

सेवा में,

निदेशक,  
सूचना एवं जनसम्पर्क विभाग,  
बिहार, पटना।

विषय- निविदा आमंत्रण सूचना संख्या-09/2016-17 के प्रकाशन के संबंध में।

निदेशानुसार उपर्युक्त विषय के संबंध में निविदा आमंत्रण सूचना सं०-09/2016-17 की पाँच प्रतियाँ (सी०डी० सहित) संलग्न करते हुए अनुरोध है कि इसे राज्य एवं राज्य से बाहर के प्रमुख समाचार पत्रों में (अंग्रेजी एवं हिन्दी) के अगले दो संस्करणों में प्रकाशित कराने की कृपा की जाय साथ ही पी०आर०डी० वेबसाईट पर भी प्रसारित करने की कृपा की जाय। उक्त निविदा का प्रकाशन Indian Trade Journal, Kolkata के संस्करण में भी अनिवार्य रूप से कराया जाय, जिसका पता निम्न है :-

The Controller of Publications, Government of India, Civil Lines, Delhi :110054,(Tel No. 011-23812527, FAX:011-23817846), Email Id-sk.mondal.dgcis@nic.in

इस निविदा आमंत्रण सूचना का प्रकाशन किन-किन समाचार पत्रों में किया गया इसकी सूचना देने की कृपा की जाय।

अनु०-यथोपरि।

पुलिस महानिरीक्षक के सहायक (क्यू०),  
बिहार, पटना।

प्रतिलिपि:-

1. आई०टी० मैनेजर, पुलिस महानिदेशक का कार्यालय, बिहार, पटना को कृपया सूचनार्थ। कृपया इसे आज ही वेबसाईट पर अपलोड किया जाय। साथ ही Indian Trade Journal, Kolkata के अंक में प्रकाशन हेतु The Controller of Publications, Government of India, Civil Lines, Delhi : 110 054,(Tel No. 011-23812527, FAX : 011-23817846), Email Id-sk.mondal.dgcis@nic.in के पते पर भी अनिवार्य रूप से भेजा जाय।
2. The Controller of Publications, Government of India, Civil Lines, Delhi : 110 054,(Tel No. 011-23812527, FAX : 011-23817846), Email Id-sk.mondal.dgcis@nic.in को कृपया सूचनार्थ एवं आवश्यक क्रियार्थ प्रेषित। अनुरोध है कि उक्त निविदा का प्रकाशन Indian Trade Journal, Kolkata के अंक में करने की कृपा की जाय।

पुलिस महानिरीक्षक के सहायक (क्यू०),  
बिहार, पटना।

**Police Headquarters, Bihar, Patna**  
**Notice Inviting Tender No.09/2016-17**

1. Name of the Department : Office of Director General of Police, Bihar, Patna.
2. Last date & time for the acceptance of the Tender : **7 / 7 / 2016**, Till 11:00 AM.
3. Date & time fixed for the opening of the Tender : **7 / 7 / 2016** At 11:00 AM.
4. Place fixed for receiving & opening the tender : Office of Director General of Police, Bihar, Patna.
5. Details of Job :

| S.N. | Item name                        | Quantity |
|------|----------------------------------|----------|
| 1    | 25 Watt VHF Digital Set          | 1130     |
| 2    | 5 Watt VHF Digital Hand Held Set | 761      |
| 3    | VHF Repeater Set                 | 21       |
| 4    | 100 ft. Self Supported Tower     | 06       |

Specifications and other terms & conditions of the tender may be obtained in person from this office or may be downloaded from the website [www.prdbihar.org](http://www.prdbihar.org) or [www.biharpolice.bih.nic.in](http://www.biharpolice.bih.nic.in).

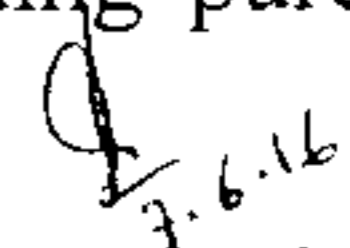
  
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Bihar, Patna

## Terms & Conditions Of Tender No. 09/2016-17

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1. Tender of the firm will be accepted only on the condition that if their tenders are approved, the firm shall get registered with the Commercial Tax Department, Bihar, before the purchase order is issued.
2. The tender should be submitted in two parts : (i) Technical Bid and (ii) Financial Bid, duly sealed in two separate envelopes super-scribed as "Technical Bid" and "Financial Bid".
3. All relevant papers/certificates/specifications etc. of items should be enclosed in the Technical Bid.
4. The rates of the items shall be quoted in the Financial Bid only.
5. All charges like BST/CST/Service Tax /VAT etc. shall be clearly mentioned in the Financial Bid and the net rate (in figures and words) including all taxes and duties must also be quoted. Vague offers like indicating taxes "as applicable" will not be accepted.
6. The rates of the items shall be quoted in the Financial Bid in two parts : (i) With AMC (Annual Maintenance Contract) and (ii) Without AMC
7. There should be no cutting, over writing or correction on the rates.
8. The technical and financial bids for each item should be submitted separately in separate envelopes. The technical and financial bids for more than one items submitted together in the same envelope shall not be accepted.
9. If the financial bid is submitted in the same envelope containing the technical bid then also it shall be summarily rejected.
10. The technical and financial bids should be put in two separate sealed envelopes and the envelopes should be marked Tender No-09/2016-17 (Technical Bid) and Tender No-09/16-17 (Financial Bid) along with the name and address of the firm. **The sealed envelopes containing the technical and the financial bids should be sent in another sealed envelope which should be marked as Tender No-09/2016-17. This envelope should not bear the name and address of the firm.**
11. Up-to-date Income Tax Returns, Turn Over of last three financial years and a photocopy of PAN of the participating firm should be submitted with the technical bid. It should be specifically mentioned whether IT return has been filed manually or electronically.
12. The turn over of the firm for the 2015-16 financial year should be at least double the amount of the supply order which is being issued. A copy of the profit and loss Account of the firm for the 2015-16 financial year, certified by a Chartered Accountant should be submitted along with the tender. If the tenderer is authorized dealer or authorized supplier of manufacturing firm, then the certified details of the turnover of authorizing firm may be accepted. Tender specific authority must be submitted.
13. If there is some discount in the price of any item, it should be deducted from price itself and should not be quoted separately.
14. If the product is available on DGS & D rate contract, then a copy of the contract must be attached and pricing be done including all taxes.

- 3. A copy of the test report for the product issued by a competent authority should be attached with the technical bid.
- 6. In case of BP/BR items, test report of TBRL is compulsory.
- 17. Firms participating in this tender shall also submit duly sworn affidavit to the effect that " this firm has not been black listed/debarred by any Government or Semi Government or Private Agency and no sister concern of this firm is participating in this tender."
- 18. Firms participating in this tender shall also submit the self attested list of users of its equipments.
- 19. All items shall be received at Central Clothing Store, Patna, therefore price should be quoted FOR Central Clothing Store, Phulwari Sharif, Patna.
- 20. Firms will have to deposit a sum of Rs.50,000/- (Fifty Thousand) only as an earnest money in the form of Bank Draft duly pledged in favour of the undersigned along with the quotations.
- 21. Technical Bids will be opened on schedule date and time in the office chamber of Police Headquarter. Representatives of the firms competing in the tender may remain present at the time of opening of the technical bid.
- 22. The technical bids will be opened first and placed before the Technical Committee of the Police Headquarters, Bihar. If the technical bids are found satisfactory as per tender conditions, it will be put before Central Purchase Committee of the Police Headquarters, Bihar. The firms may be required to participate in the demonstrations of the quoted product and discussions with this committee.
- 23. Any paper/document will not be accepted after opening the tender.
- 24. Successful firm will have to enter into an agreement after depositing a sum of 5% of the total value of the order as security money in the form of Bank Guarantee duly pledged in favor of undersigned.
- 25. The firm will be required to provide satisfactory service after the delivery of the product.
- 26. The firm will be required to supply all the items within the stipulated time frame as mentioned in the purchase order.
- 27. Payment for the delivered items will be made only after the acceptance report of the Inspection Committee of the Police Headquarters, Bihar.
- 28. The firm whose quotation is approved by the Central Purchase Committee of the Police Headquarters, Bihar, shall be invited to enter into an agreement with the undersigned.
- 29. It is compulsory to submit the duly filled chart attached herewith, along with the technical bid.
- 30. Indexing of the requisite documents must be done and submitted along with the technical bid.
- 31. Hands on training of the equipment must be imparted to the user group by the firm.
- 32. Director General of Police Bihar, Patna reserves the right to reject any or all the quotations partially or fully without assigning any reason thereof.
- 33. The Quantity indicated may increase or decrease at the time of issuing purchase order.

  
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**Bihar, Police**

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**Technical Specification of 5 W VHF Two Way Digital Hand Held Radio Sets**

| S.No.    | Particular                   | Specification  |
|----------|------------------------------|--|
| <b>A</b> | <b>GENERAL</b>               |  |
| 1        | Frequency Range              | 136-174 MHz (split or full band)   |
| 2        | Channel Capacity             | 255 or higher (For display) continuous rotator button  |
| 3        | Protocol                     | TDMA (02 Slot)   |
| 4        | Channel Spacing              | 12.5 KHz or better   |
| 5        | Frequency stability          | ± 1.5 PPM or better  |
| 6        | Weight                       | Light in weight preferable, including accessories  |
| 7        | Battery capacity             | Li-ion rechargeable Smart / with reconditioning battery of 2100 mA <sub>H</sub> or better of original OEM. Battery should support the Over-The-Air Battery Management. Vendor shall mention DC Voltage. During capacity test, battery shall give 100% of its rated capacity if discharged by C/5 |
| 8        | Antenna Impedance            | 50 ohm   |
| 9        | Communication interface      | Ethernet/USB/RS232 and Bluetooth   |
| 10       | Display                      | Multifunction alphanumeric with back light   |
| 11       | Warranty                     | Standard warranty for 2 years  |
| 12       | Culpability                  | With analogue radio  |
| <b>B</b> | <b>TRANSMITTER</b>           |  |
| 1        | RF Power output              | 1 and 5 watt programmable  |
| 2        | Type of Emission             | Analog : 11 KOF3E<br>Digital : as per digital standard for voice data  |
| 3        | Digital modulation           | 4FSK   |
| 4        | Modulation Limiting          | ± 2.5 KHz  |
| 5        | Audio Response               | + 1, -3db, As per TIA 603D   |
| 6        | FM Hum noise                 | - 40 dB or better  |
| 7        | Adjacent channel power       | -60 dB or better   |
| 8        | Digital Vocoder              | AMBE+2   |
| <b>C</b> | <b>RECEIVER</b>              |  |
| 1        | Sensitivity                  | Analog : 0.3µV (12dB SINAD) or better.<br>Digital : 0.3µV @ 5% BER or better.  |
| 2.       | Adjacent Channel Selectivity | 60 dB or better  |
| 3        | Inter - modulation           | 70 dB or better  |
| 4        | Audio output                 | Minimum 500 m watt   |
| 5        | Audio distortion             | 3% or better   |
| 6.       | EMI/EMC                      | TEC SR No TEC/EMI/TEL-001/01/01/Feb-09   |

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| D  | ENVIRONMENTAL SPECIFICATION                  |   |
| 1  | Operating temperature range                  | -30 <sup>0</sup> C to 55 <sup>0</sup> C   |
| 2  | Storage temperature                          | -30 <sup>0</sup> C to +60 <sup>0</sup> C  |
| 3  | Humidity                                     | MIL-STD   |
| 4  | Applicable MIL standards                     | MIL standard 81 C/D/E/F/G   |
| 5  | Applicable IP standards                      | IP 54/IP 57/IP 67   |
| E  | FEATURES                                     |   |
| 1  | Mode of operations                           | Analog conventional, digital conventional, Simple Press to talk   |
| 2  | GPS capability                               | <ul style="list-style-type: none"> <li>• In built GPS with TTFF(Hot Start) &lt;10 sec (20 sec or better)</li> <li>• Horizontal accuracy &lt;5 meters</li> <li>• GPS data access methods (a) by polling (b) by fetching (on request) (e) Vendor</li> </ul> <p>Should mention – coordinate file Format Compatible with free Map will be preferred.<br/>Necessary Hardware, software shall be Provided for making radios "GPS Enabled" and for receiving and extracting GPS data/info. for the use of location tracking purpose.</p> |
| 3  | Status message and SMS text message facility | <ul style="list-style-type: none"> <li>• Status message facility</li> <li>• Short and long data message facility</li> <li>• Messaging facility using PC one to may Radio</li> <li>• Necessary hardware shall be provided to interfacing PC</li> </ul>   |
| 4  | Protection                                   | Protection against high VSWR  |
| 5  | Radio Programming Facility                   | PC programmable using USB Programming and without programming cable through Bluetooth   |
| 6  | Front panel key pad                          | DTMF front panel keypad with backlight  |
| 7  | Battery strength indicator                   | Battery strength bar indicator or digital readout, alert for low Battery  |
| 8  | Signal Strength Indicator                    | RSSI-Received signal strength indicator bat or digital read out.  |
| 9  | OTAR   | Should have provision for over the air frequency re-programming and other parameters  |
| 10 | Integrated Bluetooth                         | Should be supplied with Integrated Bluetooth for sharing data wireless, Radio configuration for Programming and Supports the Voice Hands free Operations  |
| 11 | Networking                                   | Should be IP based for automatic  |

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|          |   | roaming etc. and radio should support Multi site multi repeater trunking   |
| 12       | Repeater Access Control   | Radio should have capability of programming access key to prevent unauthorised access of Repeaters   |
| 13       | Text to speech  | Radio should be capable of converting text to speech for ease of operation   |
| <b>F</b> | <b>OTHER FEATURES</b>   |  |
| 1        | Simple press to talk  |  |
| 2        | Alfa numeric list of 256 users for sending SMS & for selective calling  |  |
| 3        | Alpha numeric channel alias   |  |
| 4        | Alpha numeric PTT ID alias  |  |
| 5        | Facility for locking the channel or keypad.   |  |
| 6        | Facility to assign Network access code, CTCSS/DCS   |  |
| 7        | Channel scan & priority channel scan  |  |
| 8        | Call alert  |  |
| 9        | Talk around lock  |  |
| 10       | Transmitter Time Out Timer (TOT) operation  |  |
| 11       | Emergency call facility (SOS)   |  |
| 12       | Selective call, group call  |  |
| 13       | Late entry  |  |
| 14       | Busy channel lock out   |  |
| 15       | Capable to kill-unkill disable-enable remotely  |  |
| 16       | Any one of 2 tone/ 5 tone /DTMF signalling  |  |
| 17       | Text message & pre defined messages   |  |
| 18       | Automatic number identification   |  |
| 19       | Vendor shall mention other manufacturer's models of the radios which are inter operable for voice & data communication to the system offered. |  |
| 20       | Capable of hand free operations.  |  |
| <b>G</b> | <b>Accessories and Manuals</b>  |  |
| 1        | Type of Antenna   | Rugged flexible Helical Antenna for the specified frequency Band   |
| 2        | Battery   | <ul style="list-style-type: none"> <li>• Vendor shall mention DC voltage</li> <li>• Average battery life for 5/5/90 duty cycle<br/>Digital : 16 hour or more<br/>Analog : 13 hour or more</li> <li>• Hand Held should be supplied</li> </ul> |
| 3        | Rapid Charger   | <ul style="list-style-type: none"> <li>• Single unit, Desktop type Rapid battery charger.</li> <li>• Charging Time 2 to 4 hours</li> </ul>   |
| 4        | Belt clip with proper Lock  | <ul style="list-style-type: none"> <li>• Belt clip with proper Lock</li> <li>• If the clip is provided on battery, it shall be provided for both the batteries.</li> </ul>   |
| 5        | Carrying case   | <ul style="list-style-type: none"> <li>• Suitable carrying case shall be provided</li> </ul>   |

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| 6 | Operating Manual / TECHNICAL MANUAL | • Hard copy, one for each hand held radio  |
| 7 | Training                            | Necessary technical training regarding <ul style="list-style-type: none"><li>• Configuration of the mobile set</li><li>• Operation, Repairing and maintenance.</li></ul> The training shall be given to 15 technical persons per project for two week. |

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**25 W Programmable VHF Two Way Digital Static / Mobile Radio**

| S.No.    | Particular                         | Specification   |
|----------|------------------------------------|---|
| <b>A</b> | <b>GENERAL</b>                     |   |
| 1        | Frequency Range                    | 136-174 MHz (split or full band)  |
| 2        | Channel Capacity                   | 255 or higher (For display)   |
| 3        | Protocol                           | TDMA (02 Slot)  |
| 4        | Channel Spacing                    | 12.5 KHz or better  |
| 5        | Frequency stability                | ± 1.5 PPM or better   |
| 6        | Weight                             | Less than 2 kg  |
| 7        | Operating Voltage                  | 10.8 to 15.6 Volt DC with reverse polarity                                  |
| 8        | Antenna Impedance                  | 50 ohm  |
| 9        | Communication interface            | Ethernet/USB/RS232 and Bluetooth  |
| 10       | Display                            | Multifunction alphanumeric with back light                                  |
| 11       | Warranty                           | Standard warranty is for 2 years  |
| 12       | Compatibility                      | With all types of analog radio  |
| <b>B</b> | <b>TRANSMITTER</b>                 |   |
| 1        | RF Power output                    | 25 watt programmable  |
| 2        | Type of Emission                   | Analog : 11 KOF3E<br>Digital : as per digital standard for voice data       |
| 3        | Digital modulation                 | 4FSK  |
| 4        | Modulation Limiting                | ± 2.5 KHz   |
| 5        | Audio Response                     | + 1, -3db, As per TIA 603D  |
| 6        | FM Hum noise                       | -40 dB or better  |
| 7        | Adjacent channel power             | -60 dB or better  |
| 8        | Digital Voice Recorder             | AMBE+2  |
| <b>C</b> | <b>RECEIVER</b>                    |   |
| 1        | Sensitivity                        | Analog : 0.3µV (12dB SINAD) or better<br>Digital : 0.3µV @ 5% BER or better |
| 2.       | Adjacent Channel Selectivity       | 60 dB @ 12.5 KHz /80 dB   |
| 3        | Inter – modulation                 | 70 dB as per TIA603D or better  |
| 4        | Audio output                       | Minimum 3watt with built in speaker   |
| 5        | Audio distortion                   | 3% or better  |
| <b>D</b> | <b>ENVIRONMENTAL SPECIFICATION</b> |   |
| 1        | Operating temperature range        | -30 <sup>0</sup> C to 55 <sup>0</sup> C                                     |
| 2        | Storage temperature                | -30 <sup>0</sup> C to +60 <sup>0</sup> C                                    |
| 3        | Humidity                           | 90% non condensing (-20 <sup>0</sup> C to 60 <sup>0</sup> C)                |
| 4        | Applicable MIL standards           | MIL standard 81 C/D/E/F/G   |
| 5        | Applicable IP standards            | IP 54/IP 57/IP 67   |
| <b>E</b> | <b>FEATURES</b>                    |   |
| 1        | Mode of operations                 | Analog conventional, digital conventional, Simple press to talk             |
| 2        | GPS capability                     | • In built GPS with TTFF(Hot Start)<br><20 sec or better)                   |

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|          |  | <ul style="list-style-type: none"> <li>• Time to first fix(TTFF) cold start:</li> <li>• Horizontal accuracy &lt;10 meters or better</li> <li>• GPS data access methods<br/>(a) by polling (b) by fetching (on request) (c) Vendor<br/>Should mention – coordinate file Format Compatible with free map, Google map will be preferred.<br/>Necessary<br/>Hardware, software shall be Provided for making radios "GPS Enabled" and for receiving and extracting GPS data/info. for the use of location tracking purpose.</li> </ul> |
| 3        | Status message and SMS text message facility                             | <ul style="list-style-type: none"> <li>• Status message facility</li> <li>• Short and long data message facility</li> <li>• Messaging facility using PC one to one or many.</li> <li>• Necessary hardware shall be provided to interfacing PC</li> </ul>  |
| 4        | Protection   | Reverse polarity protection.<br>Protection against high VSWR  |
| 5        | Radio Programming Facility   | PC programmable using USB Programming cable and also without programming cable through Bluetooth  |
| 6        | Hand set with key pad  | DTMF keypad with backlight  |
| 7        | Signal Strength Indicator  | RSSI-Received signal strength indicator or digital read out.  |
| 8        | OTAR   | Should have provision for over the air frequency re-programming and other parameters  |
| 9        | Integrated Bluetooth   | Should be supplied with Integrated Bluetooth for sharing data wireless, Radio configuration for Programming and Supports the Voice Hands free Operations  |
| 10       | Networking   | Should be IP based for automatic roaming etc. and radio should support Multi multi repeater trunking  |
| 11       | Repeater Access Control  | Radio should have capability of programming access key to prevent unauthorised access of Repeaters  |
| 13       | Text to speech   | Radio should be capable of converting text to speech for ease of operation  |
| <b>F</b> | <b>OTHER FEATURES</b>  |   |
| 1        | Alpha numeric list of 256 users for sending SMS & for selective calling. |   |
| 2        | Alpha numeric channel alias  |   |

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| 3        | Alpha numeric PTT ID alias  |   |
| 4        | Facility to assign Network access code, CTCSS/DCS   |   |
| 5        | Channel scan & priority channel scan  |   |
| 6        | Call alert  |   |
| 7        | Talk around   |   |
| 8        | Transmitter Time Out Timer (TOT) operation  |   |
| 9        | Emergency call  |   |
| 10       | Selective call, group call  |   |
| 11       | Late entry  |   |
| 12       | Busy channel lock out   |   |
| 13       | Capable to kill-unkill disable-enable remotely  |   |
| 14       | Externally accessible accessory connector(For connecting programming kit. Repeater interface, Data interface etc.)                            |   |
| 15       | Vendor shall mention other manufacturer's models of the radios which are inter operable for voice & data communication to the system offered. |   |
| <b>G</b> | <b>Accessories and Manuals</b>  |   |
| 1        | Type of Antenna   | 3 dB Whip Antenna with suitable connector. 3 meter co-axial cable and mounting bracket of stainless steel.  |
| 2        | Operating Manual  | Hard copy, one for each Radio   |
| 3        | Mounting Kit  | mounting Kit  |
| 4        | Hand set (Mic)  | DTMF Handset with clip  |
| 5        | Battery cable   | Length 3 meters with suitable fuse.   |
| 6        | Training  | Necessary technical training regarding <ul style="list-style-type: none"> <li>• Configuration of the mobile set</li> <li>• Operation, Repairing and maintenance.</li> </ul> The training shall be given to 15 technical persons per project for two week. |

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**Technical Specification of 25 W/50 watt VHF Synthesized Digital Repeater Sets.**

| S.No.    | Particular                         | Specification   |
|----------|------------------------------------|---|
| <b>A</b> | <b>GENERAL</b>                     |   |
| 1        | Frequency Range                    | 136-174 MHz (split or full band)  |
| 2        | Indication                         | Separate LED indication of TX & RX  |
| 3        | Protocol                           | TDMA (02 Slot)  |
| 4        | Channel Spacing                    | 12.5 KHz or better  |
| 5        | Channel capacity                   | 16 or more  |
| 6        | Frequency stability                | ± 1 PPM or better   |
| 7        | Weight                             | Less than 2 kg  |
| 8        | Operating Voltage                  | 10.8 to 15.6 Volt DC with reverse polarity                                  |
| 9        | Antenna Impedance                  | 50 ohm  |
| 10       | Communication interface            | Ethernet/USB/RS232 and Bluetooth  |
| 11       | Display                            | Multifunction alphanumeric with back light                                  |
| 12       | Warranty                           | Standard warranty is for 2 years  |
| 13       | Compatibility                      | With analog radio   |
| <b>B</b> | <b>TRANSMITTER</b>                 |   |
| 1        | RF Power output                    | 25 to 50 watt programmable  |
| 2        | Type of Emission                   | Analog : 11 KOF3E<br>Digital : as per digital standard for voice data       |
| 3        | Digital modulation                 | 4FSK  |
| 4        | Modulation Limiting                | ± 2.5 KHz   |
| 5        | Audio Response                     | + 1, -3db, As per TIA 603D  |
| 6        | FM Hum noise                       | -40 dB or better  |
| 7        | Adjacent channel power             | 60 dB or better   |
| 8        | Digital Vocoder                    | AMBE+2  |
| <b>C</b> | <b>RECEIVER</b>                    |   |
| 1        | Sensitivity                        | Analog : 0.3µV (12dB SINAD) or better<br>Digital : 0.3µV @ 5% BER or better |
| 2.       | Adjacent Channel Selectivity       | 60 dB or better   |
| 3        | Inter - modulation                 | 70 dB or better   |
| 4        | Audio output                       | Minimum 3watt with built in speaker   |
| 5        | Audio distortion                   | 3% or better  |
| <b>D</b> | <b>ENVIRONMENTAL SPECIFICATION</b> |   |
| 1        | Operating temperature range        | -30 <sup>0</sup> C to 55 <sup>0</sup> C                                     |
| 2        | Storage temperature                | -30 <sup>0</sup> C to +60 <sup>0</sup> C                                    |
| 3        | Humidity                           | 95% non-condensing ( - 20 <sup>0</sup> C to +60 <sup>0</sup> C)             |
| 4        | Applicable MIL standards           | MIL standard 81 C/D/E/F/G   |
| 5        | Applicable IP standards            | IP 54/IP 57/IP 67   |
| <b>E</b> | <b>FEATURES</b>                    |   |
| 1        | Mode of operations                 | Analog conventional, digital conventional, Simple press to talk             |
| 2        | IP Compatibility                   | Repeater supplied should be provided  |

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|   |                         | with IP licenses and should support Multi Site Multi Repeater Trunking Mode Operations  |
| 3 | Duplexer                | Should be supplied with repeater with required cables   |
| 4 | Repeater Access control | Repeater should be capable of accessing code validation of subscribers and repeater should have facility to deny access of black list subscriber ID's range to prevent un-authorized access |

| F Accessories & Manual |   |   |
|------------------------|---|---|
| 1                      | Battery cable   | Battery cable having 3 meter length with suitable fuse.   |
| 2                      | Duplexer  | Duplexer having <ul style="list-style-type: none"> <li>• Rx-Tx separation 5 MHz minimum.</li> <li>• Insertion loss <math>\leq 1.2</math> dB and</li> <li>• Rx Isolation at TX freq better than 70dB</li> <li>• Port impedance 50 ohms</li> </ul>                              |
| 3                      | Antenna and Feeder cable  | <ul style="list-style-type: none"> <li>• 6 dB GP Antenna with suitable fitting Clamps</li> <li>• 30 meter RF Coaxial Cable RG 217 with suitable connectors.</li> </ul>  |
| 4                      | Power supply (In case of no in built mains power supply provided) | <ul style="list-style-type: none"> <li>• Power supply cum battery Charger</li> <li>• In put 230 V AC +/- 10%, 50 Hz</li> <li>• DC Output 13.8V/ 30 Amps.</li> </ul>   |
| 5                      | Cabinet   | <ul style="list-style-type: none"> <li>• Rack Mounting as well as desktop compatible.</li> <li>• Suitable Rack shall be provided .</li> </ul>   |
| 6                      | Installation  | 1. Installation and commissioning of the repeater sites   |
| 7                      | Operating Manual  | Hard copy one for each repeater .   |
| 8                      | Training  | Necessary technical training regarding <ul style="list-style-type: none"> <li>• Configuration of the repeater</li> <li>• System Planning and operation</li> <li>• Repairing and maintenance</li> </ul> Training of operation & repairs must be provided by the firm at Patna. |
| S.No.                  | Particular  | Specification   |
| 1                      | GPS Tracking  | Dispatcher can able to track the live N/W Radios  |
| 2                      | Voice Recorder  | Dispatcher should be able to record the live radios voice converter   |
| 3                      | Kill/Stun/Revive radios   | Dispatcher should be able to Enable or Disable the Radios within the RF Network remotely.   |
| 4                      | Types of Call   | All types of voice calls support, i.e. individual call, group call, broadcast call and emergency call   |

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|---|-------------------|--|
| 5 | Text messaging    | Dispatcher should be capable of sending Messages to Radios with in RF Coverage |
| 6 | Remote monitoring | Dispatcher should be capable of Ambiance Listing                               |
| 7 | Map Support       | Should support Open Sources  |

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**TECHNICAL SPECIFICATION**  
**100 FEET SELF SUPPORTED TOWER**

1. Height - 100 Feet from base.
2. Type - Self Supported.
3. Dimensions - (a) Base – 11Feet SQR  
(b) Top – 2 Feet SQR
4. Wind velocity - 165 km. per hour.
5. Ladder - From outside base to top with one feet wide steps.
6. Platform - One 4' x 4' at every internal & last one 2' below the top.
7. Materials - Mild steel / Galvanised
8. Weight - 75 x 75 x 6 MM  
65 x 65 x 6 MM  
50 x 50 x 6 MM  
40 x 40 x 5 MM  
35 x 35 x 5 MM  
½ inch iron rod 50 x 50 x 6 MM patti and Nuts, Bolts, etc.
9. Earthing - 5 Ft. deep and 1½ SQR earth plate with salt and charcoal and bare copper wire 8 SWG tied with Earth tied Earth plate to Tower leg.
10. Aviation lamp - On the top of the Tower wiring from Tower main switch with 3/20 P.V.C. double core copper conductor wire.
11. Lightening arrestor - 6 KVA on the top of the Tower.
12. Foundation - Complete erection and installation on R.C.C. foundation base 5½ deep. 3' x 3' Bottom. 2' x 2' Top for every leg and above the ground.
13. Provision - Arrangement for installation of VHF/UHF antenna should be provided.
14. Finish - 2 coat red / white super enameled painting over one coat primmer.
15. Other clarification (if so desired) may be obtained from the office.

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