

OFFICE OF THE SUPERINTENDENT OF POLICE (C) MPRO
MEGHALAYA::SHILLONG

NOTICE INVITING TENDER

Sealed tender affixing non-refundable court fee stamp of Rs.1000/- (Rupees One thousand) only are invited from bonafide, established, reputed manufacturers or their authorised dealers for entering into the rate contract for supply of “**Radio Equipments**” under Modernisation Scheme 2018-19 as per specification in Annexure “C” and terms and conditions laid down in the Tender Notice

This invitation to bid is open to all Bidders meeting the eligibility / qualification criteria as mentioned in this tender document

Terms and Conditions

1. Items offered must be of reputed companies/manufacturers and should meet with all the specifications as those given in Annexure-“C”. Tender should be accompanied with catalogue, warranty/ guarantee or any related papers & will be received upto 1400 hrs. on 26th November, 2019 and will be opened on the same day at 1500 hrs. Bidders or their authorised representatives are invited at the time of opening of the tender. Tenders received after 1400 hrs. of 26th November, 2019 by hand or by post will be summarily rejected.
2. Tender must be accompanied by:-
 - (a) Affixed non-refundable court fee stamp of Rs.1000/- (Rupees One thousand) only
 - (b) Earnest Money calculated at the rate of 2% of the total value of the items tendered. The Earnest Money as far as practicable should be in the form of either (i) Deposit at Call or (ii) Fixed Deposit or (iii) NSC/KVP from any Nationalised bank at Shillong, pledged in favour of the the Superintendent of Police (C) MPRO, Meghalaya, Shillong. Tenderers belonging to Schedule Caste/Schedule Tribe may deposit 50% of the amount above subject to the production of such certificate.
 - (c) Recent passport size photograph of the Tenderer duly attested.
 - (d) Latest financial stability certificate from a Scheduled Bank certifying that the Tenderer is financially sound to undertake the contract.
 - (e) Valid Professional Tax certificate
 - (f) Dealership/distributorship certificate from the Principal manufacturers/ Distributors
 - (g) Attested copy of valid Trading Licence in terms of United Khasi / Jaintia & Garo Hills District Trading (By non-tribal) Regulation Act 1954 by tenderers who are required to obtain such Licence.
 - (h) Valid and current Dealer Position Licence (DPL) of the principle for trading in wireless radio equipment as issued by the Ministry of Information & Telecommunication, Govt. of India.
 - (i) Valid GST Registration Certificate alongwith the last GST return copy
 - (j) An undertaking stating that the tenderer himself/herself is satisfied with the terms & conditions of the N.I.T. and agrees to abide by the same for this tender.
 - (k) Attested copy of PAN

3. The following information must be mentioned on the body of the envelop containing the quotations, failing which the sealed envelop of the quoting firm will not be opened.

- | | | |
|-----|---|----------------|
| (a) | Earnest money | -is enclosed. |
| (b) | Professional Tax certificate | -is enclosed |
| (c) | Court Fee stamp | - is enclosed. |
| (d) | Dealership certificates from Principal manufacturers / Distributors | - is enclosed |
| (e) | Trading License from KHADC/JHADC/GHADC (for non-Tribal) | -is enclosed |
| (f) | SC/ST Certificate. | - is enclosed |
| (g) | Passport size photograph | - is enclosed |
| (h) | Valid GST Registration Certificate | - is enclosed. |
| (i) | Income Tax certificate /PAN | -is enclosed |
| (j) | Latest financial stability Certificate from any recognized Bank | -is enclosed |

Failure to enclose any one of these documents or enclosure of any invalid documents will result in automatic rejection of the quotation.

4. Rates quoted

- (a) should be inclusive of all charges, like custom duty, packing, insurance, taxes and other incidental charges. However the GST of the above mentioned taxes if any should be shown separately
- (b) should be inclusive of cost of accessories.
- (c) should be valid for one calendar year from the date of acceptance of tender.
- (d) should be quoted F.O.R. destination, Shillong, door delivery Office of the Superintendent of Police (C) MPRO, Meghalaya, Shillong
- (e) Should be written clearly in figure and in words. Any alteration or overwriting must be fully signed by the tenderers.
- (f) Once the rates offered in the tender are accepted enhancement will not be entertained under any circumstances and tenderers will be liable to supply the items at the accepted rate. Failure to supply the items at the accepted rates will entail the offer being cancelled and the security money will be forfeited to the Government of Meghalaya.

5. Tender should be addressed to the undersigned by designation and not by name. Sealed envelope containing the tender must be super scribed as “**Radio Equipments**” and must be sent by register post or hand delivery

6. The Tenderers shall arrange Technical presentation and live demonstration of their system/Equipment / Items quoted within 7(seven) days from the date of submission of quotation to show that they fully confirm to the specifications in the tender. The bidder has to bring four numbers of Digital Hand held sets, 2(two) Digital VHF Mobile sets, 2(two) Digital Repeater sets, 2(two) Digital HF sets, 2(two) nos. of microwave radio license free band for repeater to repeater connectivity for the demo & field trial. The Bids of the firms/vendors who do not arrange field trial and demonstration as above will be treated as rejected.

7. The successful tenderers will be:-

- (a) Intimated by a Letter of Acceptance/Supply order by the Superintendent of Police (C) MPRO, Meghalaya, Shillong. Till then no bidder has any right to assume that his/her tender has been accepted. There shall be no claim whatsoever for compensation for any expenditure incurred by any tenderers in anticipation of acceptance letter

- (b) Required to furnish a security deposit as per rates mentioned below and execute the contract agreement to ensure fulfillment of the terms and conditions of the contract which successful bidder/s will have to enter into. Such security deposit will be subjected to forfeiture in case of non-fulfillment of terms and conditions of the tender notice on the contract agreement. The earnest money of the successful tenderer/s will not be released till the full security deposit is furnished. Earnest money of the successful tenderer/s will be forfeited to the Government in case of failure to furnish security money in full.
- (c) Selected firm required to furnish Valid Trading Licence from the Khasi Hills Autonomous District Council before a final supply order is issued

8. **RATES OF SECURITY DEPOSIT**

For contract upto Rs.20,000/- 5% from local & 6% from non-Locals.

For contract upto Rs.50,000/- 10% from local & 11% from non-Locals.

For contract upto Rs.1,00,000/- 10% from local & 11% from non-Locals.

For contract over Rs.1,00,000/- 20% for all categories

The Security Deposit should be interest free and in the form of a valid Bank Draft/Deposit at Call pledged in favour of the undersigned.

9. The Superintendent of Police (C) MPRO, may rescind forthwith the contract in writing if,
- a) A Tenderer assigns or sublets any contract in respect of contract or any other contract entered into with the Government.
 - b) Tenderer or his agent/Servant are found guilty of fraud of this contract or any other contract.
 - c) Declines, neglect or delays to comply with the demand/requisition or in any other way fails to perform or observe any of or all the conditions of the contract agreement.

In case of such rescission the Security Deposit in full shall stand forfeited and absolutely be at the disposal of the Government without prejudice to any other remedy or action that the Government shall be entitled to recover from the successful Tenderer any extra expenses Govt. may deem necessary in obtaining the supplies.


10. In the event of the successful Tenderer failing to perform his/her part of any or all the contract agreement to the satisfaction of the Department or disregarding any terms and conditions of the Tender Notice and or the contract agreement the successful Tenderer shall be liable to any of or all of the following action at the discretion of the Superintendent of Police (C) MPRO, Meghalaya, Shillong on behalf of the Government of Meghalaya.
- (i) Forfeiture of security deposit in whole or part.
 - (ii) Making good the loss caused to the Government through the liability, neglect, delay in complying with the demand.
 - (iii) Cancellation of the contract without any prior notice to the contractor.

11. If the successful Tenderer/s willfully neglects, fails to perform or observe any or all conditions of the contract agreement or attempts to cheat or indulge in foul practices, the Superintendent of Police (C) MPRO, Meghalaya, Shillong may impose a ban upon such Tenderer(s) for future business within the Department.

12. Quantities mentioned in the list are only illustrative and may be increased/reduced on finalisation of order depending on the availability of fund and actual requirements.

13. Once the sample/technical specification of the items are approved, no change of brand, name, shape, pattern, quality or specifications will be entertained even on the plea of non-availability of raw materials or alternative offer of the same quality.


14. The store, supplied must be of the same specifications, weight and quality as the tendered models/samples/Tech. Spec. If the items are rejected by the undersigned due to non-meeting of the Technical Specification the supplier must replace the rejected items at their own cost forthwith and in a period of 21 (twenty one) days from the date of rejection.
14. Delivery must be completed within thirty days from the date of receipt of firm orders. No extension of delivery & installation period will be entertained.
15. Payment will be made to the suppliers directly only on completion of supplies and on correct receipt of goods by the respective consignee in good condition. Documents/vouchers/ P.R. Bills etc. routed through Banks will not be accepted. Consignment will be dispatched by the firm after payment of all freight charges at the source. Freight to pay P.R. will not be accepted.
16. Risk of transportation will be borne by the Tenderer themselves.
17. Comprehensive on site warranty should be indicated alongwith after sale services facilities.
18. One set of manuals of (Instructions and Maintenance) should be supplied free of cost for each item wherever applicable.
19. The Purchase Board reserves the right to reject the lowest rate or any of the tender without assigning any reason.
20. The Superintendent of Police (C) MPRO, Meghalaya, Shillong reserves the right to cancel the NIT floated or reject any of the tenders without assigning any reasons thereof
21. Any dispute arising out of or in respect of these terms and conditions of the Contract Agreement shall be in the Jurisdiction of the Courts in Meghalaya.


(W.Nongkynrih)
Superintendent of Police (C) MPRO
Meghalaya, Shillong

M/No.MPRO/PLN/06(MPFS-GEN)P-XIII-2016-19/88- A , Dtd.Shillong the 25th October, 2019

Copy to:-

1. The Asstt. Inspector General of Police,(A),Meghalaya, Shillong for favour of kind information of the DGP,Meghalaya, Shillong
2. The Commissioner and Secretary to the Govt. of Meghalaya, Home (Police) Department Shillong for favour information.
3. The Addl. Director General of Police (CID/F&ES/Commn.), Meghalaya, Shillong for favour of kind information
4. The Addl. Director General of Police (SB/TAP/L&O), Meghalaya, Shillong for favour of kind information
5. The Dy. Inspector General of Police (Commn.), Meghalaya, Shillong for favour of kind information
6. The Dy. Inspector General of Police (E/R), Meghalaya, Shillong for favour of kind information
7. The Dy. Inspector General of Police (W/R), Meghalaya, Shillong for favour of kind information
8. The Asstt. Inspector General of Police (A) / (E) / (R) Meghalaya, Shillong for favour of information
9. The Director Government Press, Meghalaya, Shillong for favour of information and with copies for publication in two consecutive issues of Meghalaya Gazette.
10. The Director of Information and Public Relation, Meghalaya, Shillong with a request to publish a brief gist of the tender notice in 2 (two) Newspaper (One impression), in Khasi and English each. Bills of the same may be submitted to the office of the undersigned of payment
11. The Director (SCRB) Meghalaya, Shillong, for favour of information with a request to upload it the Meghalaya Police Website
12. The Superintendent of Police, East Khasi Hills, Shillong/West Khasi Hills, Nongstoin / South West Khasi Hills, Mawkyrwat / West Jaintia Hills, Jowai / East Jaintia Hills, Khliehriat / Ri-Bhoi District, Nongpoh / East Garo Hills, Williamnagar / North Garo Hills, Resubelpara / West Garo Hills, Tura / South Garo Hills, Baghmara / South West Garo Hills, Ampati / (F&ES), Meghalaya, Shillong / Spl. Supdt. of Police, (SB-I) / (SB-II), Meghalaya, Shillong
13. The Commandants, 1st MLP Bn. Shillong / 2nd MLBP Bn. Goeragre, Tura / 3rd MLP Bn. Sahnsein, Jaintia Hills / 4th MLP Bn. (IRBN), Sohpien, West Khasi Hills, Nongstoin, Commandant 5th MLP Bn. Samgong, Williamnagar./ Commandant 6th MLP Bn. Camp Shillong / Commanding Officer SF10
14. Notice Board
15. M/S. _____

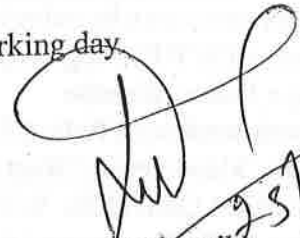

25/10/19.
Superintendent of Police (C) MPRO
Meghalaya, Shillong

IMPRIINT FOR PUBLICATION IN NEWSPAPERS (One Impression Only)

TENDER NOTICE

Sealed tender affixing non-refundable court fee stamp of Rs.1000/- (Rupees One thousand) only are invited from bonafide, established, reputed manufacturers or their authorised dealers/agents/ representative for entering into the rate contract for the supply of **“Radio Equipments”**

Tender will be received upto 1400 hrs. on the 26th November, 2019 and will be opened on the same day at 1500 hrs. Detail information/related documents in connection with the tender can be collected from the office of the undersigned on any working day.



25/10/19

(W.Nongkynrih)
Superintendent of Police (C) MPRO
Meghalaya, Shillong

CERTIFICATE OF ACCEPTANCE OF TERMS AND CONDITIONS
(To be furnished along with the tender documents)

I/We have read and fully understood the terms and conditions as laid down in the NIT
Vide No. M/No.MPRO/PLN/06(MPFS-GEN)P-XIII-2016-19/88- A, Dtd.Shillong the 25th October, 2019
in respect of supply of "Radio Equipments" to the Office of the Superintendent of Police (C) MPRO,
Meghalaya, Shillong due to be opened on 26th November, 2019

I/We agree to abide by the same

I/ We have signed all the pages of the tender documents as laid down.

Signature and seal of the Tenderer or
his/her Authorized signatory.
Dated.....

Name.....

Address.....

Phone No.....

List of Items/Equipment with Technical specifications

Standards
15 Nos

1. VHF Digital Handheld Radio:

1. General

Sl. No.	Description	Required Specifications
1.1	Frequency Range	136-174 MHz
1.2	TDMA	2-Slot
DMO Mode - For TDMA dual slot without Repeater		
1.3	Channel Capacity	255 or More (Set with display) 16 Channel (Set without display).
1.4	Channel spacing	12.5 KHZ
1.5	Battery Capacity	Li-ion / Li-Poly rechargeable battery of capacity 2000 mAh or higher capacities. Complying applicable BIS Standard
1.6	Average Battery duty cycle 5/5/90	Digital : 10 Hrs or more Analog : 8 hrs or more
1.7	Frequency stability	± 1.5 PPM or better
1.8	Antenna Impedance	50Ω
1.9	Antenna	Helical Antenna
1.10	Weight	Less than 500 gm with battery
1.11	EMI/EMC	ETSI EN 301 489-1 & ETSI 301 489-5 /
1.12	Air Interface Standards	Shall be opens Standards DMR Tier – II

2. Transmitter

2.1	RF Power output	1 to 5 Watts (Programmable)
2.2	FM Emission	11K0F3E 7K60FXE, 7K60FXD, 7K60FXW
2.3	Digital Modulation	4 FSK
2.4	Modulation Limiting	±2.5KHz at 12.5KHz
2.5	FM Hum/Noise	- 40dB or better
2.6	Adjacent Channel Power	- 60dB or better
2.7	Audio distortion	Less than 3%
2.8	Audio Response	+ 1 , -3dB
2.9	Digital Vocoder	AMBE +2
2.10	Communication Security	System should have in built encryption and should also have provision to support 3rd Party Encryption

3. RECEIVER

3.1	Selectivity (Analog)	0.3μV(12SINAD)or better
3.2	Sensitivity (Digital)	0.3μV at 5% BER or better
3.3	Adjacent Chanel Selectivity	60dB or better
3.4	Inter modulation	70dB or better
3.5	Audio output	Minimum 500 mW
3.6	Audio Distortion	less then 3%

4. ENVIRONMENTAL

4.1	Operating Temperature	-30°C to + 55°C
4.2	Storage Temperature	-40°C to + 70°C
4.3	Humidity	95% Max at 40°C non – condensing
4.4	Vibration	MIL-STD-810 F/G
4.5	Shock & Drop	MIL-STD-810 F/G
4.6	Water intrusion & Dust	MIL-STD-810 F/G or IP-67
4.7	Salt	MIL-STD-810 F/G
4.8	Rain	MIL-STD-810 F/G
4.9	Low Pressure	MIL-STD-810 F/G

Feature wise Configuration.

5. ACCESSORIES

- 5.1 Battery Charger
- 5.1.1 Input Voltage 230 V \pm 10%, 50 Hz
- 5.1.2 Output Voltage As per battery pack (Information will be provided by OEM / Vendor)
- 5.1.3 Type of Battery Li-ion/Li-Poly
- 5.1.4 Protection 1) Reverse polarity protection 2) Short circuit protection
- 5.1.5 Indication Visual indication for all modes of charging status
- 5.1.6 Charging Time Standard chargers - 6 to 14 Hrs., Rapid Charger - 1 to 3 Hrs
- 5.1.7 No. of Charging 1/2/6 (Vendor to quote accordingly)
- 5.2 Hand free Kit (VoX unit with PTT) (Optional) The offered sets should be compatible with any one or more of the following variants 1) Bone Conduction 2) Ear Plug 3) Headphone, etc.
- 5.3 Programming Kit All necessary Software and Hardware required for programming of the set independently for lifelong support with regular updates.
- 5.4 Literature a) User manual with each radio sets should be provided free of cost in soft as well as hard copy. b) Technical repairing & maintenance manual, with complete block diagram, circuit layout, PCB layout, component & wiring diagram etc. should be provided as per user's requirement in soft as well as hard copy.
- 5.5 No. of Battery Two lithium - Ion or Li-polymer batteries with each radio set
- 5.6 Case One good quality case with belt clip & shoulder strap to house the Radio Sets in operation

6. Configuration

- 6.1 Simple press to talk
- 6.2 Low battery alert
- 6.3 Continuous Tone Coded Squelch System (CTCSS)
- 6.4 Mixed Mode Operation (Analog and Digital)
- 6.5 Any one of 2 - Tone/5 - Tone/ DTMF signalling.
- 6.6 Busy Channel Lockout.
- 6.7 Selective call Decode / Encode.
- 6.8 Capable of VOX hand free operation.
- 6.9 P.T.T. ID Encode
- 6.10 Chanel Scanning with call quieting facility.
- 6.11 Emergency SOS/SIREN
- 6.12 Talk around Mode
- 6.13 Automatic Number Identification (ANI)
- 6.14 Text messages and predefined message
- 6.15 Should have built - in GPS feature
- i) Time to First Fix (TTFF) cold start : < 2minutes ii) Time to First Fix (TTFF) hot start : < 20 seconds
- Horizontally accuracy : <10 meters

1. General Requirements

1. Technical

S.No.	Description	Required Specifications
1.1	Frequency Range	136-174 MHz
1.2	TDMA	2-Slot
1.3	Channel Spacing	255 or More Channel (Set with display)
1.4	Channel spacing	12.5 KHZ
1.5	Operating Voltage	10.8 V to 15.6 V DC
1.6	Protection	1) Receiver polarity protection 2) Protection against high VSWR
1.7	Frequency stability	± 1.5 PPM or better
1.8	Antenna Impedance	50Ω
1.9	Weight	Less than 2 Kg.
1.10	EMI/EMC	ETSI EN 301 489-1 & ETSI 301 489-5 /
1.11	Air Interface Standards	Shall be open Standards DMR Tier - II
1.12	Interoperability with minimum two vendors	IOP Certification from Technical Working Group (TWG)
1.6	Average Battery duty cycle 5/5/90	Digital : 10 Hrs or more Analog : 8 hrs or more
1.9	Antenna	Helical Antenna

2. Transmitter

2.1	RF Power output	5 to 25 Watts / 25 to 40 Watts (Programmable)
2.2	FM Emission	11K0F3E 7K60FXE, 7K60FXD, 7K60FXW
2.3	Digital Modulation	4 FSK
2.4	Modulation Limiting	±2.5KHz at 12.5KHz
2.5	FM Hum/Noise	- 40dB or better
2.6	Adjacent Channel Power	- 60dB or better
2.7	Audio distortion	Less than 3%
2.8	Audio Response	+ 1 , -3dB
2.9	Digital Vocoder	AMBE +2
2.10	Communication Security (Option)	System should have in built encryption and should also have provision to support 3rd Party Encryption

3. RECEIVER

3.1	Sensitivity (Analog)	0.30μV (12 dB SINAD) or better
3.2	Selectivity (digital)	0.30μV at 5% BER or better
3.3	Adjacent Chanel Selectivity	60dB or better
3.4	Inter modulation	70dB or better
3.5	Audio output	Minimum 500 mW
3.6	Audio Distortion	less then 3%

4. ENVIRONMENTAL

4.1	Operating Temperature	-30°C to + 55°C
4.2	Storage Temperature	-40°C to + 70°C
4.3	Humidity	95% Max at 40°C non - condensing
4.4	Vibration	MIL-STD-810 F/G
4.5	Shock & Drop	MIL-STD-810 F/G
4.6	Water intrusion & Dust	MIL-STD-810 F/G or IP-54
4.7	Salt	MIL-STD-810 F/G
4.8	Rain	MIL-STD-810 F/G
4.9	Low Pressure	MIL-STD-810 F/G

1. General

Sl. No.	Description	Required Specifications
1.1	Frequency Range	136-174 MHz
1.2	TDMA	2-Slot
1.3	Operating Mode	Dual standard (Digital & Analog)
1.4	Operating Selection	Fully automatic for Analog & Digital
1.5	Channel Capacity	16 or more
1.6	Channel spacing	12.5 KHZ
1.7	Operating Voltage	11.25 V DC and 230 V AC \pm 10%, 50 Hz
1.8	Frequency stability	\pm 1 PPM or better
1.9	Interface	Ethernet port for IP connectivity
1.10	Antenna Impedance	50 Ω
1.11	Duty Cycle	100%
1.12	Weight	Less than 15 kg.
1.13	Display	Indicator for Transmit & Receive
1.14	VSWR	Better than 1.5
1.15	Protection	Receiver polarity protection
1.16	EMI/EMC	ETSI EN 301 489-1 & ETSI 301 489-5

2. Transmitter

2.1	RF Power output	25 to 50 Watts (Programmable)
2.2	FM Emission	11K0F3E 7K60FXE, 7K60FXD, 7K60FXW
2.3	Digital Modulation	4 FSK
2.4	Modulation Limiting	\pm 2.5KHz at 12.5KHz
2.5	FM Hum/Noise	- 40dB or better
2.6	Adjacent Channel Power	- 60dB or better
2.7	Audio distortion	Less than 3%
2.8	Audio Response	+ 1 , -3dB

3. RECEIVER

3.1	Selectivity (Analog)	0.3 μ V(12 dB SINAD)or better
3.2	Sensitivity (digital)	0.3 μ V at 5% BER or better
3.3	Image Rejection	65dB or better
3.4	Adjacent Chanel Selectivity	60dB or better
3.5	Inter - modulation	70dB or better
3.6	Audio distortion	Less than 3%

4. ENVIRONMENTAL

- (i) Operating temperature : -30°C to + 55°C
- (ii) Storage temperature : -40°C to + 70° C
- (iii) Humidity: 95%Max. at +40°C non-condensing

5. Accessories

5.1	Battery cable & Mounting fixtures	Should be supplied with Repeater
5.2	Antenna	6dB gain Omni Directional antenna with 30 meter RF Cable RG-217 for base station will be provided as per user's requirements.
5.3	Programming Kit	All necessary Software and Hardware required for programming of the set independently. Software must support latest Windows OS

The technical drawing of the equipment shall be as per the block diagram in figure will be found in the

Quantity

4 Nos.

IV. HF Static Transceivers

1.1 General Specification

- | | | |
|----|---------------------|--|
| 1 | Frequency Range | 2.0 MHz to 29.9999 MHz with 100 Channel Spacing and 10 Hz Resolution. |
| 2 | Modes | SSB (J3E) USB, LSB, AM/AM(E), CW/MCW, AFSK |
| 3 | Preset | 100 Channels or more |
| 4 | Frequency Stability | ± 1 PPM or better |
| 5 | Built-in-test | Front panel testing. |
| 6 | Input Power | + 12 V OR 24V \pm DC Nominal & 230V \pm 10% AC |
| 7 | Power Consumption | ≤ 40 W in Receive & ≤ 450 W in Transmit |
| 8 | EMI/EMC | MIL-STD-461/462C or ETSI or CISPR 22 or IEC 61000-4 Series (TEC/EMI/TEL-001/01 FEB-09) or latest standard |
| 9 | Weight | Less than 17 KG |
| 10 | Antenna Impedance | 50 Ω Unbalanced |
| 11 | Protection | (i) Reverse Polarity protection (without fuse)
(ii) Protection against high VSWR.
(iii) Over Voltage and under Voltage Protection. |
| 12 | Roles | Fixed/ Transportable/Mobile |
| 13 | Headphone Impedance | Up to 600 Ω |
| 14 | Cooling | Built in fan/ Heat sink |
| 15 | VSWR | Better than 1.5 |
| 16 | Visual display | Front panel LCD /LED display or latest technology |
| 17 | Interface | RS-232/ USB |
| 18 | Programming | PC programming software and front panel Programming. |

1.2 TRANSMITTER

- | | | |
|---|-----------------------------|---|
| 1 | RF Power | 20W to 100W PEP (Low, Medium, High) As per user requirement with programmable feature |
| 2 | Spurious Emission | ≤ 40 db below PEP |
| 3 | Side Band Suppression | ≥ 50 db or better |
| 4 | Carrier suppression | ≥ 40 db or better |
| 5 | Inter modulation distortion | 30db min. below PEP |
| 6 | Audio Response | Within 6db from 350Hz to 2700Hz. |
| 7 | Side Tone Level | Better than 0.1 mW into 150 Ω load for 5mV of audio input at 1 KHz. |
| 8 | Modulation Sensitivity | 1 to 10mV at 1 KHz for full power under SSB mode. |

1.3 RECEIVER

- | | | |
|---|----------------------|-----------------------------------|
| 1 | Receiver Sensitivity | -107 dbm for 10db SINAD or better |
| 2 | Image Rejection | ≥ 70 db or better |
| 3 | IF Rejection | ≥ 70 db or better |

5	Audio Response	Within ± 6 db from 350Hz to 2700Hz
6	Audio Output	1 W across loudspeaker or more
7	Audio Frequency Harmonics Distortion	≤ 25 db or better

1.4 Environmental

1	Operating Temperature	-30° C to + 55° C
2	Storage Temperature	-30° C to + 60° C
3	Humidity	95% non-condensing @ 40°C
4	Dust	} MIL-STD-810F or better Or JSS-55555 (As laid down I Class L3 of JSS-55555, revision No. 2)
5	Vibration	
6	Shock	
7	Altitude	

1.5 Features:

1	Selective calling	Digital FSK coding (4/6 digit select call)
2	Scanning	5 channels per second or better
3	Flash messages	Minimum 60 characters
4	Vocoder	MELP/ACLP (1200/2400 bps) or better
5	In built Data Modem	MIL-STD-188-110A/B/C single tone ≥ 4800 bps
6	GPS Interface	Inbuilt GPS with polling facility
7	Data Communication	Provision for data communication
8	Tele Call	The Radio set should have capability to dial and operate data
9	RS-232 control	The Radio set should have capability to operate at 4800 baud rate or better.
10	Tuneable receiver	Continuous tuneable.
11	Radio kill/ un-kill	Should have kill/un-kill function
12	Remote Operation	Capable to operate from remote location.
13	Audio input sockets	Mic and external socket.
14	Squelch	Voice/Digital squelch.
15	Push to talk.	Suitable Microphone to be provided

ESSENTIAL ACCESSORIES (To be Supplied With Set And Will be included in unit Price)

- Battery lead
- User manual
- Microphone
- Headphone
- Morse key
- Broad Band Antenna with 30 meter RF cable/ connector
- Service/ Technical Manual
- Programming Kit/software
- Power Supply 12 Volt 30 AMP

	Computerised Data Communication Systems, AMSS software, Radio Modem, UPS, Lupo Matrix Printers, Spike Busters
2	Four-Port Data terminal Communication Equipments Minimum Hardware Specifications or Higher
3	Processor: Intel® Pentium® J3710 Processor (1.6 GHz, up to 2.64 GHz, 2 MB cache, 4 cores)
4	HDD 1 TB 7200 rpm SATA
5	Memory 4 GB DDR3L-1600 SDRAM (1 x 4 GB)
6	Monitor Intel® HD Graphics
7	Chassis Compact & small
8	Serial Card with 4 dedicated ports which can be upgraded upto 8 port on single machine
9	Having provision for connectivity like RS 232, BEST, UHF/VHF/HF Radio Modems and PSTN, POLNET
10	Having facility to connect Two Printers for Tx & Rx
11	Message Acknowledgement
	Software: Window based or above with license Having bilingual facility for message/data communication software for 4 port to provide following facilities :
	Message editor
	Message Scheduler
	Message Administrator
	On Screen Connection Status
	Log File Generation
	New Message Arrival indicator
	Should have different Folders for Received / Send/ Draft messages etc
12	Address Book facility
13	Should also support customized format of user.
14	Should support/work with Serial port interfaces such as BEST/ Radio/ V -Sat Terminal of POLNET/AMSS. The Communication software should be capable to interact with existing messaging system.
15	Must have provision to interface with LAN / Internet/ Intranet.
16	Software should have facility to send the binary files attachment through Radio Modem / V-Sat/ Internet/ Intranet.
17	Should have Acrobat Writer to avoid any editing on receipt of message attachment
18	Terminals at Control Room with Automatic Switching Software
18.1	In addition with above features. the offered software of the Terminals at Control Room should support the following:
	IP based protocols (SMTP & POP3) like UDP Multicast
	Multiple file (Binary) attachment
	LAN, V -Sat & Satellite Phone Connectivity
	Automatic Re-routing of message recd from remote terminals
	End- to- End Message acknowledgment
	Automatic Alternate Route Selection
	Message Transmission Priority
19	User and Administrator Password
20	The System Shall be compatible with the existing Data Communication system and existing HF sets of MPRO in respect of Data transmission/reception at the rate of 300 bps
21	The system shall be compatible with the existing Data Communication system and existing

	VHF sets of MPRO viz. PRM 8020, GM 300, GM 338, GM 950+ in respect of Data transmission/reception at rate up to 9600 bps.
22	UPS -650 VA offline UPS (Minimum 30 Min Backup on full load, Line Interface)
23	Data Interface Radio Modem HF/ VHF/ Radio Modem with Supply and necessary Interfaces for radio set along with set of cables (having 2 Radio Interface Port)
24	Automatic message switching software (AMSS) for 4-port operation
25	Dot Matrix Printer: DM Printer 24 pin 80 col 300 CPS at 10 CPI Dot Matrix Printer, One Parallel Capability of Printing of 1+3 copy
26	Electric Spike Buster

VHF/HF RADIO DATA MODEM

GENERAL		Tender Specifications	
1	Software Features	:	Support many interface including (HF/VHF/UHF)
		:	Support max.9600bps modem on VHF/UHF
		:	DOS as well as windows rich text printing
		:	End to End acknowledgement
2	Hardware Features	:	Fast Digital Signal Processor
		:	300,1200 and 9600 bps packet
		:	All standard HF and VHF modes
		:	Two switchable radio ports with rear panel AFSK adjustment and another for 9600 bps
	Technical Specification		
	Modulator		Phase continuous sinewave, AFSK generator
	Modulator output level		5-200mV RMS
	Power requirement		+12 to +16VDC @590mA (700mA recommended)
	Radio Interface		Two 5 pin connectors, front penal selectable
	Terminal Interface		RS-232-c 25 pin DB-25 connector
	Terminal data rate		Auto baud settings at 300,600,1200,2400,4800 &9600 bps

Quantity

5 Nos.

VI. AC Portable Generator Set

i) Power	-	2500 Watts
ii) Voltage	-	230 A.C
iii) Engine Weight	-	Approx 20kg
iv) Engine HP	-	5.5 HP
v) Phase	-	Single
vi) Altenator	-	2.5 kVA

Quantity

5 Nos.

VII. AC Main Charger for 12 V Lead Acid Battery

i) Battery Voltage	-	12 to 24
ii) Product Type	-	Automatic
iii) Output Voltage	-	13.8 V
iv) Current	-	15 A
v) Voltage	-	230 A.C
vi) Input Voltage	-	12 TO 24 V