degradation.
	COATING	UV-curable dual layer acrylate coating, which ensures excellent micro bending and abrasion resistance.
	Stripping force after conditioning at $23 \pm 5 \text{ }^\circ\text{C}$ at 40 - 60 % RH for 24 h.	
	Min.	1.0 N
	Max.	3.5 N
	Stripping force after ageing in water at $70 \pm 5 \text{ }^\circ\text{C}$ for 168 h.	
	Min.	1.0 N
	Max.	3.5 N
OPTICAL PROPERTIES	Attenuation (of cable with fibers):	
	At 1310 nm	$\leq 0.36 \text{ dB/km}$
	In the range 1285-1330 nm	$\leq 0.40 \text{ dB/km}$
	At 1550 nm	$\leq 0.22 \text{ dB/km}$
	Cut-off wavelength λ_c :	
	High limit	1330 nm
	Low limit	1180 nm

Cut-off wavelength λ_{cc}	
High limit	1260 nm
Loss increase at 1550 nm for 100 turns of fiber loosely wound with a 37.5 mm radius:	
Max.	0.1 dB
Dispersion:	
Zero dispersion wavelength	1310 nm
Tolerance of zero dispersion	
Wavelength	-10/+12 nm
Zero-dispersion slope:	
Max.	0.092 ps/(nm ² • km)
Chromatic dispersion coefficient:	
In 1285 nm - 1330 nm interval:	
Max.	3.5ps/km • nm
In 1270 nm - 1340 nm interval	
Max.	6 ps/km • nm
At 1550 nm	
Max.	18 ps/km • nm
Polarisation Mode Dispersion (PMD):	
Max.	≤ 0.2 ps/km
In homogeneity of OTDR trace for any two 1000 meter fiber lengths	
Max.	0.1 dB/km
Proof test level	1%

Technical Specification Fiber Equipment Cords

Characteristic	Min. Required Specification
	Should have minimum length of 1m
Features	All optical fiber patch leads shall comprise of Single mode 9/125 μ m fiber with SC/LC/FC, fiber connectors terminated at each end. The optical fiber patch leads shall comply with the following specifications:
	Optical Fiber – Corning Single Mode
	Connector: Zirconia ceramic ferrule
	Pre-radiuses and pre-polished ferrule
	Simplex / Duplex
	Color-coded Yellow for SM
	Insertion Loss - <0.2 db
	Cable: 9/125, SM
	Repeatability - < 0.2 db
	Durability – 1000 mating cycle
	Working Temp : -40 deg C.to + 85 deg. C
	Standard : G652D, G 657A & G 657B
	Length : 1m

Technical Specification of Adapters

Characteristic	Min. Required Specification
Features	All SC adaptors should be Simplex and duplex type. Adapters should have compact design & high precision, which perform well under various circumstances & maintain good plug retention strength.
	Telcordia, TIA/EIA, IEC compliance
Insertion Loss	0.20db for Zirconia Sleeve
Sleeve/Ferrule Withdrawal Force	SC Adapter 2.0N ~ 5.9N

Technical Specification Pigtail

Characteristic	Min. Required Specification
	Should have minimum length of 1m
Features	All optical fiber patch leads shall comprise of Single mode 9/125 μ m fiber with SC fiber connectors terminated on one side. The optical fiber patch leads shall comply with the following specifications:
	Optical Fiber – Corning Single Mode
	Connector: Zirconia ceramic ferrule
	Pre-radiuses and pre-polished ferrule
	Simplex / Duplex
	Color-coded Yellow for SM
	Insertion Loss - <0.2 db
	Cable: 9/125, SM
	Repeatability - < 0.2 db
	Durability – 1000 mating cycle
	Working Temp : -40 deg C.to + 85 deg. C
	Standard : G652D, G 657A & G 657B
	Length : 1m

Technical Specification of 24 Port L2 Manage Switch

Description of Your offer	Technical Details & compliance
Architecture	
Proposed Switch should have minimum 20 10/100/1000BASE-T PoE ports 4 Combo 10/100/1000BASE-T/SFP ports and 4 SFP+ ports with support for Redundant Power Supply	
Performance	
The Switch shall have Non-blocking wire speed switch fabric with Min. 128 Gbps Back plane with min 95Mpps forwarding rate	
The switch shall be loaded with 10G SFP+ modules from day 1	
The Switch shall support Min. 16K Mac address	
The Switch shall have min. 40 Gigabit Stacking Backplane	
Should support PoE standards 802.3af and 802.3at with 370W, upgradable to 740W with RPS	
Switch should support IEEE 802.3az standard which can reduce the energy consumption of a link when no packets are being sent.	
Layer 2 switching	
Switch should support ARP, Proxy & Gratuitous ARP, 802.1Q VLAN, MAC based VLANs, Protocol based VLANs, STP, RSTP, MSTP, 802.3ad, IGMP, MLD, LBD	
Layer 3 Routing Features	
Switch should support Static routing and RIP/RIPng for IPv4 & IPv6, dynamic routing, Policy based routing, VRRP, IPv6 tunnelling	
Quality of service	
Should support 802.1p, WRR, WDRR, port based bw control, Broadcast and storm control, DSCP, WRED.	
Security	
Switch should support encryption protocols, ACL for IPv4/IPv6, 802.1X, IPMB, BPDU & ARP attack protection, SSHv2, SNMPv3, 802.1Qbb	
Management	
Should support WebGUI and CLI, RMON, TFTP, SNMP	
Certification	
IPv6 Ready Logo Phase 2	
Switch should be CE,FCC,UL,VCCI certified	

Technical Specification of Wireless AP

Description of Your offer	Technical Details & compliance
Standards	
Should support IEEE 802.11ac with backward compatibility up to 802.11a & b	
Compliant with IEEE 802.3ab, IEEE 802.3u and IEEE 802.3x	
Compliant with IEEE 802.11i for enhanced security	
Should support 802.3at POE standard	
All the Access points supplied should support IPv6 & IPv4 from day one.	
Modulation types support- BPSK, QPSK, 16QAM, 64QAM, OFDM, DQPSK, DBPSK and CCK	
Support for IEEE 802.11e U-APSD & 802.11h	
Interface and antenna	
Should Have minimum 2 x auto-sensing RJ-45 10/100/1000 Mbps Gigabit Ethernet ports & one console Port	
Should support Internal array of min 6 omni-directional antennas	
Minimum antenna gain of 5 dBi for 2.4GHz and 6.5 dBi for 5 GHz	
The min transmit power of AP should be atleast 18 dBm for 2.4GHz and atleast 15 dBm for 5GHz radio while in accordance to WPC with MIMO: 3x3 with 3 spatial streams	
Features	
Should support at least 1300Mbps at 5GHz and 450Mbps at 2.4GHz	
It should support to work in Stand-Alone Mode and in Managed Mode	
Should support atleast 30 configurable SSIDs.	
Should support Beamforming technology and Bandsteering functionality	
It should support Wi-Fi Multimedia (WMM) for QoS	
The Access point should support Static Link Aggregation	
Security	
support for SSID Broadcast Enable/Disable option to prevent detection of the AP network	
Support for Static & Dynamic WEP encryption, WPA personal/Enterprise with PSK, TKIP & AES	
Isolation between two wireless clients associated with an access point	
Access point Management & Maintenance	
Remote configuration and management through Web browser, SNMP or telnet with command line interface (CLI), TFTP/HTTP, WebGUI, NTP	
Certifications	
UL 2043, Wi-Fi, LVD, VCCI, CE, FCC, cUL, IC, C-Tick, NCC and TELEC	
AP should be as per WPC norms for indoor AP. OEM should give a undertaking letter stating that the AP will configured as per WPC guidelines for indoor AP and also submit the WPC certificate showing approval.	
Memory & Environmental conditions	
Operating Temperature 0 ~ 40°C	

Technical Specification for Single-mode Fiber Transceiver

Specifications	Compliance
Should support 1000BASE-LX port (IEEE 802.3z standard)	
Should have Duplex LC connector	
Should support 802.3x flow control support	
Should support 9um single mode fiber upto 10km	
Should support Wave length: 1310nm	
Should support Power support: 3.3V	
Should be Hot pluggable	
Should support Class 1 laser product complies with EN 60825-1	
Should have TTL signal detect indicator	
should have Metal enclosure for lower EMI	

Annexure-XII

Enquiry No.: PR-1447

PRICE BID FORMAT

- To be quoted in the following format only on F.O.R, NCAOR, Vasco Da Gama, Goa Basis.

Sr. No.	Item Description & Specifications	Quantity	Unit rate Quoted in INR (after offering maximum discount)	Total (Col.1x Col.2)	GST Amount & % applied	Total Quoted Amount in INR (should not be more than MRP) (Col.3 + Col.4)
	SUPPLY, INSTALLATION & COMMISSIONING OF LAN & ITS ACCESSORIES AT NCAOR	(Col. 1)	(Col.2)	(Col.3)	(Col.4)	(Col.5)
1	6 U Wall Mount Switch Rack Technical Specifications (Refer Annexure-I)	02				
2	9 U Wall Mount Switch Rack Technical Specifications (Refer Annexure-II)	02				
3	Patch Panel 24 Port fully loaded Technical Specifications (Refer Annexure-III)	03				
4	1 Meter patch Chord	100				
5	2 Meter patch Chord	100				
6	PoE 24 Port L2 Manage Switch Technical Specifications (Refer Annexure-IX)	04				
7	12 Port LIU Technical Specifications (Refer Annexure-IV)	02				
8	Fiber Pigtaills Single Mode Technical Specifications (Refer Annexure-VIII)	24				
9	Adapters SC Single Mode Technical Specifications (Refer Annexure-VII)	24				
10	SM Patch cord LC SC 1 Meter Technical Specifications (Refer Annexure-VI)	04				
11	OFC 12 Core Cable Single Mode Technical Specifications (Refer Annexure-V)	400 Meter				
12	Fiber Transceiver Module Technical Specifications (Refer Annexure-XI)	04				
13	Adapter Panel	04				
14	AC1750 Wireless AP Technical Specifications (Refer Annexure X)	02				
15	Laying OFC /CAT-6 cables via conduit	250/Actuals				
16	Mounting 4 Racks of 6U & 9U	02+02				
GRAND TOTAL						
Total Amount inclusive of GST in words _____						

- **GSTN:** _____

1. Validity: 90 days from the due date of tender.

2. Delivery on or before: _____

- **I/We accept all the terms & conditions of the enquiry and in case of award of purchase order we will supply goods as above.**

Signature:

Designation:

Bidders Name with address & Seal:

Phone No.:

Email Address:

Date:-

PURCHASE ENQUIRY – GENERAL TERMS AND CONDITIONS

1. This quotation and any order resulting from this Enquiry shall be governed by Terms and Conditions mentioned in this enquiry.
2. Where counter terms and conditions of business have been offered by this supplier, we shall not be deemed to be governed by these unless our specific written/ acceptance there of has been given.
3. No conditions and terms notice of which has not been given by the Supplier while submitting quotation will be considered by us if put forward in subsequent correspondence.
4. **Quotation:** Quotation should be submitted only in given price bid format (Annexure I) in a sealed envelope super scribed with Enquiry Number and Due Date and the same must reach our office on or before the Due Date. Quotations should preferably be typed and without any corrections and over writings.
5. **Specifications:** Materials should be offered strictly conforming to our specification. The deviation in specification if any should be clearly indicated by the supplier in his quotation. The supplier should also indicate make/type No. of the materials offered. Vague terms such as Best Indian, Best Indigenous. Imported Make should not be used.
6. The rate quoted against each should be in units stated in the Enquiry. Where quotations are in terms of units other than those specified, relationship between the two sets of units must be furnished.
7. **Samples:** Samples where asked for shall be submitted, free of all charges and should reach us before the Due Date of the Enquiry. Sample must be carefully packed and labeled clearly with enquiry No. & due date. We shall not be responsible in any way for the loss or damage of samples due to any reasons whatsoever. In the event of the non-acceptance of offer, supplier will have to remove the samples at his own expenses.
8. **Terms of prices:** Quotation should be submitted on F.O.R. Vasco or F.O.R. Destination price including transit Insurance. Preference will be given to such quotations. For quotations Ex-Works, Ex-godown/F.O.R. Dispatching Station, the approximate packing, forwarding & freight should be indicated by the supplier. Quotations from Local Suppliers should be delivered at our stores.
9. **Validity:** The quotation should remain valid for a minimum period of 90 days from the Due Date of the Enquiry.
10. **Sales Tax: NCAOR is not entitled to issued Form C or D.** No Sales Tax or any other tax shall be payable by us unless payment of the same is specifically mentioned by the suppliers in their quotation and same is legally leviable.
11. **NCAOR is exempted from payment of Custom duty as per Government notification.**
12. **Duties / Taxes:** Percentage charged should be clearly mentioned in the price bid.
13. **Insurance:** The supplier will be responsible for and should cover the insurance for all transit risks if the terms of prices are F.O.R. Vasco or F.O.R. Destination unless otherwise stated specifically by the supplier in his quotation.
14. **Delivery:** Preference will be given to Ex-Stock offers Suppliers submitting quotation on forward delivery basis must indicate earliest firm delivery date by which the materials will be dispatched by them from the date of receipt of order. Offer such as “Ex-stock Subject to prior Sale” or “Delivery at the earliest” may not be entertained.
15. **Inspection:** Material on its arrival at our site will be inspected by our Inspection Department and their decision in the matter will be considered final and binding on the Supplier.
16. **Payment:** Payment for accepted quantity will be made within 30 days after receipt & acceptance of ordered material against submission of original invoice. Discount, Rebate, if any, for early Payment should be clearly stated.
17. Director NCAOR reserves the right to reject any or all the offers received or to accept any offer wholly or in a part of order of a lesser quantity without assigning any reason. The tenders shall be bounded to execute such an order.
18. In case the supplier does not deliver the goods according to the delivery schedule, he will be liable to pay 0.5% of the value of the goods not delivered according to schedule, as liquidated damages for delay of week or party thereof subject to maximum 5% of the value of goods not delivered, without prejudice to the right of NCAOR
19. In case an order placed by the NCAOR based on the quotation submitted by the supplier is not executed by him, the NCAOR may buy the ordered goods from elsewhere and recover, the additional amount if may have to spend in procuring the stores plus 10% to cover the incidental expenses.

20. All disputes arising in connection with executing the purchase order will be subject to the Jurisdiction of the Courts in Goa only.
21. Bidders shall submit **EMD** along with their tender, either By DD drawn in favor of NCAOR, for a sum of **83,000/- (Rupees Eighty Three Thousand only)** payable at Vasco-da-Gama only or in the form of a bank guarantee for a sum of 83,000/- (Rupees Eighty Three Thousand only) from any reputed bank (scheduled bank) initially valid for 180 days from the date of closing of the tender as per the proforma enclosed (Annexure XIV). This bank Guarantee in original shall be submitted along with the bid only. Tender without EMD in the envelope containing bid shall be summarily rejected. The EMD of unsuccessful bidders shall be returned within 30 days of the award of contract. The earnest money will be liable to be forfeited, if the bidder withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of his tender.
22. **Performance security** of 10% of the total purchase order value to be provided by the successful bidder in the form of Demand draft or Bank Guarantee within 15 days of issue of purchase order for warranty/guarantee period. If fails to provide 10% Performance Bank Guarantee (PBG) within 15 days of issue of purchase order then EMD amount will be forfeited or the EMD submitted in the form of Bank Guarantee will be involved by NCAOR.
23. The bid will be opened at NCAOR, Goa on 09-02-2018 in presence of tenderer or his representative if any.
24. NCAOR will not be responsible for any postal delays.

Sd/-
Joint Manager (Procurement & Stores)
For and on behalf of Director, NCAOR

BANK GUARANTEE FORMAT FOR FURNISHING EMD

To

**NATIONAL CENTRE FOR ANTARCTIC & OCEAN RESEARCH
Headland Sada, Vasco-da-Gama, GOA 403 804, INDIA**

Whereas _____
(Hereinafter called the "tenderer")
has submitted their offer dated _____
for the supply of _____
(Herein after called the "tender")

WE _____ of having our registered office
At _____ are bound unto the NATIONAL
(Hereinafter called the Bank)

CENTRE FOR ANTARCTIC & OCEAN RESEARCH, Ministry of Earth Sciences, Govt. Of India having its office at Headland Sada, Vasco Goa 403 804, India (herein after called NCAOR which expression shall unless repugnant to the context or meaning thereof include all its successors, administrators, executors and assigns) in the sum of _____ for which payment will and truly to be made to. NCAOR, the Bank binds itself, its successors and assigns by these presents. Sealed with the common seal of the said Bank this _____ day of _____ 2018.

THE CONDITIONS OF THIS OBLIGATION ARE:

- 1) If the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.
- 2) If the tenderer having been notified of the acceptance of his tender by NCAOR during the period of its validity.
 - 2.a) If the tenderer fails to furnish the Performance security for the due performance of the contract.
 - 2.b) Fails or refuses to execute the contract

We undertake to pay NCAOR up to the above amount upon receipt of its first written demand, without NCAOR having to substantiate its demand, provided that in its demand the NCAOR will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition or conditions.

This guarantee is valid until the _____ day of _____ 2018.

Signature of the bank