

**OFFICE OF THE ADDL. DIRECTOR GENERAL OF POLICE (COMMN) ASSAM
ULUBARI, GUWAHATI-781007**

No. RE/113-B(EQ)/2017-18/24

Dated Guwahati, the 21th July'2017

Notice Inviting Tender

Sealed quotations affixing court fee stamp of Rs 8.25 (Rupees Eight and paisa Twenty five) only (non-refundable) are hereby invited by the undersigned from the reputed manufacturers, accredited agents of manufacturers and Authorised Dealers for supply of the following items.

1. Wireless Point to Point Radio Link” (for Digital UHF Repeater to Repeater connectivity)
2. Test & Measuring Instruments
3. Portable AC Genset
4. 12 V SMF Battery
5. Battery Pack (Li-Ion & Ni-Mh) for Kenwood STK-270G
6. Yagi Antenna(136-174 MHz)

Tenders will be received upto **1500 hr on 16/08/2017** in the office of the undersigned. The tender will be opened on the same date **at 1530 hr.** If the office remains closed, the tender will be opened on the next working day at the same time and venue. Tender shall be superscripted in red ink with **“Tender for ”**, mentioning the items quoted in the tender.

Details of item with general terms and conditions and technical specifications may be obtained from the office of the undersigned on any working day during office hours upto **1400 hr on 14/08/2017** by submitting a requisition along with uncrossed IPO / Bank Draft payable in favour of the **Director of Police (Commn), Assam of Rs. 500.00** (Rupees five hundred) only or may also download the NIT from the Assam Police Website www.assampolice.gov.in. In that case the tenderer will have to deposit the cost of tender documents through uncrossed IPO / Bank Draft / DCR at the time of submission of tender.

Sd/-

(Dr. U. Barman)

Director of Police (Commn) Assam
Ulubari, Guwahati-781007

No. RE/113-B(EQ)/2017-18/24-A

Dated Guwahati, the 21th July'2017

Copy to:-

1. The Addl. Director General of Police (Commn.), Assam, Ulubari, Guwahati-7 for favour of kind information.
2. The Addl. Director General of Police (Admin.), Assam, Assam Police Headquarters, Ulubari, Guwahati-7 for favour of kind information.
3. The CPRO, Assam Police HQrs., Ulubari, Guwahati for information and necessary action. He is requested to pass necessary order for publication of the above tender notice at least 2(two) Newspapers as well as to upload in the Assam Police Website for wide publication.
4. Notice Board, APRO HQ, Ulubari, Guwahati-7

Sd/-

Director of Police (Commn) Assam
Ulubari, Guwahati-781007

IMPORTANT INFORMATION SHEET

Sl. No.	Particular	Details
1.	NIT Number	RE/113-B(EQ)/2017-18/24 Dtd.21-07-2017
2.	Start date of issue of NIT	25/07/2017
3.	Last date and time for receipt of quotations	16/08/2017 at 3:00 PM
4.	Date and time of opening of Technical Proposals	16/08/2017 at 3:30 PM
5.	Date and time of Technical Demonstration / Presentation	Will be intimated to the qualified Vendors either through fax or letter or e-mail.
6.	Date and time for opening of Commercial bids	Will be intimated to the qualified Vendors either through fax or letter or e-mail.
7.	Venue for opening of proposals	APRO Headquarter, Ulubari , Guwahati, Assam-781007 Tel – 0361- 2464455, 2970187, 2462275 Fax: 0361- 2970184
8.	Cost of the Tender document	Rs. 500/-
9.	Earnest Money Deposit (EMD)	2% of total quoted amount.
10.	Bid Validity	Bids must be valid for acceptance for a minimum period of 365 (three hundred sixty five) days from the bid closing date.
11.	Website	www.assampolice.gov.in

**OFFICE OF THE ADDL. DIRECTOR GENERAL OF POLICE (COMMN) ASSAM
ULUBARI, GUWAHATI-781007**

TENDER (GENERAL TERMS AND CONDITIONS)

No. RE/113-B(EQ)/2017-18/24

Dated Guwahati, the 21th July'2017

Sealed tender on plain papers affixing (in Technical Bid) non refundable court fee stamp of **Rs. 8.25** (Rupees eight and Paise twenty five) only is invited from intending Manufactures or their Authorized Agents, Dealers and Distributors for supply of the following items.

1. Wireless Point to Point Radio Link” (for Digital UHF Repeater to Repeater connectivity)
2. Test & Measuring Instruments
3. Portable AC Genset
4. 12 V SMF Battery
5. Battery Pack (Li-Ion & Ni-Mh) for Kenwood STK-270G
6. Yagi Antenna(136-174 MHz)

1. The tender will be **received** up to **1500 hrs. on 16/08/2017** No tender received thereafter will be accepted and the undersigned shall not be responsible for any delay in submission of tender. All tenders received after the due date & time shall not be considered and will be kept un-opened and will be returned on request. Intending tenderers shall submit tenders in the Reception Counter Assam Police Radio Organisation Headquarter, Ulubari, Guwahati-7, Assam. **The tender Box will be opened on the same day or on subsequent working day if it falls on Govt. holiday at 1530 hrs.** in presence of tenderers or their authorized representative present at that time. Tenders can also be submitted by post but the Deptt. shall not be liable for any postal delays. No Tender will be accepted after the due date and time.

2. Intending tenderers may collect tender paper / documents on payment of **Rs. 500/-** (Rupees five hundred) only through uncrossed IPO / Bank Draft payable in favour of the **Director of Police (Commn), Assam**, on any working day during office hours up to **1400 hrs on 14/08/2017**. They may also download the NIT from the Assam Police Website www.assampolice.gov.in. In that case the tenderer will have to deposit the cost of tender documents through uncrossed IPO / Bank Draft / DCR at the time of submission of tender.

3. Vendors shall submit BIDS in two parts in separate sealed envelopes i.e. **TECHNICAL BID** and **PRICE BID**. Both these bids shall further be put in one envelop before putting in tender box, duly sealed.

4. All tenderers must submit their tenders along with the following documents
(in **Technical Bid**) complete in all respect and duly attested.

- I) Up date valid Sales Tax clearance certificate.
- II) GST Registration Certificate.
- III) Permanent Account Number.
- IV) Last year Income Tax Return.
- V) Bank account number, IFSC code with bank name.

VI) (a) **Earnest Money Rs 2% of total quoted amount** only, in the Form of **NSC / KVP/ FDR of Bank / Bank Guarantee with validity for at least 12 (twelve) months** in the name of the Proprietor / Partner or shareholder of the firm concerned duly pledged in favour of the **Director of Police (Commn), Assam.**

(b) Earnest Money of the unsuccessful bidder will be released after finalization of Tender.

(c) Earnest Money will be returned to the selected vendor after signing the Agreement and submission of Performance Bank Guarantee (PBG) @5% of the contracted value for the duration of contract.

(d) Any vendor which has claimed exemption of Earnest Money Deposits and Security Deposits, shall furnish a certified copy of an order from the concerned Regulatory Authority/Govt. of Assam awarding exemption of EMD indicating therein clearly that they are exempted.

VII) Passport size photograph of the tenderers.

Failure to enclose any one of these above documents or furnishing of invalid documents may result in rejection of the Bids from further evaluation.

5. The short listed tenderers will have to arrange for the Technical presentation and/or Field / Practical Demonstration of the Tendered Item if applicable at their own cost at the place and date to be fixed by the Authority. The bids of the firms/bidders who do not submit sample/arrange / participate in the demonstration as above will be treated as rejected.

6. Commercial bids of only those bidders will be opened who submit samples and/or appear for the demonstration as per clause 5 and are technically qualified.

7. Tenderers should furnish detailed Technical Specifications of the product along with MAKE, MODEL, MANUFACTURERS CATALOGUE / LEAFLET as well as sub-assemblies **(in Technical Bid)**, if any.

8. The specifications laid down in the NIT are the minimum configuration of the systems / items. Systems / items of better / higher configuration or better technology may be quoted for consideration.

9. Tenderers quoting Rates as Authorised Dealer / Authorised Distributor / Authorized Agent etc. must submit authority letter for the item (s) quoted from their manufacturers.

10. Tender should be clearly typed or written and the rates (net) should be written both in figure and words. There should not be any over writing, erasure in the rates. In case of over writing or erasure or any such alteration, the item shall be rejected outright.

11. Failure to fulfill the terms and conditions of the tender notice may lead to rejection of the bid without any reference to the tenderer and no correspondence will be entertained in this regard.

12. The rates once quoted will be final and no request for change/ alteration there to will be entertained thereafter. The rates should be quoted F.O.R. destination Addl. Director General of Police (Commn), Assam, APRO Headquarter, Ulubari, Guwahati-7, and should be inclusive of packing, transportation, all accessories and other ancillary expenses, GST, Customs Duty if any, should be shown separately. Otherwise the quoted price will be treated as inclusive of all taxes. The firms who need not pay taxes / duties against any of the items

should submit valid document in support of their exemption from payment of such taxes / duties. If the name of item is not in the exemption certificate, the tax will be deducted from the quoted price.

13. Rates quoted should be valid for 1 (one) year with a provision for further extension if finally approved.

14. Once the rates offered in the quotation are accepted, no enhancement will be entertained at any circumstances and tenderers will be liable to supply the items at the rate accepted by the Assam Police. Failure to supply the items at the accepted rates will entail the offer being cancelled and the security Money will be forfeited to the Govt. of Assam.

15. For imported items rate should be indicated separately i.e. rates with Custom Duty and rates without Custom Duty.

16. All pages of the tender document together with **terms and conditions and the documents enclosed with the tender shall be signed by the authorized signatory**. Acceptance signing of the Notice Inviting Tender and the detailed terms and conditions in the format of certificate enclosed shall be deemed as the final acceptance of these terms and conditions.

17. Tenders accompanied by all required documents be submitted under sealed cover and distinctly and conspicuously marked as **“Tender for Supply of _____”** mentioning the items quoted in the tender. On the top of the envelope the Name, Address with Tel. No. (if any) of the Tenderer should also be written legibly.

18. The approved tenderers will have to supply the articles at the approved rate and as per approved sample and specification till the date of validity of the approved list.

19. (a) The approved suppliers will have to execute the orders of supply within the time frame specified in the supply order.

(b) The indented stores will have to be supplied at the location that may be indicated in the supply order at no extra cost to the indenter. The Indented stores shall be received by the committee authorized for the purpose, who will satisfy themselves as to the quantity, quality and specifications of the stores supplied as per the approved sample / MODEL.

20. **Inspection:** The inspection parameters shall cover the following:

The department (purchaser) may at its discretion carry out final inspection for functional efficiency.

All arrangements for arranging the test shall be provided by the supplier within the scope of technical parameters of tender.

During the field / practical demonstration, samples for testing shall be provided by the Bidder without any extra cost to Assam Police Radio Organisation.

21. **The Earnest Money of the unsuccessful tenderers will be released to them after finalization of the tenders.**

22. The Addl. Director General of Police(Communication), Assam does not bind himself to accept the lowest rate and may reject any or all the tenders without assigning any reason thereof.

23. The Addl. Director General of Police (Communication), Assam reserves the right not to place any order even after execution / acceptance of the formal contract agreement and for which no claim or compensation whatsoever will be entertained.

24. The Addl. Director General of Police (Communication), Assam may rescind forthwith the contract in writing if:

(a) A contractor assigns or sub lets any contract in respect of any other contract entered into with the Government.

(b) Tenderer or his agent or servants are found guilty of fraud of this contract or any other contract.

(c) Declines, neglect or delays to comply with demand / requisition or in any other way fails to perform or observe any condition of or all conditions of the Contract Agreement.

(d) The Tenderer having been Blacklisted or debarred by any Govt. / Semi-Govt. organizations on previous occasions for indulging in illegal, unethical, corrupt etc. practices.

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

(a) 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 is liable of disregarding 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 Addl. Director General of Police (Communication), Assam.

(b) Forfeiture of security deposit in whole or part.

(c) Making good the loss caused to the Government through the liability, neglect and delay in complying with the demand.

(d) Cancellation of the contract without any prior notice to the contractor.

26. **If the successful tenderer 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 Addl. Director General of Police(Communication), Assam may impose a ban upon such tenderer (s) for future business within the Department.

27. In case any manufacturing defect in the article supplied is detected or any damages to the equipment/item during transit / handling before final acceptance by the department, the Addl. Director General of Police (Communication), Assam will be at the liberty to return the stores at the expense of the suppliers who in turn will replace the stores without any financial liability to the department. Else the performance security deposit will be forfeited to the Govt.

28. The suppliers must conform to the Qualitative Requirement of the Product as prescribed by the Addl. Director General of Police (Communication), Assam. In case the supplies do not strictly conform to the QRs

prescribed and supplies are not made within the stipulated time, the same will not be accepted and security deposit will be forfeited to the Govt.

29. Warranty:- Tendered items will carry on replacement warranty as mentioned in the Tender Specification.

30. **Performance Security @ 5%** of the total value of supply order has to be deposited by the supplier in the form of NSC / FDR of Bank / Irrevocable Performance Bank Guarantee in favour of Director of Police (C), Assam at the time of signing of Deed of Agreement to ensure satisfactory performance of the items supplied with **validity for a period of** the entire warranty period. This deposit will be released in due course after the expiry of specified period. Performance Security will not accrue any interest.

31. Payment Schedule:

(i) No advance payment will be made in any circumstances.

(ii) 100% payment will be made after delivery / satisfactory final testing & acceptance by the Receiving Committee.

(iii) The prevailing rate of GST will be deducted at source from all bills of the contractor as per Assam Value Added Tax Rules.

(iv) The prevailing rate of Income Tax will be deducted at source from all bills of the contractor as per provision of the Income Tax Rule under Section 194C. Tax Deduction Certificate (TDS) in proper format will be issued.

32. Quantities mentioned above are only illustrative and may be increased / reduced on finalization of order depending on the availability of fund / actual requirements.

33. Risk of transportation will be borne by the tenderer themselves.

34. The bill may be submitted to this headquarter and payment thereof will be made only after:

(i) Satisfactory receipt by the Receiving Committee to be constituted for the purpose.

(ii) Satisfactory certification on the supply by concerning authorised person for the purpose.

35. Liquidated Damages

In the event of the Vendor's failure to submit the Guarantees and Documents and supply the materials as per schedule specified in this NIT, APRO may at its discretion withhold any payment until the completion of the contract. APRO may also deduct from the Vendor as agreed, liquidated damages to the sum of 0.5% of the contract price of the material, if they failed to deliver as per timeline (as detailed in this NIT) for every week of delay or part of a week, subject to the maximum value of the Liquidated Damages being not more than 10% of the value. This right to claim any liquidated damages shall be without prejudice to other rights and remedies available to APRO under the contract and law.

36. Force Majeure

If at any time, during the continuance of this contract, the performance in whole or in part by either party of any obligation under this contract shall be prevented or delayed or becomes impossible or unlawful by reason of any war, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes,

lockouts or act of God (hereinafter referred to “events”) provided, notice of the happening of any such event is given by either party to the other within 21 days from the date of occurrence thereof, neither party shall by reason of such event, be entitled to terminate this contract nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance, and deliveries under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, and the decision of the Purchaser as to whether the deliveries have been so resumed or not, shall be final and conclusive, PROVIDED FURTHER that if the performance in whole or part or any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 60 days, either party may at its option terminate the contract provided also that if the contract is terminated under this clause, the purchaser shall be at liberty to take over from the contractor at a price to be fixed by the Purchaser, which shall be final, all unused, undamaged and acceptable materials, bought out components and stores in course of manufacture in the possession of the contractor at the time of such termination or such portion thereof as the purchaser may deem fit excepting such materials, bought out components and stores as the contractor may with the concurrence of the purchaser elect to retain.

37. All the legal proceedings arising out of any dispute between the parties shall be settled within the territorial jurisdiction of the Courts in Assam.

Sd/-
Director of Police (Commn), Assam
Assam Police Radio Organisation,
Ulubari : : Guwahati : : Assam

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. dtd. in respect of supply of
“
 for APRO, Ulubari, Guwahati” due to be opened on

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 Vendor or his
Authorised signatory

Dated

Name

Address

.....

Phone No.

Fax No.

E-mail

I. Specification for “Supply, Installation and Commissioning of Wireless Point to Point Radio Link” (for Digital UHF Repeater to Repeater connectivity) – 3 pairs.

Microwave Radio Link is required to connect Repeaters within the District and for backhaul connectivity. Repeaters will be placed minimum of 40 KM aerial distance with minimum of 80 ft long aerial mast/towers. Vendor will ensure seamless connectivity for aforesaid radios in the Guwahati City.

A) Scope of Work:

Scope of works includes Planning, RF Survey, Supply, Installation, Testing, Commissioning of 2.4 GHz / 5.8 GHz Microwave Radio Systems along with Antenna, Inter-connect cable and other associated accessories.

The basic scope of works related to planning, installation and commissioning covered in the present tender includes as follows:

- i) Planning and RF Survey
 - Planning of Radio Systems according to available carriers
 - RF Survey for deciding Antenna Size, length of RF cable and quantity of other installation materials according to capacity of link, hop distance and space available in the towers.
- ii) Supply of Radio equipment and other items as per tender specification
- iii) Supply of all installation materials such as cable, etc.
- iv) Installation of Radio equipment:
 - Installation of Radio equipment as required.
 - Wiring of power cables, data cables etc.
 - Provisioning of run-way for cables, waveguide etc. if required.(The runway/cable tray shall be of standard make. The actual length of tray shall match with the cable length and may be decided after the field survey.)
 - Installation of RF/IF inter-connect cable from Radio equipment to Antenna on run-ways by suitably fixing/hanging, etc.
- v) Antenna installation:
 - Mounting of Antenna.
 - Hoisting of antenna (including ODU) in existing tower
 - Alignment of the antenna for proper gain and other activities required for commission of the link.
- vi) Testing and commissioning of the system: The system is to be tested to satisfy the requirement of APRO.

B) Features and Specifications

The Microwave Radio shall have following minimum features.

- a) 50 MBPS or more net aggregate throughput
- b) Provide Ethernet and TDM enabling seamless migration from TDM to all IP network
- c) Provide minimum range of 40 KM with LOS/NLOS condition
- d) Robust enough to withstand the local atmospheric conditions
- e) QoS, VLAN capability
- f) Support point-to-point and multiple point-to-point topologies and support intra site and inter site synchronization
- g) Support non license band 2.4 GHz. / 5.8 GHz.
- h) It should support multi Band Radio in multiple frequency band.

Architecture: (a) Outdoor unit with antenna & (b) Indoor Unit

Equipment will be supplied with required accessories viz directional antenna, PSU, cables etc.

Important points to be Noted and complied:

- (i) Bidder should perform on site survey before quoting.
- (ii) Rate should be inclusive for IP enabling of existing Digital UHF Repeater.
- (iii) Bidder will provide all the technical support in installation of the network in Guwahati City. Bidder will be responsible to establish connectivity within the radios, Repeater to Repeater connectivity. Technical personnel of APRO will be deputed along with representative of bidder for the purpose.
- (iv) Testing Committee will check all the aforesaid parameters in the entire frequency range mentioned 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.

Performance Parameters:

- (i) The quality of connectivity noted at the time of acceptance after successful installation should be maintained throughout the warranty period.
- (ii) Output Power (Coverage area) of the wireless link should not decrease in any weather condition after successful installation.

C) Warranty

Warranty for Equipment, Accessories & connectivity issue is **3(Three) years**. Warranty period will start from **successful installation and commission**.

II. Specifications of test & measuring instruments

SI No	Item Name	Specifications	Qty.
1.	Smart heat based SMD Rework station	Power consumption: 50W- 70W Temperature Range: 200° – 450° C minimum. Power requirement : 230V ±10% at 50 Hz A.C. Mains.	2
2.	FM/AM Signal Generator	Freq range: 1GHz or above Type of signal: Sine/ Square, Triangle etc. Modulation: Internal & External, facility for AM, FM, FSK, PSK Power requirement : 230V ±10% at 50 Hz A.C. Mains.	1
3.	Frequency Counter	Freq. Range : 1 GHz or above Power Requirement : 230V ± 10% at 50Hz, A.C. Mains	1
4.	Function Generator	Freq. range: 1Hz to 5MHz in different ranges Output waveforms : Sine, Square, Triangle, ramp, Pulse etc. Power Requirement : 230V ± 10% at 50Hz, A.C. Mains	2
5.	Analog Multimeter	Ranges : DC Voltage : 1000V AC Voltage : 1000V DC Current : 10 A AC Current : 10 A Resistance : 20 MOhm	12
6.	Digital Multimeter	DC Voltage Range : 1000V AC Voltage Range : 1000V AC current Range : 10A Resistance Range : 20 MOhm	12
7.	AC Mill Volt Meter (Analog)	Freq range : 20Hz - 3 MHz Voltage Range : 1mV-300 volts AC covered in 12 ranges with full scale deflections of 1mV, 3 mV, 10mV, 30mV, 100mV, 300mV, 1V,3V, 10V, 30V, 100V & 300 Volts.	4

Sl No	Item Name	Specifications	Qty.
8.	Dual Trace Digital Storage Oscilloscope	50MHz dual trace Digital Storage Oscilloscope Sensitivity: 2 mV/DIV Counter: Built in Frequency Counter Accuracy: +-3%, +-5% at x5 Input Resistance: 1 MΩ + 2% Operating Modes: CH 1, single trace CH 2, single trace ALT: Dual trace, alternating Power Requirement: 230V ±10% at 50 Hz A.C. Mains.	2
9.	AF Output Meter	Freq range : 3 MHz or above Output Power Range : 5mW, 50W, 0.5W, 5W, 15W, 50W and 150W full scale Impedance Ranges (Load) : Switch selected impedance preferably upto 10K ohms.	2
10.	RF Output Meter	Frequency: 200 kHz to 1 GHz Power requirement: Rechargeable Battery	2
11.	Antenna Tester	Freq Range: 2 MHz to 1 GHz Features : <ul style="list-style-type: none"> Should be able to measure Impedance, Resistance, Reactance, VSWR & Return Loss of Antenna System Should be able to pin-point location of fault in RF Cable 	2

III. Specification for Portable AC Genset

1. 2100 VA Portable AC Genset:

5(five) nos.

PARAMETER	SPECIFICATION
Max Output(VA)	2100
Rated Output(VA)	1800
Rated Voltage(V)	230
Frequency(Hz)	50
Rated Ampere(A)	7.3
Power Factor	0.8
Start System	Recoil
Noise Level(Db)	≤ 86

2. 850 VA Portable AC Genset:

3(three) nos.

PARAMETER	SPECIFICATION
Max Output(VA)	850
Rated Output(VA)	750
Rated Voltage(V)	230
Frequency(Hz)	50
Rated Ampere(A)	3.3
Power Factor	0.8
Start System	Recoil
Noise Level(Db)	≤ 86

IV. Specifications of 12 Volt SMF Battery - 150 nos.

Batteries offered shall meet the following specifications & requirements

Sl. No.	Battery Parameters	Requirements
1.	Type	Sealed Maintenance Free (SMF), batteries Valve Regulated Type(VRLA) conforming to Japanese Industrial standards JISC: 8702 / 1998 (part 1,2,3) or Indian Standard IS15549:2005 or better
2.	Chemistry	Lead -Acid
3.	Nominal Voltage	12 Volt
4.	Capacity	100Ah @ C/20 to 1.75V per cell
5.	Purity of Lead	≥99.8%
6.	Construction features a) Heat Sink Body design, b) Movable handles and c) Protected terminals	
7.	Service life of the batteries should be minimum 3 years.	
8.	Provide 1300 cycle at 20% Depth Of Discharge (DOD).	
9.	Low self discharge lower than 3% per month as rated capacity under normal operating temperature.	
10.	Maintenance Free operation and high shelf life	
11.	Low Pressure venting system	
12.	Deep discharge recovery	
13.	Wide operating temperature range (0 to 50 degree)	
14.	Heavy duty grid	
15.	Uniform plate information for consistent capacity	
16.	The OEM (Original Equipment Manufacturer) should have ISO 9001 & ISO 14001 Standard compliant	

On site warranty : 1(one) Year

Performance Parameter :

- (i) Capacity of the Battery should not decrease below 90% after 6 month of operation.

V. Specification for battery packs of Handheld Radios - 150 nos.

i)

Nomenclature	Chemistry	Voltage and capacity
Battery Pack for Kenwood STK-270G	Li-ion and Ni-MH	7.2V 1450/2200 mAh(min)

- ii) Cycle Life to 80% of rated capacity: 400 cycles

iii) **Warranty:- Trans receivers Battery pack will carry replacement warranty of one and half year from the date of receipt.**

iv) **General:-**

- All Batteries shall be mechanically and electrically interchangeable with the corresponding Transceiver's models.
- The batteries should be OEM supplied battery.
- Battery lock should fit properly to the set.
- Belt clip should fit properly to the supplied battery.

v) Testing:-

- a) One Battery pack (each type) may be cut open at the time of Testing/Evaluation at the suppliers cost.
- b) During inspection, the battery packs shall be subjected to capacity test at C/20 rate and C/5 rates up to an end voltage depending upon the chemistry of the cells used in the battery pack. The battery capacity should not be less than the rated capacity when discharged at C/20 and C/5 rate.
- c) Drop test- battery should pass without damage (six drop each face).

vi) Marking: - The sleeve of the cells used shall have following information in explicit manner:-

- a) Part Number
- b) Month and year of manufacture/ Batch Number
- c) Voltage of Cell.

vii) The label of the battery should specify the following :-

- i. Name of manufacturer.
- ii. Battery Voltage.
- iii. Battery capacity.
- iv. Chemistry of Cells.
- v. Suitable for Model of set.
- vi. Serial No./ Part No. of battery.
- vii. Month & year of manufacturer
- viii. Logo/ Trade Mark of the supplier/ manufacturer to be embossed/heat stamped.

viii) The tenderer should furnish details of the protection circuits used and the circuit schematic be made available at the time of testing/evaluation.

Performance Parameter :

Capacity of the Battery should not decrease below 90% after 6 month of operation.

VI. Specifications of Yagi Antenna - 12 nos.

Yagi Antenna offered shall meet the following specifications & requirements

- i. Frequency Range :-136-174 MHz
- ii. Gain :- 12dBi
- iii. Band Width :- 8 MHz
- iv. VSWR :- Better than 1:1.5
- v. Mounting Hardware :- Stainless Steel

Sd/-

Director of Police (Commn) Assam

Ulubari, Guwahati-781007