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Corrigendum-II

Please refer to Tender Notice No.SAC/PT/18/2015-16, Tender No. AHSA 2015002926 dated 11/03/2016.

Techno-Commercial Queries reply against Tender No. AHSA 201500292601, dated 7th March 2016 for “Supply, installation, commissioning of C Band Earth Stations”

Bidders may note the following points before submitting their bids.

Clarifications subsequent to Pre-Bid meeting held on March 18,2016.

- Vendors asked for preferable source for 11 meter C- band antenna i.e. indigenous or imported source.

As per RFP, 11 meter (typical) dia. or similar size antenna is required, which requires to comply all technical specifications. It can be either Indigenous or imported source, SAC does not have any preferred option for the source of antenna.

- Clarification regarding 1+1 redundancy for TWTA in RFP document

Each earth station requires 1+1 Power combined 2.25KW TWTA with linearizer & soft fail feature, switching controller, wave guide switches, High power dummy load, Harmonic reject filter, coupler etc. as mentioned in RFP page no. 37.

During normal operation, power output at flange of power combined system = 3600 Watts (65.5 dBm). If one TWTA fails, then system will deliver 1850 Watts (≈ 62.7 dBm) with soft fail feature.

Vendor will have to quote for one 2.25 KW TWTA per HUB as a spare, in case one TWTA of 1+1 power combined TWTA system fails then spare TWTA can be replaced with faulty TWTA manually with in short time and deliver power combined 65.5 dBm power at output flange of power combined TWTA. The offered solution must be modular in approach so that failed part can be easily replaced to maintain availability requirement mentioned in RFP.

- Clarification regarding Antenna Polarization Linear/circular specification.
Antenna with linear polarization only is required as mentioned in RFP

- Clarification regarding unused Tx/Rx ports of 4 port feed termination was asked.

It was informed that Tx1 port & Rx1 port of 4 port feed will be connected to transmit/receive RF chain equipment. While other two unused ports, Tx2 port & Rx2 port will be terminated.

Preferably Tx2 port & Rx2 port will be terminated with suitable cable/ waveguide flange arrangement so it can be used without climbing the antenna in future

- Clarification regarding L1 criteria in feed option.

The required basic configuration is given in option-1 (i.e. Frequency C band: Tx. 5.85–6.425 GHz and Rx. 3.625-4.2 GHz) with Antenna Az drive range 180° continuous) mentioned in RFP. It is mandatory requirement and considered for L1 criteria.

- Vendors need a clarification regarding antenna & feed frequency specifications for preferred option (i.e. Tx. 5.85– 6.425 GHz and Rx., 3.625-4.2 GHz, 3.4-4.2 GHz(preferred)), In preferred option, Tx & Rx bandwidth become asymmetrical & it is difficult to design such a feed. So, it is suggested in preferred option transmit band will also be increased & mentioned as per receive band.

As per RFP, Tx. 5.85– 6.425 GHz and Rx, 3.625-4.2 GHz is required frequency band. However, in preferred option, to maintain symmetrical transmit/receive band vendor may consider transmit band frequency as 5.85–6.65 GHz corresponding to preferred receive band frequency of 3.4-4.2 GHz, but it is not mandatory requirement.

- Vendors need a confirmation regarding Tx-. Rx port to port isolation mentioned in RFP (Tx-. Rx. ≥ 110 dB, and (preferably ≥ 120 dB)).

It was cleared that Tx-. Rx port to port isolation mentioned in RFP is mandatory requirement to assure the system performance.

- Vendor need clarification regarding Antenna tracking subsystems including tracking down converter, beacon receiver and Antenna Control Unit (ACU), drive etc. for satellite tracking. Also any specific requirement of L band or 70 MHz beacon tracking receiver.

It was cleared that in RFP, Antenna tracking subsystems provides representative tracking chain equipments. Vendor has to provide antenna with tracking system in detail to fulfill the tracking performance specified in the RFP. Vendor can include/exclude any subsystem which is not required like tracking down converter. It was also clarified that there is no specific requirement of L band or 70 MHz beacon tracking receiver. Vendor can propose required configuration to comply tracking requirement mentioned in RFP.

- Vendor asked for clarification regarding FE analysis as a part of tender quote or during design reviews

Vendor has to give representative FE analysis of similar system which he has installed in past with the quote. It is only for indicative purpose. FE model of antenna structure as well as foundation should be given to SAC in NASTRAN format or an alternative package like HYPERWORKS OR STAAD Pro 8vi by vendor for cross verification purpose.

However, during design reviews, Holistic FE Analysis for the full Super structure & Sub structure including the soil using in-situ soil properties as per the site specific soil tests of actual system proposed to be provided by the vendor as mentioned in RFP page-28. Antenna to be Installed & commissioned for the site-specific soil / operational & gusting wind conditions, where sanctity of the apportioned numbers for the R.M.S & P.E budgets of the antenna will have to be numerically ascertained incorporating the flexibility / spring modulus of soil in FE model. The design and Holistic FE analysis should account for the customized foundation system depending on the type of soil encountered and water table parameters, after the proper soil tests / Geo-technical investigations / suggestions

- Vendor asked for clarification regarding TLT to function through output of 1:1 TWT Amplifier via directional coupler or through individual TWT Amplifiers using sample port.

Preferable option is TLT function through output of 1+1 power combined TWTA via directional coupler.

- Vendor asked for clarification regarding 1U Chassis based BDC/BUC unit with redundant BDC modules, redundancy controller module.

1:1 redundant BDC/BUC units with any configuration (i.e. 1U or 2U chassis), which is suitable for replacement of one faulty BDC/BUC unit without affecting other working unit is acceptable. The configuration should be modular with redundancy controller, auto switch over & remote interface as per RFP specifications.

- Vendor has asked for temperature specification of indoor and outdoor unit in particular to LNA.

Applicable environmental specifications are mentioned in Annexure-2 of the RFP.

- Vendor has asked for L band Carrier monitoring feature in HMC mentioned in page-40 of RFP is required through spectrum analyzer only. L band Tx/RX monitoring requirement is simultaneously or in pooling (i.e. one by one)

L band Carrier monitoring at L-band level can be either by exclusive instrumentation (i.e. Spectrum analyzer etc.) or by any other solution. Vendors to provide cost break-up for proposed HMC architecture for different options

Simultaneously both Transmit and receive path L band carrier monitoring is required.

- Vendor has asked clarification regarding Intermodulation distortion (Third order) specification of BDC mentioned on page-36 of RFP with two 0 dBm output signals, less than 60 dBc min.

This specification is mandatory.

- Vendor has asked clarification regarding use of 2.25KW SSPA instead of TWTA as HPA.

TWTA or SSPA as high power amplifier is at vendor's discretion, but it should meet RFP requirements. For proposed option vendor has to provide heritage of usage supported by documents.

- Vendor has asked clarification for All RF Equipments shall have M&C facility for remote control operation through Computer mentioned in page-22 of RFP.

All equipment shall have provision for monitoring and control from local and remote location. All subsystems to have serial or TCP/IP (desirable) interface for remote monitoring, which is to be used by HMC system for remote monitoring purpose.

- Vendor has asked clarification regarding RFP, page 14 clause 2.3(1) previous experience/ similar type of installation for C band antenna & RF system is required. Vendor requires clarification regarding if they have similar type of installation experience with Ku band earth station or executed a SATCOM project in past 10 years then it is acceptable or not.

Experience in similar type of installation of earth station in any band is acceptable for this clause.

- Vendors were concerned about criteria for selecting for L1 offer, SAC appreciate the concern and agreed to provide clarification such that vendor will be clear about criteria for L1.

For L-1 criteria following is not included

- a. Cost of proposed spares
- b. Cost of additional 4 year CAMC after 3 years warranty +3 years of CAMC

- Vendors were concerned about clearance for operation of network and requested for taking this activity by SAC and provide license.

Vendor is responsible to obtain the entire license needed for operational HUB. SAC will provide necessary document and any license fee at actual. Name of licensee will be Space Applications Centre- ISRO

- Vendor has asked clarification about measured test range data in testing of Antenna System

Primary radiation pattern of the feed measured in the test range and simulated secondary radiation pattern data for the antenna to be supplied by vendor

- Vendor has asked clarification regarding Factory Acceptance Test (FAT)

FAT is not required; all the test will be conducted on site. The Bidder shall perform factory and site acceptance testing in accordance with the requirements set forth in the approved test procedures. Factory acceptance test and site acceptance test data shall be recorded in the appropriate section of the procedures and shall become part of the test data package.

- Vendors were concerned about basic cost or basic cost with all the taxes including those for which CD/ED exemption certificates are provided.

SAC is eligible for exemption from payment of CD/ED. SAC will issue exemption certificates wherever applicable. In case SAC does not issue such certificates, actual duty will be paid by SAC only if applicable. Landed cost including taxes and duties if any payable shall be the criteria for determining L1. However, bidders must indicate the taxes and duties which may be applicable to this tender. In absence of this it will be assumed that no such duties/taxes are applicable for the particular quotation and no request for alteration to the bid details thereafter shall be entertained.

- Vendor needs clarification regarding payment of EMD, as per tender, Bidders shall submit EMD of Rs. 5 Lakh if vendor is not registered in our panel/Central PSUs / PSEs and Autonomous Bodies/NSIC.

If vendor is registered on SAC/ ISRO e-procurement portal or are Government Autonomous Bodies/MSEs (NSIC registration / documentary evidence of MSE registration shall be submitted with bid otherwise such claim shall not be entertained and bid shall be treated as invalid) or PSUs then they are exempted from payment of EMD.

- Vendor has requested to change time schedule of 18 months instead of 12 months mentioned in RFP.

No extension of time cycle, it is 12 months from PO date as mentioned in RFP. There will be no change in RFP w.r.t. desired excursion schedule. Bidders should propose the best schedule possible.

- Vendors were concerned about payment terms as SAC standard term is 100% against installation & commissioning. Different vendors will ask for different terms of payment and which result in selection for L1.

As per normal payment terms are 100% payment within 30 days of receipt and acceptance of goods at our site.

In case vendors want to propose different terms, the same may be elaborated in sufficient details in their techno-commercial bid (Part-A). Any advance payments, if accepted, will be only against submission of unconditional bank guarantee in favour of Purchaser for equivalent value from a reputed bank.

As per guidelines maximum 30% advance may be paid against bank guarantee

Any financial implications due to commercial terms and conditions proposed by bidders such as payment terms etc., will be loaded on the prices while deciding commercial ranking of the offer.

- Vendors need clarification regarding commercial quote in Indian rupees(INR) or foreign currency

The bidders may decide on the currency of quote. The prices shall be firm and fixed. Validity of the offer shall be minimum 120 days.

Vendor may quote either in Indian Rupees (INR), foreign currency or both (in case only particular services like maintenance contract etc. rented by Indian representative). However, it will be desirable that for a particular part of the bid, common currency shall be maintained (e.g. entire supply part in FE and entire service part in INR OR vice versa).

- Vendors need clarification regarding delivery of total system

As mentioned in RFP, page-15, responsibility of safe transportation / delivery of total system to the site (i.e. AES, Ahmadabad & DES, Delhi) rests with the Vendor.

This includes:

- (i) Transportation from factory to the site
- (ii) Loading / unloading where applicable during transportation.
- (iii) Transit insurance – Insurance shall not be procured at Purchaser's (ISRO) cost

All expenditures for above activities shall be borne by the Vendor. SAC (ISRO) will provide custom duty exemption certificate and other such certificates, whenever applicable and requested.

- Vendors need clarification regarding number of persons/number of days for Hands on training.

One week Hands- on training for 10 persons to be provided after acceptance test.

Sr. Head, Purchase & Stores