

Date : 19-05-2015

TENDER FORM

Sub:- MODERNISATION OF POLICE FORCE -Tender Document
for Supply, Installation and Maintenance of Digital VHF
Wireless Equipments.

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Additional Director General of Police, Communication, Logistics & Modernisation, Bangalore invites tender in two cover system for selection of supplier for Supply Installation and Maintenance of Digital Wireless Equipment under Modernization of Police Force Scheme through e-procurement portal of Government of Karnataka (<https://eproc.karnataka.gov.in>). Prospective suppliers willing to participate in this tender shall necessarily register themselves with above mentioned e-procurement portal. Tender bids will be considered on total solution as the Lowest Bidder (L1).

Sl. No.	Particulars	Qty.
1.	Digital VHF Static sets with display, 40 bits and above In built Encryption, IP Site connect capability and DTMF Key pad, 3dB Fiber Glass Omni Direction antenna with 30 meter RF cable RG-213 and other accessories (excluding GPS).	225 Nos.
2.	Digital VHF Mobile sets with display, GPS, 40 bits and above In built Encryption, IP Site connect capability with DTMF Key pad and other accessories with 0db mobile whip antenna.	225 Nos.
3.	Digital VHF Handheld sets with GPS , display,40 bits and above In built Encryption , IP Site connect capability (Including High capacity battery 2000 mAh and above Li-ion/Li-polymer Battery) and all accessories & DTMF Keypad.	600 Nos.
4.	Spare High capacity batteries 2000 mAh and above Li-on/Li-Polymer Batteries.	1200 Nos.
5.	Digital VHF Repeater 45watts and above with inbuilt / external IP Site connectivity & 6dB gain Fiber Glass Omni Direction antenna with 45 meter RF Cable RG217	30 Nos.
6	Programming kit with software and cable for walkie-talkies	6 Nos.
7	Programming kit with software and cable for mobile sets	4 Nos.
8	Programming kit with software and cable for digital Repeater	4Nos.
9	GPS/AVLS Dispatch console with soft ware and GIS map for Bangaluru Rural, Belagavi and Mysore districts (Map scale 1:10000)	3 Nos.
10	Microwave Radio link for Digital Repeater in pair (Complete set).	15 Nos.
11	a) User Manual with each radio and other equipments should be provided at free of cost in soft as well as hard copy b) Technical Repairing (Service) Manual with complete block diagram with circuit layout, etc., should be provided both in soft and hard copies 2 sets each for Static/Mobile Radio, Handheld Radio, Repeater, GPS / AVLS Messaging System and Microwave Radio link	1 Lot.

The detailed specifications for the above equipment are given in Annexure-'A'

(i) Technical bid & (ii) Commercial bids. The technical bid should contain technical literature and certificates. The commercial bid should contain only the cost. The last date and time for submission of tenders is as shown on e-Procurement portal. The opening of technical bid will be held at this office on the date as mentioned in e-Procurement portal.

1. ELIGIBILITY CRITERIA

- i. The Tenderer/ OEM should be in business for more than 3 years as on 31.03.2015
 - This should be supported by the certificate of Registration issued under the Companies Act by a competent authority.
- ii. The Annual turnover of the Tenderer/ OEM should be a minimum of Rs. 8.92 crores for each of the two preceding financial years out of three years duration.
 - This should be supported by audited balance sheet of the Company duly audited by the Chartered Accountants for the financial years 2012-13 to 2014-15 (Annexure - 'G')
- iii. The Tenderer/ OEM should have a net worth of a minimum of Rs.4.46 crores assets for the preceding years i.e., for 2012-13 to 2014-15
 - This should be supported by the Annual Report of the Company for the 3 preceding financial years. (Annexure - 'G')
- iv. The Tenderer should furnish the Profit & Loss account for the last three preceding years. This should be supported by the copies of Profit & Loss account for the company.
- v. The Tenderer / OEM should possess the latest ISO Certificate.
- vi. The Tenderer/ OEM should have executed / implemented similar projects having at least one order of a minimum of Rs 3.56 Crores in one of the two preceding financial years in any State /Central Govt. Nationalised Banks/ any other State or Central undertakings and Corporations or any other institutions inside / outside India. The Tenderer/ OEM should furnish the information supported by certificates from the clients.
- vii. The Equipments offered or proposed to be supplied are most recent series models incorporating the latest improvement in design and must have been in satisfactory operations for a period of not less than 6 months on the date of tender opening.
- viii. The Tenderer/ OEM should be the manufacturer/developer of said system /software in case of Indian brands.

OR

If the Tenderer/ OEM is quoting on behalf of OEM/OSD (Original system Manufacturer/ Original Software Developer) brand system, the Tenderer/ OEM shall be an authorised distributor of the brand and should be in legal agreement. The Tenderer/ OEM should give an undertaking in writing in the company's letterhead duly signed by the authorised representative at the time of submission of the tender that in case the tender is awarded in favour of the Tenderer/ OEM, it will produce a legal agreement between the Tenderer/ OEM and the OEM/OSD for a minimum period of three years from the date of award of the contract. Failure to produce such an agreement will result in cancellation of the order.

- ix. The Tenderer/ OEM should ensure support for at least 8 years for the products quoted by him.
 - x. The Tenderer/ OEM should also give an undertaking in the form of an affidavit that the System/Software supplied by the vendor is genuine and does not contain/ used or any refurbished parts. (Annexure - 'K').
 - xi. The Tenderer/ OEM should possess the Dealer License for the wireless equipments from WPC, MOIC Govt. of India and copy of the same should be furnished.
2. The Tenderer/ OEM should enclose the support centre details as in Annexure 'J' along with technical bid.

Note: The Tenderer/ OEM shall furnish, as part of its tender, documents establishing the eligibility and conformity to the tender documents of all goods and services, which the Tenderer/ OEM proposes to supply under the contract.

The documentary evidence of conformity of the goods and services to the tender documents may be in the form of literature, drawings and data, and shall consist of;

- (a) a detailed description of the essential technical and performance characteristics of the equipments;
- (b) a list giving full particulars, including available sources, spare parts, special tools, etc., necessary for the proper and continuing functioning of the entire system for a period of 8 years, following commencement of the use of the equipments by the Purchaser; and
- (c) an item-by-item description on the Purchaser's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.
- (d) a confirmation that, if the Tenderer/ OEM offers equipment/ software and/or other equipment/ software manufactured by another company, such equipment/software operates effectively offered by the Tenderer/ OEM ; and the Tenderer/ OEM is willing to accept responsibility for its successful operations; and
- (e) a confirmation that the Tenderer/ OEM is either the owner of the Intellectual Property Rights in the Equipment/software and equipment/software items offered, or it has the proper authorisation and/or license from the owner to offer them.
- (f) Demo of the product: The demo should be given on no cost no commitment basis at the indenter discretion.**
 - i) Demo should be given within 15 days from the date of opening Technical bid.
 - ii) The Tenderer/ OEM bidding for all the items should provide 3 repeaters with IP site connectivity hardware and software,
 - iii) 3 base station / mobile radios
 - iv) 3 Handled Portable radios
 - v) The bidders should furnish the DMR Association mandatory and optional Interoperability Certificate and also arrange Demo accordingly.

Note: a) The Tenderer should demonstrate all the analogue technical parameters and

digital features alongwith IP connectivity for intersite operation.

b) The tenderer should furnish the test certificates of any Govt. accredited lab or National Accreditation Board for Testing and Calibration Laboratories (NABL) approved laboratory or International Corporation approved laboratory for the DMR equipments offered in the tender.

c) The tenderer should also produce OEM test certificates for the offered DMR Radios.

vi) The firm should give the technical specification demonstration of their equipment as above for field performance and evaluation after opening of the Technical Bid. (These items will be returned to the firms after the finalization of the tender)

(g) Willful misrepresentation of these facts will lead to the Disqualification of Tenderer/ OEM without prejudice to other remedies that the Purchaser may take.

3. Earnest Money Deposit.

EMD of Rs. 8,92,000/- (Rupees Eight Lakhs Ninety Two Thousand only) which shall be paid online through any of the following 4 modes a) Credit Card, b) Direct Debit, c) National Electronic Fund Transfer (NEFT) and d) Detail of the payment modes as mentioned in the bid document (e-payment document available on website)

The EMD will remain valid for a period of 180 days from the date of submission of Tender. Unsuccessful Tenderer/ OEM 's tender securities will be discharged / returned as early as possible.

The EMD will be forfeited: If a Tenderer/ OEM

- i. does not accept the correction of arithmetical errors resulting in discrepancy between unit price and total price (unit price multiplied by Quantity)
Or
- ii. The successful Tenderer/ OEM , fails to furnish performance security and fails to execute the agreement/contracts
- iii. Fails to furnish Certificate of registration of the company issued under the companies Act.
- iv. Fails to furnish Audited balance sheet of the company duly audited by chartered accountants for the financial years 2012-13 to 2014-15 Annexure-'G'.
- v. Fails to furnish Annual report of the company for the years 2012-13 to 2014-15 Annexure - 'G'.
- vi. Fails to furnish Financial status of the Company. Annexure - 'G'.
- vii. Fails to furnish list of similar projects executed / implemented Annexure - 'H'.
- viii. Fails to submit legal agreement between Tenderer/ OEM (If Tenderer is not an OEM/OSD) or an undertaking from the Tenderer/ OEM to produce the legal agreement between the Tenderer/ OEM and the OEM/OSD for a period of five years in case the tender is awarded in favour of Tenderer/ OEM .
- ix. Fails to submit Authorised dealer/distributor certificate of the brand quoted if the Tenderer/ OEM is not an OEM/OSD.

- x. Fails to furnish undertaking from the OEM/OSD in case of contract being terminated between the Tenderer/ OEM and the OEM/OSD (If Tenderer/ OEM is not an OEM/OSD) accepting full responsibility and liabilities for the contract obligation and to undertake that he will not sub contract the same in the above circumstances. This is mandatory. Non-production of such undertaking will amount to disqualification and rejection of the tender.
 - xi. Fails to furnish Support Centers in Karnataka. Annexure - 'J'.
 - xii. Fails to give undertaking in the form of affidavit. Annexure - 'K'.
 - xiii. Fails to furnish technical specification / data sheet /Compliance. A soft copy should be provided showing the compliance against the tender specification. Any deviation in the specification should be clearly mentioned compulsorily.
4. Documents to be enclosed:
- (a) With Technical Bid –Bidder shall upload all the relevant documents as mentioned in the Bid document.
 - (b) With Financial Bid - only commercial quote as per Annexure - 'B'.
Shall be quoted through e-procurement portal only and quote shall include all other necessary items to complete the projects which, have not been shown in Annexure-B also be included.
- Note: 1) Each page of the tender document shall be signed and seal affixed properly by the Tenderer/ OEM .
- 2) The Tenders of the companies which do not comply with the enclosures mentioned vide EMD Clause and SI.No.4 will summarily be rejected.
5. Following shall be the terms and conditions for the tender:
- (a) i) PRICE: -The price quoted shall include excise duty & Value Added Tax (VAT) if applicable. However, the breakup of amount of excise duty \and Value Added Tax (VAT) shall also be mentioned separately. If a change in excise duty / tax occurs in future, the same should be reflected in the landed price & the vendor shall intimate the Office of the Superintendent of Police, Wireless, Bangalore immediately. If the prices are revised downwards or if the vendor supplies the equipment to any organization, at a price lower than the quoted price, then the price would automatically stand revised to that lower price. If the vendor supplies the equipment at a lower than the quoted price to others and does not intimate Office of the Superintendent of Police, Wireless, No.1, M.G. Road, Bangalore, of that lower rate, then the vendor will be liable for blacklisting/disqualification.
 - ii) In case the successful bidder supplies, items after the finalization of the DGS&D R/c, lowest of the tender bid amount (quote) or the DGS&D R/c rate will prevail.
1.
 - (b) FREIGHT: - No separate charges are payable for freight, forwarding insurance and installation.
 - (c) WARRANTY:- Warranty of the all the equipment shall be for 2 years from the date of acceptance, after installation. During the period of warranty the equipment shall be maintained free of cost and kept in full working condition. Service calls shall be attended within 24 hours for the system and 48 hours for each equipment.

- (d) **ANNUAL MAINTENANCE CONTRACT [AMC]:** it is compulsory that the vendors should quote for 5 years AMC as optional item year wise(after warranty period) which will not be considered for L1 bid (lowest Bid) during the commercial bid evaluation.
- (e) **PRE-DISPATCH INSPECTION:-** Pre Dispatch Inspection of the equipment will be carried out for compliance with the specifications at the premises of the company or at user premises.
- (f) **DELIVERY, SUPPLY & COMMISSIONING:** Delivery, Supply shall be made within 120 days and Installation & Commissioning shall be completed within 150 days from the date of the supply order and on furnishing the operating license from the user department.
- (g) **DMR Open standard protocol certificate undertaking:** The vendor /Successful L1 bidder / OEM should furnish a undertaking on a bond paper stating that the system, solution and software proposed to be supplied is of DMR open standard protocol (ETSI) and it will work satisfactorily with other vendors / bidders open standard DMR equipments.(Mobile, Repeaters and Walkie-Talkies etc) for voice call and data calls. If it is found that the system, solution and software is not DMR open standard the purchaser has every right to take any action including legal action apart from confiscating the security deposit etc.
- (h) **LEVY OF PENALTY FOR DELAY IN SUPPLY OF TENDER ITEM:** In all the cases failure on the part of the supplier to deliver any or all the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as liquidated damages, a sum equivalent to 0.5% of the delivered price of the delayed goods or unperformed services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of 10% of the contract price. Once the maximum is reached, the purchaser may consider termination of the contract pursuant to general conditions of contract.
- (i) **PAYMENT:** - 70 % payment on supply and 30% on successful completion of project and on our acceptance.
- (j) **INTEGRATION:-** It will be the responsibility of the vendor to integrate the equipment with software.
- (k) **VALIDITY:** - The Commercial bid & EMD should be valid for at least 180 days from the bid opening date.
- (l) **OTHERS:-** Supplies should be made as per standard specifications as specified in the tender. Any discrepancy will entail disqualification of the vendor. If specifications of items supplied by the vendor are lower than or different from the standard specifications, then the vendor will be liable for disqualifications and will be blacklisted.
- (m) **NON-PERFORMANCE PENALTY:-** In case the down time is more than 24 hours for the system and 48 hours for each equipment, penalty of Rs. 5000/-per day for the system and Rs 500/per day per Equipment will be imposed and supplier has to sign the Service Level Agreement to this effect.
- (n) Successful Bidder shall submit the signed Contract Form on a Rs.100/- Stamp paper

on intimation from the Superintendent of Police, Wireless, Bangalore. Annexure –E.

- (o) **PERFORMANCE SECURITY:-** Within 21 days of receipt of the supply order, the Supplier shall furnish Performance Security to the Purchaser for an amount of 10% of the total value of the order valid up to 180 days after the date of completion of performance obligations including Warranty obligations. In the event of any correction of defects or replacement of defective material during the Warranty period, the Warranty for the corrected/replaced material shall be carry the warranty till the expiry of contract as per service level agreement and the Performance Bank Guarantee for proportionate value shall be extended as per SLA Validity from date of acceptance.

The proceeds of the performance security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.

The Performance Security shall be denominated in the form of DD/Bank guarantee, issued by a nationalized /scheduled bank in the form provided in the tender documents or another form acceptable to the Purchaser.

The Performance Security will be discharged by the Purchaser and returned to the Supplier not later than 3 months following the date of completion of the Supplier's performance obligations, including any Warranty obligations.

On Failure of the successful Tenderer/ OEM to comply, the purchaser will initiate action to cancel the supply order and forfeit the earnest money deposit.

- (p) The Supplier shall provide free training to 20 operator/ technicians for a period of 10 days in two batches in handling/ maintenance of Digital UHF Wireless equipments at our premises.
- (p) **Project Report :-** On successful implementation of the project. A project report giving technical details of the implementation with the description of the hardware and software programming and installation details shall be provided both in hard and soft copies of two sets each.
- (r) The supplier shall give in writing that the equipment maintenance spares/ service will be made available till the end of the life of equipment supplied (8 years/ term).
- (s) **CORRUPT OR FRAUDULENT PRACTICES**
The Government requires that Tenderer/ OEM s/ Suppliers/ Contractors observe the highest standard of ethics during the procurement and execution of Government financed contracts. In pursuance of this policy, the Government
- a. defines, for the purposes of this provision, the terms set forth as follows:
- i. "Corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and'
- ii. "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Government, and includes collusive practice among Tenderer/ OEM s (prior to or after tender submission) designed to establish tender prices at artificial non-competitive levels and to deprive the Government of the benefits of free and open

competition;

b. will reject a proposal for award if it determines that the Tenderer/ OEM recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

c. will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a Government financed contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a Government financed contract.

- (t) The supplier shall give in writing that the equipment maintenance spares/ service will be made available till the end of the life of equipment supplied (8 years/ term).
- (u) The Department, reserves the right either to accept or reject/cancel the Tender. The decision of the Department will be final.
- (v) The purchaser reserves to right at the time of contract award to increase or decrease by upto 25% of the quantity of goods and services originally specified in the schedule of requirement without any change in unit prices and other terms and condition.
- (w) After finalization of tender, order will be placed with the approved Tenderer/ OEM . If this Tenderer/ OEM fails to supply and commissioning of the equipment within the specific period, the department may resort to cancellation of the said order and to place order with next lowest Tenderer/ OEM . In such an eventuality, the defaulting firm/ Tenderer/ OEM will be required to make good any loss which the Department may incur besides paying specified penalty.
- (x) The Tenderer/ OEM s should bear the testing charges if any, which will be intimated at a later date. The Tenderer/ OEM should make his own arrangements to deliver the sample to the said destination.
- (y) The courts of Bangalore shall alone have jurisdiction for any dispute arising out of or in respect of the contract.

Sd/-

Additional Director General of Police,
Communication, Logistic & Modernisation,
Karnataka State, Bangalore &
Tender Inviting and Opening Authority

**TECHNICAL SPECIFICATION FOR DIGITAL VHF RADIO SYSTEM FOR
KARNATAKA STATE POLICE**

(As per Ministry of Home Affairs, GOI, New Delhi Technical Specifications)

It is proposed to deploy VHF Digital Radios system for Karnataka State Police. The proposed Digital System will comprise of Digital VHF Mobile, Static, Portable Walkie-Talkies and Repeaters for increasing the coverage area.

It is desirable to have coverage for the entire District jurisdiction. The Tenderer/ OEMs are requested to study the same and propose a suitable configuration.(It is proposed three districts namely ,Bangaluru rural, Belagavi and Mysore districts)

The proposed system should work in digital / analog mode automatically, compatible to the existing system in order to have a smooth and phased migration to the digital system. The system should be so designed in order that the existing radios should be able to receive and transmit Voice and Individual ID's for continuous operation.

The Digital Radio system should be confirming to DMR OPEN STANDARD / PROTOCOL floated by ETSI will be preferred. Vendors should provide supporting documents to this effect.

- A. The Digital System should be capable of offering both Data and Voice Services across the State.
- B. Data Services i.e Short Messaging should be possible with this system with Mobile, Static and Portables to have seamless SMS, E-mail, and Voice from one control room to another across the State.
- C. All the Portable, Base Station, Mobile and Repeater should have individual ID and should have "Group Call", "Individual Call", "Broadcast Call" and Selective Call features and each Mobile / Portable should have option to migrate into any of the group by change of parameter/ switch/ button.
- D. Each Portable/ Mobile should be capable of seamless connectivity for inter city/ district communication through IP connectivity.
- E. Each Radio should work both on Analog/ Digital mode automatically depending up on the type of signal received.
- F. The system should have capability to Remote Kill of a stolen radio.

Trail Directive for Digital VHF Handheld Transreceiver

1. All parameters / specifications mentioned in QRs will be checked by Board of officers. by ascertaining / verifying following checks in the presence of firms representative .
2. i) **Physical Checks:-** In this category specification of the equipment will be checked physically as per QRs.
 ii) **Functional Checks:-** Firm will show all the features / configuration of the equipment to the board of officers during trails.

Specifications for Digital Handheld Transreceiver (Walkie-Talkie) VHF High Band

Sl. No.	Specification	Qualitative Requirement	Trail/ Test Procedure	Bidders Compliance
A :- General				
1.	Frequency Range	136 MHz to 174 MHz, (Full Band)	Functional check ; B.O.O will check operation of radio set by programming lowest, highest and any random frequency in 136-174 MHz range with the help of measuring instruments.	
2.	No. of Channels	255 or higher	B.O.O will check all these parameters one by one with the help of standard testing instruments. If the standard test instruments are not available then firm must produce certificate of any Govt. accredited lab or National Accreditation Board for Testing and Ca-libration Laboratories (NABL) approved laboratory or International Laboratory Accreditation Corporation (ILAC) approved laboratory.	
3.	Channel Spacing	12.5 KHz, or better		
4.	Frequency Stability	± 1.5 PPM or better		
5.	Protocol & technology	Digital TDMA technology. [DMR as per ITU recommendations, ITU-R, M-2009]		
6.	Type of Emission (Modulation)	Analogue : 11KOF3E Digital : 4 FSK or equivalent technique complying to open standard / non proprietary Digital protocol as defined by an international standards body like ETSI / FCC etc.,		
7.	Type of Operation	Simplex, , Press to Talk	Simplex means set either work in receive mode or in transmit mode. Same will be checked practically.	
8.	Type of Antenna	Rugged flexible Helical Antenna.	B.O.O will check Physically and Practically to assess fitment, flexibility & ruggedness of antenna.	
9.	Weight	Less than 450 gms. with battery	B.O.O. will check practically to measure weight by weighing machine.	
10.	Power Source (Operational Power Source, but items are not required)	Ni-Mh or Lithium- Ion or Li-Polymer Battery Pack of 2000 mA H or more with belt clip (Bidder shall mention DC Voltage and	Physical check to assess type, make & capacity of battery and it should be as per Specification. In addition Firm must produce certificate of any Govt. accredited Lab. or NABL or ILAC approved	

		chemistry)	laboratory.
11.	Protection	i) Reverse Polarity Protection ii) Protection against High VSWR	i) B.O.O will check it by connecting Radio set with DC supply in reverse polarity and switch the set to "ON" position. There should not be any harm to the Radio Set. ii) B.O.O will check by switching "ON" Radio set and removing antenna/ dummy load and PIT be pressed. In such a condition there should not be any harm to the Radio Set.
B :- Transmitter			
1.	RF Power Output	1/5 Watt(Programmable / selectable)	B.O.O will check in the entire frequency range mentioned in the QR with the help of standard testing instruments. If the standard test instruments are not available then firm must produce certificate of any Govt. accredited lab or National Accreditation Board for Testing and Calibration Laboratories (NABL) approved laboratory or International Laboratory Accreditation Corporation (ILAC) approved laboratory.
2.	FM Hum Noise	- 40 dB or better	
3.	Modulation limiting	±2.5 KHz @ 12.5 KHz	
4.	Adjacent Channel Power	- 60 dB or better	
5.	Audio Distortion	Less than 3%	
C :- Receiver			
1.	Sensitivity	i) Analogue – 0.30 μ V for 12 dB SINAD or better ii) Digital - 0.30 μ V @ 5 % BER or better	B.O.O will check in the entire frequency range mentioned in the QR with the help of standard testing instruments. If the standard test instruments are not available then firm must produce certificate of any Govt. accredited lab or National Accreditation Board for Testing and Calibration Laboratories (NABL) approved laboratory or International Laboratory Accreditation Corporation (ILAC) approved laboratory.
2.	Selectivity (Adjacent Channel)	60 dB or better	
3.	Inter Modulation	60 dB or better	
4.	Audio Output	500 mW	
5.	Audio Response	+1, -3 dB	
6.	Rated Audio Distortion	Less than 3%	
D :- Environmental Specifications			
1.	Operating Temperature Range	-30 ° C to + 60 ° C	Firm must produce certificate of any Government accredited Lab. or NABL or ILAC approved laboratory.
2.	Storage Temperature	-40 ° C to + 70 ° C	
3.	Humidity	Maximum 95 % @ + 40 ° C non condensing	
4.	Environmental standards i.e., Low and high temperature, Low pressure, temperature shock, solar radiation,	AS PER MIL 810 C,D,E,F	Firm must produce certificate of any Government accredited Lab. or NABL or ILAC approved laboratory.

	rain, salt, fog, vibration, dust and shock			
5.	Dust and water Intrusion	IP 57 or better	Firm must produce certificate of any Government accredited Lab. or NABL or ILAC approved laboratory.	
E :- Accessories				
1.	Battery Charger	Single unit smart charger (capable to charge Lithium Ion, Lithium-Polymer, Ni-mh batteries)	B.O.O will check it practically by charging the batteries from smart charger and note down whether the batteries are charge properly or otherwise.	
2.	Hand free Kit (VOX unit with PTT) (Optional)	The vendor should provide minimum of two variants for trails	Check Practically by connecting Hands free kit with radio set. By making voice call Radio set should start transmission without pressings PTT. On 'on speech' Radio set should switch automatically to reception mode.	
3.	Programming Kit	All necessary Software and Hardware required for Programming the set.	Check practically to assess that all necessary software and hardware required for programming of the set is available and working properly.	
4.	Literature	<ul style="list-style-type: none"> i. User manual with each Radio should be provided at free of cost in soft as well as hard copy ii. Technical repairing manual with complete block diagram with circuit layout etc., should be provided as per users requirement in soft and hard copy. 	Physically check to confirm that User and Technical manual are available in Hard as well as in Soft Copy.	
5.	Battery	Two extra Lithium Ion or Ni-Mh or Li-Polymer batteries with each Radio set.	Physical/Practical check to assess that extra battery is as per specification, compatible with Radio set and working properly.	
F :- Configuration				
1.	Caller ID Display	should be available	B.O.O will check it by programming two radio sets on same frequency and different ID. Make call from one radio and check display in another radio set, ID of caller radio should be displayed	
2.	Facility for locking channel or keypad locking	should be available	Program locking channel or key pad facilities in radio set and check whether the channel or key Pads locked or otherwise.	
3.	Scan with priority	should be available	Radio sets programmed with priority scanning on pressing the scan button, will starts scanning	

			channels with the priority.	
4.	Transmitter Time Out Timer (TOT) Operation	The time should be programmed to best suit the application	PTT of Radio set pressed continuously. Radio set comes automatically in reception mode after completion of time programmed for TOT option.	
5.	LCD Display	should be available	Practical /Physical check by switching on the radio set, there should be display on the LCD screen.	
6.	Mode of calls	Selective Call, Group Call, inter and intra group call facilities	B.O.O. will check it practically by making call.	
7.	Remote Radio Kill/, Stun / Revive Facility.	should be available	B.O.O. will check it practically by sending kill command to particular radio. Radio set received kill command will get killed. Similarly, Set should revive if we send the revive command to killed radio.	
8.	Mode of operation	Radio should operate in analogue mode and digital mode. (Compatible with all existing all types of VHF analogue radios sets viz., Motorola, ICom, Vertex, Kenwood etc.),	B.O.O will be check practically by making call from existing analog sets to digital set after setting it in Analog mode and vice -versa. For checking interoperability with existing digital radio system, if available, make calls between them and the proposed radio sets (in digital mode) and verify. Proper communication should happen if both digital radio systems are based on same technology.	
9.	Emergency Button	Allow the user to obtain help in critical situation.	B.O.O. will check it practically by pressing emergency button.	
10.	SMS texting	should be capable of sending pre defined messages and short messages from keypad	B.O.O. will check it practically by sending pre-defined messages from one radio to another. Message should be displayed on the screen of receiving radio.	
11.	Programming	Front panel programming with password protection or PC programming	B.O.O. will check it practically by programming radio from front panel having password Protection. Similarly, Board will also program radio with the help of PC. Radio set should be programmed from front panel as well as from PC also.	
12.	DTMF Front panel keypad with backlit	should be available	B.O.O. will check it Physically/ Practically that radio set is having DTMF key pad with back lit.	
13.	Battery Strength bar	should be available	B.O.O. will check it practically that battery strength bar indicates the strength bar as increasing decreasing when battery is charged/ discharged.	

14.	Support GPS	Inbuilt GPS system with accuracy of less than 10 Mtrs.(only for the mobile radios)	Firm will demonstrate features related with GPS, GIS and networking mentioned at F14 to F15.
15.	GIS	Radio should have application protocol interface along with software applications to provide locations and messaging on PC/Console.	
16.	Networking	Should IP based for automatic roaming etc., (Optional – as per user requirement)	
G :- Field trail		The actual performance of the radio set will be assessed	Field trial of equipment will be conducted by a Board of Officers in the operational 'area of the force in the presence of Vendor/ representative of firms to ascertain the user satisfaction before the proposal is accepted. Radio equipment with all required accessories will be provided by the participating firm's on "No Cost No Commitment" basis at the indenter discretion.

Trail Directive for Digital VHF Mobile Transreceiver

1. All parameters / specifications mentioned in QRs will be checked by Board of officers. by ascertaining / verifying following checks in the presence of representative of Firm.
2. i) **Physical Checks:-** In this category specification of the equipment will be checked physically as per QRs.
 ii) **Functional Checks:-** Firm will show all the features / configuration of the equipment to the board of officers during trails.

Specifications for Digital Static (Base) / Mobile Transreceiver VHF High Band

Sl. No.	Specification	Qualitative Requirement	Trail / Test Procedure	Bidders Compliance
A :- General				
1.	Frequency Range	136 MHz to 174 MHz, (Full Band)	Functional check ; B.O.O will check operation of radio set by programming lowest, highest and any random frequency in 136-174 MHz range with the help of measuring instruments.	
2.	No. of Channel	255 or higher	B.O.O will check all these parameters one by one with the help of standard testing instruments. If the standard test instruments are not available then firm must produce certificate of any Govt. accredited lab or National Accreditation Board for Testing and Ca-libration Laboratories (NABL) approved laboratory or International Laboratories Accreditation Corporation (ILAC) approved laboratory.	
3.	Channel Spacing	12.5 KHz or better		
4.	Frequency Stability	+/- 1.5 PPM or better		
5.	Protocol & Technology	Digital TDMA technology. [DMR as per ITU recommendations, ITU-R, M-2009]		
6.	Type of Emission	Analogue : 11KOF3E Digital : 4 FSK or equivalent technique complying to open standard / non proprietary Digital Protocol as defined by an international standards body like ETSI / FCC etc.,-	B.O.O will check all these parameters one by one with the help of standard testing instruments. If the standard test instruments are not available then firm must produce certificate of any Govt. accredited lab or National Accreditation Board for Testing and Ca-libration Laboratories (NABL) approved laboratory or International Laboratories Accreditation Corporation (ILAC) approved laboratory.	
7.	Type of Operation	Simplex, , Press to Talk	Simplex means set either work in receive mode or in transmit mode. Same will be checked practically.	
8.	Weight	Less than 2000 grams	B.O.O will check Physically and Practically to assess fitment, flexibility & ruggedness of antenna.	

9.	Power Source (Operational Power Source, but items are not required)	13.8 Volt DC +/- 15%	Apply 13.8 Volt DC +/- 15% from power supply and check that whether set is working properly or otherwise.	
10.	Protection	i. Reverse Polarity Protection ii. Protection against high VSWR	i) B.O.O will check it by connecting Radio set with DC supply in reverse polarity and switch the set to "ON" position. There should not be any harm to the Radio Set. ii) B.O.O will check by switching "ON" Radio set and removing antenna/ dummy load and PIT be pressed. In such a condition there should not be any harm to the Radio Set.	
B :- Transmitter				
1.	RF Power Output	25 Watt Programmable / selectable	B.O.O will check in the entire frequency range mentioned in the QR with the help of standard testing instruments. If the standard test instruments are not available then firm must produce certificate of any Govt. accredited lab or National Accreditation Board for Testing and Calibration Laboratories (NABL) approved laboratory or International Laboratory Accreditation Corporation (ILAC) approved laboratory.	
2.	FM Hum Noise	-40 dB or better		
3.	Modulation Limiting	±2.5 KHz @ 12.5 KHz		
4.	Adjacent Channel Power	- 60 dB or better		
5.	Audio Distortion	Less than 3%		
C :- Receiver				
1.	Sensitivity	Analogue – 0.30 μV for 12 dB SINAD or better Digital - 0.30 μV @ 5 % BER or better	B.O.O will check in the entire frequency range mentioned in the QR with the help of standard testing instruments. If the standard test instruments are not available then firm must produce certificate of any Govt. accredited lab or National Accreditation Board for Testing and Calibration Laboratories (NABL) approved laboratory or International Laboratory Accreditation Corporation (ILAC) approved laboratory.	
2.	Selectivity (Adjacent Channel)	60 dB or better		
3.	Inter Modulation	70 dB or better		
4.	Audio Output	3 Watt or more		
5.	Audio Response	+1, -3 dB		
6.	Rated Audio Distortion	Less than 3%		
D :- Environmental Specifications				
1.	Operating Temperature Range	-30 ° C to + 60 ° C	Firm must produce certificate of any Government accredited Lab. or NABL or ILAC approved laboratory.	
2.	Storage Temperature	-40 ° C to + 70 ° C		
3.	Humidity maximum	95% @ 40 ° C non- condensing		
4.	Environmental standards i.e., Low and high temperature, Low pressure, temperature	MIL Standard 810 C, D, E and F	Firm must produce certificate of any Government accredited Lab. or NABL or ILAC approved laboratory.	

	shock, solar radiation, rain, salt, fog, vibration, dust and shock			
5.	Dust and water intrusion	IP 54 or better	Firm must produce certificate of any Government accredited Lab. or NABL or ILAC approved laboratory.	
E :- Accessories				
1.	Microphone	DTMF microphone should be supplied with radio	B.O.O will check it practically that DTMF Microphone supplied with radio is working properly.	
2.	Battery Cable and mounting fixture	should be supplied with Radio	Physically check by connecting battery cable & mounting fixtures with radio.	
3.	Antenna	<p>i. 0 dB Gain Whip Antenna with 3 meters co-axial cable with suitable connector magnetic base / mounting bracket for vehicle use will be provided as per user's requirements.</p> <p>ii. 6 dB Fiber glass Omni Directional Antenna with 30 meters RF cable for base station will be provided as per user's requirements</p>	Physically check by connecting antenna with all its accessories with radio set and check serviceability whether antenna matched or not.	
4.	Programming Kit	All necessary Radio Programming Software and Hardware required for the set will be provided as per user's requirements.	Practically check to assess that all necessary software and hardware required for programming are available and working properly.	
5.	Literature	<p>i. User manual with each Radio should be provided at free of cost in soft as well as hard copy</p> <p>ii. Technical repairing manual with complete block diagram with circuit layout etc., should be provided as per users requirement in soft and hard copy.</p>	Physically check to confirm that User and Technical manual are available in Hard as well as in Softcopy.	
F :- Configuration				
1.	Caller ID Display	should be available	By Programming two radios sets with same frequency and different ID. And Making call from one radio and check display in another radio set, ID of caller radio should be displayed.	
2.	Busy channel Lockout	should be available	Programmed one radio with busy channel lock out option and make call from another radio on same frequency. In the mean time if we want to make call from first radio, its transmitter will remain disable	

			till PTT of second radio is released.	
3.	Scan with priority	should be available	Radio sets programmed with priority scanning on pressing the scan button will start scanning channels with the priority.	
4.	Transmitter Time Out Timer (TOT) Operation	The Time should programmed to best suit the application	PTT of Radio set programmed with TOT option be pressed continuously. Radio set comes automatically in reception mode after completion of time programmed for TOT option.	
5.	LCD Display	should be available	Practical/Physical check by switching on the radio set, there should be display on the LCD screen.	
6.	Mode of calls	Selective Call, Group Call, inter and intra group call facilities	B.O.O. will check it practically by making call.	
7.	Remote radio Kill,/ Stun/ Revive Facility,	should be available	B.O.O. will check it practically by sending kill command to particular radio. Radio set received kill command will get killed. Similarly, Set should revive if we send the revive command to killed radio.	
8.	Mode of operation	Radio should operate in analogue mode and digital mode. (Compatible with all existing all types of VHF analogue radios sets viz., Motorola, ICom, Vertex, Kenwood etc.,)	B.O.O will be check practically by making call from existing analog sets to digital set after setting it in Analog mode and vice -versa. For checking interoperability with existing digital radio system, if available, make calls between them and the proposed radio sets (in digital mode) and verify. Proper communication should happen if both digital radio systems are based on same technology.	
9.	Emergency Button	Allow a user to obtain help in critical situation.	B.O.O. will check it practically by pressing emergency button.	
10.	SMS texting	Should be capable of sending pre defined messages and short messages from keypad as optional	B.O.O. will check it practically by sending pre-defined messages from one radio to another. Message should be displayed on the screen of receiving radio.	
11.	Programming	Front panel programming with password protection or PC programming	B.O.O. will check it practically by programming radio from front panel having password Protection. Similarly, Board will also program radio with the help of PC. Radio set should be programmed from front panel as well as from PC also.	

12.	Support GPS	Inbuilt GPS system with accuracy of less than 10 Mtrs.(only for the mobile radios)	Firm will demonstrate features related with GPS, GIS and networking mentioned at F12 to F13.	
13.	GIS	Radio should have application protocol interface along with software applications to provide locations and messaging on PC/Console.		
14.	Networking	Should be IP based for automatic roaming etc., (Optional – as per user requirement)		
G:-	Field trail	The actual performance of the radio set will be assessed	Field trial of equipment will be conducted by a Board of Officers in the operational 'area of the force in the presence of Vendor/ representative of firms to ascertain the user satisfaction before the proposal is accepted. Radio equipment with all required accessories will be provided by the participating firm's on "No Cost No Commitment" basis at the indenter discretion.	

Trail Directive for Digital VHF Repeater

1. All parameters / specifications mentioned in QRs will be checked by Board of officers. by ascertaining / verifying following checks in the presence of representative of Firm.
2. i) **Physical Checks:-** In this category specification of the equipment will be checked physically as per QRs.
ii) **Functional Checks:-** Firm will show all the features / configuration of the equipment to the board of officers during trails.

Specifications for Digital Repeater VHF High Band

Sl. No.	Specification	Qualitative Requirement	Trail / Test Procedure	Bidders Compliance
A :- General				
1.	Frequency Range	136 MHz to 174 MHz, Full Band	Functional check ; B.O.O will check operation of radio set by programming lowest, highest and any random frequency in 136-174 MHz range with the help of measuring instruments.	
2.	No. of Channels	16 or more	B.O.O will check all these parameters one by one with the help of standard testing instruments. If the standard test instruments are not available then firm must produce certificate of any Govt. accredited lab or National Accreditation Board for Testing and Ca-libration Laboratories (NABL) approved laboratory or International Laboratory Accreditation Corporation (ILAC) approved laboratory.	
3.	Channel Spacing	12.5 KHz or better		
4.	Frequency Stability	± 1.5 PPM or better		
5.	Protocol & technology	Digital TDMA technology. [DMR as per ITU recommendations, ITU-R, M-2009]		
6.	Type of Emission (Modulation)	Analogue : 11KOF3E Digital : 4 FSK or equivalent technique complying to open standard / non proprietary Digital protocol as defined by an international standards body like ETSI / FCC etc.,	B.O.O will check all these parameters one by one with the help of standard testing instruments. If the standard test instruments are not available then firm must produce certificate of any Govt. accredited lab or National Accreditation Board for Testing and Ca-libration Laboratories (NABL) approved laboratory or International Laboratory Accreditation Corporation (ILAC) approved laboratory.	
7.	Weight	Less than 15 Kgs.	B.O.O will check Physically to measure the weight by weighing machine.	
8.	Power Source (Operational Power Source, but items are not required)	1) 13.8 Volts DC +/- 15% 2) 230 Volts AC +/- 15% 50Hz 3) There should be provision to shift automatically on DC supply during mains failure and when mains supply restored. It should be shifted on mains from DC supply	Apply 230 Volts AC +/- 15% and 13.8 Volt DC +/- 15% one by one and check that whether set is working properly or otherwise.	
9.	Protection	i. Reverse Polarity Protection ii. Protection against high	i) B.O.O will check it by connecting Radio set with DC supply in reverse polarity and switch the set to "ON"	

		VSWR	position. There should not be any harm to the Radio Set. ii) B.O.O will check by switching "ON" removing antenna/ dummy load and PIT be pressed. In such a condition there should not be any harm to the Radio Set.	
B :- Transmitter				
1.	RF Power Output	45 Watts or more (Programmable / selectable)	B.O.O will check in the entire frequency range mentioned in the QR with the help of standard testing instruments. If the standard test instruments are not available then firm must produce certificate of any Govt. accredited lab or National Accreditation Board for Testing and Calibration Laboratories (NABL) approved laboratory or International Laboratory Accreditation Corporation (ILAC) approved laboratory.	
2.	FM Hum Noise	-40 dB or better		
3.	Modulation Limiting	±2.5 KHz @ 12.5 KHz		
4.	Adjacent Channel Power	- 60 dB or better		
5.	Audio Distortion	Less than 3%		
C :- Receiver				
1.	Sensitivity	a) Analogue – 0.30 μV for 12 dB SINAD or better b) Digital - 0.30 μV @ 5 % BER or better	B.O.O will check in the entire frequency range mentioned in the QR with the help of standard testing instruments. If the standard test instruments are not available then firm must produce certificate of any Govt. accredited lab or National Accreditation Board for Testing and Calibration Laboratories (NABL) approved laboratory or International Laboratory Accreditation Corporation (ILAC) approved laboratory.	
2.	Selectivity (Adjacent Channel)	60 dB or better		
3.	Inter Modulation	70 dB or better		
4.	Audio Response	+1, -3 dB		
5.	Rated Audio Distortion	Less than 3%		
D :- Environmental Specifications				
1.	Operating Temperature Range	-30 ° C to + 60 ° C	Firm must produce certificate of any Government accredited Lab. or NABL or ILAC approved laboratory.	
2.	Storage Temperature	-40 ° C to + 70 ° C		
3.	Humidity maximum	Max. 95% @ 40 ° C non-condensing		
E:- Networking		should be capable to support IP site connects	Firm will show Networking and interfaces related function of repeater practically by connecting it in user organisation network.	
F:- Interfaces		Ethernet Port RJ-45 to provide. i) Wide area IP Connectivity for Voice and data ii) Remote monitoring and status check	Firm will show Networking and interfaces related function of repeater practically by connecting it in user organisation network.	
G :- Accessories				
1.	Battery Cable and mounting fixture	should be supplied with Repeater	B.O.O. will check it practically by connecting battery cable & mounting fixtures with repeaters.	

2.	Antenna	6dB Fibre Glass Omni Direction antenna with 45 mtrs RF cable, RG-217 for base station will be provided as per users requirement	B.O.O. will check it practically by connecting antenna & accessories with repeater. During transmission there should be no mismatch between radio and antenna.	
3.	Programming Kit	All necessary Programming Software and Hardware required for the set will be provided as per user's requirements.	B.O.O. will check it practically that all necessary programming software and hardware are available as per user requirement.	
4.	Literature	<ul style="list-style-type: none"> i. User manual with each Radio should be provided at free of cost in soft as well as hard copy ii. Technical repairing manual with complete block diagram with circuit layout etc., should be provided as per users requirement in soft and hard copy. 	B.O.O will check it Physically that user and technical manual are available as per user requirement.	
H:- Field trail		The actual performance of the radio set will be assessed	Field trial of equipment will be conducted by a Board of officers in the operational area of the force in the presence of Vendor/ representative of firms to ascertain the user satisfaction before the proposal is accepted. Repeater equipment with all required accessories will be provided by the participating firm's on "No cost No Commitment" basis at the indenter discretion.	

GPS/AVLS Dispatch console with messaging software with GIS Map

(Message dispatch console item No.9 as per page 1.)

Message dispatch console is an wireless and PC based dispatching application with reliable digital voice communication. With the help of message dispatch console dispatching and management such as voice, text message etc. It should have the following inbuilt features.

- 1) Kill /stun/revive
- 2) All types of voice calls i,e individual call, group call, broadcast call and emergency call.
- 3) Text messaging.
- 4) Remote Monitoring
- 5) Radio Status Monitoring
- 6) Voice recording.
- 7) Location tracking
- 8) Geo fencing.
- 9) Support Google / Vector map.

MICROWAVE RADIO LINK FOR DIGITAL VHF REPEATER

(Item No.10 as per page 1.)

- i. It proposed to link one or two digital VHF repeaters with the microwave link to provided ROIP facility at each repeater station. So that each individual mobile / portable radios can roam across the city to have seamless connectivity.
- ii. Microwave links proposed for city shall be point to point where the line of sight communication is available between the microwave links . The specification and configuration is as below;
- iii. The microwave links proposed to be installed at high rise buildings / hill features stations and the maximum height of the aerial mast shall be 10 mtrs on the top of the buildings / hill features stations.
- iv. Redundant power supply (UPS) only for the microwave link as per the details given in specification shall be provided. For the digital repeaters user department will provide the power supply.
- v. Lightening arrester / proper earthing should be included while proposing the microwave link for safe functioning of repeaters / microwave links.
- vi. Digital repeaters of Karnataka police Network needs to be interconnected with carrier grade microwave radios(MW) operating in unlicensed frequency band approved by Wireless Planning & Coordination Wing (WPC) of Department of Telecommunications(DOT) India
- vii. MW connectivity in 1+0 mode is required in multiple point to point configuration (MPTP)
- viii. System consisting of Outdoor & Indoor equipment having integrated antenna ,STP Cat5e cables with connectors ,system software and all other hardware& software required for operation, monitoring & configuration of the link
- ix. The system should be of reliable and field proven design and suitable for harsh environmental conditions ,outdoor unit of offered system should have metal casing with minimum IP67 rating.
- x. The system shall support Flexible Quality of Service (QOS) and concurrent use of voice & data applications.
- xi. Offered equipment should have ETA (Equipment Type Approval) issued by WPC in the name of bidder/OEM.
- xii. MW radios should meet or exceed following technical specifications.

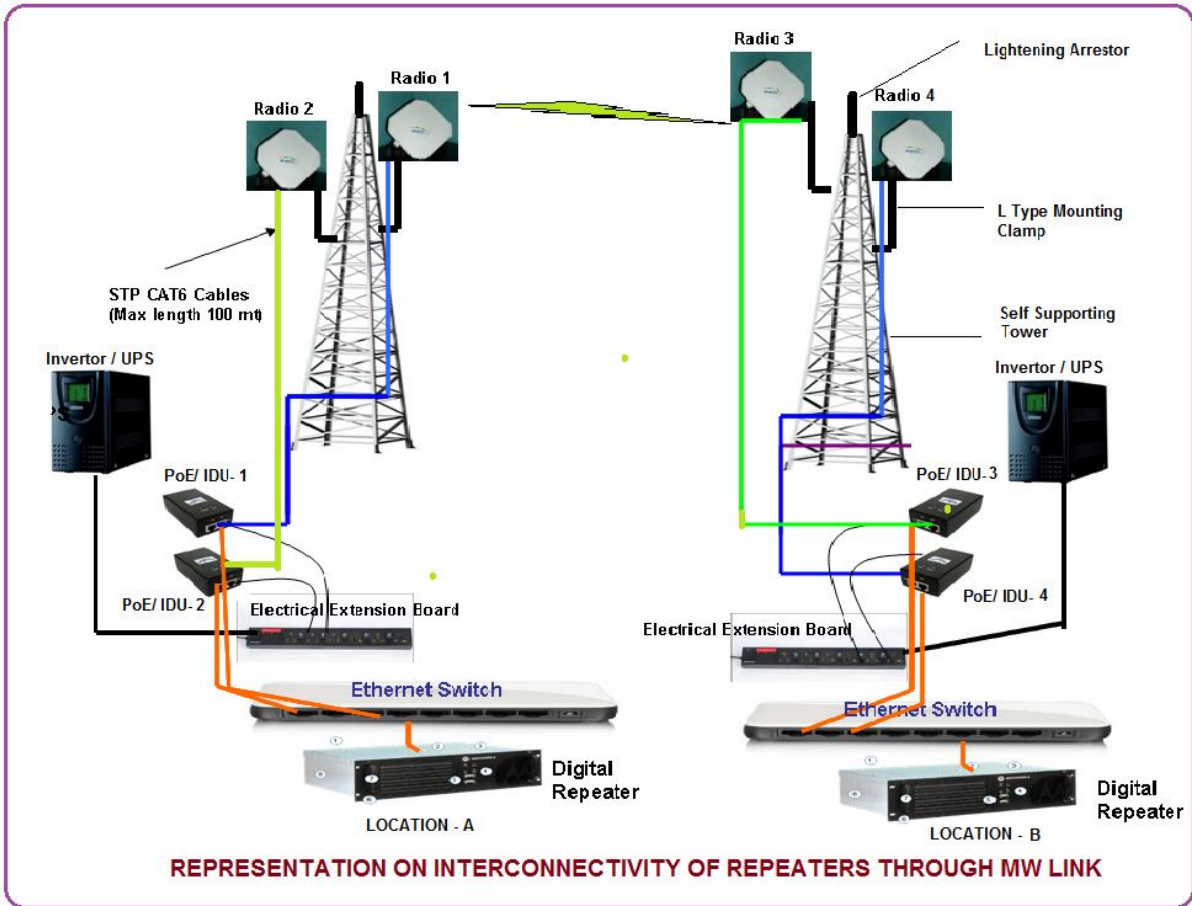
Technical Specifications

SL. No.	Specification	Compliance (Yes/No)	Remark
A	Radio Modem (ODU)		
1	Should work in ISM Unlicensed Frequency Band approved by WPC in India.Desired frequency band - 5.825-5.875 Ghz		
2	Channel Bandwidth - 10 Mhz, 20 MHz, 40 MHz		
3	Bandwidth: upto 14 Mbps Net and should be software upgradable upto 73 Mbps if required at later stage without the change of HW		
4	Max output power: upto 21 dBm		
5	Integrated Antenna : 21 dBi Gain, 10.5° horizontal x 10.5° vertical		
6	PPS > 30,000 Packets per second processing power each on the Base Unit & Subscriber Unit		
7	Data Standard Compliance : IEEE 802.3 CSMA/CD		
8	Modulation Scheme BPSK, QPSK, 16-QAM and 64-QAM with Forward Error Correction (FEC)		
9	Transmit power control - Automatic transmit power control		
10	Built in Spectrum analyzer		
11	Radio Technology – TDD OFDM		
12	Management Options: TELNET/ SNMP based/ NMS		
13	Remote Management: wired and wireless		
14	SNMP Agent: SNMP V1 Client, MIB II, Bridge MIB		
15	VLAN Support : Based on IEEE 802.1Q		
16	Security : 128 -bit authentication (AES and WEP or better), IP Level Filtering		
17	Power Consumption: not more than 25W		
18	Out door unit protection : IP67		
19	Operating temperature (i) Outdoor Unit : -40° to 55° C		
20	Regulation Standard Radio FCC part 15.247, FCC P15.407, ETSI: EN 302 502, EN 301 893 (1.3.1), EN 300 440-1/2, EN 300 328 Safety: UL 60950-1, EN 60950-1 EMC: FCC part 15 class B Lightning: EN 61000-4-5, Class 3 (2kV)		
21	Indicators Status, Ethernet and W-Link LEDs, SNR 10 LEDs bar indicator		
B	Indoor Unit (IDU)		

1	Input Power: 230 V AC at Input to IDU , it should be capable to provide PoE to ODU		
2	Operating temperature (ii) Indoor : 0° to 40° C		
3	Standard and Network Compliance - IEEE 802.3 CSMA/CD 1x 10/100BaseT		
4	Indoor-outdoor Cable CAT-5 shielded, 90m max		
5	Indicators Power, Link and Ethernet LED		
C	Implementation HW & Accessories		
1	Bidder should provide all accessories as per BOM given in the tender		
2	Mounting accessories suitable to offered radio system link C/L type mounting clamp to fix ODU on towers and Rack/Tray to mount IDU should be quoted & provided by the bidders		
3	Outdoor type Surge protector designed to provide protection for Power over Ethernet (POE) enabled devices against transient surge and static discharge should be quoted & provided by bidders		
4	Ruggedized and Outdoor Type STP CAT-5e Cable (100mtrs per radio) should be quoted & provided by bidders. The cables should be layed through flexible PVC conduit and it should be properly fixed with UV proof cable ties along the legs of tower		
5	UPS / Inverter/ float cum boost charger with Battery suitable to provide 3 hours backup to offered MW radio system should be quoted & provided by bidders		
D	IT & NW Hardware		
1	One No of desktop/ Laptop per repeater location should be quoted & provisioned for configuration & monitoring of MW radios		
2	16 Port Industrial type Ethernet switch should be quoted & provided at each repeater location		
E	TOWER		
	10 Mtrs Roof Top Type Self supporting lightweight triangular & tubular type tower with lightening arrestor, aviation lamp suitable to mount radio ODU/Antenna & repeater antennas should be quoted for each repeater location		

BILL OF MATERIAL

MICROWAVE LINK BREAKUP PER LINK : TO BE QUOTED FOR 15 SITES				
Sr.No.	Item Description	Offered Make-Model	Quantity	UoM
	<i>Microwave Radios per digital repeater Site</i> (Break up MW BOM for 1 repeater site is given accordingly MW for 15 sites should be considered and quoted by bidders)		1	Site
1	Outdoor radio unit with integrated or External Antenna		02	Nos
a	Indoor Unit (IDU-PoE)		02	Nos
2	C/L Type Radio/Antenna Mounting Clamps		02	Nos
3	Outdoor Type Ethernet Surge Arrestor		02	Nos
4	Outdoor Type STP CAT-5e Cable in Meters (100mtrs per radio)		200	Mtrs
5	Ethernet 16 Port Switch		1	Nos
6	Inverter/ UPS / float cum boost charger with Battery		1	Nos
7	Installation Kit (Each Kit comprises of following components)		01	Kit
a	Power extension Board with minimum 08 ports for connectivity		1	No
b	Metallic RJ-45 Connectors		10	Nos
c	UV Cable ties Box of 100 Nos Ties of (12") length		2	Boxes
d	Weather Proofing Kit		2	Kits
e	1" Flexible PVC Conduit		200	Mtrs
f	6 Sq mm Grounding Cable with 04 Nos ring type lugs		10	Mtrs
g	UTP Cat5 Patch cords (1 Mtr)		10	Nos
8	10 Mtrs Roof Top Type Self supporting lightweight triangular & tubular type tower with lightening arrestor, aviation lamp suitable to mount radio ODU/Antenna & repeater antennas		15	Nos
9	Laptop	For the complete project	3	Nos



COMMERCIAL BID

Tender No.

Tender date

Bill of Material with cost

Sl. No.	Items	Qty. in Nos.	Unit Price in Rs.	% of VAT in Rs.	Other Taxes if any	Total unit price in Rs.	Total Price	Bidders Compliance
		A	b	c	d	e = b+c+d	f = a x e	
1.	Digital VHF Static sets with display, 40 bits and above In built Encryption, IP Site connect capability and DTMF Key pad, 3dB Fiber Glass Omni Direction antenna with 30 meter RF cable RG-213 and other accessories (excluding GPS).							
2.	Digital VHF Mobile sets with display, GPS, 40 bits and above In built Encryption, IP Site connect capability with DTMF Key pad and other accessories with 0db mobile whip antenna.							
3.	Digital VHF Handheld sets with GPS , display,40 bits and above In built Encryption , IP Site connect capability (Including High capacity battery 2000 mAh and above Li-ion/Li-polymer Battery) and all accessories & DTMF Keypad.							
4.	Spare High capacity batteries 2000 mAh and above Li-on/Li-Polymer Batteries.							
5.	Digital VHF Repeater 45watts and above with inbuilt / external IP Site connectivity & 6dB gain Fiber Glass Omni Direction antenna with 45 meter RF Cable RG217							
6	Programming kit with software and cable for walkie-talkies							
7	Programming kit with software and cable for mobile sets							
8	Programming kit with software and cable for digital Repeater							
9	GPS/AVLS Dispatch console with soft ware and GIS map for Bangaluru Rural, Belagavi and Mysore districts (Map scale 1:10000)							
10	Microwave Radio link for Digital Repeater in pair (Complete set).							
11	c) User Manual with each radio and other equipments should be provided at free of cost in soft as well as hard copy							
	d) Technical Repairing (Service) Manual with complete block diagram with circuit layout, etc., should be provided both in soft and hard copies 2 sets each for Static/Mobile Radio, Handheld Radio, Repeater, GPS / AVLS Messaging System and Microwave Radio link							

DELIVERY : 120 days from the date of supply order

Warranty : Two years for all the equipments
from the date of acceptance.**Signature and seal**

Vendors shall quote for 5 year AMC which will be optional.

Any deviation from specification must be clearly mentioned.

Provide detailed presentation and documentation that will satisfy that your product meet all the required specification.

PRICE SCHEDULE FOR ANNUAL MAINTENANCE AND REPAIR COST**AFTER WARRANTY PERIOD**

Schedule No.	Item Description	Quantity	Annual Maintenance & Repair Cost for each unit per year Rs./Year	Total Maintenance charges for 3 years in Rupees	Bidders Compliance
A	B	C	D	E	F

Note: In case of discrepancy between unit price and total price, the unit price shall prevail.

The AMC prices / Quote will be optional.

Signature of the Tenderer: _____

Name : _____

Business Address: _____

Place:

Date:

SERVICE LEVEL AGREEMENT COPY

This agreement is entered into on this day -----

BETWEEN

Superintendent of Police, Wireless, Bangalore

and a company incorporated under the Companies Act, 1999 having its registered office at (hereinafter referred to as which expression shall, wherever the context so admits or requires, mean and include all its successors assigns and attorneys) of the second part for maintaining the DIGITAL WIRELESS SETS supplied by them wide supply order No..... Dated:..... during the three years warranty period.

1. This document together with any attachment here to affixed duly signed byandas customer for the maintenance of equipment listed here after and the terms and conditions specified in this document.

2. The contract commences from the date of signing this agreement till the warranty period expires. There after this may be renewed for further AMC after the completion of warranty on mutually agreed terms.

3. SCOPE AND SERVICES

3.1 it includes maintenance repairs and any connectivity problems with the Digital Wireless sets shall maintain the equipment/software listed in (Annexure-"A") during warranty period.

3.2, endeavors to their best of ability at an average ability at an average response time of 10 hours wherever service centers are located and with in 48 hours for outside.

3.3 Whenever engineer visits a location to attend the hardware problems reported he shall also carryout prevent maintenance of Digital Wireless Sets at the Installed locations.

4. HOURS OF SERVICE

Provision for maintenance service will be confirmed to..... on normal working hours i.e 10 AM to 6 PM including Sundays and General holidays.

5. LIMITS OF USE

The customer (all units wherever the hardware is installed) will keep a record of the service call report of the company (Annexure-"B") may tally the said records once in two months time.

Customer will register all complaints in the call center & mention complaint numbers in all transactions.

6. CARE OF THE EQUIPMENT

6.1 The customer shall allow the entry and access of the service engineer of the company to carryout the maintenance tasks. The service engineers may enter and access the facilities even beyond the working hours as per the maintenance needs by prior approval of the unit officer concerned.

6.2 The customer will take care of the equipment, will house it in suitable conditions and follow such instructions on these and observe operating instructions as give byfrom time to time.

6.3 No alternation may be, no attachment fitted or repairs or adjustments done except by or with the written consent by

7. EXEMPTION

7.1shall not be liable for failure to perform any of its obligations arising out of this agreement, if such failures results from any force majeure, act of God, Fire, Storm, Earthquake, Explosion, Accidents, Strikes, Lockout, industrial Dispute, Labor Trouble, Transportation, Embargo, Imminence or the existence of any state of emergency, war, like condition, civil - commotion, riot, mobility to obtain any material, refusal of license or imposition of sanctions and/or any measures taken by the Government whatsoever which renders it impossible or impracticable for liability to perform obligation under this contract.

8. Procedure for recording the performance of the service of the company

Customer will register all complaints in the call center number & mention the complaint number in all transactions.

All locations wherever hardware is installed will maintain a service call register as per Annexure-"B". The in charge officer of the locations will record and maintenance particulars and send the details (as per Annexure-"B") clearly indicating the details of penalty to be imposed in case of non performance by the company engineers to the concerned unit officer before 3rd of every month. The unit officers will consolidate and send the details as per Annexure-"C" toevery month for necessary action.

9. NON PERFORMANCE PENALTY

Sl. No.	Hardware	Nature of problem	Penalty for not meeting response per day in Rs.	Response time for calls logged in call center	Bidders Compliance

Response Time Norms: 95% of the calls should be responded within Norms. This should be measured on a monthly.

The penalty is applicable if the response time % is less than 95%. The penalty will be for the calls which are not responded within response time norms.

10. PAYMENT TERMS

There is no payment or any charges during warranty period for maintenance of the systems.

11. ASSIGNMENT

The customer shall not re-assign this agreement or any part without written consent of

12. TERMINATION

If the customer commits any breach of this agreement, may be written notice terminate this agreement, upon termination under this clause the customer will forth with give up..... site kits, equipment and maintenance spares if any. Upon expiration of termination of this agreement all rights and benefits granted by this agreement shall revert, to

the respective parties and customer shall pay all amounts due to upon the effective date of termination.

13. ARBITRATION

All disputes, differences and question whatsoever which shall arise between the parties hereto during the continuance of agreement or afterwards touching any clause or matter herein contained or the rights, duties and liabilities or either party in connection there with, shall be referred to sole arbitrator to be jointly appointed by both parties. All such arbitration proceedings shall be held in Bangalore and shall be in accordance with and subject to provision of the Indian Arbitration Act 1996 or any statutory modification reenactment there of for the time being in force. The language of arbitration shall be in English.

14. GOVERNING LAW

This agreement shall be governed in all respect by Indian Law.

15. JURISDICTION

The court at Bangalore have jurisdiction to the exclusion of all other courts.

16. LIMITATION OF LIABILITY

Notwithstanding anything to the contrary in the agreement neither party shall, in any event, be liable for any indirect or speculative or consequential or loss or profit or punitive damages. Neither party shall also be liable for any third party claims. The maximum amount of liability direct is limited to the value of service component of the contract.

17. NON HIRE AND NON SOLICITATION

During the term of this agreement and for a period of one year thereafter customer shall not, directly or indirectly, hire or solicit for hire, any of the personnel of In addition to this, the parties acknowledge that employees..... compromise valuable assets of and that breach by customer of the terms hereof would result in substantial harm and irreparable injury to Thus the customer agrees to the entry of an injunction against it in the event of actual or threatened breach of its obligations hereunder, and acknowledges such relief shall be in addition to such other and further relief as may be available to.....at law or in equity.

In Witness where of the parties here to by representative duly authorised, have executed the contract on the day, month, year and place written above.

.....
Signature
Name
Designation
For & on Behalf of
.....

.....
Signature
Name
Designation
For & on Behalf of
.....

In the presence of

In the presence of

1) Signature
Name
Designation

1) Signature
Name
Designation

2) Signature
Name
Designation.

2) Signature
Name
Designation.

Annexure- "A"(SLA)

(Items supplied by.....)
Supply order No.....

S. No.	Items	Qty.	AMC period (Duration from.....to.....)

Annexure- "B"(SLA)
(Service Call Register)
(To be maintained by all units)

S. No.	Nature of Problem	Date & Time of the report	Mode of reporting (Phone, Fax, e-mail, Helpdesk, Letter etc)	To who reported (Name & Designation of the person who received the complaint)	Docket No. of the complaint	Date & time of rectification	Problem rectified or not (Y/N) if N reasons	Penalty imposed if any (Specify the amount)
1	2	3	4	5	6	7	8	9

Annexure- "C"(SLA)

(Penalty recommended for non performance by.....)

Supply order No.....

Unit:

Company:

S.No.	Location/Police Station	Penalty Amount	Remarks
1			
2			

Total penalty Amount..... for the month of..... to be imposed oncompany.

Date:

Signature of the Unit officer.

CONTRACT FORM

THIS AGREEMENT made theday of....., 20... Between
 (Name of purchaser) of (Country of Purchaser) (hereinafter called "the Purchaser") of the
 one part and (Name of Supplier) of (City and Country of Supplier)
 (hereinafter called "the Supplier") of the other part :

WHEREAS the Purchaser is desirous that certain Goods and ancillary services viz.,
 (Brief Description of Goods and Services) and has accepted a tender by
 the Supplier for the supply of those goods and services in the sum of (Contract
 Price in Words and Figures) (hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:
 - (a) the Tender Form and the Price Schedule submitted by the Tenderer;
 - (b) the Schedule of Requirements;
 - (c) the Technical Specifications;
 - (d) the General Conditions of Contract;
 - (e) the Special Conditions of Contract; and
 - (f) the Purchaser's Notification of Award.
3. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Purchaser to provide the goods and services and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the goods and services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

Brief particulars of the goods and services which shall be supplied/provided by the Supplier are as under:

Sl. No.	Brief Description of Goods & Services	Quantity to be supplied	Unit Price	Total Price	Delivery terms

TOTAL VALUE:

DELIVERY SCHEDULE:

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, Sealed and Delivered by the
said (For the Purchaser)
in the presence of:.....

Signed, Sealed and Delivered by the
said (For the Supplier)
in the presence of:.....

PERFORMANCE SECURITY BANK GUARANTEE FORM

To: (Name of Purchaser)

WHEREAS(Name of Supplier)
hereinafter called "the Supplier" has undertaken, in pursuance of Contract No..... dated,
.....20... to supply.....
..... (Description of Goods and Services) hereinafter
called "the Contract". AND WHEREAS it has been stipulated by you in the said Contract that the Supplier
should furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security
for compliance with the Supplier's performance obligations in accordance with the Contract. AND
WHEREAS we have agreed to give the Supplier a Guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the
Supplier, up to a total of.....
..... (Amount of the Guarantee in Words and Figures) and we undertake to pay you,
upon your first written demand declaring the Supplier to be in default under the Contract and without cavil
or argument, any sum or sums within the limit of.....
(Amount of Guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for
your demand or the sum specified therein. This guarantee is valid until theday of
.....20.....

Signature and Seal of Guarantors

.....
.....
.....
.....

Date :20...

Address:

.....
.....
.....
.....

Financial status of the Company

Sl. No.	Financial Year	Annual Turnover (In Rs.)	Profit Made (in Rs.)	Net worth of Assets (In Rs.)
1	2012-13			
2	2013-14			
3	2014-15			

Seal & Signature of the
Chartered Accountant

Seal & Signature of the
Company's Authorised
Representative

Note:

1. Should be filled compulsorily and not to be referred to balance sheet/profit and loss a/c.
2. Seal and Signature of the Chartered Accountant is compulsory.

Similar projects executed / implemented

Sl. No.	Financial Year	Organization with full address	Total No. & locations	Total worth of Orders (in Rs.)	Bidders Compliance
1	2012-13				
2	2013-14				
3	2014-15				

(Seal & Signature of the Company's authorised representative.)

MANUFACTURERS 'AUTHORIZATION FORM'

No.

Dated

To (Purchaser's address)

Dear Sir:

Ref: Tender number and date.

We who are established and reputable manufacturers of (name and description of goods offered) having factories at (address of factory) do hereby authorize M/s (Name and address of Agent) to submit a tender, and sign the contract with you for the goods manufactured by us against the above invitation for tender offer.

No company or firm or individual other than M/s are authorized to tender, and conclude the contract for the above goods manufactured by us, against this specific Tender.

We hereby extend our full guarantee and warranty, the terms and Conditions for the goods and services offered for supply by the above firm against this Tender.

We also reiterate that we adhere to the condition laid down in para 1 (vi) of the tender document for Supply, Installation, Commissioning and Maintenance of **Digital Wireless Mobile, Static, Handheld and Repeaters**

Yours faithfully,

(Name)

(Name of Manufacturers)

Note: This letter of authority should be on the letterhead of the manufacturer and should be signed by a person competent and having the power of attorney to legally bind the manufacturer. It should be included by the Tenderer in its tender.

Details of Support Centers in Karnataka

Sl. No.	Name of the City	Name of support centers full postal address telephone No., Fax & e-mail	Name of the Contact person and his Mobile No.

(Seal & Signature of the Company's Authorised Representative)

AFFIDAVIT FORMAT

**Sub: Undertaking of authenticity for Supply of Digital Wireless Mobile, Static,
Handheld and Repeaters**

This has reference to Supply of Digital wireless sets being supplied / quoted to you vide our invoice no/ quotation no / order no and Repeaters etc. related to this project _____ dated _____.

We hereby undertake that all the components/ parts/ assembly/ equipment's *Software* etc., used in the equipment from respective OEMs/OSDs of the products and that no refurbished/ duplicate/ second hand components/ parts/ assembly / equipment / software have been used or should be used.

Should you require, we should produce certificate from our OEM/OSD supplier in support of above undertaking at the time of delivery. It will be our responsibility ,to produce such letters from our OEM/OSD supplier's within a reasonable time.

In case we are found not complying with above at the time of delivery or during installation, for the equipment already billed, we will own the responsibility and are liable to face legal action as per law.

Authorised Signatory

Name:

Designation

Name of Tenderer

Check List of Documents.

Following checklist confirming the enclosures provided in the tender should be provided along with Technical bid

Sl. No.	Description	Enclosed Yes/ No
1.	EMD of Rs. 8,92,000/- (Rupees Eight Lakhs Ninety Two Thousand only) which shall be paid online through any of the following 4 modes a) Credit Card, b) Direct Debit, c) National Electronic Fund Transfer (NEFT) and d) Detail of the payment modes as mentioned in the bid document (e-payment document available on website)	
2.	Certificate of registration of the company issued under the companies Act.	
3.	Bill of Material with cost: Annexure – B should be shown in commercial bid only	
4.	Price schedule for annual maintenance and repair cost After warranty period : Annexure – C	
5.	Service Level Agreement - ANNEXURE – D	
6.	Contract Form : Annexure -E	
7.	Performance Security Bank Guarantee Form : Annexure - 'F'.	
8.	Financial status of the Company : Annexure - 'G'.	
9.	Similar projects executed / implemented: Annexure - 'H'	
10.	Manufacturers 'Authorization Form : Annexure - 'I'	
11.	Details of Support Centers in Karnataka: Annexure - 'J'	
12.	Undertaking in the form of affidavit: Annexure - K	
13.	ISO Certificate	
14.	Technical Specification/ data sheet / compliance along with softcopy in a CD	