


Cover page to the tender document

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|  | <p align="center">ELECTRONICS CORPORATION OF INDIA LTD (A Government of India Enterprises) Communication Systems Group, ECIL(PO), Hyderabad - 500 062</p> |
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|---|--|--|--|
| Name of Organisation | Electronics Corporation of India Limited, Hyderabad - 500 062 {A.P.} | | |
| Type of Organisation | Public Sector Undertaking | Ministry : Department of Atomic Energy | |
| Tender Ref. No : | ECIL/CNSG-MMD/S/09-4469PT | | |
| Tender Title: | Supply of Integrated Development Platform for Advanced Composite Communication System (ACCS). | | |
| Product Category | Electronic equipment – Software & Hardware | | |
| Document Cost: | Rs. 2,000 | | |
| Tender Value | EMD : Rs. 1,00,000/- | Security Deposit: @ 10% of order value | |
| Tender type: | Buy | | |
| Location: | Hyderabad, Telangana State | | |
| Request for quote date | 18.06.2014 | | |
| Last date for submission of bids | 18.07.2014 up to 15.00 hrs. | | |
| Opening date of Part I | 19.07.2014 @ 14.00 hrs. | | |
| Description of Item: | Item Description | Quantity | |
| | Integrated Development Platform for Development of Advanced Composite Communication System (ACCS). | 1 lot | |
| Pre – Qualification | As per specifications given in the tender | | |
| Tender Document | View Tender Document * | | |
| Bid Document | View Price Bid Document * | | |
| Technical Document | View Technical Document * | | |
| Sector: | Electronics | | |
| State: | Telangana State | | |
| For further Information Contact: DGM, MMD-CNSG,ECIL | | | |
| E – Mail: | cndmmd@ecil.co.in | | |
| Phone: | +94-40-2712 1471 | | |
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Electronics Corporation of India limited
(A Government of India enterprise)
Communication Systems Group, ECIL (PO)
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E-mail: cndmmd@ecil.co.in {<http://www.ecil.co.in>}

Tender No: ECIL/CNSG-MMD/S/09-4469PT

Date: 18.06.2014

Tender Document

1. Invitation to Tender:

Electronics corporation of India limited, communication system group invites “Two part Bid” for “Supply of Integrated Development Platform for Advanced Composite Communication System” as per details given below.

2. Important Dates

Due date for submission of two part bids : **18.07.2014 up to 15.00 Hrs..**

Techno-commercial bid (part 1) will be opened on **19.07.2014 at 14.00 Hrs.** Interested vendors may be present with prior permission.

After evaluation of the techno- commercial bids, qualified list of vendors will be finalized.

Price bid (part 2) of the qualified vendors will be opened at a later date, which will be communicated to the qualified vendors.

3. Manner and method of submission of offers:

All pages of the tender shall be numbered and typed on the letter head of the vendor and be duly signed and stamped by company’s authorized signatory. Hand written quotation will be summarily rejected. Corrections if any shall be duly authenticated with signature and seal of the company.

The quotation in prescribed form to this invitation shall be submitted in two parts and in different sealed envelopes super scribing tender number with due date.

Part-I (Technical Bid): It shall comprise of two sections namely technical section and commercial section and both sections shall be submitted along with tender fee and EMD in a single sealed envelope. This bid shall not contain any price details.

Part-II (Price Bid): It shall comprise of price details and shall be submitted in a separate sealed envelope.

The above two sealed envelopes of Part-I & Part-II shall be put in a single sealed envelope and submitted to the attention of Deputy General Manager, CNSG-MMD, ECIL Post, Hyderabad 500 062, Telangana State, India.

4. Cost of Tender Documents:

Tender fee of Rs. 2,000/- is to be remitted along with the techno-commercial bid in the form of a crossed bank draft favoring “Electronics Corporation of India Limited” from a nationalized bank payable at Hyderabad. The cost of tender document is non- refundable.

5. Earnest Money Deposit (EMD):

Earnest money deposit of Rs. 1,00,000/- shall be submitted along with the techno-commercial bid in the form of demand draft favoring Electronic Corporation of India Limited or a Bank

Guarantee valid for a period of six months drawn from a nationalized bank payable at Hyderabad. The EMD deposited by the unsuccessful bidders will be refunded without interest after finalization of the order. The EMD of the successful bidder will be appropriated towards security deposit. The bids will not be considered in the absence of payment towards the cost of tender documents and EMD.

6. Security deposit (SD):

The successful bidder will be required to remit a Security deposit equivalent to 10% of the purchase order value exclusive of taxes and duties etc. after adjusting the EMD amount already remitted. SD is to be remitted along with the order acceptance in the form of a crossed bank draft favoring Electronic Corporation of India Limited or a Bank Guarantee from a nationalized bank payable at Hyderabad. The security deposit will be forfeited in the event of failure to execute the purchase order. The security deposit will be refunded without interest after the purchase order is successfully executed to the satisfaction of the purchaser.

7. Items tendered for:

| Sl. No | Items description | Qty |
|--------|---|--------|
| 01 | Supply of Integrated Development Platform for Development of Advanced Composite Communication System. (scope & details are given in the technical document) | 1 lot. |

Intending bidders who have not yet registered with ECIL are also requested to download “Suppliers Registration Form” from web site www.ecil.co.in/tenders, fill it up and send the same along with the bids.

TENDER SUBMISSION FORMAT (PRICE BID DOCUMENT)

Tender No: ECIL: CNSG-MMD:S:09-4469PT

Date: 18.06.2014

I Vendor Particulars:

| | |
|---|--|
| Name and address of the bidder | |
| Telephone, fax and e-mail | |
| Name and designation of the Officer representing Vendor | |

II Items tendered for:

| Sl. No | Items description | Qty | Rate | Value |
|--------|---|-------|------|-------|
| 01 | Supply of Integrated Development Platform for Advanced Composite Communication System (ACCS). | 1 lot | | |
| 02 | Extended Warranty for 2 years after completion of free standard warranty period of 1 year. | 1 lot | | |

III Terms and Conditions:

| | | |
|----|---|--|
| 1 | Terms of price | |
| 2 | Payment terms (please refer General Terms and Conditions of this tender) | |
| 3 | Rate of Excise duty, Service Tax, and any other taxes and duties applicable. (In case the Vendor imports any item directly Customs duty exemptions will not be provided by ECIL) Note: Vendor shall specifically mention applicability of all taxes and duties. In the absence of specific confirmation of taxes and duties, the quotation is liable to be rejected. | |
| 4 | Tendered items are required immediately. Vendors are requested to quote earliest possible delivery schedule. | |
| 5 | Standard Warranty (Minimum 1 year from the date of installation) | |
| 6 | Estimated Packing & Forwarding Charges | |
| 7 | Validity of Quotation (Minimum 90 days) | |
| 8 | DD No. & Date for Cost of Tender Documents. | |
| 9 | DD No. & Date for EMD. | |
| 10 | CST Registrati0n Number | |
| 11 | TIN Number. | |
| 12 | Income Tax PAN Number | |
| 13 | ISO-9000 Certificate or any other certificate | |
| 14 | SSI/NSI Registration Number, if applicable. | |
| 15 | Any other relevant information | |
| 16 | Bank Details with RTGS. | |

Note : The vendor shall submit offer in the above format only. Against each instructions mentioned below the Vendor shall give a comment Complied (✓) or Not complied (x)

Instructions:

- a. No Columns shall be left blank in the format.
- b. Incomplete forms, counter offer and deviation from the terms and conditions will be summarily rejected.
- c. Photostat copies of quote/offer will not be accepted. Only originals received within the time limit will be accepted.
- d. The vendor shall submit the certificate of Registration under Micro, Small and Medium enterprises development Act, 2006, in case of applicability.
- e. The offer shall meet point wise compliance to all points of tender document. Wherever non-compliance is there, suitable explanation needs to be provided.
- f. Technical proposal need not be restricted to the user requirements as given above. Any additional features may be added in the proposal to make it a professional package.
- g. Technical proposal may be as detailed as possible with functional block diagrams where ever applicable.
- h. Foreign vendors shall offer bids directly or through their Indian Partners / Representatives.

General criteria for acceptance of tenders

1. **Technical specification:** vendor shall comply with the technical specification given in the technical document. The commercial offer of the vendor who satisfies the technical requirement only will be opened – complied/ not complied
2. **Experience:** vendor shall provide details with documentary evidence the experience in supply of similar systems - complied / not complied.
3. **Warranty:** 1-year free warranty and support for additional 2 years to be provided against all manufacturing defects and software updates - complied / not complied.
4. Foreign vendors shall have a branch office in India / Indian partners / representatives for rendering support service - complied/not complied
5. **Facilities:** details of factory assembly and testing facility shall be furnished. A committee of ECIL may visit to verify the facilities of the vendors for execution of order if any.
6. **Service center:** Details of service center location/engineers working.
7. **Acceptance of tenders:** No tender will be accepted after due date. ECIL will not be responsible for postal/courier delay or lost in transit if any.

Note: vendor shall provide documentary proof to prove his adherence to the qualifying criteria where ever necessary. Claims without support will not be considered.

GENERAL TERMS AND CONDITIONS

This tender and any order resulting from this tender shall be governed by the following terms and condition of contract and the supplier quoting against this tender shall be deemed to have read and understood the same. In case counter terms and condition of business have been offered by the supplier, ECIL shall not be deemed to be governed unless specific written acceptance thereof has been obtained from ECIL.

- 1. Terms of prices:** Quotations shall be submitted on FOR Hyderabad or FOR destination basis including transit insurance. In case of Ex-works / Ex-go down / FOR dispatching station the approximate packing, forwarding and freight shall be indicated by the suppliers. Hyderabad suppliers shall arrange free delivery at our stores.
- 2. Validity of quote:** The quotation shall remain valid for a minimum period of 90 days from tender opening date.
- 3. Performance Bank Guarantee:** Vendor shall submit a performance bank guarantee for 10% of purchase order value covering standard free warranty period of one year from the date of acceptance of goods by ECIL.
- 4. Payment:** Payments for materials and services will be made within 60 days from the date of acceptance of goods and services on pro-rata basis by ECIL.
- 5. Insurance:** The supplier shall insure goods for all transit risks if the payment term is FOR Hyderabad or FOR destination unless otherwise stated specifically by the supplier in their quotation. The supplier shall insure goods for all risks till acceptance of goods by End user.
- 6. Liquidated damages:** Delivery date is the essence of the contract. In the event of any delay in supply beyond the agreed delivery schedule, liquidated damages will be recovered @0.5% per week of delay or part thereof subject to a maximum of 10% of the value of the order.
- 7. Force majeure:** If the execution of the purchase order is delayed beyond the period stipulated in the purchase order as a result of outbreak of hostilities, declaration of an embargo or blockage or fire, flood, acts of nature or any other contingency beyond the supplier's control due to act of God, then ECIL may allow such additional time by extending the delivery period as justified by the circumstances of the case and its decision in this regard shall be final. Power failure will not be considered as a force majeure condition.
- 8. Risk purchase:** In case of failure to deliver the goods within the delivery date stipulated in the purchase order unless prior extension of delivery period is obtained, ECIL will be at liberty to obtain such items as necessary from other source and / or cancel the order and in either case ECIL reserves the right to recover from the supplier the additional amount spent plus 10% to cover incidental expenses.
- 9. Dispute resolution:** Any dispute arising out of purchase order or interpretation of any clause or terms and conditions hereof shall be settled through conciliation by both ECIL and the supplier, under the specific provision of arbitrational and conciliation act 1996. Only courts in Ranga Reddy district, Telangana State, India have exclusive jurisdiction over this order.
- 10. Right to reject:** The purchaser reserves the right to reject any or all offers wholly or in part without assigning any reason.
- 11. Short closure:** ECIL has the right to short close the tender even after evaluating the quotations without assigning any reason.

- 12. Bank details:** The supplier shall give along with the quotation name of their banker, account number and also income tax permanent account (PAN).
- 13. Jurisdiction:** All disputes arising in connection with executing the purchase order will be subject to jurisdiction of the courts in Hyderabad and Secunderabad only.

TECHNICAL DOCUMENT

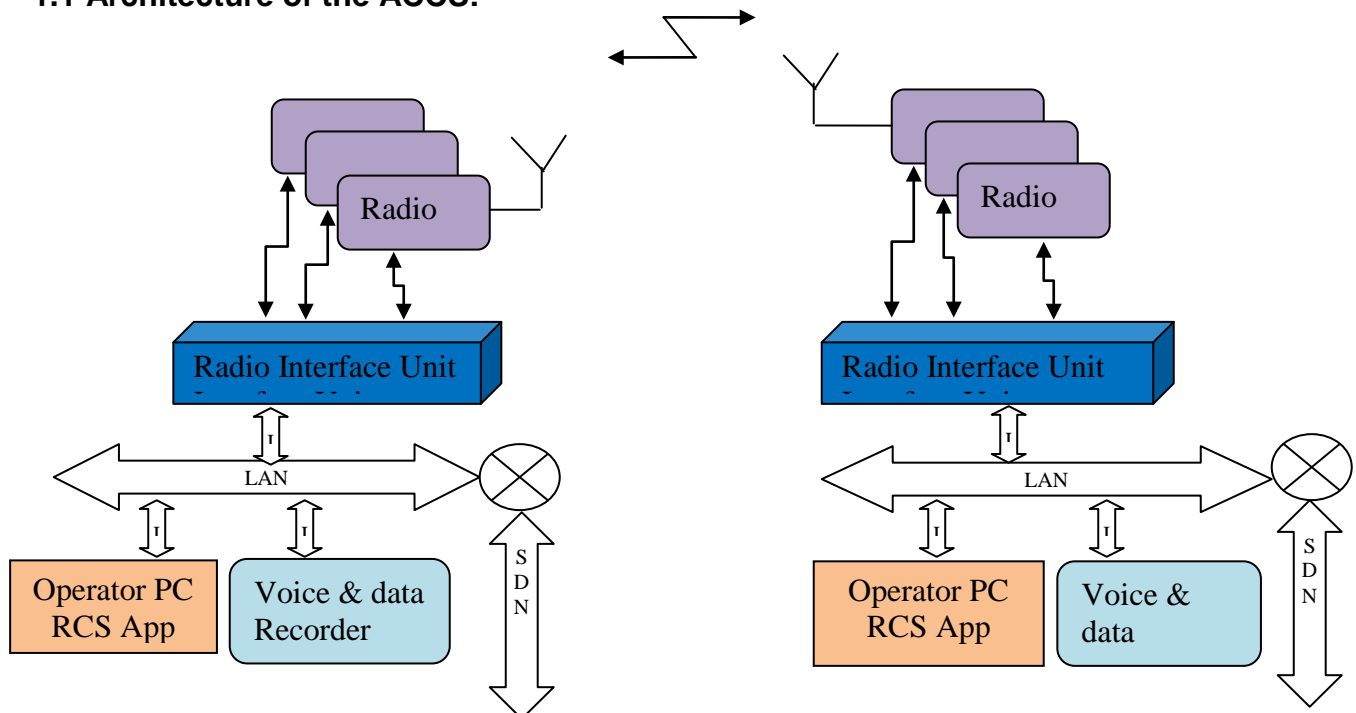
Procurement of Integrated Development Platform for ACCS

1.0 Scope of Delivery:

Supply of hardware and software development tools consisting of different Interface Cards along with Chassis and Controller to realize the Radio Interface Unit for Advanced Composite Communication System as per given at figure 1. RIU should be able to control all the different Radios on-board along with Voice and Data communication– Qty 2 Sets.

1. Interface Cards for the following standards interface preferably in PXIe platform for ease of scalability:
 - i. CAN Communication Interface
 - ii. GPIB Communication Interface
 - iii. RS232 Communication Interface
 - iv. RS422 Communication Interface
 - v. GigE Communication Interface
 - vi. 2- input/ 2- Output Dynamic Signal Analyzer
2. Voice communication interface along with Audio Amplifier module
3. LabVIEW Developer Suite
4. LabVIEW Real-time Module
5. Supply of all software drivers, cables and accessories required for RIU Interfaces
6. Installation and demonstration of software development tools and modules at ECIL
7. Assistance and support during integration and testing for a period of 3 years
8. Supply of all the related documents (Technical manuals and SW Interface details)

1.1 Architecture of the ACCS:



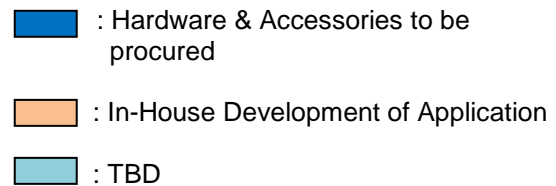


Figure1: ACCS Block Diagram

1.2 List of Deliverables for Techno-commercial two part bid:

1.2.1 Technical Specifications of Hardware & Accessories for Radio Interface

Unit:

| S.No | Item Description | Qty |
|------|---|------|
| 1 | PXIe-1062Q, 8-Slot 3U PXIe/ PXI Chassis or Equivalent <ul style="list-style-type: none"> 4 PXI slots, 1 PXI Express system timing slot, and 2 PXI Express hybrid slots 354 W available power for 0 to 55 °C High performance - up to 1 GB/s per-slot dedicated bandwidth and more than 3 GB/s system bandwidth Compatible with PXI, PXI Express, CompactPCI, and CompactPCI Express peripheral modules Use with a variety of PXI Express embedded and remote controllers Quiet operation for 0 to 30 °C at 43.6 dBA Upgradable to comply with naval qualification JSS55555-N1 deployment | 2Nos |
| 2 | PXIe-8135 Core i7-3610QE 2.3 GHz Controller, Win 7 (32-bit) or Equivalent <ul style="list-style-type: none"> 2.3 GHz quad-core Intel Core i7-3610QE processor (3.3 GHz maximum in single-core, Turbo Boost mode) High-bandwidth PXI Express embedded controller with up to 8 GB/s system and 2 GB/s slot bandwidth 4 GB (1 x 4 GB DIMM) dual-channel 1600 MHz DDR3 RAM standard 2 Super Speed USB, 4 Hi-Speed USB, 2 Gigabit Ethernet, GPIB, serial, and other peripherals In-ROM memory and hard drive diagnostics Windows OS and drivers already installed; hard-drive-based recovery Dual Boot option with RT OS | 2Nos |
| 3 | LabVIEW RT Deployment License for NI PXI Controllers (ETS RTOS) or Equivalent <ul style="list-style-type: none"> Converts a Windows PXI system to a LabVIEW Real-Time target Includes LabVIEW Real-Time embedded software, hardware support files, and one deployment license | 2Nos |
| 4 | External USB CD/DVD-ROM , USB Keyboard and Optical USB Mouse | 2Nos |
| 5 | Display , VGA Adapter Cable | 2Nos |
| 6 | IEEE 1284 Parallel Port Cable Adapter, 6 in. PXIe-8135 | 2Nos |
| 7 | X13 GPIB Cable, MicroD25 to Shielded cable/Standard connector, 2M Cable PXIe-8135 | 2Nos |
| 8 | NI PXI-GPIB with NI-488.2 or Equivalent <ul style="list-style-type: none"> NI custom TNT ASIC provides maximum IEEE 488.2 performance NI-488.2 driver software for Windows 1.5 MB/s maximum transfer rate using IEEE 488.1 handshake | 2Nos |

| | | |
|----|---|------|
| | <ul style="list-style-type: none"> • 7.7 MB/s maximum transfer rate using HS488 • Plug-and-play capability for easy hardware installation | |
| 9 | X2 GPIB Cable,Double-Shielded,Shielded Plug/Receptacles, 2 m Cable <ul style="list-style-type: none"> • Double-shielded standard cables (X2) • Female-to-male cables | 4Nos |
| 10 | X2 GPIB Cable,Double-Shielded,Shielded Plug/Receptacles, 4 m Cable <ul style="list-style-type: none"> • Double-shielded standard cables (X2) • Female-to-male cables | 4Nos |

1.2.2 Technical specifications for Interface cards for different Radios:

| S.No | Item Description | Qty |
|------|---|------|
| 1 | PXI-8513/2, CAN Interface, Software-Selectable, 2 Port or Equivalent <ul style="list-style-type: none"> • 2-port XS CAN interface with HS (TJA1041), LS/FT (TJA1045A), and single-wire (AU5790) transceivers • NI-XNET driver for developing frame and signal applications in LabVIEW, LabWindows™/CVI, and C/C++ • NI-XNET device-driven DMA engine for coupling the CAN bus to host memory to minimize message latency • Integrated CAN databases for importing, editing, and using signals from FIBEX, .DBC, and .NCD files • Synchronization, 1 μs timestamps for integration with NI DAQ, digitizers, switches, large systems • Bundled software: NI-XNET driver, Bus Monitor and Database Editor for Windows, LabVIEW Real-Time OSs | 2Nos |
| 2 | CAN/LIN Cable, No Term, High Speed/Low Speed, Dsub 9-pin F, 1m <ul style="list-style-type: none"> • No-termination high-speed and low-speed CAN cable with 9-pin D-SUB female connectors • Compatible with all NI PCI, PXI, USB, PCMCIA, and CompactRIO CAN interfaces • Recommended for NI-XNET high-speed, low-speed, and software-selectable CAN interfaces • Cable impedance: 120 Ω, resistance: 93 Ω/km at 20 °C, delay: 5 ns/m • Two 24 AWG twisted pairs: one for CAN_H and CAN_L and one for V+ and V- • CiA-DS-102 standard wiring: Pin 2: CAN_L, Pin 3: V-, Pin 5: Shield, Pin 7: CAN_H, Pin 9: V+ | 4Nos |
| 3 | 8234 Dual Gigabit Ethernet Controller for Windows or Equivalent <ul style="list-style-type: none"> • Dual Gigabit Ethernet interface with up to 1000 Mbit/s (1000BASE-T) transfers per port • x4 PXI Express/Compact PCI Express module with up to 1 GB/s bandwidth • LabVIEW Real-Time compatibility • Compatibility with 10BASE-T and 100BASE-TX • RoHS compliance | 2Nos |
| 4 | PXI-8432/4, 2000V Isolated RS232, 4 Port Serial Interface or Equivalent <ul style="list-style-type: none"> • Port-to-port and port-to-PC isolation: 60 VDC continuous (CAT I), 2000 V withstand ($V_{rms}/5$ s) • Flexible standard and nonstandard baud rates from 57 baud to 1,000,000 baud • Minimal CPU overhead with high-speed DMA interface; multi core processor and hyper threading support • Compatible with Windows and LabVIEW Real-Time OSs | 2Nos |

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| | <ul style="list-style-type: none"> 128 B transmit and receive FIFOs 10P10C (RJ50) connectors, four 10P10C to DE9M (DB9) cables included | |
| 5 | RS232 Null-Modem Cable, DB-9 Female to DB-9 Female, 1m Cables for PXI-8432/4 | 8Nos |
| 6 | PXI-8433/4, 2000V Isolated RS422/485, 4 Port Serial Interface or Equivalent <ul style="list-style-type: none"> Port-to-port and port-to-PC isolation: 60 VDC continuous (CAT I), 2000 V withstand (Vrms/5 s) Compatible with Windows and LabVIEW Real-Time OSs High-speed DMA interface minimizes CPU overhead; 128 B transmit and receive FIFOs Flexible standard and nonstandard baud rates from 57 baud to 3,000,000 baud 10P10C (RJ50) connectors, four 10P10C to DE9M (DB9) cables included Selectable 4- and 2-wire transceiver modes for full- and half-duplex communication | 2Nos |
| 7 | RS485 Null-Modem Cable, DB-9 Female to DB-9 Female, 1m Cables for PXI-8433/4 | 8Nos |
| 8 | PXI-6733 with 8 16-Bit Waveform Analog Outputs or equivalent <ul style="list-style-type: none"> 8 high-speed digital I/O lines; two 24-bit counters; digital triggering Onboard or external update clock PXI trigger bus for synchronization with DAQ, motion, and vision products NI-DAQmx driver with configuration utility to simplify configuration and measurements Superior integration: LabVIEW, LabVIEW Real-Time, LabWindows /CVI, and Measurement Studio for VB | 2Nos |
| 9 | SCB-68A Noise Rejecting, Shielded I/O Connector Block <ul style="list-style-type: none"> Shielded I/O connector block for 68-pin NI X, M, E, B, S, and R Series DAQ devices Screw terminals for easy I/O connections 2 general-purpose breadboard areas Onboard cold-junction compensation sensor for low-cost thermocouple measurements Magnetic removable lid, DIN-rail compatibility, and a resettable fuse | 2Nos |
| 10 | SH68-68-EP, Shielded Cable, 2 m Cables for NI PXI-6733 | 2Nos |
| 11 | PXI-6123 (32 MSamples) S Series Multifunction DAQ Device or equivalent <ul style="list-style-type: none"> 8 simultaneously sampled analog inputs, 16-bit, 500 kS/s per channel 8 hardware-timed digital I/O lines; two 24-bit counters; analog and digital triggering 4 input ranges from ± 1.25 V to ± 10 V and deep onboard memory (16 MS or 32 MS) Included NI-DAQ mx driver software and Signal Express interactive data-logging software Optimized integration with NI LabVIEW, LabWindows /CVI, and Measurement Studio | 2Nos |
| 12 | TB-2709 PXI Front-Mount SMB Terminal Blk for PXI-6123 & PXI-6133 or equivalent <ul style="list-style-type: none"> Direct SMB connectivity to the PXI-6123, PXI-6133, PXI-6122, and PXI-6132 Access to 4 or 8 simultaneous-sampling analog inputs Additional SMB connector for analog or digital triggering and onboard signal routing Auxiliary connector for advanced timing and triggering using MFIT-Pigtail cable | 2Nos |
| 13 | SMB110, SMB to BNC Male Coax Cable, 50 Ohm ,1 m Cable <ul style="list-style-type: none"> 50 ohm cable for external triggering | 2Nos |
| 14 | Remote Controller for Interface Unit <ul style="list-style-type: none"> Make: DELL or Equivalent with 24" LED Display | 2Nos |

| | | |
|----|---|------|
| | <ul style="list-style-type: none"> • Intel® Core™ i7 Quad Core Processor (3.4GHz) • Memory 8 GB • Ethernet Port, USB Port and Serial port • Storage capacity of 1 TB portable (for backup of field data) • D-Link 24 Port Managed GigaBit Ethernet Switch | |
| 15 | Audio Amplifier <ul style="list-style-type: none"> • With standard input impedance | 4Nos |

1.2.3 Tender Specifications of LabVIEW Software package Licenses along with the Training

| S.No | Item Description | Qty |
|------|--|-----|
| 1 | Developer Suite, English <ul style="list-style-type: none"> • LabVIEW Professional Development System • LabWindows /CVI Full Development System • Measurement Studio Enterprise • LabVIEW Signal Express • Database Connectivity Toolkit • PID and Fuzzy Logic Toolkit • Report Generation Toolkit • Advanced Signal Processing Toolkit • Digital Filter Design Toolkit • Data Finder Toolkit • Device Drivers • LabVIEW Unit Test Framework Toolkit • LabVIEW Desktop Execution Trace Toolkit • LabVIEW VI Analyzer Toolkit • All the documents related to above tools/application software developer manual | 1No |
| 2 | LabVIEW Real-Time Deployment Option for NI Developer Suite <ul style="list-style-type: none"> • To design real-time applications with LabVIEW graphical programming • Compatible with third-party hardware for reliable execution and a wide selection of I/O • built-in PID control, signal processing, and analysis functions • Including real-time operating system (RTOS), development and debugging support, and board support • Software developer manuals for application programmer | 1No |
| 3 | LabVIEW FPGA Module <ul style="list-style-type: none"> • To Graphically configure FPGAs on reconfigurable I/O (RIO) hardware targets • Should facilitate defining custom control algorithms with loop rates up to 300 MHz • Should facilitate executing multiple tasks simultaneously and deterministically • Should be able to implement custom timing and triggering logic, digital protocols, and DSP algorithms • Should support Incorporation of existing HDL code and third-party IP including Xilinx CORE Generator functions • Should be usable with FPGA cards that can be purchased as additional modules that can be fit into the same chassis of the system containing the other I/O interfaces as mentioned in Section 1.2.1 and 1.2.2 • Software Developer Manuals | 1No |

| | | |
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| 4 | LabVIEW core 1 and core 2 , 7 working days hands on training for four persons | 1 lot |
| 5 | Software package updates and technical support for 3 years | 1 lot |

1.2 List of Deliverables for Techno-commercial two part bid:

1.2.1 Technical Specifications of Hardware & Accessories for Radio Interface

Unit:

| S.No | Item Description | Qty |
|------|---|------|
| 1 | PXIe-1062Q, 8-Slot 3U PXIe/ PXI Chassis or Equivalent <ul style="list-style-type: none"> 4 PXI slots, 1 PXI Express system timing slot, and 2 PXI Express hybrid slots 354 W available power for 0 to 55 °C High performance - up to 1 GB/s per-slot dedicated bandwidth and more than 3 GB/s system bandwidth Compatible with PXI, PXI Express, CompactPCI, and CompactPCI Express peripheral modules Use with a variety of PXI Express embedded and remote controllers Quiet operation for 0 to 30 °C at 43.6 dBA Upgradable to comply with naval qualification JSS55555-N1 deployment | 2Nos |
| 2 | PXIe-8135 Core i7-3610QE 2.3 GHz Controller, Win 7 (32-bit) or Equivalent <ul style="list-style-type: none"> 2.3 GHz quad-core Intel Core i7-3610QE processor (3.3 GHz maximum in single-core, Turbo Boost mode) High-bandwidth PXI Express embedded controller with up to 8 GB/s system and 2 GB/s slot bandwidth 4 GB (1 x 4 GB DIMM) dual-channel 1600 MHz DDR3 RAM standard 2 Super Speed USB, 4 Hi-Speed USB, 2 Gigabit Ethernet, GPIB, serial, and other peripherals In-ROM memory and hard drive diagnostics Windows OS and drivers already installed; hard-drive-based recovery Dual Boot option with RT OS | 2Nos |
| 3 | LabVIEW RT Deployment License for NI PXI Controllers (ETS RTOS) or Equivalent <ul style="list-style-type: none"> Converts a Windows PXI system to a LabVIEW Real-Time target Includes LabVIEW Real-Time embedded software, hardware support files, and one deployment license | 2Nos |
| 4 | External USB CD/DVD-ROM , USB Keyboard and Optical USB Mouse | 2Nos |
| 5 | Display , VGA Adapter Cable | 2Nos |
| 6 | IEEE 1284 Parallel Port Cable Adapter, 6 in. PXIe-8135 | 2Nos |
| 7 | X13 GPIB Cable, MicroD25 to Shielded cable/Standard connector, 2M Cable PXIe-8135 | 2Nos |
| 8 | NI PXI-GPIB with NI-488.2 or Equivalent <ul style="list-style-type: none"> NI custom TNT ASIC provides maximum IEEE 488.2 performance NI-488.2 driver software for Windows 1.5 MB/s maximum transfer rate using IEEE 488.1 handshake 7.7 MB/s maximum transfer rate using HS488 Plug-and-play capability for easy hardware installation | 2Nos |
| 9 | X2 GPIB Cable,Double-Shielded,Shielded Plug/Receptacles, 2 m Cable <ul style="list-style-type: none"> Double-shielded standard cables (X2) | 4Nos |

| | | |
|----|---|------|
| | <ul style="list-style-type: none"> Female-to-male cables | |
| 10 | X2 GPIB Cable, Double-Shielded, Shielded Plug/Receptacles, 4 m Cable <ul style="list-style-type: none"> Double-shielded standard cables (X2) Female-to-male cables | 4Nos |

1.2.2 Technical specifications for Interface cards for different Radios:

| S.No | Item Description | Qty |
|------|---|------|
| 1 | PXI-8513/2, CAN Interface, Software-Selectable, 2 Port or Equivalent <ul style="list-style-type: none"> 2-port XS CAN interface with HS (TJA1041), LS/FT (TJA1045A), and single-wire (AU5790) transceivers NI-XNET driver for developing frame and signal applications in LabVIEW, LabWindows™/CVI, and C/C++ NI-XNET device-driven DMA engine for coupling the CAN bus to host memory to minimize message latency Integrated CAN databases for importing, editing, and using signals from FIBEX, .DBC, and .NCD files Synchronization, 1 μs timestamps for integration with NI DAQ, digitizers, switches, large systems Bundled software: NI-XNET driver, Bus Monitor and Database Editor for Windows, LabVIEW Real-Time OSs | 2Nos |
| 2 | CAN/LIN Cable, No Term, High Speed/Low Speed, Dsub 9-pin F, 1m <ul style="list-style-type: none"> No-termination high-speed and low-speed CAN cable with 9-pin D-SUB female connectors Compatible with all NI PCI, PXI, USB, PCMCIA, and CompactRIO CAN interfaces Recommended for NI-XNET high-speed, low-speed, and software-selectable CAN interfaces Cable impedance: 120 Ω, resistance: 93 Ω/km at 20 °C, delay: 5 ns/m Two 24 AWG twisted pairs: one for CAN_H and CAN_L and one for V+ and V- CiA-DS-102 standard wiring: Pin 2: CAN_L, Pin 3: V-, Pin 5: Shield, Pin 7: CAN_H, Pin 9: V+ | 4Nos |
| 3 | 8234 Dual Gigabit Ethernet Controller for Windows or Equivalent <ul style="list-style-type: none"> Dual Gigabit Ethernet interface with up to 1000 Mbit/s (1000BASE-T) transfers per port x4 PXI Express/Compact PCI Express module with up to 1 GB/s bandwidth LabVIEW Real-Time compatibility Compatibility with 10BASE-T and 100BASE-TX RoHS compliance | 2Nos |
| 4 | PXI-8432/4, 2000V Isolated RS232, 4 Port Serial Interface or Equivalent <ul style="list-style-type: none"> Port-to-port and port-to-PC isolation: 60 VDC continuous (CAT I), 2000 V withstand ($V_{rms}/5$ s) Flexible standard and nonstandard baud rates from 57 baud to 1,000,000 baud Minimal CPU overhead with high-speed DMA interface; multi core processor and hyper threading support Compatible with Windows and LabVIEW Real-Time OSs 128 B transmit and receive FIFOs 10P10C (RJ50) connectors, four 10P10C to DE9M (DB9) cables included | 2Nos |
| 5 | RS232 Null-Modem Cable, DB-9 Female to DB-9 Female, 1m Cables for PXI-8432/4 | 8Nos |
| 6 | PXI-8433/4, 2000V Isolated RS422/485, 4 Port Serial Interface or Equivalent | 2Nos |

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| | <ul style="list-style-type: none"> Port-to-port and port-to-PC isolation: 60 VDC continuous (CAT I), 2000 V withstand (Vrms/5 s) Compatible with Windows and LabVIEW Real-Time OSs High-speed DMA interface minimizes CPU overhead; 128 B transmit and receive FIFOs Flexible standard and nonstandard baud rates from 57 baud to 3,000,000 baud 10P10C (RJ50) connectors, four 10P10C to DE9M (DB9) cables included Selectable 4- and 2-wire transceiver modes for full- and half-duplex communication | |
| 7 | RS485 Null-Modem Cable, DB-9 Female to DB-9 Female, 1m Cables for PXI-8433/4 | 8Nos |
| 8 | PXI-6733 with 8 16-Bit Waveform Analog Outputs or equivalent <ul style="list-style-type: none"> 8 high-speed digital I/O lines; two 24-bit counters; digital triggering Onboard or external update clock PXI trigger bus for synchronization with DAQ, motion, and vision products NI-DAQmx driver with configuration utility to simplify configuration and measurements Superior integration: LabVIEW, LabVIEW Real-Time, LabWindows /CVI, and Measurement Studio for VB | 2Nos |
| 9 | SCB-68A Noise Rejecting, Shielded I/O Connector Block <ul style="list-style-type: none"> Shielded I/O connector block for 68-pin NI X, M, E, B, S, and R Series DAQ devices Screw terminals for easy I/O connections 2 general-purpose breadboard areas Onboard cold-junction compensation sensor for low-cost thermocouple measurements Magnetic removable lid, DIN-rail compatibility, and a resettable fuse | 2Nos |
| 10 | SH68-68-EP, Shielded Cable, 2 m Cables for NI PXI-6733 | 2Nos |
| 11 | PXI-6123 (32 MSamples) S Series Multifunction DAQ Device or equivalent <ul style="list-style-type: none"> 8 simultaneously sampled analog inputs, 16-bit, 500 kS/s per channel 8 hardware-timed digital I/O lines; two 24-bit counters; analog and digital triggering 4 input ranges from ± 1.25 V to ± 10 V and deep onboard memory (16 MS or 32 MS) Included NI-DAQ mx driver software and Signal Express interactive data-logging software Optimized integration with NI LabVIEW, LabWindows /CVI, and Measurement Studio | 2Nos |
| 12 | TB-2709 PXI Front-Mount SMB Terminal Blk for PXI-6123 & PXI-6133 or equivalent <ul style="list-style-type: none"> Direct SMB connectivity to the PXI-6123, PXI-6133, PXI-6122, and PXI-6132 Access to 4 or 8 simultaneous-sampling analog inputs Additional SMB connector for analog or digital triggering and onboard signal routing Auxiliary connector for advanced timing and triggering using MFIT-Pigtail cable | 2Nos |
| 13 | SMB110, SMB to BNC Male Coax Cable, 50 Ohm ,1 m Cable <ul style="list-style-type: none"> 50 ohm cable for external triggering | 2Nos |
| 14 | Remote Controller for Interface Unit <ul style="list-style-type: none"> Make: DELL or Equivalent with 24" LED Display Intel® Core™ i7 Quad Core Processor (3.4GHz) Memory 8 GB Ethernet Port, USB Port and Serial port | 2Nos |

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| | <ul style="list-style-type: none"> Storage capacity of 1 TB portable (for backup of field data) D-Link 24 Port Managed GigaBit Ethernet Switch | |
| 15 | Audio Amplifier <ul style="list-style-type: none"> With standard input impedance | 4Nos |

1.2.3 Tender Specifications of LabVIEW Software package Licenses along with the Training

| S.No | Item Description | Qty |
|------|--|-------|
| 1 | Developer Suite, English <ul style="list-style-type: none"> LabVIEW Professional Development System LabWindows /CVI Full Development System Measurement Studio Enterprise LabVIEW Signal Express Database Connectivity Toolkit PID and Fuzzy Logic Toolkit Report Generation Toolkit Advanced Signal Processing Toolkit Digital Filter Design Toolkit Data Finder Toolkit Device Drivers LabVIEW Unit Test Framework Toolkit LabVIEW Desktop Execution Trace Toolkit LabVIEW VI Analyzer Toolkit All the documents related to above tools/application software developer manual | 1No |
| 2 | LabVIEW Real-Time Deployment Option for NI Developer Suite <ul style="list-style-type: none"> To design real-time applications with LabVIEW graphical programming Compatible with third-party hardware for reliable execution and a wide selection of I/O built-in PID control, signal processing, and analysis functions Including real-time operating system (RTOS), development and debugging support, and board support Software developer manuals for application programmer | 1No |
| 3 | LabVIEW FPGA Module <ul style="list-style-type: none"> To Graphically configure FPGAs on reconfigurable I/O (RIO) hardware targets Should facilitate defining custom control algorithms with loop rates up to 300 MHz Should facilitate executing multiple tasks simultaneously and deterministically Should be able to implement custom timing and triggering logic, digital protocols, and DSP algorithms Should support Incorporation of existing HDL code and third-party IP including Xilinx CORE Generator functions Should be usable with FPGA cards that can be purchased as additional modules that can be fit into the same chassis of the system containing the other I/O interfaces as mentioned in Section 1.2.1 and 1.2.2 Software Developer Manuals | 1No |
| 4 | LabVIEW core 1 and core 2 , 7 working days hands on training for four persons | 1 lot |
| 5 | Software package updates and technical support for 3 years | 1 lot |