

**U.T. Administration of
Daman & Diu AND Dadra & Nagar Haveli
(Police Department)
DAMAN**

No. DIGP/DD-DNH/Digital Trunked Radio (TETRA) System/101 Dated: 23 /02/2009

OPEN TENDER NOTICE

The Deputy Inspector General of Police Daman, Diu and Dadra and Nagar Haveli, Daman invites sealed tender on behalf of President of India for Supply, Installation, Integration and Commissioning of Digital Trunked Radio (TETRA) System for Daman, Diu and Dadra & Nagar Haveli Police Communication System as per description given below from the manufacturer / authorized dealers in India on or before **21/03/2009 at 15.00 hrs.**

S. No.	Item	Qty
1	TETRA Portable Subscriber Radios with battery and antenna, each with following Accessories (GPS enabled).	100 (Colour display)
a	Spare Battery	
b	Dual Pocket Charger	
c	Deleted	
d	Carrying Case with belt clip	
e	GPS Module	
f	User Manual	
2	TETRA Static Subscriber Radios with console, each with following Accessories. Minimum 3 Watts	50
a	Fist Microphone and loud speaker	
b	Antenna Unit	
c	30m Coaxial Cable	
d	Power Supply Unit cum battery charger	
e	User Manual	
f	12V 65 AH Battery	
	Optional: The bidder may also quote for higher wattage indicating the output power rating.	
3	TETRA Mobile Subscriber Radios (GPS enabled) with console, each with following Accessories. Minimum 3 Watts	50
a	Fist Microphone and loudspeaker	
b	Whip Antenna with 3 Mtr. Cable	
c	Deleted	
d	GPS Module with external antenna	

S. No.	Item	Qty
e	Deleted	
f	User Manual	
	Optional: The bidder may also quote for higher wattage indicating the output power rating.	
4	Deleted	
5	Deleted	
6	Switching Unit at Local Base Station (This is one of the 3 base stations)	01
a	Standard Cabinet	
b	Interfaces to connect to local and remote BTS	
c	Interface to Network Management System	
d	GPS antenna (if required)	
e	Power Supply Units AC/DC	
f	Software	
7	Network/ Subscriber Management System based on FCAPS Model	01
a	Software license	
b	PC Hardware & Software	
8	Interface/ Gateway	
a	Analog Gateway (Simultaneous)	3
b	Data Gateway(Simultaneous)	1
c	EPABX Gateway(Simultaneous)	2
d	AVL (Simultaneous)	1
9	Base Transceiver System (BTS)	3
a	Standard cabinet	
b	Radio transceiver unit (25 W) x 2 carriers	
c	Power supply AC/DC	
d	Interface to connect to switching unit	
e	Combiner and Splitter	
f	Receiver diversity	
g	Duplexer	
h	GPS antenna (if required)	
l	Software and basic configuration	
10	Dispatcher Unit (2 Line and 1 wireless) (OEM Certified H/W to be supplied)	03

S. No.	Item	Qty
a	Dispatcher application with hardware platform	
b	Data recorder / Logger	
11	Voice Recorder	01
12	Single port Programming kit including laptop licensed software, programming cables to cater for programming of Radio Units (handheld, mobile & static radios).	10
13	Tower (It is proposed to use three towers at Nani Daman, Silvassa, and Khanvel. However, the coverage plan is to be given by tenderer based on the specs of tender. If the survey by the tenderer identifies any additional/alternate site the cost of the tower is to be included. The tower should be complete with all accessories).	1 No.
14	Antenna Systems (for Tetra Tx & Rx Diversity) (Omni/ Sectoral as per requirement to cover the area specified in tender)	
	For Silvassa Site	2
	For Daman Site	1
15	Technical Manual for Portable Subscriber Radios	05 Nos.
16	Technical Manual for Static/Mobile Subscriber Radios	05 Nos.
17	Spares	
a.	Handheld	5
b.	Battery	10
c.	Handheld Charger	5
d.	Static: Transceiver	1
e.	Mobile Transceiver	2
f.	Fist Microphone	3
g.	Speaker	3
h.	Deleted	
i.	Base station carrier	2
j.	Base station controller	1
18.a	AVLS system including required hardware (servers) and licensed software to view all mobile and handheld terminals on upto 10 viewing clients simultaneously	1 Set
18.b	Digital map of the area required to be covered.	1
19	Site preparation including Shelter and Air	3 Sites

S. No.	Item	Qty
	conditioners (Each site with minimum two (2) no.'s of window AC each of 1.5 ton with one in standby mode)	
20	G.HSDSL Modems	6 Nos.
21	Power Arrangement	
A	DG Set – 10 KVA (minimum) for Central Site	01
B	DG Set – 6 KVA (minimum) for Base Station Site	2 Nos.
C	UPS – 6 KVA (minimum) for Central Site with one hour back-up	01
D	UPS – 2 KVA (minimum) for Base Station Site with one hour back-up	2Nos.
22	Microwave links to connect the remote BTS to central switch as well as interconnecting remote BTS in mesh configuration.	03
23	Special Maintenance Equipment like RCTS. (The equipment should be able to test parameters of TETRA system as well as microwave link.)	1 No.
24	Arrangement for charging minimum 10 TETRA handheld radios simultaneously	5

Note: The bidder shall quote separately in separate forms for different minimum power options as per requirements.

Terms and Conditions: -

1. The tender will be in two packet system i.e. Packet 'A' containing technical bids and Packet 'B' containing price/financial bids. Both shall be in separate sealed envelopes specifically super scribed as Technical Bids & Price Bids. Both envelop should be kept in one envelop duly sealed.
2. Price Bids will be opened only after confirmation of Technical Bid.
3. Tender document along with Technical Specification are available in the Office of the Deputy Inspector General of Police, Daman, Diu and Dadra and Nagar Haveli, Daman on payment of Rs. 5000/- Non Refundable by cash up to **20 /03 /2009 at 14.00 hrs.**
4. The Complete Tender document is available on the websites namely <http://www.daman.nic.in> , <https://www.dnh.nic.in> . Interested Tenderer can download the tender document from the websites for the purpose of submission of his Tender. However the Tenderer is required to pay **Rs. 5000/-** (Rupees Five Thousand only), Non-Refundable, through Demand Draft only, drawn on any nationalized bank at Daman, in favor of Deputy Inspector General of Police, in a separate envelope along with the Tender security (Part – I).

5. A pre-bid meeting for query/clarification, suggestion will be held on **05/03/2009 at 1130 hours** at the office of DIG/Police, Daman & Diu and Dadra & Nagar Haveli, Panch Rasta, Nani Daman, Daman. Submission of Queries on tender enquiry document if any should not be later than 04/03/2009 till 1700 hours through e-mail(pcrdamandiu@yahoo.co.in)
6. The sealed tender address to the Deputy Inspector General of Police Daman, Diu & Dadra and Nagar Haveli, Daman-396 210 should reach him on or before **21/03/09 up to 15.00 hrs.** by courier/R.P.A.D. the cover should be super scribed as **“Supply, Installation, Integration and Commissioning of Digital Trunked Radio (TETRA) System for Daman, Diu and Dadra & Nagar Haveli Police Communication System” DUE DATE -21 /03/ 2009**
7. The document attached along with the tender shall be duly attested.
8. The technical bids shall be opened on the same day i.e. on **21/03/2009 at 16.00 hrs.** in the presence of representative of tenderer if available at the above venue.
9. **All the technical qualified participants will be invited to demonstrate their mobile and handheld radio in Daman on 24.03.2009, if required.**

(Tajendra Singh Luthra) IPS
Deputy Inspector General of Police,
Daman, Diu and Dadra and Nagar Haveli,
Daman.

Copy to:-

1. The Field Publicity Officer, Daman with request to arrange to publish the above tender notice each in Gujarati, Hindi & National English Newspapers and Tender Notice cutting may be sent to this office and also to arrange to publish the above tender notice in India Trade Journal (ITJ), Published by the Director General of Commercial Intelligence and Statistics, Kolkata.
2. The District Information Officer (NIC) Daman along-with CD containing tender form including technical specifications, schedule of requirements, Pre-qualification criteria, terms and conditions for Publishing on websites of Daman and Dadra & Nagar Haveli.
3. All Head of Offices, Daman and Dadra & Nagar Haveli.

Daman, Diu
And
Dadra & Nagar Haveli
Police

Tender Enquiry

For

**Supply, Installation, Integration and Commissioning of
Digital Trunked Radio (TETRA) System for
Daman, Diu and Dadra & Nagar Haveli Police Communication
System**

**(No. DIGP/DD-DNH/Digital Trunked Radio (TETRA) System/ 101
Dated: 23 /02/2009)**

**Deputy Inspector General of Police,
Police Head Quarters,
UT Admn. of DD & DNH,**

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Section - 1
Invitation in Tender and Instructions to Tenderers
(ITIT)

Section - 1
Invitation in Tender and Instructions to Tenderers
(ITIT)

Office of the Deputy Inspector General of Police, Police Head Quarters, UT's of DD & DNH

(Invitation in Tender and Instructions to Tenderers)

Tender No.: DIGP/DD-DNH/Digital Trunked Radio (TETRA) System/101

Dated : 23 /02 /2009

From,

Office of the Deputy Inspector General of Police, Police Head Quarters, UT's of DD & DNH

To,

M/S

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OFFICE OF THE DEPUTY INSPECTOR GENERAL OF POLICE, POLICE HEAD QUARTERS, UT's OF DD & DNH

1. Sealed and super scribed tender in **triplicate** are invited on the prescribed form for and on behalf of the UT's of DD & DNH by the office of the Deputy Inspector General (DIG) of Police, Police Head Quarters, UT's of DD & DNH up to scheduled date as specified in the tender notice and data sheet of this Tender Enquiry (TE) for the Supply, Installation, Integration and Commissioning of Digital Trunked Radio (TETRA) System for Daman, Diu and Dadra & Nagar Haveli Police here after called DD & DNH Police Communication System as per schedule attached.
2. Tender document will either
 - a) Be available from this office on payment of Rs. 5000/- (Rupees Five Thousand only) as tender fee (non refundable) on any working day from 11:00 am to 04:00 pm up to **20/03/09**. The tender document should be submitted to this office duly filled in and signed on each page failing to

which the quotation will be rejected.

or

- b) The Complete Tender document is available on the websites www.daman.nic.in & www.dnh.nic.in. Interested Tenderer can download the tender document from the website for the purpose of submission of his Tender. The tender document should be submitted to this office duly filled in and signed on each page failing to which the quotation will be rejected.
 - c) However the Tenderer is required to pay Rs. 5000/- (Rupees Five Thousand only) Non-Refundable, through Demand Draft drawn on any nationalized bank payable at Daman in favor of Deputy Inspector General of Police in a separate envelope along with the EMD.
- 2-A Tenderer should quote rates F.O.R Destination basis as shown in the Schedule to Tender and submit the original quotation in the prescribed Tender Form and copies as asked for at specified place on an ordinary typed form, along with a covering letter attached therewith.
- 2-B **Tenderer should give a break-up of Rates F.O.R destination with breakup of duties and taxes.**
- 2-C In the event of an order being placed with Tenderer, Tenderer shall dispatch the goods after proper insurance at his cost.
- Tenderer shall acquire and maintain insurance coverage up to the date of taking over that are standard and customary in the industry to protect DD & DNH Police and the Systems from any losses, damages including but not limited to the damages during transit or claims. The cost of such insurance shall be borne by tenderer. DD & DNH Police has the right to inspect such insurance policies.
- 2-D The entire materials ordered as per lot shall have to be offered for inspection in open condition, if required and the same shall have to be repacked in such manner so as to be suitable for transport without any extra cost.

3. The origin of stores offered, whether Indian or foreign and in case of former, the State in which manufactured and whether it is a product of large scale Industry, Small Scale Industry, Cottage Industry or Industrial Co-operative, should be clearly stated against each article. If Tenderer desire to avail of the price preference (if applicable) to be accorded to the products of the Cottage, Small Scale/Industrial Co-operative Units Tenderer should furnish along with Tenderer tender, a certified authenticated or Photostat copy of the Registration Certificate-issued to such unit by the State Industries Commissioner or State Registrar of Co-operative Societies, with whom the unit is registered.
4. Opening of Tender - Tenderer are at Liberty to be present or authorize Tenderer representative to be present at the opening of the tender at the time and date specified in the Schedule.
5. Tenders should be accompanied by Earnest Money Deposit of Rs.16,00,000/-(Rupees Sixteen Lakhs only) in the form of Bank Guarantee in favor of the Deputy Inspector General of Police drawn on any nationalized bank having branch at Daman. The Bank Guarantee should be valid for at least six months from the due date of submission. Tender without Earnest Money shall not be considered. The EMD may be forfeited either in full or in part, at the discretion of DD & DNH Police, on account of one or more of the following reasons:
 - a) The bidder withdraws his bid during the period of bid validity specified by him on the Bid Letter Form
 - b) The bidder fails to co-operate in the Bid evaluation process, and
 - c) In case of a successful bidder, the said bidder fails:
 - to sign the Contact Agreement in time; or
 - to furnish Performance Security

Those are exempted for payment of EMD, must enclosed necessary documentary proof.

- 5(a) Within 15 days of the receipt of the LOI from the DD & DNH Police, Successful Tenderer shall furnish an irrevocable and unconditional

performance security for an amount of Rs 40,00,000/- (Rupees Forty Lakhs only), during implementation & 2 years of warranty period as performance security. This Deposit can be paid in Bank Guarantee (in prescribed format).

The performance security shall be valid until the expiration of warranty period from the date of final Commissioning of the Systems. Bank Guarantee should be in favor of Deputy Inspector General of Police. The Bank Guarantee should be from any nationalized bank and having at least one branch office at Daman.

The proceeds of the performance security shall be payable to DD & DNH Police. DD & DNH Police may forfeit the Performance Bank Guarantee for any failure on the part of successful bidder to complete its obligation under the Bid/Agreement. DD & DNH Police shall notify the Supplier in writing of its invocation of its right to receive such compensation within 15 days, indicating the reasons for which the Supplier is in default.

The performance security shall be discharged by DD & DNH Police and returned to the Supplier within 30 days after the successful completion of the warranty period.

In the event of delay in completion of warranty period beyond the specified time period, the Supplier shall arrange to extend the guarantee from time to time to the satisfaction of DIG of Police, UT's of DD & DNH.

The Supplier shall furnish amendment to the Performance Security, if required, within 15 days of such requirement.

- (b) The successful Tenderer will have to pay performance security of a sum of Rs 4, 00,000/- (Rupees Four Lakh only) during 3 years of AMC period. This amount must be deposited by the successful tenderer one month before the expiry of the warranty period. This Deposit can be paid in Bank Guarantee from nationalized bank with a branch at Daman.

The Performance security for supply, installation & commissioning of Rs. 40,

00,000/- (valid during 2 years of warranty period) will be discharged only after receipt of the new Performance security of Rs. 4, 00,000/- for AMC period.

DD & DNH Police may forfeit the Performance Bank Guarantee for any failure on the part of successful bidder to complete its obligation under the Bid/Agreement.

The Performance security will be discharged to the successful tenderer after the expiry of 3 years of successful AMC period.

6. **Copy of latest Income Tax return filed is to be submitted.** Tenders received without the above certificate are liable to be rejected.
6. (a) Business name and constitution of tendering firm:- In case tenderer are not registered with this office as approved supplier tenderer must give following details in tenderer tender quotation regarding registration of tenderer firm.
 - (1) The Companies Act, 1956.
 - (2) Proprietary concern.Tenderer must also show invariably in Tender quotation the full name(s) of Proprietor / Partners.
7. In case Tenderer are convicted of an offence under the Bombay Prohibition Act, 1949 or the Bombay Opium Act, 1936, Tenderer will be considered ineligible for being given contracts.
8. Other terms and conditions as specified in the booklet "Conditions of Contract Governing contract placed by the central purchase organization of the Government of India", will be applicable to this tender.
- 9 (a) The exact, earliest and clear deliver period (not later than Prescribed in this tender) should be quoted.
- 9 (b) Taxes, if leviable and if the same are being claimed should be clearly stated, failing which the rates quoted in the tender will be construed as inclusive of

all taxes. Break-up showing the rates and element of taxes should be shown when rates are quoted inclusive of taxes.

10. (a) Tenderer should indicate the rates in metric system of weights and measures or in any equivalent weights and measures thereof showing conversion rates. Noncompliance in this respect will render the tender liable for rejection.
- 10 (b) Rates should be quoted per "Item" and per "unit" as specified in the Schedule. Noncompliance will render the tender liable for rejection.
- 11 DIG of Police, UT's of DD & DNH reserves the right to consider or reject any or all tenders without assigning any reasons.
- 12 The DIG of Police, UT's of DD & DNH reserves the right to accept either the tender in full or part or divide the quantity amongst one or more tenderers without assigning any reasons. Tenderer shall supply the same at the rate quoted.
13. The conditional tenders are liable to be rejected. The DIG of Police, UT's of DD & DNH further reserves to himself the right of accepting or otherwise any of the conditions stipulated by Tenderer in Tenderer tender.
14. In the event of an order being placed with Tenderer against this tender and if Tenderer fail to supply any stores or provide any services in accordance with the terms and conditions of Acceptance of Tender or fail to replace any stores rejected by the DIG of Police, UT's of DD & DNH or any person on his behalf within such time as may be stipulated, the DIG of Police, UT's of DD & DNH , shall be entitled to purchase/procure elsewhere, without notice to Tenderer on the account, such stores/serviced from any other source and at such price as the DIG of Police, UT's of DD & DNH shall in the sole discretion think fit and if such price shall exceed the rate set out in the schedule to Acceptance of Tender. Tenderer shall be responsible to pay the difference between the price at which such stores have been purchased by

the DIG of Police, UT's of DD & DNH and the price calculated at the rate set out in the Schedule.

If the difference amount is required to be paid due to any reason then it will be deducted from security deposit/performance deposit/ pending bills.

15. **Sample: - Tenderer should submit one operational samples each of one hand held handset & one mobile as per the specifications mentioned in this document .** The DIG of Police, UT's of DD & DNH, may provide a schedule for tenderer to arrange a demonstration during technical evaluation

(a) The Tenderer are required to submit the samples for feel, finish, color and visual inspection only. Sealed samples should be submitted with a label showing. **Operational sample should be submitted along with the tender.**

(b) **Sample Label should bear following particulars.**

i) Name & address of the Tenderer

ii) Name of manufacturer with Brand Name.

iii) Tender enquiry No. and due date.

iv) Signature by Tenderer.

c) Sample should be submitted in conformity to Indent sample/TIE specification.

15 (A) Tender samples are not required unless specifically called for.

15 (B) Quotations without samples where samples are specifically called for will not be considered.

15 (C) All samples submitted for any reason shall be supplied without charge and freight paid and without any obligation on the DIG of Police, UT's of DD & DNH as regards safe custody.

15 (D) Tender samples should be submitted on or before the due date of Tender in respect of each item as mentioned in the Tenders along with separate challans in triplicate for each schedule at the office of the DIG of Police,

UT's of DD & DNH. In case of failure the quotation will be rejected at the discretion of the above Officer.

- 15(E) After the tenders are decided, the belonging samples to other than successful bidder, will be returned to the respective tenders provided of course, the samples are not destroyed or consumed during testing and examination. The tenderers will have to make their own arrangements to remove the tender samples before the expiry of the final date of removal of sample which will be intimated to them. This intimation will be given under postal certificate to ensure safe delivery. If the samples are not removed by the date, they will be disposed of in a manner deemed fit.
- 15(F) It has been the practice in the past with certain tenderers to submit a sample of a quality that the rate quoted does not permit of strict adherence to the sample, thereby causing numerous rejections. Tenderers are therefore warned that sample should not be submitted of a quality that they are not able to procure or maintain the quality in ultimate supplies. The samples submitted are in all cases preserved for comparison with supplies and rejection will be made if supplies are not reasonably in accordance with the approved samples.
- 15 (G) Samples submitted against earlier inquiries by the same tendering firm can be considered provided the tendering firm exactly states in its tender to consider its tender on the basis of the tendered samples against previous tender inquiry. The tender should be considered provided such samples are in custody of The DIG of Police, UT's of DD & DNH and are in proper form i.e. are not destroyed or used up during previous testing/Joint Security.
- 16.1 The Supplier shall warrant that the "Systems" to be free of defects. During the warranty period, which is 24 consecutive months from the date of commissioning of the Systems. The Supplier or Supplier's sub-contractor shall repair or replace, free of charge any defective component which include batteries and ensure its smooth functioning. Printer cartridge(s) & paper will be treated as consumables & will not form part of warranty.

In accordance with the laid standards. Freight, insurance and other allied expenditure like customs duties etc. for such parts/components shall be the liability of the Supplier.

These conditions will also be applicable for comprehensive maintenance (as defined in Section-5, 5.3.10) during 3 years after warranty.

- 16.2 Insurance till formal handing over will be borne by the tenderer.
- 16.3 During the warranty period, the Supplier shall, free of charge, design code, check, document and deliver amendments / alterations of new releases required to correct defects in the software as delivered which affect significantly the performance of the System(s) in its normal use in accordance with the laid specifications.
- 16.4 In the event of failure on the part of the Supplier or Supplier's sub-Contractor to meet the warranty obligations during the warranty period, the DD & DNH Police reserves the right to encash the performance security and the decision of the DD & DNH Police shall be final in this regard.
- 16.5 The warranty obligations of the Supplier shall terminate if the DD & DNH Police or their representative permits or causes to permit anybody other than the Supplier or their representative to modify, repair or damage the equipment except in case the supplier or their representative fails to carry out the required repairs in specified period to the full satisfaction of DIG of Police, UT's of DD & DNH or its representative.
17. **The clause is deleted.**
- 17 (a) Tenderer shall guarantee regular and timely supply for a period of three years after expiry of contract under this bid of all the spare parts required for the normal working of the machinery tendered for. Such a guarantee shall be accompanied by a certificate from a Chartered Accountant that Tenderer are holding a stock of such spare parts, sufficient enough for a period of three years normal working of the machinery without any condition of Import Licence. Tenderer shall also guarantee that the rates of such spare parts will

not be exceeding those Tenderer might be charging to the Director General of Supplies and Disposals, New Delhi or any other Government Department.

(b) Tenderer shall further guarantee that "after-sale service" shall be made available as and when required.

18. Termination of Contract;- Should Tenderer fail to deliver the stores/services or any part thereof, within the contracted period of delivery or in case the stores/services are found not in accordance with the prescribed specifications and/or approved sample, DIG of Police, UT's of DD & DNH shall exercise his discretionary powers -

(a) to recover from Tenderer as liquidated damages a sum not exceeding half a percent of the price of the stores/services which Tenderer have failed to deliver as aforesaid per each week or part thereof during which the delivery of such stores/services may be in arrears, not subject to a maximum limit in the case of an order not exceeding Rs. 1 lakh in value, 10 percent and in the case of an order exceeding rupees one lakh in value, of 5 percent of the stipulated price of the stores including Sales Tax, General Tax, Excise duty, Packing Charge etc. so delivered and/ or

(b) to purchase elsewhere on Tenderer account and at Tenderer risk stores so undelivered or others of a similar description without cancelling the contract in respect of the consignment not yet due for delivery, or to cancel the contract.

(c) In the event of risk purchase store/services of similar description the opinion of the DIG of Police, UT's of DD & DNH shall be final. The same will be exercised by him only when store/services of exact specifications are not readily procurable.

In the event of action taken under clause (a) or (b) above, the contractor shall be liable for any loss which The DIG of Police, UT's of DD & DNH may sustain on that account but Tenderer shall not be entitled to any saving on such purchases made against default.

The decision of the DIG of Police, UT's of DD & DNH shall be final as regards the acceptability of stores supplied by the contractor and the Industries Commissioner and Central Purchasing Officer shall not be required to give any reason in writing or otherwise at any time for the rejection of the store/services.

19

Extension of Time –

- i) As soon as it is apparent that contract dates cannot be adhered to, an application shall be sent to the DIG of Police, UT's of DD & DNH.
- ii) Without prejudice to the foregoing rights if such failure to deliver in proper time as aforesaid shall have arisen from any cause which the DIG of Police, UT's of DD & DNH may admit as a reasonable ground for an extension of the time (and his decision shall be final) he may allow such additional time as he considers to be justified by the circumstances of the case. For such extension penalty will be charged @ 0.5% of total tender cost per week subject to maximum of 5% of total tender cost.
- iii) Provided always that any failure or delay on 'the part of sub-contractors though their employment may have been sanctioned shall not be admitted as a reasonable ground for any extension of time or from exempting Tenderer from any liability for any such loss or damage, **as aforesaid and provided further that no extension shall be allowed unless application' for it shall, in the opinion of the DIG, DD&DNH Police have been made and in his opinion is justified.**

20. General conditions & Special conditions of this tender shall also be applicable.

21. Non-compliance with any of the above conditions shall construe breach of the same and will render the offer liable for rejection.

22. The tenders are instructed to specify clearly in their tenders as to in which respect their quotations deviate from the tender enquiry. Failure to do so

may render the tender liable to rejection.

23. Tenderers are requested to show all taxes separately with their amounts even if their offers are inclusive of all taxes.
24. Tenders should send descriptive literature along with their offers.
25. Superscription. - Tendering firms are supposed to super scribe the envelopes containing tenders by indicating correct "tender inquiry number" as well as the due date. This condition has been put up so that the concerned tender is opened correctly at the time and on the date the tender is supposed to be opened. However, many a times the firms super scribe the tenders incorrectly i.e. either the number and date are not correctly written or either the number or the date or both are not written at all.

DO NOT OPEN – THIS IS A TENDER

Purchaser : The Daman, Diu and Dadra & Nagar Haveli Police
T/E No. :
Project :
Due Date :
Time :

From To
Name of Tenderer
Address:

To be pasted on the outer envelope containing Tender security, cost of T/E Documents (if downloaded from specified websites), prequalification and un-priced Tender.

DO NOT OPEN – THIS IS A TENDER

EMD

Purchaser : The Daman, Diu and Dadra & Nagar Haveli Police
T/E No. :
Project :
Due Date :
Time :
From To

Name of Tenderer
Address:

To be pasted on the inner envelope containing Tender security along with the cost of T/E Documents (if downloaded from specified websites).

DO NOT OPEN – THIS IS A TENDER

Prequalification of Tenderers and Technical Tender (/Copy1/Copy2)

Purchaser : The Daman, Diu and Dadra & Nagar Haveli Police

T/E No. :

Project :

Due Date :

Time :

From To

Name of Tenderer

Address:

To be pasted on the inner envelope containing supporting documents for prequalification of Tenderers documents both in separate covers.

26. Tender are advised to indicate in their offer against each item, whether the item is imported or indigenous. And if it is indigenously manufactured whether it is a product of Large Scale Industry, Small Scale Industry or Cottage Industry and of what State. This information is required for Government Statistical purpose. If the tender desires to have approved price preference of Small Scale or Cottage Industry products, the Tenderer should furnish certified authenticated or Photostat copies of their registration certificates issued by the State Industries Commissioner or State Registrar of Co-operative Societies, with whom the small Sale Industry/Cottage Unit is registered.

27. The DIG of Police, UT's of DD & DNH may if found necessary to do so, place repeat orders against the acceptance of tender in case issued in Tenderer favor, within a period of six months from the date of the Issue of A/T and Tenderer shall accept the same. In case of non-acceptance of repeat order provision contained under condition No. 22 shall be applicable.

28. Factory Inspection

- (i) Before dispatch, the “Systems” may be required to be offered for Factory Acceptance Test (FAT) at manufacturer’s factory, to be conducted by UT of DD & DNH/ any appointed third party. The FAT document consisting of the tests to be carried out, test procedure, test schedule, test equipment and tools, and expected test results are to be provided by the supplier within 30 days of signing of the contract. DD & DNH Police will communicate the comments within 30 days. The same will be incorporated and final FAT document will be approved within 15 days after receipt of above communication from DD & DNH Police. In case DD & DNH Police decides factory testing is not required, then they shall issue an exemption certificate.
- (ii) The supplier shall inform DD & DNH Police at least 15 days in advance the time schedule of the factory inspection. DD & DNH Police shall be entitled to send a team of 2 officials on its behalf to witness/verify the factory inspection.
- (iii) Supplier shall conduct tests on the system and in case, if there is going to be any delay to Factory Acceptance Test date, the same should be communicated to DD & DNH Police at least 7 days before the departure of factory inspection team from India.
- (iv) Bidder shall bear the cost of their airfare, accommodation and transportation. The other expenditure will be borne by Police for their employees.
- (v) Dispatch of Systems ex-factory shall be incumbent upon issuance of a written certificate of satisfactory inspection signed by the supplier’s inspectors and by the DD & DNH Police’s representatives as witness, if present.
- (vi) This factory inspection is not to substitute such acceptance tests as the DD & DNH Police’s shall be conducting at the time of installation, commissioning before accepting the systems.
- (vii) The supplier shall also satisfy DD & DNH Police that adequate provision has been made (i) to carry out his instructions fully and with promptitude; (ii) **to ensure that OEM undertaking to the effect that “ the offered equipment for testing and supply including hardware is brand new and never been used before”**; and (iii) to prevent rejected parts being used in error. Where parts

rejected by have been rectified or altered, such parts shall be segregated for separate inspection and approval before being used in the work.

29. In the case rates accepted on "FOR Destination", the date on which the goods are received at destination shall be considered as the date of delivery.
30. As Tenderer has to offer the goods for inspection prior to dispatch Tenderer shall have to stipulate as to within what period Tenderer will offer the goods for :inspection and in what period Tenderer will deliver the goods after the inspection is carried out and the inspection note is issued by the inspecting Authority.
31. In the event of Tenderer offering the products of the S.S.I. Units, Tenderer will have to give along with the certificate authenticated or Photostat copy of the Registration Certificate or S.S.I., an affidavit that the S.S.I. Units whose products has/have been offered are still working as SSI units within the definition laid down by the UT. If it will be noticed that the SSI Unit has ceased to be SSI and has grown to large Scale Industrial Units either at the time of tendering quotation or till acceptance and if Tenderer fail to bring this fact to the notice of DIG of Police, Tenderer will be liable to pay the difference between Tenderer offer/s accepted in the A/T and the highest offer/s to specification, received against this tender invitation.

Firms/Units desirous of availing of advantage specially given to S.S.I. Units, in price, should invariable give the full details as regards the machinery and equipment possessed, installed in their premises and also clearly mentioned the processes that will be carried out in the premises of the unit itself and processes which are to be carried out outside the premises of the unit, either on contract basis or any other; mode viz, job work etc.
32. Analysis Reports on the tender samples will not be furnished to tenderer.
33. Tender should be submitted in the cover duly sealed and super scribed (i.e.

showing legibly the tender number and due date of submission of tender on the top of the envelope containing the tender). In the interest of the Tenderer it is advisable that the tenders are sent in cover duly sealed by sealing wax. In case the tender is sent not sealed by sealing wax, no complaint in respect of tampering of tenders shall be entertained by this office.

34. The terms and conditions, that may appear in printed, cyclostyled or In any other form on the covering letter accompanying the tender will not be taken notice of Only those conditions that will appear in the body of letter will be taken for consideration.
35. All questions, disputes or differences arising under, out of or in connection with the contract if concluded shall be subject to the exclusive jurisdiction of the Court within the local limits of whose jurisdiction the place from which Acceptance of Tender is issued, is situated viz. DIG of Police, UT's of DD & DNH.

Date:

**(Tajendra Singh Luthra) IPS,
Dy. Inspector General of Police
Daman, Diu and Dadra & Nagar Haveli,
Daman**

Section-2
General Conditions of Contract
(GCC)

Section – 2
General Conditions of Contract

Article – 1:

The tenderer shall submit only one option, which is in accordance with the specifications and requirements.

Article – 2:

The Tenderer should invariably submit his tender as (1) Tender Letter Form duly filled by tenderer enclosing checklist (2) E.M.D. Cover (3) Technical Tender Cover & (4) Commercial Tender Cover. Details of Tender submission are given in Article 3.4 & 5.

Article – 3: EMD COVER (sealed single copy in physical form)

- i. EMD Cover should contain EMD in form of Bank Guarantee amount as mentioned on PTF (prescribed tender format) given. The name of the Bank must be mentioned on cover itself. Offer without separate EMD Covers the technical Tender Cover will not be opened.

- ii. Tenders should be accompanied by Earnest Money Deposit of Rs.16,00,000/-(Rupees Sixteen Lakhs only) in the form of Bank Guarantee in favor of the Deputy Inspector General of Police drawn on any nationalized bank having branch at Daman. The Bank Guarantee should be valid for at least six months from the due date of submission. Tender without Earnest Money shall not be considered. The EMD may be forfeited either in full or in part, at the discretion of DD & DNH Police, on account of one or more of the following reasons:
 - a) The bidder withdraws his bid during the period of bid validity specified by him on the Bid Letter Form
 - b) The bidder fails to co-operate in the Bid evaluation process, and
 - c) In case of a successful bidder, the said bidder fails:

- to sign the Contact Agreement in time; or
- to furnish Performance Security

Those are exempted for payment of EMD, must enclosed necessary documentary proof.

- iii. EMD submitted in form of Bank Guarantee from non nationalized bank will not be acceptable and tenders filed with such Bank Guarantee will, be ignored.
- iv. Participants not covered under this category shall have to pay EMD compulsorily as prescribed, failing which the tender will be treated as reject one at the time of opening of Tender and Technical Tender as well as Commercial Tender will be ignored. Any basic document with regard to EMD will not be acceptable after closing time of tender.
- v. Should contain tender fee also in case the tender document is downloaded from the web. If tender document is purchased, the receipt of the payment should be submitted along with the tender.

Article – 4: TECHNICAL BID COVER (IN TRIPLICATE)

- (a) Power of Attorney for signing the Tender.
- (b) Documents establishing pre-qualification of Tenderers. Only in Format-F1 and Format-T1 provided in section-7 to be submitted. Supporting documents for Format-T1 and Format-F1 also to be submitted.

Eligible Tenderer is one who has responded to the Tender Enquiry for supply, installation, testing, integration and commissioning of Digital Radio Trunking (TETRA) System at the designated site(s) and as specified in the T/E Data Sheet of this document and who has purchased the required tender document or downloaded the same from specified website and meets pre-qualification criteria as specified In SCT in section 3

of T/E documents. The details of eligibility of Tenderer should be submitted alongwith this T/E document.

In absence of these information/documents, tender is liable to be ignored/rejected.

- (c) Tender Documents duly signed in Original (with photocopies in Copy 1 / 2) on all pages including Unpriced Price Schedule forms giving all details i.e. identical to Priced Bid with prices blanked out as a proof of tenderer having read and understood the complete documents/requirements **Filling up prices in Part-II will render the Tenderer disqualified.**
- (d) Technical Bid cover should contain techno-commercial information attested copies of GST and CST Registration Certificate, Latest Income Tax Clearance Certificate, other certified documents as per check list.
- (e) Tenderer should also furnish the details on nature of constitution of their firm; names and addresses of the Partners/Proprietors/Directors and also the details of sister / parent concerns if any. Also specific details or documents requested in Tender Enquiry (T/E).
- (f) Document establishing goods eligibility and conformity to bidding documents in accordance with Article-20 of section 02.
- (g) Full description of design and layout of Systems with complete technical and engineering details.
- (h) List of items (consumables and plastic parts etc.) which are not covered in warranty even during warranty period of **2 years**. Tenderer should also provide expected consumption per year of these items.

If the tenderer fails to provide the above, it will be presumed that all items are covered, free of cost, during the warranty & AMC period. No further consideration will be taken even if the details are provided in the Commercial Bid.

- (i) The tender shall specify time schedule of various activities with a PERT or similar chart using MS Project or similar tool.
- (j) Clause by clause compliance statement for T/E document as per specified format in this document

Any additional information as asked for by DD & DNH Police.

Article – 5: COMMERCIAL BID

- i) Commercial Tender cover should contain only rates/prices of items duly filled & signed. Use Commercial Form-C1, Form-C2, Form-C3 given in this document
- ii) In case of more than one item, the items wise separate rates should be quoted FOR destination delivery should be inclusive of Insurance charges. However Central Sales Tax, Sales Tax, Excise duty should be mentioned separately with prevailing rates on item quoted. In case the Tenderer fails to provide such separate details in its quotation, offers will be considered as inclusive of all Taxes, Sales- Tax applicable against form "P" to be mentioned separately. If the Tenderer is exempted from payment of Sales Tax. then it shall have to mention it in the Commercial Tender, otherwise offer will be treated as inclusive of GST and Basic late will be worked out by deducting the amount of GST leviable under GST Act.
- iii) Once quoted, the Tenderer shall not make any subsequent price changes. Any change offered by the Tenderer himself will render the tender invalid.

Article – 6: VALIDITY OF TENDER

Tenderer are requested to note that their offer must be valid for acceptance minimum for a period of 6 months from the

scheduled date of opening of tender. Offer with less or no validity period is liable to be rejected.

Article – 7: PROJECT COMPLETION PERIOD

Delivery period of the “systems” should be very clearly stated and delivery:

- (a) for subscriber radio sets- mobile, portable and static as per the details given in tender document, should be made within two (2) months from the date of receipt of LOI and confirmation of frequency,.
- (b) for infrastructure and other products and equipments as per the details given in tender document, should be made within three (3) months from the date of receipt of LOI and confirmation of frequency.

Tenderer quoting delivery period longer than this period in their tenders are liable to be ignored.

Installation, Testing, Integration and Commissioning shall be completed within two (2) months from the date of delivery.

Article – 8: PAYMENT

(a) For Equipment:

50% against delivery, inspection of material/ equipments/ items alongwith Factory test Reports

40% after installation and acceptance testing.

10% After 3 months of taking over and satisfactory working or 4 months from final date of AT of acceptance testing whichever is earlier.

(b) For AMC:

Quarterly payment after completion of quarter.

Article – 9: AUTHORISATION

When a Tenderer is not a manufacturer himself he should submit a letter from the manufacturer authorizing him to submit quotation on his behalf. Authority letter should be in original letter head of the manufacturer with necessary seal and signature in prescribed form enclosed with PTF. In absence of this, tender is liable to be ignored.

Article – 10: DOCUMENTS ESTABLISHING PRE-QUALIFICATION, PRODUCTS' ELIGIBILITY AND CONFORMITY TO TENDERING DOCUMENTS

- 10.1 Pursuant to “Eligible Tenderer” the Tenderer shall furnish, as part of its Tender, documents establishing the prequalification (Use **Format T1** and **Format F1** given at **Section-7** of this document) and conformity to the Tendering Documents of all products and services, which the Tenderer proposes to supply.
- 10.2 The documentary evidence of the eligibility of the products and services shall consist of a statement in the Tender Form certifying that the proposed systems have their origin in eligible countries.
- 10.3 The documentary evidence of the Tenderer's qualifications and ability to perform if its Tender is accepted shall establish to DD & DNH Police's satisfaction.
- (a) that, in the case of a Tenderer offering to supply products under this Tender that it did not produce, the Tenderer has been duly authorised by the subcontracted producer to supply the products in India and to act on behalf of the producer, corroborated by a completed Producer's Authorisation Form (provided in this document) and
- (b) that, If the tenderer takes eligibility on the basis of the experience of parent company then a letter from parent

company, assuring technical support during the life cycle of this project should be submitted.

- 10.4 For purpose of the commentary to be furnished pursuant to Article 10.3 (a), the Tenderer shall note that any references to brand names or model numbers, if any, designated by DD & DNH Police in its Technical Specifications, are intended to be descriptive only and not restrictive. The Tenderer may substitute alternative brand/model names in its Tender, provided that it demonstrates to DD & DNH Police's satisfaction that the substitutes ensure equivalence to those referred in the Technical Specifications and approvals as specified.

Article – 11: Tender Forms

- 11.1 For the purpose of this T/E Document, supply, installation, testing, integration and commissioning of Digital Radio Trunking (TETRA) System, hereinafter called “Systems” means any or all the products to be installed together with related services to be provided by the selected Tenderer under this Tender.
- 11.2 Wherever a specific form is prescribed in the T/E document, the Tenderer shall use the form to provide relevant information. If the form does not provide sufficient space for any required information, space at the end of the form or additional sheets shall be used to convey the said information.
- 11.3 For all other cases, the Tenderer shall design a form to hold the required information.

Article - 12: Cost of Tendering

- 12.1 Tenderer shall bear all costs associated with the preparation and submission of the Tender including surveys (as required), and DD & DNH Police will in no case be responsible or liable for

those costs, regardless of the conduct or outcome of the Tendering process.

Article - 13: T/E Document

- 13.1 Tenderer is expected to examine all instructions, forms, terms, specifications, and other information in the T/E document. Failure to furnish all information required by the T/E document or to submit a Tender not substantially responsive to the T/E document in every respect will be at Tenderer's risk and may result in the rejection of its Tender.

Article – 14: Clarification on T/E Document

- 14.1 Tenderer requiring clarification of the T/E document may seek such clarification from DD & DNH Police in writing at the address indicated in the T/E Data Sheet. DD & DNH Police will respond in writing to any such clarification required, received not later than as specified in T/E Data Sheet. The written response of DD & DNH Police (with an explanation of the query but without identifying the source of the query) will be provided to all the eligible Tenderers.
- 14.2 DD & DNH Police may at its discretion organize Pre-Tender meeting and Tenderer may attend the same to clarify any queries.
- 14.3 Tenderer is advised to inspect designated site(s) and/or carryout surveys as required to obtain all information necessary for preparing its Tender. Visiting the site(s) shall be entirely at the Tenderer's own risk and expense. Tenderer and any of its personnel or agents will be granted permission by DD & DNH Police to visit its site(s) for the purpose of such inspection, but only upon the express condition that he releases and indemnifies DD & DNH Police and its personnel and agents from and against all liabilities.

Article – 15: Amendment of T/E Document

- 15.1 At any time prior to the deadline (or as extended by DD & DNH Police) for submission of tenders, DD & DNH Police, for any reason, whether at its own initiative or in response to clarifications requested by prospective Tenderer may modify the T/E document by issuing amendment(s).
- 15.2 All Tenderers will be notified of the amendment(s) in writing and/or by posting on designated Website, and these will be binding on them.
- 15.3 In order to allow Tenderers a reasonable time to take the amendment(s) into account in preparing their tenders, DD & DNH Police, at its discretion, may extend the deadline for the submission of tenders.

Article – 16: Language of Tender

The Tender prepared by the Tenderer, as well as all correspondence and documents relating to the Tender exchanged between the Tenderer and the DD & DNH Police, shall be in English. Supporting documents and printed literature furnished by the Tenderer may be in another language provided they are accompanied by an accurate translation in English (**self certified by the tenderer**). For the purposes of interpretation of the Tender, the translation shall govern. Information supplied in another language without proper translation shall be rejected.

Article – 17: Format and Signing of Tender

- 17.1 The Tenderer shall prepare required number of copies of the Tender, as specified in the T/E Data Sheet and shall clearly mark each “Original Tender” or “Copy of Tender” as appropriate. In the event of any discrepancy between them, the original shall govern.

- 17.2 The original and all copies of the Tender shall be typed or written in indelible ink and shall be signed by the Tenderer or a person duly authorized to bind the Tenderer to the Tender. The person(s) signing the Tender shall initial all pages of the Tender, except for un-amended printed literature.
- 17.3 The complete Tender shall be without alteration or erasures, except those accorded with instructions issued by DD & DNH Police or as necessary to correct errors made by the Tenderer, in which case such corrections shall be signed by the person or persons signing the Tender.

DO NOT OPEN – THIS IS A TENDER

Purchaser : The DD & DNH Police
T/E No. :
Project :
Due Date :
Time :

From : To :
Name of Tenderer :
Address:

To be pasted on the outer envelope(containing Tender security, cost of T/E Documents (if downloaded from specified websites), prequalification and un-priced Tender.)

DO NOT OPEN – THIS IS A TENDER

EMD

Purchaser : The DD & DNH Police

T/E No. :

Project :

Due Date :

Time :

From To

Name of Tenderer

Address:

To be pasted on the inner envelope containing Tender security along with the cost of T/E Documents (if downloaded from specified websites).

DO NOT OPEN – THIS IS A TENDER

Prequalification of Tenderers and Technical Tender (/Copy1/Copy2)

Purchaser : The DD & DNH Police

T/E No. :

Project :

Due Date :

Time :

From To

Name of Tenderer

Address:

To be pasted on the inner envelope containing supporting documents for prequalification of Tenderers documents both in separate covers.

Article – 18: Tender Due Date

- 18.1 Tender must be received by the DD & DNH Police at the address and not later than the time and date specified in the T/E Data Sheet. Tenders received after this deadline will be rejected and returned to the tenderer unopened.
- 18.2 The DD & DNH Police may, at its discretion, on giving reasonable notice in writing to all Tenderers who have been issued the T/E documents and publishing on designated website, extend the tender due date, in which case all rights and obligations of the DD & DNH Police and the Tenderer, previously subject to the tender due date, shall thereafter be subject to the new tender due date or deadline as extended.

Article – 19: Modification and Withdrawal of Tender

- 19.1 The Tenderer may modify or withdraw its Tender after submission, provided that written notice of the modification including substitution or withdrawal of the tenders, is received by DD & DNH Police prior to the deadline prescribed for submission of tenders.
- 19.2 The Tenderer's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in a manner similar to the original Tender.
- 19.3 No Tender may be modified subsequent to the deadline for submission of tenders.
- 19.4 No Tender may be withdrawn in the interval between the deadline for submission of tenders and the expiration of the period of Tender validity specified by the Tenderer on the Tender Form. Withdrawal of a Tender during this interval may result in the Tenderer's forfeiture of its Tender security.

Article – 20: Late Tender

20.1 Any tender received by the purchaser after the tender due date mentioned in the T/E Data Sheet will be treated as “Late Tender” and rejected and returned to the tenderer unopened.

Article – 21: Opening of Tenders by DD & DNH Police.

21.1 DD & DNH Police will open tenders at the place and time mentioned in the T/E Data Sheet. Tenderer’s representatives (Maximum 2) may attend the opening, and those who are present shall sign a register evidencing their attendance.

21.2 The tenderer’s names, tender modifications or withdrawals and such other details as the DD & DNH Police at its discretion, may consider appropriate, will be announced at the time of opening.

Article – 22: Preliminary Examination, Short-listing of Tenderers and Evaluation of Technical Tenders

22.1 DD & DNH Police will briefly examine all the tenders received to determine whether they are complete.

22.2 Prequalification of tenderers documents shall be examined and verified as per the specified criteria in accordance with “Eligible Tenderer” and those tenderers will be short listed for the next stage of evaluation of tenders whose claims meet the stated eligibility & other requirements. The tenders not meeting the prequalification criteria will not be considered further.

22.3 Technical Tender documentation shall be further evaluated by DD & DNH Police in two steps.

22.4 Firstly, the documentation furnished by the tenderer will be examined based on the following criteria:

- Compliance to T/E document

- System design and technical solution (The tenderer shall provide details in the tender)
- 22.5 In the second step, DD & DNH Police may ask tenderer(s) for additional information, visit to tenderer's site and/or arrange discussions with their professional, technical faculties to verify claims made in the Unpriced Tender documentation.
- 22.6 **The tender may be asked to Demonstrate the functioning of Mobile and Handheld radio sets which have to be submitted along with the tender**
- 22.7 Technical solution of tenderers shall be made on the basis of conformity to technical and operational requirements, commercial terms and conditions, and time schedule of execution of project and evaluation of samples / Demo.
- 22.8 Tenders found to be non-responsive at this stage will be rejected and will not be considered further.
- 22.9 The tenders, which do not comply with technical specifications and commercial requirements mentioned in this T/E will be, treated as non-responsive tenders.

Article - 23: Opening and Evaluation of Priced Bid

- 23.1 Priced Tender: Priced tenders of only those tenderers will be opened whose technical and commercial tenders are found to be responsive.
- Evaluation of Priced Tender will be based on total project value including 3 years comprehensive maintenance as quoted in Form- C3 of section-7.
- DD & DNH Police may at its discretion discuss with Tenderer(s) available at this stage to clarify contents of Priced Tender.

Article – 24: Arithmetic Correction

Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is

obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the Bidder does not accept the correction of the errors, its bid will be rejected. If there is a discrepancy between words (for unit price if given) and figures (for unit price), the amount in words will prevail.

Article – 25: Tender Currency

25.1 Prices for products and services offered shall be quoted in Indian Rupee only.

Article – 26: Contacting DD & DNH Police.

26.1 Tenderer shall not approach DD & DNH Police officers beyond office hour and/ or outside DD & DNH Police office premises, from the time of the Tender opening to the time of finalisation of successful Tenderer.

26.2 Any effort by a Tenderer to influence DD & DNH Police officers in the decisions on Tender evaluation, Tender comparison or finalisation may result in rejection of the Tenderer's offer. If the Tenderer wishes to bring additional information to the notice of the DD & DNH Police, it should do so in writing.

Article – 27: Lack of Information to Tenderer

27.1 The Tenderer shall be deemed to have carefully examined T/E document to his entire satisfaction. Any lack of information shall not in any way relieve the Tenderer of his responsibility to fulfill his obligation under the Tender.

Article – 28: Fraudulent & Corrupt Practice

- 28.1 “Fraudulent Practice” means a misrepresentation of facts in order to influence a procurement process or the execution of the project and includes collusive practice among Tenderers (prior to or after Tender submission) designed to establish Tender prices at artificial non-competitive levels and to deprive the DD & DNH Police of the benefits of free and open competition.
- 28.2 “Corrupt Practice” means the offering, giving, receiving or soliciting of any thing of value, pressurizing to influence the action of a public official in the process of project execution.
- 28.3 DD & DNH Police will reject a proposal for award if it determines that the Tenderer recommended for award has engaged in corrupt or fraudulent practices in competing for, or in executing, the project.

Article – 29: Quality Control Document

- 29..1 Tenderer shall submit test procedures and test cases describing expected results of these tests relating to various components of the system being supplied, installed, integrated and commissioned. These should be submitted along with the technical tenders.
- 29..2 Tenderer shall ensure that Systems consistently conform to planned quality and project's stated, and implied needs that should meet DD & DNH Police's total satisfaction.
- 29..3 Tenderer shall submit his Quality Assurance (QA) plans along with relevant procedures covering various activities like design, engineering, material procurement, manufacture, inspection & testing, documentation, dispatch to site, erection and commissioning
(Wherever applicable) and maintenance of quality records etc. to the DD & DNH Police for approval.

- 29..4 Tenderer shall submit a total index of drawings and documents required for Purchaser/Third Party Inspection Agency review / information along-with the scheduled date of submission of each drawing/document within 2 weeks from signing the Contract Agreement.
- 29..5 No waiver/deviation shall be permitted after award of contract. All waiver/deviations after placement of order pertaining to design and engineering or manufacture and supply shall be addressed to DD & DNH Police under very special circumstances.
- 29..6 Tenderer shall submit a list of sub-contractor(s) for bought out materials for DD & DNH Police's approval before placement of sub-orders.
- 29..7 Tenderer shall use calibrated measuring, test Equipment, and maintain calibration records. Successful Tenderer shall furnish records of calibration of measuring and test instruments including re-calibration records to DD & DNH Police and Consultant.
- 29..8 Inspection and Test status of product shall be identified by using markings, authorised stamps tags, route cards, inspection records etc. during the course of manufacture to clearly indicate acceptance/rejection of tests/stage of inspection performed during its manufacturing cycle. The identification of inspection and test status shall be maintained and records thereof shall be submitted as and when demanded by DD & DNH Police or/and its authorised representatives/agency.
- 29..9 Successful Tenderer shall maintain quality records as per his procedures. Inspection Reports and Test Records copies shall be furnished to DD & DNH Police or/and its authorised representative/agency.
- 29..10 Successful Tenderer shall establish and maintain procedure for identifying the product from applicable drawings, specification or other documents during all stages of production, delivery and installation. The successful Tenderer shall ensure that each

product that is going in the process of fabrication/ manufacture/ construction/ erection has proper identification throughout the process including the final output.

Article –30: Source of funds

30.1 The DD & DNH Police has made sufficient provision of funds for supply, installation, testing, integration and commissioning of Digital Radio Trunking (TETRA) Subscriber Radio Sets at the designated site(s) in the Daman, Diu and Dadra & Nagar Haveli City.

Article – 31: Application

31.1 These Conditions shall apply to the extent that they are not superseded by provisions of other parts of the T/E Document.

Article – 32: Standards

32.1 The Systems to be supplied under this T/E shall conform to the standards mentioned in the Technical Specifications. It will be sufficient to follow either Bureau of Indian Standards (BIS)/ International Telecom Union(ITU)/ European Telecommunications Standard Institute(ETSI) standards wherever not mentioned otherwise. Such standards shall be the latest issued by the relevant organisation. Tenderer should follow International standards in manufacturing of equipment. When no applicable standard is mentioned, authoritative standards appropriate to the “Systems” country of origin should be followed. Before manufacturing, the Tenderer will inform DD & DNH Police giving full details about these standards and take approval.

Article – 33: Approvals

- 33.1 Tenderer shall obtain all clearances, approvals and permits including any environmental approvals if any as required for various stages of this project. Tenderer shall also assist in clearances, approvals and permits required for the DD & DNH Police from time to time.
- 33.2 Tenderer shall have executed requisite shareholder and Board of Director resolutions in order to enter into and ensure performance with its obligations under this Tender.

Article – 34: Assignment & Sub Contracts

- 34.1 The Tenderer shall notify the DD & DNH Police in writing of all subcontracts awarded under this Tender. The DD & DNH Police reserves the right to however not accord its consent to award of work to a sub-contractor and demand tenderer to award the same to another sub-contractor. Such sub- contracting of work to the sub-contractor shall not relieve the tenderer from any liability or obligation under the Tender. The Tenderer shall fully indemnify DD & DNH Police for any claims/damages whatsoever arising out of the subcontracts.
- 34.2 No consent of DD & DNH Police shall be required, when an assignment by the Tenderer is the result of, and part of, a corporate acquisition, merger or reorganization or to an affiliated entity; provided that such entity shall not be released of the obligations of the Tenderer under this Tender.
- 34.3 The DD & DNH Police may assign its rights and obligations under this Tender to any third party agency after giving the 30 days notice to the Tenderer.

Article – 35: Applicable Law

- 35.1 Appropriate laws of India shall apply.

35.2 In the event of any Change in Law that affects the performance of the Tenderer, the Tenderer shall be given the benefit or burden resulting from such Change in Law.

Article – 36: Notice

36.1 Any notice given by one party to the other pursuant to this tender shall be sent to the other party in writing to the other party's address.

36.2 A notice shall be effective from the date when notice in writing is delivered or tendered or affixed at a conspicuous place whichever is earlier.

Article – 37: Use of Tender Documents and Information

37.1 The Tenderer shall not without prior written consent from DD & DNH Police disclose the tender or any provision thereof or any specification, plans, drawings, pattern, samples or information furnished by or on behalf of DD & DNH Police in connection therewith to any person other than the person employed by the Tenderer in the performance of the related job. Disclosure to any such employee of the tenderer shall be made in strict confidence and shall extend only so far as may be necessary for such performance.

37.2 The Tenderer shall not without prior written consent of DD & DNH Police make use of any document or information made available for the project except for purposes of performing the job.

37.3 All project related documents issued by DD & DNH Police shall remain the property of DD & DNH Police and originals and all copies shall be returned to DD & DNH Police on completion of the Tenderer's performance, if so required by the DD & DNH Police

Article – 38: Indemnification

- 38.1 (1) The tenderer shall indemnify and hold harmless the DD & DNH Police from any and all damages, losses, penalties, expenses and costs arising from, based on, related to or associated with the inaccuracy of any representation or covenant set forth in this T/E document or the breach of or failure to perform or satisfy any of the provisions of this T/E document or for loss of or damage to property, death or injury to person.
- (2) Tenderer shall indemnify DD & DNH Police and hold it harmless from all suits, actions, debts, accounts, costs, losses, and expenses of all kinds (including legal expenses and professional advisory service expenses) arising from or out of any adverse claims of any and all persons related to the execution of this project.
- 38.2 Notwithstanding anything expressed or implied in this T/E document to the contrary:-
- (1) The parties shall indemnify, defend and hold the other harmless against any and all third party claims.
- (2) such indemnity shall not extend to any loss, death or injury or any expenses relating thereto to the extent that it was caused by any act or omission of other party or the failure of other party to take reasonable steps in mitigation thereof.
- (3) such indemnity shall not be applicable to any loss, damage, cost or expense in respect of, and to the extent that either party is compensated pursuant to the terms of any other Agreement or under any policy of insurance.
- 38.3 The Tenderer shall indemnify the DD & DNH Police against direct damage to the property of the DD & DNH Police and

others, injury and death to employees of the DD & DNH Police and those of others if such damage, injury death is caused by the negligence or wilful misconduct of the Tenderer, his employees or representatives while working at the Tenderer's work or at the DD & DNH Police's site pursuant to the Contract or by the use by the Tenderer of defective material or workmanship by making good such damage to property or compensating personal injury or death.

38.4 The Tenderer shall at all times indemnify the DD & DNH Police against any claims which may be made under the Workmen's Compensation Act, 1923 or any statutory modification thereof or otherwise for or in respect of any damages or compensation payable in consequence of any accident or injury sustained by any workman or other person whether in the employment of the Tenderer or not.

38.5 For the purpose of this Article 43:-

- (1) DD & DNH Police shall include all persons directly or indirectly associated with DD & DNH Police including its employees.
- (2) Tenderer shall include its directors, employees, Affiliates and sub-Suppliers.

38.6 Nothing in Article 43 whether expressed or implied shall relieve either Party of any express obligation to make any payment due to the other Party under the Contract.

38.7 **Properties and Facilities:**
Tenderer shall assume full responsibility and liability for the maintenance and operation of its properties and facilities and shall indemnify and hold DD & DNH Police harmless from all liability and expense on account of any and all damages, claims

or actions, including injury to and death of persons, arising from any act, accident or omission in connection with or arising out of the installation, presence, maintenance and operation of properties and facilities of Tenderer.

38.8 Control and Possession

Tenderer shall be deemed to be in control and possession of the equipment necessary for the proper and normal operation of the Systems.

38.9 Indemnity against Patent Rights

- (a) The Tenderer assures the DD & DNH Police that there is no infringement of any patent or industrial or intellectual property right, registered design, trade mark or copyrights occasioned by the direct supply of its products and equipment, and the documents which are subject matter of the Contract. The Tenderer undertakes to indemnify the DD & DNH Police against all costs, expenses and claims for damages made by any third party and any patent, industrial or intellectual property rights, registered design, trade mark or information/technology or resulting from any authorised use by the DD & DNH Police of the information /technology /product/ equipment directly supplied under the Contract by the Tenderer.
- (b) In the event of any such claim by third party, the Tenderer agrees to utilise its best efforts at its own cost and option :
 - (i) To negotiate the agreement with such third party or parties so that the deliveries under the Contract are no longer infringed upon by any patent or industrial/intellectual property right, etc. as above claimed by any third party/parties;

- (ii) To modify the equipment to be supplied under the Contract suitably or to substitute suitable items thereafter subject to full satisfaction and requirement of the DD & DNH Police to ensure that such modified or substituted items are not the subject of any claim whatsoever by any third party/parties;
 - (iii) To defend any claim, assessed by a final judgement of a competent court at its own cost and expenses and to satisfy the decree/order in any such claim, suit or proceedings at its own expenses and costs;
 - (iv) In case the Tenderer does not succeed in settling the claim/suit filed by any third party in respect of the patent or industrial/intellectual property right, etc. as above, in that event the Tenderer undertakes to refund all payments regarding the infringed items made to him by the DD & DNH Police .
- (c) The DD & DNH Police shall, however, inform the Tenderer promptly of any claim or suit or any other proceedings about the alleged infringement so that the Tenderer can take all measures necessary to defend such claim or suit or proceeding in respect of the alleged infringement. The DD & DNH Police undertakes not to make any admission prejudicial to the Tenderer in respect of any alleged infringement without the consent of the Tenderer.
- (d) The provision of this article shall survive the expiration or prior termination of the Contract until the end of the guarantee period.

Article – 39: Taxes & Duties

- 39.1 Tenderer is liable for all taxes and duties etc as applicable.
- 39.2 Mandatory taxes/duties to be recovered/withheld by DD & DNH Police will be deducted by DD & DNH Police .

Article - 40: Responsibility for Completeness

40.1 Any fittings or accessories which may not be specifically mentioned in the specification but which are necessary for its normal operation in accordance with agreed specifications, are to be provided by the Tenderer without extra charge, and the Systems must be complete in all details.

Article – 41: Packing

41.1 The Tenderer shall provide such packing of the Systems as is required to prevent their damage or deterioration during shipment. The Tenderer shall promptly repair or replace any System that are damaged in transit. The packing, marking, and documentation within and outside the packages shall also comply strictly with the requirements.

41.2 The Tenderer shall insert in each case a packing list, fully itemised to show case number, contents, gross and net weight, and cubic measurement

Article – 42: Deferring Shipments

42.1 If the DD & DNH Police shall have notified the Tenderer in writing that the former is not ready to take delivery, no System or materials shall be forwarded until an intimation in writing shall have been given to the Tenderer by the DD & DNH Police that he is ready to take delivery.

Article – 43: Delivery and Documents

43.1 Delivery, installation, and acceptance of the Systems shall be carried out by the Tenderer in accordance with the schedule and at the project sites specified in the Schedule of Requirements, which forms an integral part of the Tender.

- 43.2 Early or partial deliveries require the explicit written consent of the DD & DNH Police, which consent shall not be unreasonably withheld.
- 43.3 Upon shipment of Products and Systems, Tenderer shall notify the DD & DNH Police and the Insurance Company in writing with full details of the shipment, etc. The Tenderer shall send the following documents to the DD & DNH Police by mail or courier with a copy to the Insurance Company:
- (a) two copies of the Tenderer's invoice showing the Products' description, quantity, unit price, and total amount;
 - (b) usual transportation documents;
 - (c) insurance certificate, and
 - (d) certificate(s) of origin
- 43.4 For products from within India, upon shipment, the Tenderer shall notify the DD & DNH Police and shall promptly send the following documents to the DD & DNH Police by mail or courier:
- (a) two copies of the Tenderer's invoice showing the Products description, quantity, unit price, and total amount;
 - (b) delivery note, railway/truck receipt; and
 - (c) certificate(s) of origin.
- 43.5 The documents listed above shall be received by the DD & DNH Police at least one week before arrival of the Products and Systems at the point of entry or delivery destinations, and , if not received on time, the Tenderer will be responsible for any consequent expenses.

Article – 44: Books & Records

- 44.1 Tenderer shall maintain adequate books and records/reports in connection with Contract and shall make them available for

inspection and audit by DD & DNH Police until expiry of the performance guarantee.

Article –45: Site(s) Preparation

- 45.1 DD & DNH Police will provide necessary clear space at designated sites for operations of the proposed network. The preparation of the site including electrical, civil, air-conditioning mechanical works, etc. would be carried out by the tenderer and should be quoted accordingly.
- 45.2 DD & DNH Police will arrange for necessary clearances, which will enable the tenderer to undertake civil, electrical and mechanical works including false ceiling, partitioning, installation of air-conditioning equipment, installation of diesel generator sets, installation of UPS equipment etc., at the respective sites.
- 45.3 Mistake in Drawings – The Tenderer shall be responsible for and shall pay for any alteration of the works due to any discrepancies, errors or omissions in the drawing or other particulars supplied by the Tenderer whether such drawings or particulars have been approved by the DD & DNH Police or not, provided that such discrepancies, errors or omissions be not due to inaccurate information or particulars furnished to the Tenderer on behalf of the DD & DNH Police. If any dimensions figured upon a drawing or plan differ from those obtained by scaling the drawing or plan, the dimensions as figured upon the drawings or plan shall be taken as correct.
- 45.4 The personnel of the Tenderer and their representatives shall have full access to the equipment and site(s), subject to the security rules and regulations applicable to the Indian /DD & DNH Police campus where the site(s) are located.
- 45.5 Tenderer should do survey of Daman and Dadra & Nagar Haveli and identify the most appropriate sites for covering whole of UT and neighboring Police stations, Check post and Out post as stated above, to provide **85%** on road coverage for mobile units

as marked above, and 100% coverage for all the static stations. However, DD & DNH Police has existing towers at Nani Daman of height 30 mtrs, Silvassa of height 30 mtrs & Khanvel of height 20 mtrs and one spare tower at Dabhel and plan to use them. Coverage plan with these sites should also be included in the offer. Failure to do so may make the bid liable for rejection. The final network implementation shall entirely be the responsibility of the Tenderer. The successful tenderer will also have to carry out survey of all Police Station, Check post and Out post to reconfirm the coordinates.

The total area to be covered is UT of Dadra nagar haveli and Daman and 12 nautical miles in the sea from the border.

“As it is responsibility of bidder to provide coverage as per clause 6.2 (pg 6-6), Keeping in view the terrain of the area to be covered there may be certain gaps/ shadows even with three site solution. Covering up these gaps is the responsibility of vendor. He may provide the optimal solution for the same (technical), which he will implement at his own cost to cover these gaps. If he does not offer any solution as per this clause, at this juncture and in case the coverage is not achieved, the same will have to be provided by the bidder based on his already offered equipment. DDNH police will have the right to insist on additional site if no separate solution (technical) is offered with the bid. This solution will be at bidder’s cost including site acquisition(if any), site rental and operating cost (if any), entire equipment cost including tower, DG set, UPS, Security, liasioning cost with WPC, spectrum charge etc. Besides the solution he will also give an undertaking to the effect that he has understood this clause clearly and will bear all the cost to meet this requirement.”

45.6 DD & DNH Police shall provide, if requested by the Tenderer, necessary and adequate storage facilities.

Article – 46: Acceptance Test

46.1 Acceptance Test at site shall be conducted, before commissioning of each phase of the project, by DD & DNH Police and/or any appointed third party. The tests to be carried out, test procedures, test schedules, test equipment and tools, and expected test results are to be provided by the Tenderer

to meet all the specified parameters/ service requirements. The tests to be carried out, test procedures, test schedules, and test results have to be approved by DD & DNH Police / any third party .

All the test equipment and tools will be provided by the Tenderer for carrying out the acceptance test at site.

46.2 DD & DNH Police with full co-operation and assistance from the Tenderer, shall conduct formal acceptance tests on the installed Systems to verify their conformity with the requirements. The acceptance tests defined and agreed and project plan shall establish a standard of performance, which must be met before the Systems are accepted by DD & DNH Police DD & DNH Police shall issue written certification of acceptance of systems only after successful completion of the Acceptance tests. Acceptance testing shall be subject to the following provisions:

- (a) The project plan shall group appropriate components of the Systems together for the purposes of acceptance testing, and shall schedule them for installation at the same time.
- (b) Acceptance Test for Systems shall include running the Systems (meeting the standards of performance) for a period of 30 (thirty) consecutive days.
- (c) Within two weeks from the end of the Acceptance Test, DD & DNH Police's project manager shall certify Acceptance / Rejection of the Systems under test. **The date on which Final Acceptance Certificate is issued shall be deemed to be the date of successful commissioning of the Systems.**
- (d) If the Systems fail to meet the standards of performance after 30 (thirty) days from the start of Acceptance testing, DD & DNH Police may, at its option, request replacement of the faulty component(s) of the Systems, or terminate the contract. The replacement of such faulty component

shall be made by Tenderer free of all charges at site. Freight, insurance and other allied expenditure like customs duties, local transportation etc. for parts/components required to be replaced shall be the liability of the Tenderer.

- (e) Any delay attributable to Tenderer in the final Acceptance Testing shall render the Tenderer liable to the imposition of appropriate penalties / damages.

Article - 47: Replacement of Parts and Components

47.1 If the Systems fail to meet the standards of performance for Acceptance Testing and during warranty period due to faulty part/component, the replacement of faulty part/component has to be carried out by the Tenderer free of cost. Freight, insurance and other allied expenditure like customs duties etc. for such part/component shall be the liability of the Tenderer. Tenderer will reimburse to DD & DNH Police the cost incurred by DD & DNH Police, if any, on replacement of such faulty part/component.

47.2 If it becomes necessary for the Tenderer to replace or renew any defective portions of the Systems under this clause, the provisions of this clause shall apply to the portions of the Systems so replaced or renewed until the expiration of six months from the date of such replacement or renewal or until the end of the warranty period whichever may be the later. If any defects be not remedied within 15 (Fifteen) days from the date of communication thereof or within such other specific period as may be allowed by the DD & DNH Police in his discretion on application made to that effect by the Tenderer, the DD & DNH Police may proceed to do the work at Tenderer's risk and expense, but without prejudice to any other rights which the DD & DNH Police may have against the Tenderer in respect of such defects.

47.3 If during the progress of the work, the DD & DNH Police or his representative shall decide and notify in writing to the Tenderer that the Tenderer has executed any unsound or imperfect work or has supplied any System or material inferior in quantity or quality to those specified, the Tenderer on receiving details of such defects or deficiency shall, at his own expense, within seven days of his receiving the notice, or otherwise within such time as may be reasonably necessary for making in good, proceed to alter, re-construct, or remove such work, or supply fresh materials up to the standard of the particulars and in case the Tenderer shall fail to do so, the DD & DNH Police may, on giving the Tenderer seven days notice in writing of his intention to do so, proceed to remove the work or materials complained of, and at the cost of the Tenderer, perform all such work or supply all such materials, provided that nothing in this clause shall be deemed to deprive the DD & DNH Police of or affect, any rights under the contract which he may otherwise have in respect of such defects or deficiencies.

Article - 48: Rejection of Defective System

48.1 If the completed Systems, or any portion thereof, before it is taken over be defective or fail to fulfil the requirements of the Contract, the DD & DNH Police shall give the Tenderer notice setting forth details of such defects or failure and the Tenderer shall forthwith make the defective System good or alter the same to make it comply with the requirements of the Contract. Should he fail to do so within the time mutually agreed to between DD & DNH Police and Tenderer, the DD & DNH Police may reject and replace at the cost of the Tenderer, the whole or any portion of the System as the case may be, which is defective or fails to fulfil the requirements of the Contract. Such replacement shall be carried out by the DD & DNH Police within reasonable time and at a reasonable price and where

reasonably possible to the same particulars and under competitive conditions. The Tenderer's full and extreme liability under this clause shall be satisfied by the payment to the DD & DNH Police of the extra cost, if any, of such replacement, delivered and/or erected as provided for in the original Contract, such extra cost being the ascertained difference between the price paid by the DD & DNH Police, under the provisions above mentioned, for such replacement and the Contract price for the System so replaced, and the repayment of any sum paid by the DD & DNH Police to the Tenderer in respect of such defective System. Should the DD & DNH Police not so replace the rejected System within a reasonable time, the Tenderer's full and extreme liability under this clause shall be satisfied by the repayment of all moneys paid by the DD & DNH Police to him in respect of such System.

Article – 49: Training

- 49.1 Tenderer shall provide training to the personnel nominated by the DD & DNH Police to enable them to have sufficient knowledge and skill to effectively manage, maintain, use and operate System, repair/replace faulty equipment and to change/modify programme during installation, warranty and post warranty. The training schedule, content and modalities will be defined jointly by both parties.
- 49.2 Class room training as well as on site training during the installation of the Systems shall be arranged by the Tenderer.
- 49.3 Training shall be conducted in English/Hindi and the contents of this training shall be approved by DD & DNH Police. Arrangement of all training materials such as manuals, drawings, brochures etc. shall be the responsibility of the Tenderer.
- 49.4 Tenderer shall provide the time schedule of the training within 15 days of the signing of the Contract.

- 49.5 Training shall be arranged at the designated sites during the installation of the Systems.
- 49.6 If training provided is not to the satisfaction of DD & DNH Police, it may decide to provide training to the personnel through third party. The Tenderer will reimburse the cost incurred by the DD & DNH Police.

Article - 50: Taking Over

- 50.1 When all performance tests called for by the DD & DNH Police have been successfully carried out, the System shall be accepted and taken over when it has been satisfactorily put into operation on sites, or within one month of its being ready to be put into operation whichever shall be the earlier and DD & DNH Police shall forthwith issue a Taking Over Certificate.
- 50.2 The DD & DNH Police shall not delay the issue of any Taking-over Certificate contemplated by this clause on account of minor defects in the System which do not materially affect, the commercial use thereof provided that the Tenderer shall undertake to make good the same in due course.

Article - 51: Comprehensive Maintenance

- 51.1 Tenderer should provide the Comprehensive maintenance for the 'System' for a period of three (3) years after the warranty period of 2 years. Details of the scope and services associated with Comprehensive Maintenance is provided in Special Condition for Tendering (SCT), section-3.

Article – 52: Implementation Services

- 52.1 The Tenderer shall provide all services specified in the T/E Document and the Technical Specifications in accordance with the highest standards of professional competence and integrity.

The DD & DNH Police reserves the right to require the replacement of any Tenderer staff assigned to work on the DD & DNH Police's site by suitable qualified staff, in the event that the staff concerned is determined to be incompetent or loses the confidence of the DD & DNH Police

- 52.2 The Tenderer shall install and commission the "Systems" at the designated site(s) within a period as specified in Schedule of Requirements of this T/E document.
- 52.3 The Tenderer shall provide the necessary technical support, Standard Operating Procedures, and other information to DD & DNH Police and its user organisations in implementing the System applications.

Article – 53: Product Support

- 53.1 For products still to be delivered, the Tenderer will offer to the DD & DNH Police newer versions based on latest appropriate technology and having equal or better performance or functionality.
- 53.2 The Tenderer shall provide new software version releases and documentation, if any, within 30 days of their availability in India, and not later than 3 months after they are released in the country of origin of the product, and technical support services if so specified in SCB. In no case this will affect the prices and service charges.
- 53.3 The DD & DNH Police shall implement software updates and new version releases, if any, within 3 months of receipt of a production ready copy thereof, provided that the new release does not adversely affect Systems operation of performance, or require extensive reworking of the Systems. In cases where the new version release adversely affects the performance of the Systems, the period for implementation of the new version shall be suitably extended and the Tenderer shall continue to support and maintain the version currently in production for as long as

necessary to properly implement the new version. In no case shall the Tenderer cease to support or maintain a version of software less than 24 months from the date the DD & DNH Police receives a production ready copy of a subsequent version.

- 53.4 The tenderer shall have Service Centre in India and repair/replacement in case of any defect found in the product, should not take more than 48 hours from date of reporting of defect to the tenderer.

Article – 54: Tenderer’s Obligations

- 54.1 The Tenderer will abide by the job safety, insurance, customs and immigration measure prevalent and laws in force in DD & DNH Police ./India, and will indemnify DD & DNH Police from all demands or responsibilities arising from accidents or loss of life, the cause of which is Tenderer's negligence. The Tenderer will pay all indemnities arising from such incidents and will not hold DD & DNH Police responsible or obligated.
- 54.2 The Tenderer is responsible for, and obligated to conduct all specified activities with due care and diligence using state-of-the-art methods and economic principles, and exercising all reasonable means to achieve the performance specified.
- 54.3 The Tenderer is obliged to work closely with the DD & DNH Police's Project Manager and staff, act within its own authority, and abide by directives issued by the DD & DNH Police The Tenderer is responsible for managing the activities of its personnel and any sub-contracted personnel, and will hold itself responsible for any misdemeanors.
- 54.4 The Tenderer shall appoint an experienced representative to manage its performance. The representative shall be authorised

to accept orders and notices on behalf of the Tenderer, and to generate notices and commit the Tenderer to specific courses of action. The representative may be replaced only with the prior written consent of the DD & DNH Police .

- 54.5 The Tenderer shall develop the final Project plan based on the Contract requirements, to be submitted to the DD & DNH Police for review and approval within the number of days specified in SCT Noted from the Effective Date of the Contract, with all reasonable and necessary inputs from DD & DNH Police.
- 54.6 The Tenderer shall complete delivery, installation, commissioning and acceptance of the Systems in accordance with Contract requirements.

Article – 55: Limitation of Liability

- 55.1 Tenderer shall be liable to the DD & DNH Police for consequential damages that may be suffered by the DD & DNH Police on account of time and cost overruns attributable to the Tenderer.
- 55.2 The liability of the DD & DNH Police under the Contract shall in no case exceed the total value of the Contract.

Article – 56: Force Majeure:

If at any time the performance, in whole or in part, by either of any obligation under the contract agreement to be signed, shall be prevented or delayed by reasons of any war or hostility, acts of public enemy, civil commotion, sabotage fire, flood, explosion, epidemic, quarantine restriction, strikes, or acts of god (hereinafter referred to as events), provided notice of happening of any such eventuality is given by either party to the other within 21 days from the date of occurrence of the event, party shall by reasons of such event, be entitled to determine the Contract arising out of the Contract nor shall either party have any claim

for damages against the other in respect of such event. Obligations arising out of the Contract shall resume after the event or events have come to an end or ceased to exist. The decision of DD & DNH Police as to whether such event or events have come to an end or ceased to exist or whether deliveries of the equipment by the Tenderer have been resumed or not shall be final and conclusive. Provided both the parties may at their option terminate their obligations under the Contract and thereupon the DD & DNH Police shall be at liberty to take over from the Tenderer all the works at a price to be fixed by the DD & DNH Police, which shall be final, and the tenderer shall refund forthwith the amount of advance paid to him by the DD & DNH Police.

Article 57: Procurement of document for DD & DNH Police.

Following certificates need to be submitted if the tender document is downloaded from website.

- a. Sales-Tax Certificate (certified copy) and **Copy of latest Income Tax return filed.**
- b. Valid Certificate of ISO 9001:2000 or equivalent
- c. P.F. Registration certificate (if applicable)

I/We _____
(Name of the Tenderer)

Proprietor/Partner/Director hereby undertakes to execute the project conforming to Tenderer Tender enquiry specification and abide all terms and conditions of this tender enquiry as well as invitation to tender and instructions to Tenderers.

Place:

Signature:

Date:

Name:

Designation:

Stamp of the firm:

Section - 3
Special Conditions
(SC)

Section – 3

Special Conditions

Following Articles shall supplement the General Conditions (GC) or amend the GC whenever there is a conflict of the provision of SCT with GC. In that event, provisions herein shall prevail over those in the General Conditions.

Article – 1: Eligible Tenderer

Tenderer is one who has responded to the Tender Enquiry for supply, installation, testing, integration and commissioning of Digital Radio Trunking (TETRA) System at the designated site(s) and as specified in the T/E Data Sheet of this document and who has purchased the required tender document or downloaded the same from specified website and meets pre-qualification criteria as mentioned below. Tenderer will have to submit the original T/E document duly signed on each page as a part of the Tender. It shall be expressly agreed herein by the Tenderer that he has read and understood the complete documents/requirements and is complying with the same except what is stated in specified Deviation/Non-Compliance statement format.

The tenderer can participate as consortium also. Maximum 2 firms are permitted to form a consortium and such consortium shall be formed under an Agreement on a non-judicial stamp paper of Rupees one hundred, duly signed by all the firms. The agreement in original shall be submitted with the tender. Agreement document should clearly state the lead firm of the consortium, roles and responsibilities of each firm for the successful implementation of the said project. It should be clearly mentioned in the consortium agreement that every firm of the consortium shall be equally responsible and jointly and severally liable for the successful completion of the entire project.

No firm shall be allowed to submit more than one tender either individually or in consortium. If so found, the affected tenders will be liable to be rejected.

If the tenderer uses Manufacturer's (OEM) strength to pre-qualify, OEM should be a consortium partner.

Pre-qualification criteria shall be based entirely upon the capability and resources of tenderer to perform the tetra project satisfactorily, taking into account their:-

- (i) Experience and past performance on similar project for last 2 years
- (ii) Capabilities with respect to personnel, equipment and manufacturing facilities
- (iii) Financial standing through latest I.T.C.C, annual report (balance sheet and Profit & Loss account) of last 3 years.

1.1 In order to enable the DD & DNH Police to assess the authenticity of the above, the Tenderer shall provide relevant and necessary documentary evidence in relation to previous similar contracts executed by the Tenderer e.g. copies of the purchase order and its timely completion certificates, proof of certification from users towards satisfactory performance of sets, etc. DD & DNH Police reserves the right to verify, if it so desires, the correctness of documentary evidence furnished by the Tenderer. The DD & DNH Police further reserves the right to verify the successful operation and performance of qualifying projects and Tenderer shall arrange permission for the same.

1.2 DD & DNH Police further reserves the right to verify the successful operation and performance of qualifying projects and Tenderer shall arrange permission for the same.

1.3 In case the Tenderer fails to submit all the relevant documentary evidences, his Tender is liable for rejection.

1.4 "Similar contract" means Tenderer has successfully completed a contract involving supply, installation, testing, integration and commissioning of Digital Radio Trunking (TETRA) System.

Article – 2: Warranty

- 2.1 The Tenderer warrants that there is no intention of discontinuing production of the Products and Systems supplied under the Tender within 24 (Twenty four months) from the date of the Acceptance of the “Systems”. In the event that the Tenderer intends to discontinue production of any Product/System after that period, the Tenderer will have to certify that the spare parts of the system being discontinued will be available for at least next 10(ten) years.
- The tenderer has to mention the prices of all those articles which are not covered in warranty even during warranty period of **2 years** like consumables and plastic parts etc. in form 2 section 7.
- 2.2 Nothing in SCT Article 4.1 shall in any way release the Tenderer from any warranty, maintenance or support obligations under the Contract or limit the Govt.’s ability to seek other remedies.

Article – 3: O&M

- 3.1 The Tenderer should provide the comprehensive maintenance for a period of Three (3) years after the warranty. Tenderer should be responsible for maintenance of the “**System**” and services associated with this “**system**”. Roles and responsibilities of the tenderer:
- Ensuring the “**system**” including all hardware and software is available for operations during this period.
 - It is the responsibility of the tenderer to provision sufficient spares to ensure the availability of the “**System**”.
- 3.2 The price bid evaluation will include cost of comprehensive maintenance under this clause.

Article – 4: Tenderer’s Obligations

4.1 The Tenderer shall develop a final project plan within 15 days of the award of the contract. The project plan shall include the following:

- (a) Definition of project implementation tasks, and identification of all major installations, acceptance and service deliverables and milestones.
- (b) A detailed, fully integrated project schedule covering installation, acceptance, training, delivery of other Services, and including a graphical representation of tasks duration’s and interdependencies (e.g. a GANTT or PERT chart)
- (c) Organisation of Tenderer and Govt. project implementation and operational support teams, including identification of specific staff resources, timings and their estimated workloads.
- (d) Elaboration of a detailed training program outlining course contents and minimum qualifications for participants of each training course.
- (e) Elaboration of a detailed acceptance test plan, including identification of the Systems to be tested, specific tests and processes to be performed, and the respective test schedules.
- (f) Procedure for document and specification review and approval.
- (g) Identification and scheduling of specific resources and facilities that the Govt. is required to provide.

Article – 5: Penalties

Tenderer shall ensure total uptime of the system to 99.7% against 24x7. This is applicable only for system comprising of RF equipments & infrastructure. The uptime / downtime will be calculated on quarterly basis.

The Following penalties will be imposed if the required uptime of 99.7% is not achieved;

S. No.	Uptime	Penalty
1	99% ≤ Uptime < 99.7%	For every 0.1% of downtime, a penalty of Rs. 1.0 Lac shall be levied on the successful tenderer.
2	98 ≤ Uptime < 99%	Penalty of Rs. 20.0 Lac shall be levied on the successful tenderer.
3	Uptime < 98%	DD & DNH Police may terminate the contract and encash the Performance Guarantee of the successful tenderer.

The uptime / downtime calculations should be provided by the operator to DD & DNH Police within 15 days of the expiry of each quarter. The same will be verified by DD & DNH Police and penalties, as applicable, will be imposed.

The tenderer will have to pay the penalty to the DD & DNH Police, failing which amount will be deducted from their Bank Guarantee.

The successful tenderer has to ensure the following:

- a) Base Site(s) should not be down continuously for more than 5 minutes.
- b) Not more than 10% of the total radio units should be down at any particular time.
- c) The faulty radio units should be repaired / replaced within a period of 4 days.

For above instances, suitable action may be initiated by DD & DNH Police.

Section - 4
T/E Data Sheet

Section-4

T/E Data Sheet

Article 1:

The following specific data for this T/E shall complement, supplement, or amend the provisions in the Invitation in **Tender and Instructions to Tenderers (ITIT)**. Whenever there is a conflict, the provisions herein shall prevail over those in the ITB.

Cost of Tender Document:

The Complete Tender document is available on the websites namely <http://www.daman.nic.in> , <https://www.dnh.nic.in> . Interested Tenderer can download the tender document from the websites for the purpose of submission of his Tender. However the Tenderer is required to pay **Rs. 5000/-** (Rupees Five Thousand only), Non-Refundable, through Demand Draft only, drawn on any nationalized bank at Daman, in favor of Deputy Inspector General of Police, in a separate envelope along with the Tender security (Part – I).

Name of the Purchaser:

Deputy Inspector General of Police, UT 's of Daman & Diu and Dadra & Nagar Haveli

Name of the Project:

Supply, Installation, Integration and Commissioning of Digital Radio Trunking (TETRA) System for Modernization of DD & DNH Police Communication System

Purchaser's Address:

Deputy Inspector General of Police,
UT of Daman & Diu and Dadra & Nagar Haveli
Panch Rasta, Nani Daman
Daman- 396210
Telephone No.- 0260- 2254400

<p>Fax: 0260- 2254070 Email: pcrdamandiu@yahoo.co.in</p>
<p>Submission of Queries on T/E Document: Not later than 04-03-2009 till 1700 hours.</p>
<p>Pre-Bid meeting: 05-03-2009 at 1130 hours at Deputy Inspector General of Police, UT's of Daman & Diu and Dadra & Nagar Haveli Panch Rasta, Nani Daman Daman- 396210</p>
<p>Tender validity period shall be: 180 days from the date of submission</p>
<p>Required number of copies of the Tender: Refer Article 2, 3, 4 & 5 of General Conditions. Three (Original plus two photocopies and clearly mention COPY 1 & COPY 2 on photocopies).</p>
<p>The address for submission of samples is: Deputy Inspector General of Police, UT 's of Daman & Diu and Dadra & Nagar Haveli Panch Rasta, Nani Daman Daman- 396210</p>
<p>The address for Tender submission is: Deputy Inspector General of Police, UT 's of Daman & Diu and Dadra & Nagar Haveli Panch Rasta, Nani Daman Daman- 396210</p>
<p>Due date (Deadline) for Tender submission: 21-03-2009 at 1500 hours</p>
<p>Date, time and place for opening of EMD and Technical Bid Tender: 21-03-2009 at 1600 hours Deputy Inspector General of Police, UT 's of Daman & Diu and Dadra & Nagar Haveli Panch Rasta, Nani Daman</p>

Daman- 396210
Amount of EMD: Rs.16,00,000/- (Rupees Sixteen Lakhs only)

**Article 2: CHECK LIST FOR TENDERER TO BE SUBMITTED
ALONGWITH TENDER**

FOLLOWING DOCUMENTS ARE ATTACHED WITH THE TENDER

S. No.	Item	Yes / No
1	Please give the page No. to entire set of tender and documents enclosed. The confirmation whether paging is done or not?	Yes / No Page No.
2	Please confirm following: Whether EMD in form of BG is placed in separate cover?	Yes / No
3	Whether copy of sales-tax registration is attached?	Yes / No
4	Whether last two years production & sales figures of manufacturing unit in quantity and value is attached?	Yes / No
5	Valid ISO 9001:2000 certificate or equivalent of the Tenderer and manufacturer	
6	Whether attested copy of latest Sales-tax clearance certificate is attached?	Yes / No
7	PF registration certificate (if applicable)	Yes / No
8	Whether samples are deposited to sample clerk? Tenderer should submit one sample of each of the three TETRA subscriber radio sets viz Mobile, Static and Portable as per the specifications mentioned in this document. If required by the DIG of Police, Police Head Quarters, UT of DD & DNH, tenderer should arrange a demonstration within a given time period.	Yes / No
9	Whether literature/catalogues are attached?	Yes / No
10	Authorization letter from manufacturer or OEM.	Yes / No
11	Copy of latest Income Tax return filed	Yes / No
12	Tender fee	Yes / No
13	EMD	Yes / No
14	Consortium Agreement in original (if applicable)	Yes / No
15	IOP Certificates for offered TETRA system.	Yes / No

DECLARATION

We solemnly declare that we have attached all the documents mentioned here above and mentioned in the Tender. We also understand that non-compliance of any documents will be treated as non-responsive Tender and we will loose our claim to participate in the Tender Enquiry automatically and our tender will be liable to reject.

Signature of Authorized person _____

Name of Authorized person _____

Section - 5
Schedule of Requirements and Scope of Work

Section-5

Schedule of Requirement and Scope of Work

5.1 Introduction

This section provides the tentative bill of quantities required, Scope of work and delivery schedule. **The Tenderer will be responsible for implementation of the project and should offer a solution that meets the minimum services described in various sections of this document and also Tenderer has to check /Comply Bill of Quantity (BOQ) accordingly. If the Tenderer finds that BOQ is incomplete in some respect for the implementation of project, he is responsible for identifying the same and accordingly including the cost of the same in his Tender.** Tenderer may indicate about the same in his unpriced Technical Tender. Please note that the actual prices included are not to be indicated in unpriced Tender otherwise his Tender is liable to be rejected.

5.2 Requirement of Digital Trunked Radio Sets (TETRA) For Daman & Dadra and Nagra Haveli City

S. No.	Item	Qty
1	TETRA Portable Subscriber Radios with battery and antenna, each with following Accessories (GPS enabled).	100 (Colour display)
a	Spare Battery	
b	Dual Pocket Charger	
c	Deleted	
d	Carrying Case with belt clip	
e	GPS Module	
f	User Manual	
2	TETRA Static Subscriber Radios with console, each with following Accessories. Minimum 3 Watts	50
a	Fist Microphone and loud speaker	

S. No.	Item	Qty
b	Antenna Unit	
c	30m Coaxial Cable	
d	Power Supply Unit cum battery charger	
e	User Manual	
f	12V 65 AH Battery	
	Optional: The bidder may also quote for higher wattage indicating the output power rating.	
3	TETRA Mobile Subscriber Radios (GPS enabled) with console, each with following Accessories. Minimum 3 Watts	50
a	Fist Microphone and loudspeaker	
b	Whip Antenna with 3 Mtr. Cable	
c	Deleted	
d	GPS Module with external antenna	
e	Deleted	
f	User Manual	
	Optional: The bidder may also quote for higher wattage indicating the output power rating.	
4	Deleted	
5	Deleted	
6	Switching Unit at Local Base Station (This is one of the 3 base stations)	01
a	Standard Cabinet	
b	Interfaces to connect to local and remote BTS	
c	Interface to Network Management System	
d	GPS antenna (if required)	
e	Power Supply Units AC/DC	
f	Software	
7	Network/ Subscriber Management System based on FCAPS Model	01
a	Software license	
b	PC Hardware & Software	
8	Interface/ Gateway	

S. No.	Item	Qty
a	Analog Gateway (Simultaneous)	3
b	Data Gateway (Simultaneous)	1
c	EPABX Gateway (Simultaneous)	2
d	AVL (Simultaneous)	1
9	Base Transceiver System (BTS)	3
a	Standard cabinet	
b	Radio transceiver unit (25 W) x 2 carriers	
c	Power supply AC/DC	
d	Interface to connect to switching unit	
e	Combiner and Splitter	
f	Receiver diversity	
g	Duplexer	
h	GPS antenna (if required)	
l	Software and basic configuration	
10	Dispatcher Unit (2 Line and 1 wireless) (OEM Certified H/W to be supplied)	03
a	Dispatcher application with hardware platform	
b	Data recorder / Logger	
11	Voice Recorder	01
12	Single port Programming kit including laptop licensed software, programming cables to cater for programming of Radio Units (handheld, mobile & static radios).	10
13	Tower (It is proposed to use three towers at Nani Daman, Silvassa, and Khanvel. However, the coverage plan is to be given by tenderer based on the specs of tender. If the survey by the tenderer identifies any additional/alternate site the cost of the tower is to be included. The tower should be complete with all accessories).	1 No.
14	Antenna Systems (for Tetra Tx & Rx Diversity) (Omni/ Sectoral as per requirement to cover the area specified in tender)	
	For Silvassa Site	2
	For Daman Site	1

S. No.	Item	Qty
15	Technical Manual for Portable Subscriber Radios	05 Nos.
16	Technical Manual for Static/Mobile Subscriber Radios	05 Nos.
17	Spares	
a.	Handheld	5
b.	Battery	10
c.	Handheld Charger	5
d.	Static: Transceiver	1
e.	Mobile Transceiver	2
f.	Fist Microphone	3
g.	Speaker	3
h.	Deleted	
i.	Base station carrier	2
j.	Base station controller	1
18.a	AVLS system including required hardware (servers) and licensed software to view all mobile and handheld terminals on upto 10 viewing clients simultaneously	1 Set
18.b	Digital map of the area required to be covered.	1
19	Site preparation including Shelter and Air conditioners (Each site with minimum two (2) no.'s of window AC each of 1.5 ton with one in standby mode)	3 Sites
20	G.HSDSL Modems	6 Nos.
21	Power Arrangement	
A	DG Set – 10 KVA (minimum) for Central Site	01
B	DG Set – 6 KVA (minimum) for Base Station Site	2 Nos.
C	UPS – 6 KVA (minimum) for Central Site with one hour back-up	01
D	UPS – 2 KVA (minimum) for Base Station Site with one hour back-up	2Nos.
22	Microwave links to connect the remote BTS to central switch as well as interconnecting remote BTS in mesh configuration.	03

S. No.	Item	Qty
23	Special Maintenance Equipment like RCTS. (The equipment should be able to test parameters of TETRA system as well as microwave link.)	1 No.
24	Arrangement for charging minimum 10 TETRA handheld radios simultaneously	5

Note: The bidder shall quote separately in separate forms for different **minimum power options as per requirements.**

“The list of spares is the minimum requirement . The vendor is responsible for keeping an uptime and MTTR as per tender terms and therefore increase the list as per his requirement.”

5.3 Scope of Work

- 1 Supply, Installation, Testing, Integration and Commissioning of Digital Radio Trunking (TETRA) System at the designated site(s) in the state.
- 2 The System provided should be connectable to AC/DC Power Supply. Adequate no. UPS and DG Sets of required capacity should be provided. The UPS and DG set Solution should suffice both Police and tenderer’s equipment requirement.
- 3 It is required to connect the Automatic Vehicle locating system to the Digital Radio System. The Mobile Subscriber Radios and portable radio sets should be GPS enabled and the Tenderer should ensure that the information of location of vehicles and personals (in desired format) should be provided at control rooms.
- 4 The tenderer should submit IOP certificates for the offered Digital Radio Trunking System (TETRA).

- 5 The successful Tenderer has to get approval of operation certificate from the vendor who shall be selected for setting up of TETRA Infrastructure, before dispatching the Subscriber Radios. **IOP certification between the TETRA infrastructure and the proposed terminal equipment should be provided.**
- 6 As per the architecture of the Project, the central site will be located at Daman city. **The Tenderer should propose the central site equipment, which is scalable in future.**
- 7 Supply and erection of necessary Towers, fixtures, brackets and accessories for the erection of antennas on tower at site. The firm should supply and install necessary fixtures & protectors for earthing & lightning protection to protect the equipment from lightning/ high voltage surge and RF interference.
- 8 Tenderer shall be responsible for connecting the base station sites to central switching unit at Daman through a redundant communication link. The primary link should be on Microwave and standby communication link should be on Lease Line. The bandwidth of Lease Line should be 256 Kbps (minimum). The tenderer shall help Daman, Diu and Dadra & Nagar Haveli Police in procurement of Lease Line from BSNL and obtaining license etc. for Microwave frequencies from the concerned authority(s). Tenderer shall be responsible for monitoring and pursuing in case of Lease Line is faulty.
- 9 Training should be provided **free of cost** to 10-15 number of police personnel as the details provided in T/E document, selected by state police. The Tenderer should provide operational training to all the end subscribers of TETRA network.

- 10 It is required that the successful tenderer shall open a office in Daman & Dadra and Nagra Haveli and at least 2 persons from Tenderer side should stay in Daman & Dadra and Nagra Haveli during entire project and should be available round the clock. They should have enough expertise so as to handle all types of defects. Tenderer has to specify the details of all kinds of repairs that can be done at Daman & Dadra and Nagra Haveli.

Tenderer should provide the Warranty for a period of 2 (two) years from the date of commissioning of the “**System**” and Comprehensive Maintenance of the “**System**” for a period of 3 (three) years after the warranty period.

11 Other Requirements

- (a) Tenderer shall supply the equipment with complete set of all the necessary cables, connectors, accessories, etc.
- (b) Tenderer shall provide user and operational manuals in original. (one set for each item provided)
- (c) Tenderer shall provide service support to the best satisfaction of the Govt. of UT of DD & DNH.
- (d) Tenderer should have Service Centre for repair and maintenance of equipment preferably in the UT of DD & DNH. Mention the place where the centre is presently located in case it is not there in the state.

Section-6
Technical Specifications

Section-6

Technical Specifications

6.0 Introduction

It is decided by Daman, Diu and Dadra & Nagar Haveli Police to implement Digital Radio Trunking system based on Digital Radio Trunking System (TETRA) for Police Communications. The solution has to be scalable and optimized to provide round the clock citywide communication from anywhere to anywhere. Redundancy at various levels has to be provided as per tender. The resources available with the Daman, Diu and Dadra & Nagar Haveli Police (e.g. VHF sets) have also be gainfully utilised. This Section provides the minimal Technical specifications of all the components that shall be required for the implementation of Digital Radio Trunking System (TETRA).

6.1 Project Aim

The present aim of this project is to provide an effective and efficient communication network for Daman, Diu and Dadra & Nagar Haveli Police and cover Union Territory (e.g. Daman, Dadra and Silvassa) cities, with a new radio network based on digital trunked radio technology in 800 MHz band. In broad terms the solution shall achieve the following key objectives:

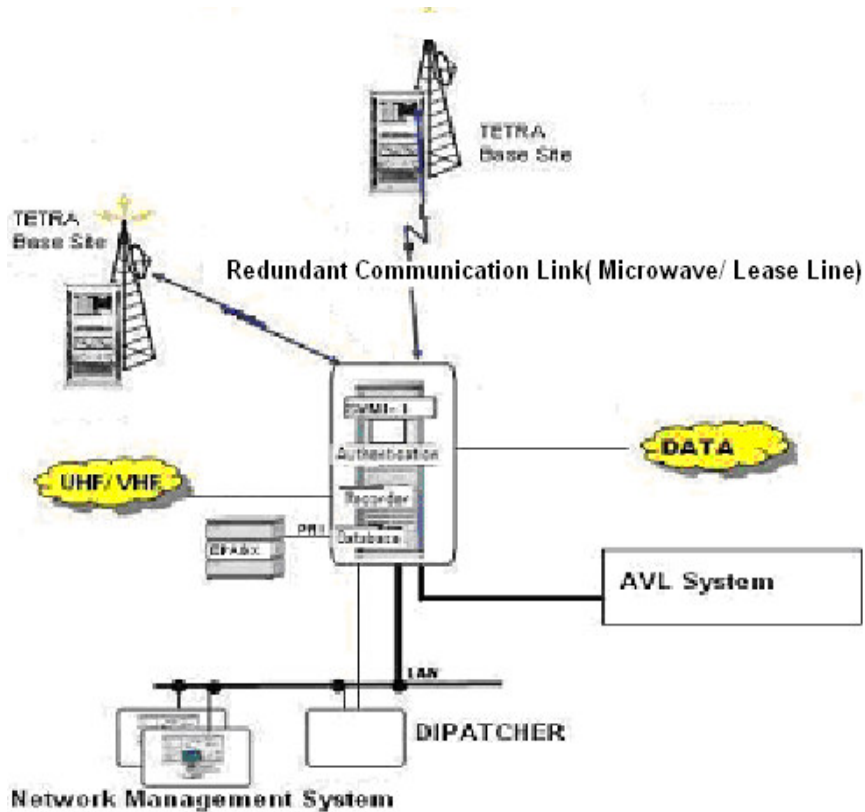
- Systems shall be based on the TETRA standards. The network shall be based upon state-of-the-art technology, TETRA, which is an open standard by ETSI.
- Group-Call operation using closed Talk-Groups.
- Roaming across all operational areas, supporting call-handover
- Security against unauthorised monitoring
- Simultaneous voice and data communication to and from a single terminal

- Voice radio, mobile telephony and mobile data modes of operation
- Potential to use subscriber radios available from a variety of manufacturers.

6.2 Network Architecture

The proposed TETRA network should be scalable. The Digital Trunking Wireless network shall be based on the latest IP or circuit based standard and shall provide interface to various networks through gateways. The Network Management System and Dispatcher Workstation shall provide integrated command and control.

Broadly, **Daman and Silvassa cities** will have base sites* and a central switching and management infrastructure. **All the base sites shall be connected to central switching unit at Daman through a redundant communication link.** The primary link should be on Microwave and stand by communication link should be on Lease Line. The bandwidth of Lease Line should be 256 Kbps (minimum). The tenderer should help the Daman, Diu and Dadra & Nagar Haveli Police in procurement of Lease Line from BSNL. Tenderer should be responsible for monitoring and pursuing in case of Lease Line is faulty. The Lease line charges shall be borne by Daman, Diu and Dadra & Nagar Haveli Police. All base stations will be connected **in mesh topology.**



NETWORK DIAGRAM FOR DAMAN AND DADRA & NAGAR HAVELI

Connectivity at Control Room

GPS synchronization may be provided with either base station or through switch.

Provided below is the list of components that shall be placed at Control Room.

Items for Digital Radio Trunked System (TETRA)

Switching Unit with

- Interfaces to connect to BTS
- Interface to Network Management System
- GPS antenna
- Power supply units AC/DC
- Software

<p>Network/Subscriber Management based on FCAPS Model with</p> <ul style="list-style-type: none"> - SW license for fault diagnostics, accounting, performance and security management and configuration management - PC-Hardware & Software
<p>Interfaces/Gateways</p> <ul style="list-style-type: none"> - Analog Gateway - Data Gateway - EPABX Gateway
<p>TETRA Portable Subscriber Radios (GPS enabled), each with following Accessories with</p> <ul style="list-style-type: none"> - Spare Battery - Dual Pocket Charger - Belt Clip - GPS Module - Carrying Case - Manual
<p>TETRA Static Subscriber Radios, each with</p> <ul style="list-style-type: none"> - Handset - Antenna Unit - Connecting Cables - Power Supply Unit - Service Manual - 12V 65 AH Battery with Battery Charger
<p>TETRA Mobile Subscriber Radios (GPS enabled), each with following Accessories</p> <ul style="list-style-type: none"> - Fist Microphone and loudspeaker - Whip Antenna with 3 Mtr. Cable Power Supply Unit - GPS Module - Radio Modem - Service Manual
<p>Redundancy</p> <ul style="list-style-type: none"> - As Required

<p>Base Station System</p> <ul style="list-style-type: none"> - Base Station with minimum 2 Carrier consisting of: - Standard cabinet - Radio Transceiver unit (each 25 watt) - power supply AC/DC - Interfaces to connect to Switching Unit - Filter Network - Receiver diversity - GPS - Duplexer - Basic Configuration - Software
<p>Dispatching Station</p> <ul style="list-style-type: none"> - Dispatcher Application with hardware platform - Data Recorder/ Logger
<p>Voice Recorder</p>
<p>Programming kit for Subscriber Radios Units</p> <ul style="list-style-type: none"> - Single port Programming kit including laptop licensed software, programming cables to cater for programming of Radio Units (handheld, mobile & static radios).
<p>Spares</p> <ul style="list-style-type: none"> - As Required
<p>Towers & Antenna System</p> <ul style="list-style-type: none"> - As Required

Having studied the topology of the **Daman and Dadra & Nagar Haveli**, a Digital Trunking network shall comprise of optimal no. of base sites to **provide coverage of the entire UT as per the details given in Annexure-2.**

Each site shall have minimum 2-carrier system for congestion free & redundant wireless communication throughout the cities.

A more detailed survey of the cities is required to determine the sites of installations and shall entirely be the responsibility of the Network Integrator/ tenderer.

The Base sites shall be networked to provide efficient wireless voice and data communication throughout the city. The Police Headquarter shall be equipped with a Management Control Centre for command and control of the entire network.

Technical Specifications of TETRA System

The equipment (hardware and software) should comply with TETRA V+D standards of EN as mentioned below:

- | | | |
|-----|------------|--------------------------|
| (1) | EN 300 392 | General network planning |
| (2) | EN 300 392 | Air interface |
| (3) | EN 300 392 | Supplementary services |
| (4) | EN 300 394 | Compliance tests |
| (5) | EN 300 395 | Voice codec |
| (6) | EN 300 396 | Direct Mode |

In addition the equipment should comply with the concerning Electromagnetic Compatibility.

Tenderer should specify spare parts for both Central Equipment and Radio Site equipment. Tenderer shall ensure total uptime of the systems to **99.7** percent against 24x7 hours.

The list of spares In BOM is the minimum requirement. The vendor is responsible for keeping an uptime & MTTR as per tender terms and may therefore increase the list as per his requirement.

Tenderer should specify test equipment and tools required to support the network's continued operation.

Tenderer should do survey of the designated cities and identify the most appropriate sites for covering Daman and Dadra & Nagar Haveli, to provide **85%** on road coverage for mobile units as per list at Annexure - 2, and 100% coverage for all the static stations. The final network diagram entirely be the responsibility of the Tenderer.

Tenderer shall provide all relevant technical documentation and user manuals with two of copies (original) properly bound of the Systems being installed at each site. The Tenderer shall specify detailed list of such documentation in his Tender.

Tenderer may demonstrate coverage based on Typical Urban environment.

Network should be able to detect faults at each radio site.

Equipment should work on both DC and AC. Power supply should be sufficiently hardened to take care of voltage fluctuation caused by generators.

Tenderer should submit the installation plan.

It should be possible to do in-site repair to reduce 'downtime'.

Assemblies, sub-Assemblies should be Plug-in types with simple built-in test facilities.

It should support powerful and user-friendly MMI and BITE.

There should be higher level of redundancy & there should be no single point of failure in System. Vendor should provide the details of redundancies that will be provided.

Adequate number of spare card/Modules should be provided **so that Full system is not down for more than 30 minutes and any one site should not be down for more than one hour. Tenderer to specify List of spares.**

MTBF for Tetra equipment should be better than 10 Years. Vendor to produce necessary compliance certificate for same.

Adequate safety devices should be provided to ensure protection against following:

- Reverse DC voltage
- Over Voltage

- Surges
- Short/open Circuit

Fuses and built-in safety devices should be provided to prevent any danger to operating and repairing personal or equipment.

Fail safe design to ensure that a fault in particular circuit does not result in any danger to any other part(s) of the equipment.

Visual and aural alarms should be displayed to indicate any critical failure.

6.3 Central Equipment Components

The System's wide area network architecture should be specifically designed for Public Safety applications.

The network architecture should be non-blocking, and should be capable of establishing group calls throughout the coverage area of the system without restriction.

The network architecture should have the capability to support at least 10 base station sites and Tenderer however should specify the maximum number of base sites that can be supported.

The expansion of the network architecture should be modular.

The network should allow for maximum flexibility in the location of interfaces to other systems and all equipment if required may not be grouped in the one location. Interconnection of network elements such as EPABX/PSTN Gateway, call recording/logging, dispatchers and network management, will be effected through the use of a standardised interconnection.

The network architecture should provide a minimum of 1000 radio ID's and 500 talk groups and should be capable of expansion.

The network architecture should be capable of supporting more than one Dispatcher console for each location.

6.4 Radio Site Equipment

If a radio site loses connection of the bearer link with the system infrastructure, it shall enter into fallback mode (Local Site Trunking) whereby the radio site continues to independently support call trunking.

When in Local Site Trunking mode, the system shall provide at least the following trunking features:

- a. Registration and Group Attachment
- b. Group Call
- c. Late entry
- d. Call queuing
- e. Queuing priority
- f. Talking party indication

Should a fault occur with the base transceiver carrying the Main Control Channel, this fault shall be automatically detected and the control channel shall automatically switch to another carrier. Should a fault/failure occur within the system, the system/Network shall detect it and the standby shall take over.

Each Radio Site shall be able to detect fault conditions and report these to the network manager.

Base Station radio should support multiple control channels per transceiver.

The Radio Site shall support Rx Diversity to improve receiving signal.

The Radio Site shall be capable of supporting at least up to 6 TETRA radio transceivers.

6.5 Availability, Resilience and Reliability:

Tenderer should describe his strategy for achieving high system availability.

Tenderer should describe all fallback modes designed to achieve high system level resilience.

Tenderer should describe how multiple components are used to achieve high system level resilience.

The system should be designed to allow for expansion with only minimal disruption to system availability. Tenderer should describe how his system meets this objective.

It should be possible to add new Radio Sites without disrupting the service to existing sites.

6.6 Performance:

- 1 The call set-up time for a group call where all the participating radios are on a single site shall be less than one second.
- 2 The call set-up time for a network wide, unacknowledged group call where the participating radios are spread over multiple sites shall be less than one second.
- 3 The audio delay for a group call where all the participating radios are on a single site shall be less than 400 ms.
- 4 The audio delay for an individual call between two participating radios on a single site shall be less than 400 ms.
- 5 The audio delay for an individual call between a radio and a dispatch console shall be less than 400 ms.
- 6 The audio delay for a telephone interconnect call between a radio and a telephone connected via the gateway shall be less than 500 ms.
- 7 The network shall have such a design so as to ensure 7x24 hours working with a total downtime not exceeding 53 minutes in a year.
- 8 The Tenderer shall provide MTBF and MTTR parameters of the Systems being supplied.

6.7 System Features and Services:

1 Registration and Roaming

- i.) Each Radio Unit should register with the system at:
 - Power-on
 - Change of Base Station Site
 - Change of Talk-Group attachment.
- ii.) To safeguard system resources, each Radio Unit should de-register from the system on power-off.
- iii.) The system should offer site handover to allow a Radio Unit to maintain its link with the system whenever it moves out of the geographic coverage area of one Radio Site and into that of another. The Tenderer should explain the mechanisms employed by the Radio Unit to assess when it is advantageous to change Radio Site.
- iv.) The system should offer roaming to allow a Radio Unit to maintain its link with the system whenever it moves out of the geographic coverage area of one TETRA Network and into that of another
- v.) It should be possible to modify the Control Channel re-selection algorithm to ensure that a Radio Unit will remain registered with a preferred Base Station as long as an adequate signal is present. This will allow members of a talk-group to remain registered at a primary site, even when adjacent site with overlapping RF coverage may offer a better signal.
- vi.) Each Radio Unit should be capable of supporting upto 7 preferred Control Channels.
- vii.) The system should support handover of calls in progress when a Radio Unit changes Radio Site.
- viii.) Handover should be supported for all classes of voice and data service.

- ix.) Encryption of voice and data traffic, and signaling information should NOT be compromised during site handover.
- x.) The system should support TETRA cell re-selection type 3 for handover, or better.
- xi.) Base Stations should be capable of being synchronized using the GPS time signal, to allow fast call handover during handover. This will be achieved by the Radio Unit receiving and decoding the new cell's signals prior to handover.
- xii.) When a Radio Site is operating independently from the system infrastructure, and if a radio subscriber tries to access subscriber of another site then the radio site should inform the subscriber about the inability to make a call or it should broadcast the loss of roaming to all registered Radio Units.

2 Security

- i.) The integrity of the network shall be defended from unauthorised access, eavesdropping and denial of service attacks.
- ii.) A great deal of sensitive information is transmitted between operational Radio Unit users.
- iii.) It shall be possible to prevent eavesdropping by non-authorised users equipped with commercially available equipment, on any voice messages transmitted over the network.
- iv.) It shall be possible to prevent interception and decoding by non-authorised user equipped with commercially available equipment, of any data messages transmitted over the network.
- v.) The system shall support encryption over the air interface. The system shall support Class I Air Interface Encryption as

defined by ETSI. The System shall support end-to-end encryption.

- vi.) The Network Manager/ dispatcher shall, be able to temporarily disable (stun) a Radio Unit.
- vii.) The Network Manager/ dispatcher shall be able to re-enable a stunned Radio Unit.
- viii.) While stunned a Radio Unit shall be disabled from making or receiving calls.
- ix.) The stunned status shall be saved in non-volatile memory so it cannot be defeated by removing power.

6.8 Voice Services

1 GROUP-CALLS:

- i.) Group-Calls are the most distinctive feature of Professional Mobile Radio networks: supporting one-to-many area operation, with simple one button operation to establish a call. Group-calls on single sites and Group-Calls across multiple sites are anticipated to be the major part of the traffic load. The system shall support Group-Calls from one party to multiple parties.
- ii.) In order to prevent conflicting transmissions within a Talk-Group, the system shall ensure that only one party may transmit at a time.
- iii.) The Radio Unit shall automatically receive all calls for the Talk-Group to which they are attached, without any action being required by the user.
- iv.) A Radio Unit shall be able to request a traffic channel to transmit to their attached Talk-Group by simply pressing a Push to Talk (PTT) button.

- v.) It shall be possible to configure each Talk-Group to determine whether the current transmitting party will be interrupted if another Talk-Group member presses PTT (pre-emptive priority). Interruption of the current transmitting party will be interrupted if another Talk-Group member, with a higher pre-emptive priority, presses PTT.
- vi.) Group-Calls shall be automatically cleared down by the system following a specified period of inactivity: an inactivity timer will be restarted after each user transmission.
- vii.) Group-Calls shall be cleared down by the system after a predefined maximum Group-Call duration.
- viii.) The system shall support separate configurable inactivity times and maximum call durations for Emergency-Calls, distinct from the configurable inactivity times and maximum call durations for ordinary Group-Calls
- ix.) Each Radio Unit shall support a minimum of 200 Talk-Groups
- x.) The system shall track which Radio Units are registered and which Radio Site each Radio Unit is registered with.
- xi.) It shall be possible to establish minimum of three group calls per base station.
- xii.) There shall NOT be any restriction on the number of sites that can be included in a Group Call. Wide Area Group Calls shall be able to include all sites in the network.
- xiii.) To efficiently manage system resources, the system shall only allocate traffic channels for a Group-Call at Base Stations where there is a member of that Talk-Group registered.
- xiv.) The system shall be able to determine which Base Stations are required for a Group Call, without generating any

additional traffic while locating Talk-Group members. This will conserve traffic resources and ensure fast call set-up.

- xv.) When determining which sites to include for a Group Call, the system shall give higher weightage to key Talk-Group members. All should start on the sites where all key group members are present.
- xvi.) A radio Unit may have a legitimate interest in communications for Talk-Groups other than the one they are currently registered with. The system shall support Talk-Group scanning, whereby a Radio Unit gives priority to its own Talk-Group, and listens to other Talk-Groups when idle.
- xvii.) Each Talk-Group shall be capable of being associated with a MultiGroup.
- xviii.) Each Radio Unit shall be programmable with a minimum of 4 MultiGroups.
- xix.) Each scan-list shall consist of upto 10 Talk-Groups.
- xx.) A Radio Unit user might fail to be notified of a major incident, while engaged in routine low-priority calls for another Talk-Group. To prevent this, the system shall be able to assign appropriate Talk-Groups as high priority.
- xxi.) When a call is set up for a priority Talk-Group, the signaling information shall be sent on the main control channel allocated to Group-Calls already active at these Base Stations.
- xxii.) Each Radio Unit shall be capable of detecting a priority call even if engaged in a Group-Call already. The Radio Unit shall join the new call if it is of higher priority than the existing call.
- xxiii.) Some Talk-Group members may have been unable to join a Group-Call at the start, perhaps because they have only just

switched on; have selected a new group; or have suffered signal fading. The System shall support Late Entry so that Radio Units can detect and join a Group-Call in progress.

- xxiv.) The system shall be configured in a way that when a Group call is initiated, it shall start immediately and group call shall be set up straight away on those radio sites at which channels are available. Radio Units at other Radio Sites shall join the call as resources become free.
- xxv.) It may be critical that one or more geographical areas are included in Group-Calls for a particular Talk-group. The system shall allow each Talk-Group to be allocated a list of critical Base Station, which shall be included before a Group-Call can be established.
- xxvi.) To ensure that traffic channels are not unnecessarily allocated for Talk-Group members working out of area, the Network Manger shall be able to limit the geographical coverage of a Group-Call by defining a list of valid Radio Sites for each Talk-Group.
- xxvii.) For each Talk-Group, the Network Manger shall be able to allow a wider list of Radio Sites to be valid for Emergency-Calls than for normal Group-Calls. This allows Talk-Group members working outside of a valid site to initiate an emergency call.
- xxviii.) If a Radio Unit was busy when a user had tried to call it, the busy Radio unit shall be reported of the missed call.
- xxix.) Calls that are queued shall be serviced in order of priority. High priority calls shall be handled first.
- xxx.) It shall be possible to assign each Radio Unit with a priority level between 1 and 10 (minimum). Highest priority level should be reserved for Emergency-Calls.

- xxxi.) Calls in the queue with the same priority shall normally be handled on a first in first out basis.
- xxxii.) To facilitate call continuity, the queue shall prioritize between calls from Radio Units with the same priority, so that a call from the more recently serviced Radio Unit will be handled first.
- xxxiii.) Members of a particular Talk-Group shall be able to transmit to other selected Talk-Groups. It is permissible for this functionality to be achieved with the intervention of a Dispatch Console operator.
- xxxiv.) During a Group-Call, the identity of the talking party shall be identified to all other Talk-Group members.

INDIVIDUAL-CALLS:

- i.) Radio Units shall be able to initiate individual-Calls to other Radio Units or to a Dispatch Console.
- ii.) It shall be possible to set a system wide maximum call duration for individual-Calls.
- iii.) Full Duplex Individual Calls shall be supported between Radio Units and Dispatch Console operators.

TELEPHONES INTERCONNECT CALLS:

- i.) Radio Units shall be able to initiate and receive full-duplex telephone calls to/from PSTN or EPABX subscribers.
- ii.) It shall be possible to set a system wide maximum call duration for telephone calls.
- iii.) During a telephone interconnect call, the user shall be able to send (Dual Tone, Multi-Frequency) DTMF tones (0-9, * and #) from the Radio Unit to a land-line subscriber, by using the Radio Unit keypad. This allows the Radio Unit to

access such features as voice mail, and to navigate automated telephone answering services.

- iv.) The DTMF tones shall NOT be distorted by the voice-coding algorithm used for compressing audio traffic.

EMERGENCY MODE OPERATION:

- i.) When Radio Unit users encounter emergency situation it is imperative that the radio system provides a very high level of service. The system shall offer an integrated emergency strategy, including highest priority voice calls, an automatic emergency alarm and special Dispatch Console features.
- ii.) Each Radio Unit shall have an easily accessible Emergency Mode button.
- iii.) Emergency-Calls shall be supported as all type of call modes such as Group-Calls, individual call etc.
- iv.) Emergency-Calls shall be set-up immediately even when all traffic channels are busy, by ruthlessly pre-empting the lowest priority call in progress. This lowest priority call shall be dropped and the traffic channel allocated to the Emergency-Call.
- v.) Each Radio Unit shall emit a distinct tone to indicate an incoming Emergency-Call.
- vi.) When a Radio Unit enters Emergency mode, an Emergency Alarm shall be immediately and automatically generated via the TETRA network. The radio should also generate its current position data if it is GPS enabled.
- vii.) The Emergency alarm shall be implemented using the TETRA data status message service.

- viii.) The Emergency Alarm shall be addressed to all Dispatch Consoles monitoring that Talk-Group.
- ix.) An acknowledgement of the Emergency Alarm to the Radio Unit shall be automatically generated by the system.
- x.) Receipt of an Emergency Alarm/Emergency – Call at the Dispatch Console shall be indicated both visually and audibly.
- xi.) Annunciation of the Emergency shall continue all Dispatch Consoles monitoring that Talk-Group, until one of the console operators acknowledge the condition.
- xii.) When a Dispatch Console operator acknowledges the emergency, all other Dispatch Consoles monitoring that Talk-Group shall receive visual and audible indication that the emergency is being dealt with.
- xiii.) All Dispatch Consoles monitoring that Talk-Group shall continue to display the emergency status until the emergency is cleared by the Radio Unit.
- xiv.) Dispatch Console operators shall be able to initiate Emergency-Calls.

6.9 SUPPLEMENTARY SERVICES:

- 1 The System shall support the following supplementary services:
 - i.) Shortened Dialing supplementary services. It shall be possible for a radio user to input a shortened number.
 - ii.) Calling Line Identification Presentation supplementary service. The radio shall display the identity of the calling party when engaged in a call.

- iii.) Call Barring Inbound supplementary service. It shall be possible to exclude radios from receiving telephone calls from certain predefined numbers or groups of numbers.
- iv.) Call Barring Outbound supplementary service. It shall be possible, to exclude radios from making telephone calls to certain predefined numbers or groups of numbers.

6.10 DATA SERVICES:

1 STATUS MESSAGES

- i.) The system shall allow a Radio Unit to send a pre-coded status message over the air interface to the Dispatch Console, without requiring voice communication.
- ii.) The status message service shall support at least 100 distinct messages.

SHORT DATA TRANSPORT SERVICE

- i.) The system shall implement the TETRA Short Data Service (SDS) to support such applications as Text Messaging, Database Enquiries, Automatic Location System (ALS), Automatic Vehicle Management (AVM) and Telemetry.
- ii.) The system shall provide an easy to use transport layer service; thus making end-to-end data connections available between applications running on Radio Units and host computers networked to the system infrastructure.
- iii.) The interface to the Text messaging service at the Radio Unit will be via the Man Machine Interface (MMI) and Peripheral Equipment Interface (PEI) as defined in the TETRA standard. The PEI shall be an RS232 serial connection using a super-set of AT Commands.

- iv.) The interface to the Text messaging service in the system infrastructure shall use the TCP/IP protocol over an Ethernet connection: thus allowing connection to external host computer applications.
- v.) The Dispatch Consoles shall be able to receive and transmit Status Messages and Text Messages.
- vi.) Text messaging shall be a reliable service, so that the sender is informed when the message is delivered.
- vii.) Short Data Service messages of up to 30 characters shall be delivered even if the destination is involved in a group-call.
- viii.) Short Data Service messages of up to 30 characters shall be delivered even if the destination is involved in an individual call.
- ix.) Short Data Service messages of up to 30 characters shall be delivered even if the destination is involved in a telephone interconnect call.
- x.) Short Data Service should support one to one and one to many mode

6.11 DISPATCH CONSOLE FEATURES:

1 GENERAL

- i.) The Hardware implementing dispatcher functions at the operator console shall be COTS product, not a bespoke solution for this project. operating software is COTS with application software for the dispatcher functionality
- ii.) The console equipment shall include:
 - A display screen
 - A pointer device

- A keyboard
 - Audio Volume Controls
 - Two loud speakers
 - A desktop microphone
 - Headset
- iii.) The console shall be equipped with a speaker and the ability to direct any combination of call audio to this speaker.
- iv.) The dispatcher console should provide a flexible and intelligent ability to mix and select audio for direction to the loudspeaker.
- v.) The Dispatch Console software shall be Windows TM compatible and provide a user friendly GUI.
- vi.) Active calls assigned to a particular console shall be graphically represented on the console display.
- vii.) It shall be impossible for the dispatch operator to lose visibility of an assigned active call.
- viii.) The dispatch software shall display all active calls and allow the operator to select the call(s) to respond to.
- ix.) The dispatch software shall include a mechanism for displaying details of the active call presentation.
- x.) **This Clause is deleted.**
- xi.) Where dispatch Consoles are located close to each other, then audio traffic between the consoles can cause acoustic feedback. The system should provide a mechanism to prevent this.
- xii.) In order to facilitate emergency planning, the Dispatch console software shall support dynamic regrouping by providing predefined combinations of Talk Groups. **This**

feature is required for line connector dispatcher and not for mobile dispatcher.

- xiii.) The system shall be able to support minimum of 10 Dispatch Console position.
- xiv.) Dispatcher shall be able to make Individual calls.
- xv.) Dispatcher shall be able to make group calls.
- xvi.) Dispatcher shall be able to make EPABX/PSTN calls.
- xvii.) Dispatcher shall be able to store last 10 Numbers or redial them.
- xviii.) Dispatcher shall ensure acknowledge to incoming message and vendor may define its method of acknowledgement.
- xix.) Dispatcher shall log all data calls.(Status & SDS message)
- xx.) Dispatcher shall allow login and logout of users stored in.
- xxi.) Dispatcher shall have alarm facility on incoming and outgoing message, including automatic response.
- xxii.) Dispatcher should have fully functional Automatic Locator System (AVL) as part of solution enabling user(s) to track all mobile/ handset(s) on multilayered GIS map.
- xxiii) This clause is deleted.

GROUP CALLS:

- i.) The Group-Calls will be the primary mode of operation for Dispatch Console operators. Group-calls shall be easy to initiate by selecting a Talk-Group from the graphical display and then selecting a transmit control.
- ii.) Dispatch consoles shall receive audio from all Talk-Groups to which they are attached.

- iii.) Dispatchers have the highest priority within a Group-call and shall be able to interrupt the currently transmitting Radio Unit.
- iv.) The Dispatch Console shall be able to transmit simultaneously to more than one Talk Group.
- v.) Each Dispatch Console shall be able to monitor any talk group in the system without any restrictions.
- vi.) The Dispatch console shall be able to patch together two or more Talk-Groups to participate in a shared Group – Call.

INDIVIDUAL CALLS:

- i.) Dispatch consoles shall be able to make and receive Individual-calls from Radio Units.
- ii.) The dispatcher software shall include an address list of Radio Units to allow simple initiation of Individual-Calls.
- iii.) Each Dispatcher shall be able to initiate a one-to-one communication with another Dispatch console.

TELEPHONE CALLS:

- i.) Dispatch consoles shall be able to initiate and receive phone calls from a EPABX directly using a Dispatch Console GUI

EMERGENCY OPERATION:

- i.) When an Emergency-Call or Emergency alarm is received each Dispatch console monitoring that Talk-Group shall emit a distinct tone until a dispatcher has responded.
- ii.) The on-screen log entries for the incoming emergency communication shall be distinctly tagged. When a dispatcher responds to the emergency, a visual indication

shall be given to all Dispatch Consoles monitoring that Talk-Group.

DISPATCHER CONSOLE CONFIGURATION:

- i.) It is important to ensure that there can be no conflicts caused by incompatible configuration settings. For this reason there should be a single point of entry for configuration of the consoles.
- ii.) There shall be a single point of entry for all text aliases used within the system, such as the text aliases for each Radio Unit, and the text aliases for status messages.
- iii.) All software used for console configuration shall provide an intuitive graphical user Interface (GUI).

Minimum Dispatcher Hardware Specifications (Either following or OEM certified hardware can be supplied)

- P-IV Processor @ 2.8 GHz
- Integrated 256 Kb level 2ECC
- 1 GB, SDRAM
- 80 GB hard disk
- 133 MHz FSB
- 5 * PCI slots for expansion
- 1 Serial Port, 1 Parallel Port, 2 USB Port, 1 Mouse and 1 Keyboard.
- Integrated dual channel wide ultra 3/ ultra SCSI / SAS controller.
- 2 Nos. fast PCI 10/100 auto sensing Ethernet cards
- 52X CD-ROM
- 19" Color monitor

- 1.44 Mb FDD
- Licensed system software and operating system.
- Licensed antivirus software.

VOICE RECORDER CONFIGURATION (Either following or OEM certified hardware can be supplied):

i) Hardware for High Performance Voice recorder- Multi-Channel TETRA Voice Recorder

- -TETRA coded recording of minimum 5 days
- Hardware consisting of:
 - 4 x HDD U320 10k 146 GB hot plug
 - RAID Ctrl U160 2-ch 2i/2e 32 MB Adaptec
 - RAID Ctrl Battery back-up
 - 19" TFT Flat screen, keyboard, mouse
 - 1* E1 card
 - **DVD writer**
- Hardware is limited as 1* for 30 channels

ii) Voice recorder-, 30-Channel Voice Recorder License

Software license for parallel recording of 30 TETRA coded speech channels consisting of:

- Software package Voice recorder- for Windows
- Software license
- Software interface for E1-PC-Card
- TETRA coded recording
- Software interface for TETRA - Application - Platform (A-CAPI®)
- Standard SQL-Database (My-SQL) for storing CRD (Call related data)
- Manual (English)
- SNMP-Agent (monitoring of a free configurable SNMP inquiry MIB ID, 1* potential free switching contact)

iii) Add-On Modules

Analogue-Recording, 4-channel
Voice recorder extension for parallel recording of 4 analogue voice channels

consisting of:

- 1* Software interface 4-port analogue PC-card
- 1* Recording ADPCM sampling @ 8KHz mono

- The system shall provide capability for audio logging of calls the operator is presented with or selects.
- Voice Recorder for all channels should have archival and retrieval feature.
- It shall log all voice calls.

6.12 NETWORK MANAGEMENT:

1 GENERAL:

- i.) The system shall provide Network Management services to achieve high availability and efficient operation.
- ii.) The industry standard for network management is the OSI FCAPS model: Fault, Configuration, Accounting, Performance and Security Management. Tenderer should specify how the Network Management functionality provided by their system matches the FCAPS Model.
- iii.) All network management software shall provide an intuitive graphical User Interface (GUI).
- iv.) The Network Management services shall be secure from unauthorised use.
- v.) The Network Management software shall include a report generator.
- vi.) The report generator shall implement security by allowing certain grades of user only restricted access.
- vii.) It shall be possible to quickly check if a Radio Unit is registered, its Talk-Group identity and which Base Station it is registered with.

- viii.) It shall be possible to add Talk Groups or delete Talk Groups from Radio Units, over the air Interface.

System Configuration

- i.) It is important to ensure that there can be no conflicts caused by incompatible configuration settings. The Tenderer should specify how he achieves this.
- ii.) The Network Manager shall be able to configure the attributes of each Talk -group.

System Management

- i.) The Network Management System shall provide a graphical tool for representing all objects in the system. Fault Management shall be implemented through this graphical tool, allowing the Network Manager to monitor alarms from devices within the system.
- ii.) The Network Management System shall be able to automatically generate reports providing summaries of traffic use by specified Talk-Groups and Radio Units.
- iii.) The Network Management System shall provide a performance management tool to analyze traffic patterns and troubleshoot problems with Radio Units and Base Stations.
- iv.) The Network Management System shall provide a performance management tool to analyze system usage and troubleshoot problems with the system infrastructure.
- v.) The System shall allow for flexibility in the physical location of the network management stations. Depending on operational requirements, they may be placed either locally with the network management server or remotely from it.

- vi.) The system shall also allow each workstation to assume a dedicated function of the network management, such as (a) configuration management (b) subscriber management (c) fault management (d) Accounting management and (e) Performance management
- vii.) System management should have GUI based interface and based on window. It shall consist of following sub – systems:-
 - Configuration Management
 - Subscriber Management
 - Fault Management
 - Performance Management
 - Security Management
 - Administration/ Accounting
- viii.) The Network Manager shall be able to control and monitor external devices such as fire alarms and door locks.
- ix.) Network manager shall display Network availability.
- x.) Network manager shall be able to configure user access level.

Subscriber Management

The Subscriber management shall provide for the creation, update and deletion of all information relating to subscribers in the following categories:-

- The user Fleet
- The class of Service
- The radio Terminal
- The Group

Configuration Management

The System shall provide the following management functions:-

- Management of Subscriber identity code.
- Definition of area where a terminal may operate such as Single cell, multi cell or all cell.
- Definition of operating parameters.
- Definition of base station parameters.

Fault Management

The fault management module shall be implemented through graphical tool, allowing the network manager to monitor alarms from devices within the system. The fault management module shall provide fault reporting in each of the following areas:-

- Base Station
- VHF/UHF Connectivity
- ALS Connectivity
- PABX Connectivity.
- Network management workstation.
- Radio Equipment

The Alarm shall be classified as:-

- Critical
- Major
- Minor

All Alarms shall be logged accordingly to the following parameters:-

- Time of the Day
- Alarm Type
- Alarm Severity
- System Unit

Performance Management

- The accounting management module shall capture and store in the central database all traffic information relating to each call transaction.
- This record shall be in the form, which can readily be transmitted to an external application for performance analysis. The tender should provide full details of the call details records provided by the system. **The transmission format shall be in the form of MS.xls or TXT.**
- Trouble shoot problems with radio units and base stations

Security Management

The network management system shall support the configuration of security and access to the network and network management system itself.

Minimum Hardware Specifications **(Either following or OEM certified hardware can be supplied):**

- P-IV Processor @ 2.8 GHz
- Integrated 256 Kb level 2ECC
- 1 GB, SDRAM
- 80 GB hard disk
- 133 MHz FSB
- 5 * PCI slots for expansion
- 1 Serial Port, 1 Parallel Port, 2 USB Port, 1 Mouse and 1 Keyboard.
- Integrated dual channel wide ultra 3/ ultra SCSI / SAS controller.
- 2 Nos. fast PCI 10/100 auto sensing Ethernet cards
- 52X CD-ROM
- **19" Color monitor**
- 1.44 Mb FDD
- Licensed system software and operating system.

- Licensed antivirus software.

6.13 TECHNICAL SPECIFICATIONS OF GATEWAYS

TELEPHONY GATEWAY – H.323 Protocol **or OEM certified protocol to provide connectivity to the available system.**

General Requirements

- The Telephony gateway should provide the cross communication between the Digital Trunking radio subscribers and an existing telephony system.
- It should provide the required interfaces to existing and legacy telephony systems.
- It should provide the required interfaces to existing wireless and wireline telephony systems, namely, PSTN, GSM and CDMA Networks.
- It should provide feature transparency between the two networks.
- It should be integrated into the switch itself.

Minimum Hardware Specifications

- Rack Mounted

ANALOG UHF/VHF GATEWAY

General Requirement

- The System should be able to connect to existing legacy VHF/UHF network. And allow voice calls between the two networks. (Broadcast and Selective)
- It should provide the required interfaces to existing and legacy VHF systems

- It should support minimum **3** VHF / UHF channels **simultaneously**.

Minimum Hardware Specifications

- Rack Mounted

ALS GATEWAY – H.323 Protocol or **OEM certified protocol**

General Requirements

- The System should be able to connect to Automatic Locator System and allow data communication between two networks.
- It should provide the required interfaces to Automatic Vehicle Locating system.

Minimum Hardware Specifications

- Rack Mounted
-

6.14 SOFTWARE UPGRADES

- It is anticipated that additional features may become available for the system in the future. The system shall provide a straightforward mechanism for delivering software upgrades to all infrastructure components.
- Software Upgrades should be downloaded to the remote Radio Sites and Base Stations over the network infrastructure
- While downloading software to the remote Base Stations, the effect on system performance shall be minimised.
- If a software upgrade is unsuccessful, the Base Stations shall be able to automatically revert to the previous version.

6.15 General Requirements for Transceiver

- The Radio Site equipment shall **necessarily** utilize state of the art RF combining and splitting facilities and shall offer the

maximum possibility of antenna system design options using a minimum number of different elements.

- The transmitter combiners shall include in each path 2nd harmonic rejection filter and a dual stage isolator as a minimum.
- The duplexer shall be of very good quality and shall provide atleast 80 dB Rx-Tx isolation.

RF Cable –

From the transmitting Antenna to the Combiner 7/8” low density foam (LDF) low loss RF cable (actual quantity as per site requirement) must be used. Similarly from Receiver Antenna to Multi-coupler 7/8” LDF cable should be used.

Accessories:

All accessories and cable connectors with complete ready to use inter connections for extending RF cable for connecting to antenna shall be supplied. All the accessories used shall be designed to be compatible with RF cable, to have a long lasting, cost-effective transmissions line system. The Tenderer shall also supply any other accessories required for transmission system if necessary.

Grounding straps:

The transmission line system shall be grounded, with grounding straps at three points, the Top, the middle and the bottom of the tower.

Hangers:

Hangers shall be used at intervals of no more than three feet (nominal) to provide maximum support and security for the

transmission line. These hangers shall provide quick and easy attachment in all weather conditions.

Connectors:

All connectors shall be completely compatible with cable, so that together with cables they shall provide a transmission line system of good electrical and mechanical performance.

Antenna Unit

The sites shall have high gain omni directional 10 dB gain antenna for receivers and transmitters and shall incorporate minimum 2 (two) diversity reception. System shall be installed with proper lightning and grounding protections and shall be able to withstand a wind speed of 200 Km Per hour.

- Operating Frequency: 800 MHz
- VSWR: 1.5:1
- Maximum Power input: 150 W

6.16 RADIO UNITS

GENERAL REQUIREMENTS

- i) The Radio Units offered shall be commercially-off-the-shelf (COTS) products, not bespoke products developed for this project.
- ii) The Tenderer shall offer the following Radio Unit options:
 - Hand-portable units
 - Mobile units
 - Desk-mounted units
- iii) Radio Units shall support operation:
 - In the Dark as well as bright incident light
 - In rain (IP54)/ equivalent ETSI standard
 - Industry Environments (IP54))/ equivalent ETSI standard
 - By persons wearing gloves

- By persons making frequent calls
 - By persons facing emergency situations
- iv) Radio Units shall be robust, simple to operate, light in weight and compact.
 - v) All Radio Units shall support adaptive power control to maximize power efficiency.
 - vi) Each Radio Unit shall support a simple operator interface to access Group-Calls, Individual-Calls and Telephone Interconnect Calls.
 - vii) Each Radio Unit shall allow reception of different types of calls without the operator needing to switch modes.
 - viii) Radio Unit shall support Network Manager adding Talk Groups or deleting Talk Groups over the air interface using the TETRA DGNA facility.
 - ix) The tenderer should give details of the dimensions and weight of all Radio units offered.

RADIO UNIT MAN MACHINE INTERFACE:

- i) Each radio Unit shall give a visual indication of signal strength.
- ii) Each Radio Unit shall give a very clear visual indication when it is out of the system's radio coverage.
- iii) When a Radio Unit is transmitting it shall give a very clear visual indication.
- iv) To aid operation in the dark, the display shall be backlit , and the backlight shall turn itself off after a period of inactivity.
- v) Each Radio Unit shall provide a battery strength indicator. When battery strength is very low, there shall be a visual and audible indication.

HAND-PORTABLE UNIT

- i) The hand-portable unit shall weigh less than 300 grams including antenna and battery for easy carrying around.

- ii) The hand-portable unit shall provide a minimum RF output of 1 Watt.
- iii) The hand-portable unit shall meet MIL standard 810D or IEC68-2 Shock & Vibration or applicable ETSI standard, as this standard specification requires equipment to undergo extensive mechanical shock & vibration test procedures.
- iv) All hand-portable units shall be sealed against ingress of dust and water to IP54 standard / equivalent ETSI std.
- v) The hand-portable unit shall be equipped with a dedicated emergency button that is easy to locate for activation of Emergency Call.
- vi) The hand-portable unit shall have ergonomic control for easy operation. The user shall distinguish between the volume and talk group selection controls without looking at the controls. To avoid accidental talk group change, talk group selection should involve more than one operation.
- vii) The accessories offered shall be suitable for Public Safety applications.
- viii) The radio unit shall have the following characteristics:

Parameters	Required
Transmit Band	806 – 824 Mhz
Receive Band	851 – 869 Mhz
RF Channel Bandwidth	25 KHz
Tx/Rx Separation	45 Mhz
RF Power Control	minimum of 3 Steps of 5 dB
RF Power Accuracy	± 2 dB
Receiver Class	A
Receiver Static Sensitivity	-112 dBm
Receiver Dynamic Sensitivity	-103 dBm

ix) Radios with colour display should support more than 65K colours and Radios having grayscale display should support 16 grey levels.

x) Deleted

xi) Deleted

BATTERIES

- i) Batteries shall support an operating time of at least 13 hours, based upon a duty cycle of 5% Tx, 20% Rx, 75% Stand-by.
- ii) The Batteries shall have a life of at least 300 charge/recharge cycles, when operated in accordance with the manufacturers recommended procedures.
- iii) Mains powered battery chargers shall be available for Charging portable and spare batteries simultaneously
- iv) The battery charger system shall provide an accurate, reliable and easily understood indication of the effective state of charge of batteries before they are offered for operational use.

MOBILE RADIO UNITS

- i) The Mobile Radio Units shall provide a minimum of 3 Watt
Optional: The bidder may also quote for higher wattage indicating the output power rating.
- ii) The Mobile Radio Units shall operate from a 12 VDC supply.
- iii) Radio Units for permanent use in vehicles shall permit:
 - Access to all services available to hand-portable Radio Units
 - Safe and secure operation while the vehicle is in motion.
- iv) The unit shall provide a backlit display, and be specifically designed for viewing from wide angles and in direct sunlight.
- v) The accessories shall connect to the console for convenience.
- vi) The unit shall be connectable to:

- A vehicle mounted external antenna
 - A vehicle mounted fist microphone and loudspeaker
- vii) The unit shall be supplied with:
- A robust 1/4 wave whip antenna with 3 dB gain.
 - All cables, mounting brackets and fittings
 - GPS Module
 - Radio Modem (to receive positioning data from GPS receiver and interface to radio unit)
 - Fist Microphone and Loudspeaker
 - GPS antenna (external)

viii) The unit shall have the following characteristics:

Parameters	Required
Transmit Band	806 – 824 Mhz
Receive Band	851 – 869 Mhz
RF Channel Bandwidth	25 KHz
Tx/Rx Separation	45 Mhz
RF Power Control	minimum of 3 Steps of 5 dB
PF Power Accuracy	± 2 dB
Receiver Class	A
Receiver static sensitivity	- 112 dBm
Receiver Dynamic Sensitivity	-103 dBm

ix) Deleted

x) Deleted

DESK-MOUNTED RADIO UNITS

- i) The desk-mounted units shall be a variant of the Mobile Radio Units, to ensure commonality of equipment across the network.
- ii) The power supply for desk-mounted Radio Units shall operate from the local VAC supply. However due to poor power

infrastructure, either AC supply with UPS option or DC with battery & charger option needs to be provided.

- iii) Radio Units for permanent desk-mounted use shall permit access to all services available to hand-portable Radio Units.
- iv) The unit shall be connectable to a permanent external antenna.
- v) The unit shall be supplied with:
 - A permanent external antenna and coaxial feeder
 - All cables, mounting brackets and fittings
 - A handset
 - 3 dB antenna gain
- vi) Radio unit should provide a minimum RF power output of **3 Watts**

The bidder may also quote for higher wattage indicating the output power rating.

- vii) **Deleted.**

CONFIGURING RADIO UNITS

- A Programming package shall be provided to allow the Radio Units to be customized.
- The same application should allow up gradation of software version of Radio.
- The software application shall run under Windows™ and provide an intuitive user friendly GUI.
- The software application shall include context sensitive help.

RADIO UNITS FEATURES

GROUP-CALL OPERATION:

- i) The Radio Unit shall display the identity of the current Talk-Group at all times.
- ii) When the Radio Unit is receiving a Group-Call, it shall also display the identity of the calling party.

- iii) The Radio Unit shall support text aliases which, when entered, are displayed in place of or as well as these numerical Talk-Group and Radio Unit identities.
- iv) The Radio Unit shall indicate the progress of Group-Calls with audible tones.
- v) The audible tones shall be switchable on/off by the Radio Unit user.
- vi) The Radio Unit shall support at least 500 Talk-Groups.

EMERGENCY MODE OPERATION:

- i) Each Radio Unit shall have an easily identifiable Emergency Button
- ii) When the Emergency Button is pressed; the Radio Unit shall automatically send:
 - a) Emergency alarm to the Dispatch Console. It may emit emergency start tone and provide a visual message if desired.
 - b) Emergency status message.
 - c) Current location coordinates.
- iii) If no acknowledgment of the emergency alarm is received by the Radio Unit, it shall retransmit the alarm.
- iv) Emergency-Calls shall have the highest priority, so that if the system is busy the call will be granted by clearing (pre-empting) another call.
- v) The Radio Unit shall remain in emergency mode until the user performs a distinct emergency cancellation.
- vi) When receiving an Emergency-Call The Radio Unit shall emit a distinct tone.

INDIVIDUAL – CALL OPERATION

- i) The Radio Unit shall be capable of making Individual-Calls. It shall be possible to call the last individual identity called using fast dialing.
- ii) The Radio Unit shall be able to scroll through a list of preprogrammed addresses of Radio Units and Dispatch Consoles. Once selected an Individual-Call can be initiated by simply pressing PTT.
- iii) The Radio Unit shall save up to 100 Identities in the pre-programmed list.
- iv) Full duplex Individual calls shall be supported between Radio Units and Dispatch Console operators.

TELEPHONE INTERCONNECT OPERATION:

- i) The Radio Unit shall be capable of making Telephone Interconnect calls.
- ii) The Radio Unit shall display the identity of the last party with whom a telephone call was established when the call button is pressed. To connect to that same party, the user shall be able to simply press the call button again.
- iii) The Radio Unit shall be able to scroll through a list of preprogrammed addresses of telephone numbers. Once selected a telephone call can be initiated by simply pressing the call button.
- iv) The Radio Unit shall save up to 100 telephone subscriber identities in the pre-programmed list.

STATUS MESSAGE:

- i) The Radio Unit shall support the sending of status messages to other radios and the Dispatch Console.
- ii) The Radio Unit user shall be able to select a status message either by scrolling through a stored list, or by entering a status message number direct from the keypad.

- iii) Each Radio Unit shall be able to save text alias for the 100 most commonly used status message.

SHORT DATA TRANSPORT SERVICE:

- i) Each Radio Unit shall allow use of the short data service via the keypad or by external applications via the PEI (Peripheral Equipment Interface).
- ii) The external interface to the text messaging service at the Radio Unit will be via a PEI as defined in the TETRA standard. The PEI shall be an RS232 serial connection using a super-set of AT Commands.
- iii) Each Radio Unit shall be able to receive and display short text messages, either from other Radio Units or from a computer networked to the system infrastructure.
- iv) Messages shall be buffered, and both audible and visual indications shall be given of incoming messages.
- v) Each Radio Unit shall be able to send text messages of up to 100 characters, entered though the keypad.

TALK-GROUP SCANNING AND PRIORITY MONITORING:

- i) Scanning shall be configurable so that a single Multi group can be associated with each Talk-Group.
- ii) Each Radio Unit shall support up to 4 Multi group, each of up to 10 Talk-Groups.
- iii) Scanning shall be a configurable option so that it can be selected/ deselected.
- iv) When a Radio Unit is idle and scanning is enabled, it shall monitor the Main Control Channel for call set up signaling for any of the Talk-Groups in the Scan-list. If call set up is detected, The Radio Unit shall join the call.
- v) Each radio unit shall be able to associate a priority level with each Talk-Group.
- vi) When a Radio Unit has scanning enabled, and it is involved in a Group-Call, it shall still be able to detect other calls being set up.

If a call is set up for a Talk-Group of higher priority than the current call, it shall leave the current call and join the higher priority call.

6.17 Automatic Vehicle location system

The proposed system should be fully equipped with the application of AVL including digitized Map, Client and Server application along with all necessary software and Hardware required. Tenderer should provide digital map of the Daman and Dadra & Nagar Haveli.

The person in control room shall be able to view the all / selected subscribers having Handy or mobile terminal with in-built GPS on his screen in order to minimize crime and runaway time.

The person in a control shall be able to know the location of vehicles and Personals (carrying Radio Units with GPS) automatically over a define period of time.

The Radio Units having built-in GPS should support follows:

- GPS activity indicator
- Current position information
- Position information sending on request or on triggers (e.g. time, distance, status message)
- Position sending during red key calls and public emergency calls

The radio shall automatically update its GPS location when one of the following events happens:

- When polled
- After moving a pre-defined distance
- After a pre-defined time has lapsed
- When an emergency call is made

Bidder shall demonstrate GPS accuracy of ± 10 meters or better

Digital Map:

The Base Map shall have the following layers with a 1:10000 scale:

- Roads
- Zoom in and Zoom out facility
- Rail
- Buildings
- Land use
- Locality
- Police Stations and Police Out posts/Check Post
- Police Station boundaries (To be provided by the DD and DNH Police)
- Emergency Services
- Important Land marks
- Road intersections
- Nakabandi layer (to be provided by the Daman, Diu and Dadra & Nagar Haveli Police)
- Deleted.

AVLS Solution Topology

1. Communication Application
2. Automatic Vehicle Location Application
3. Map viewing application for server
4. **10 numbers** Client license **for** Map viewing (**bundles**)
5. Digitized map of the premise of 1:10000 scale
6. Communication & Map viewing server
7. Data base server
8. One client-viewing platform, which shall be implemented on the Dispatcher workstation itself.
9. OS for servers: Latest version of enterprise Linux/ Windows platform.
10. Should support standard RDBMS like My SQL, MSSQL.

11. Distributed architecture.

Communication Application:

This application will be installed on Communication server.

The role of this application will be to communicate with the field radio via the base radio.

The GPS strings, ID of the radio etc will be received from every radio in TDM fashion and shall be populated in appropriate data base.

Automatic Vehicle Location Application:

This application will help extracting required position information and provide to map viewer application. The same application will help generating basic report, tabular positioning display, vehicle detail management, playback management, alert management etc.

Map viewing application & map:

This should work on client server arrangement and several viewing clients can be loaded on the network. The present requirement is considering one viewer license and thus one client machine is to be quoted for this purpose. All GIS facilities will be extended by this application servers, LAN, Client machine etc forms infrastructure.

Following shall remain the basic solution features:

Solution Features

- Tabular position and status indicator for every vehicle as a quick tracking reference.
- Real time tracking of vehicles on a detailed digital vector map.
- Click on information for vehicles.
- Provision to follow a vehicle making tracking of critical vehicles simpler.
- Bottom line display indicating speed location, sensor status etc.
- Zoom, Pan, Search, locate, view, hide etc.

- Add vehicle details including date-based triggers for alerts.
- Add trip including intermediated stops.
- Allot a circular, point to point or point to multi point trip schedule to a vehicle and get respective trip report.
- Create and maintain landmark layer of your own with no dependency on supplier.
- Media player type playback feature.
- Vehicle/vendor wise billing.
- Area geo fencing with alerts on rule based violation.
- Over speed, over stoppage, route deviation, distance traveled, schedule adherence, trip performed etc. types of reports.
- Hierarchical login facility with specified access rights.

6.18 SOFTWARE UPGRADES:

- It is anticipated that additional features may become available for the system in the future. The system shall provide a straightforward mechanism for delivering software upgrades to all infrastructure components.
- Software Upgrades shall be downloaded to the remote Radio Sites and Base Stations over the network infrastructure
- While downloading software to the remote Base Stations, the effect on system performance shall be minimised.
- If a software upgrade is unsuccessful, the Base Stations shall be able to automatically revert to the previous version.

ENVIRONMENTAL CONDITIONS:

All equipment, test instruments, special tools and tackles etc. shall be capable of maintaining the guaranteed performance with operational lifetime of 20 years minimum when operating continuously under the following environmental conditions:

1.	Environmental	(Transceiver) Compliant with EN Full rated operation from –20 to +55 Degree C. At any relative humidity up to 90% within the temperature range of 0 ⁰ C to 40 ⁰ C
2.	EMC Compliant	The offered system shall be compliant with EN.
3.	Safety	Compliant with EN
4.	Water and Dust Resistance	Compliant with IEC 529 rating IP20 / equivalent EN standard low maintenance design.

6.19 Power Arrangements:

(a) Central Site

UPS: Online 6 KVA (N+1) configuration; Floor mountable form with 1 hour battery backup as per below given specifications.

S. No.	Item	Description
1.	Power Rating	6 KVA
2.	Input supply	1 phase
3.	Output Supply	1 phase
4.	Input Voltage	160 - 280 V
5.	Input Frequency	50 Hz+/-10%
6.	Output voltage	230 +/-1%
7.	Output Frequency	50Hz
8.	Wave form	Pure sine wave
9.	Harmonic Distortion. With linear loads	Less than equal to 3%
10.	Harmonic Distortion With Non – linear loads	Less than equal to 5%
11.	By pass switch	Static and manual
12.	Crest Factor	3 : 1
13.	Overload Capacity	125% - 1min.
		150 % - 30 sec
14.	Input Power Factor	0.9

15.	Output Power Factor	0.7
16.	Technology	Double conversion high frequency PWM with IGBT Technology with built in battery charger
17.	Redundancy	N+1 where N >=1
18.	On-line Transfer Time	Zero (line fails or recovers)
19.	UPS fault Transfer Time	< 4 ms (Auto by – pass activation or recovers)
20.	Overall Efficiency (A C to AC)	90%
21.	Automatic internal bypass	Automatic internal bypass
22.	Protection	Input AC Over / under voltage & short circuit, Output over voltage, Overload & short circuit, Over temperature, Battery over charge,
23.	Visual Indications	Mains on (load on mains), Load on inverter, load on standard battery charging. Low battery indication / overload indication
24.	SNMP	SNMP based Monitoring and Management using SNMP based Network Management Systems thus providing centralized monitoring and monitoring from any node on SWAN Remote shutdown/ switch on
25.	Total Backup Time	Sufficient to last for minimum one hour on full load. This needs to be supported through theoretical calculations of VAH using 10.5V as end cell voltage and battery
26.	Generator Compatibility	The UPS should be generator compatible with power walk- in
27.	Operating Temperature	0 to 45 degree C
28.	Relative humidity	Up to 95% non – condensing
29.	Certifications	The manufacturer of the equipment must have ISO certification. Relevant Safety & EMC Certification.
30.	Form Factor	System in suitable Rack/ cabinet rack mounted preferred.
31.	Battery	Sealed Maintenance free of Exide, Panasonic, Global Yuasa, Yuasa make

32.	Protection against breakdown in battery	Hot swappable battery module i.e. to replace the battery without shutting down the UPS.
33.	Communication Interface	Appropriate Please specify

DG Set: Genset should be noiseless, smoke free, Auto start and SNMP enabled. All these equipments should be complied with latest CPCB standards for noise level & emission and should support canopy based installation. Specifications are as follows:

1	Generator(Silent Mode)	
1.1	Generator Capacity	10 KVA (Silent Mode)
1.2	Output Supply	1 phase
1.3	Common Mounting Arrangement (Engine & Alternator)	MS Fabricated base with AVM padding
1.4	Construction	14/16 gauge CRCA sheet nine tank pre-treated and Power coated & Nut bolts external hardware of Stainless Steel.
2	Diesel Engine	
2.1	Standard	ISO 8525
2.2	Engine Speed	1500 RPM
2.3	Power Generation Cycle	4 Stroke
2.4	Cooling Arrangement	Coolant based radiator cooled
2.5	Starter	Electric
2.6	Fuel pump	MICO with governor
2.7	Fuel Filter	Dual spin-on
2.8	Silencer	Residential
2.9	Air Cleaner	Paper Element type
2.10	Safeties for LLOP/HWT	Shut-off coil

2.11	Safety for Flywheel	Housing
2.12	Protection against initial dry run	First fill of lube-oil
3	Alternator	
3.1	Output Voltage	230+/- 1%
3.2	Alternator Type	Synchronous
3.3	Type	(i) Brushless (ii) Self Excited
3.4	Output Voltage	0.8 Pf (lag)
3.5	Output Frequency	50 Hz
3.6	No Load Harmonic	≤ 1.5%
3.7	Harmonics or Full load	≤ 2%
3.8	Enclosures	SPDP
3.9	Output Voltage Regulation	AVR
3.1	Overload Capacity	10% for one hour in 12 hrs. duration
4	AMF Control Panel	
4.1	Engine Instrumentation	Lube oil pressure, Coolant, Temp Voltmeter, Ammeter, Frequency Meter, Current Transformer,
4.2	AMF Logic	(Feed back time) 5 Sec. ~ 15 Sec.
5	Fuel Tank	
5.1	Fuel Tank Capacity	Sufficient for 8 hrs. running
5.2	Fuel Tank Safety	Drain valve, Air vent and out let
6	Battery	
6.1	Initial State	Dry and uncharged
6.2	Battery Charging	Through alternator & through A/C Mains
7	Acoustic Enclosure	
7.1	Standards	IP: 23

(b) Base Station Site Requirement:

UPS Online 2 KVA with 1-hour battery backup on full load.

S. No.	Item	Description
1.	Power Rating	2 KVA
2.	Input supply	1 phase
3.	Output Supply	1 phase
4.	Input Voltage	160 - 280 V
5.	Input Frequency	50 Hz+/-10%
6.	Output voltage	230 +/-1%
7.	Output Frequency	50Hz
8.	Wave form	Pure sine wave
9.	Harmonic Distortion. With linear loads	Less than equal to 3%
10.	Harmonic Distortion With Non –linear loads	Less than equal to 5%
11.	By pass switch	Static and manual
12.	Crest Factor	3 : 1
13.	Overload Capacity	125% - 1min. 150 % - 30 sec
14.	Input Power Factor	0.9
15.	Output Power Factor	0.7
16.	Technology	Double conversion high frequency PWM with IGBT Technology with built in battery charger
17.	Redundancy	N+1 where N >=1
18.	On – line Transfer Time	Zero (line fails or recovers)
19.	UPS fault Transfer Time	< 4 ms (Auto by – pass activation or recovers)
20.	Overall Efficiency (AC to AC)	90%
21.	Automatic internal bypass	Automatic internal bypass

22.	Protection	Input AC Over / under voltage & short circuit, Output over voltage, Overload & short circuit, Over temperature, Battery over charge, battery low.
23.	Visual Indications	Mains on (load on mains), Load on inverter, load on standard battery charging, Low battery indication / overload indication
24.	SNMP	SNMP based Monitoring and Management using SNMP based Network Management Systems thus providing centralized monitoring and monitoring from any node on SWAN Remote shutdown/ switch on necessary password protection
25.	Total Backup Time	Sufficient to last for minimum one hour on full load. This need to be supported through theoretical calculations of VAH using 10.5V as end cell voltage and battery efficiency as 95%.
26.	Generator Compatibility	The UPS should be generator compatible with power walk- in facility
27.	Operating Temperature	0 to 45 degree C
28.	Relative humidity	Up to 95% non – condensing
29.	Certifications	The manufacturer of the equipment must have ISO certification. Relevant Safety & EMC Certification.
30.	Form Factor	System in suitable Rack/ cabinet rack mounted preferred.
31.	Battery	Sealed Maintenance free of, Exide, Panasonic, Global Yuasa, Yuasa make
32.	Protection against breakdown in battery	Hot swappable battery module i.e. to replace the battery without shutting down the UPS.
33.	Communication Interface	Appropriate please specify

DG Set: Genset should be noiseless, smoke free, Auto start and SNMP enabled. All these equipments should be complied with latest CPCB standards for noise level & emission and should support canopy based installation. Specifications are as follows:

1	Generator(Silent Mode)	
1.1	Generator Capacity	6 KVA (Silent Mode)
1.2	Output Supply	1 phase
1.3	Common Mounting Arrangement	MS Fabricated base with AVM padding (Engine & Alternator)
	(Engine & Alternator)	
1.4	Construction	14/16 gauge CRCA sheet nine tank pre-treated and Power coated & Nut bolts external hardware of Stainless Steel.
2	Diesel Engine	
2.1	Standard	ISO 8525
2.2	Engine Speed	1500 RPM
2.3	Power Generation Cycle	4 Stroke
2.4	Cooling Arrangement	Coolant based radiator cooled
2.5	Starter	Electric
2.6	Fuel pump	MICO with governor
2.7	Fuel Filter	Dual spin-on
2.8	Silencer	Residential
2.9	Air Cleaner	Paper Element type
2.10	Safeties for LLOP/HWT	Shut-off coil
2.11	Safety for Flywheel	Housing
2.12	Protection against initial dry run	First fill of lube-oil
3	Alternator	
3.1	Output Voltage	230+/- 1%
3.2	Alternator Type	Synchronous
3.3	Type	(i) Brushless
		(ii) Self Excited

3.4	Output Voltage	0.8 Pf (lag)
3.5	Output Frequency	50 Hz
3.6	No Load Harmonic	≤ 1.5%
3.7	Harmonics or Full load	≤ 2%
3.8	Enclosures	SPDP
3.9	Output Voltage Regulation	AVR
3.1	Overload Capacity	10% for one hour in 12 hrs. duration
4	AMF Control Panel	
4.1	Engine Instrumentation	Lube oil pressure, Coolant, Temp Voltmeter, Ammeter, Frequency Meter, Current Transformer, Fuses
4.2	AMF Logic	(Feed back time) 5 Sec. ~ 15 Sec.
5	Fuel Tank	
5.1	Fuel Tank Capacity	Sufficient for 8 hrs. running
5.2	Fuel Tank Safety	Drain valve, Air vent and out let
6	Battery	
6.1	Initial State	Dry and uncharged
6.2	Battery Charging	Through alternator & through A/C Mains
7	Acoustic Enclosure	
7.1	Standards	IP: 23

6.20 Site preparation including shelter and air conditioner specs

Specifications	Details
Minimum Size	10' X 10'
Shape and Design	As per telecom standards
Main Frame	Hollow Steel Pipe Framing 58x58 mm (14 G) (Detachable) and bracing with 36x36 mm (18G) approximately.

Outer Wall	10 mm thick Silica Fiber Board covered with epoxy and P.U. texture coating.
Insulation/Acoustic	T.F. Thermo cal/Glass/Mineral Wool/ Puff (if desired i.e. Optional) can withstand -20° C to +70° C very easily.
Temperature	Can withstand -10° C to +70° C very easily.
Inner walls	Laminated (both side) with fiber board walls (Color Natural Teak or Plain shades as desired by Daman, Diu and Dadra & Nagar Haveli Police).
Roofing	Both side pre-coated inter lockable cross waivy roofing profile in Sloping/Hut/Pyramid/Plane shape (Insulated) with at least 8 feet clear height inside.
False Ceiling	Ornamental Teak finish/Laminated Fiber Board False Ceiling with insulation with ornamental cornices on top and concealed brass spotlights..
Doors/Windows	Wall finish flush doors with powder coated Aluminum hardware and Aluminum sliding windows. . Shall have the provision of fitting the Two(2) no of window Air conditioners.
Location of Doors/ Windows	Wherever desired (will be decided by Daman, Diu and Dadra & Nagar Haveli Police).
Dismantling and Reassembling	The components should be easily transported to any difficult terrain and erected/ dismantled very fast with ordinary tools requiring no high skills
Lighting	Concealed brass fittings with Anchor Switches and Sockets with concealed copper wiring (where ever required) in ratio of One point per 20 sq.ft(approximately). (Fan, Cooler, A.C. to be supplied by owner if desired).
Flooring	Antistatic flooring
Painting	Texture coating on outer walls of desired shade with classical texture finish.
Base	Fixed/Flanged

6.21 Technical Specifications of Self Supporting Tower

The specifications indicated herein are only to guide the Tenderer about the requirement of the user. The Tenderer shall

work out detailed design of the tower from all aspects, keeping in view the effects of local metrological conditions like wind velocity, seismicity, temperature etc. to ensure the safety of the tower. The design of the tower shall be based on recognized principles of structural design conforming to standard practices followed in the field. Full responsibility regarding soundness of the design and the execution of the work rests with the Tenderer. If the Tenderer suggests any deviations in the required specifications, it should be approved by any govt. engineering college. Tenderer shall submit the detailed specifications along with any govt. engineering college approved certificate.

Specifications for Fabrication and Design

a) For Angular Tower

- 1) Tower members shall be of structural steel grade 'A' conforming to IS 226, IS 2062 and IS 7215 with latest amendments.
- 2) All steel used shall be galvanized conforming to relevant IS specification i.e. IS 2629 for tower members, IS 5358 for fasteners and IS 1573 for washers. Spray galvanizing is permitted whenever hot dip galvanization is not possible.
- 3) Assembly of tower members and other structures on tower shall be by means of nuts and bolts with locking nuts. Riveting and welding may be done if the design demands and it shall conform to relevant IS specifications. No tower member shall have thickness less than 6 mm.
- 4) The quality of steel used for nuts & bolts should conform to IS No. 6639-1972 and mechanical properties as per IS 1367/67. Dimensionally it shall conform to IS 1363, washer should be as per IS 2016-1967. The heads being forged out of solid, truly concentric with the shank and shall be

perfectly straight. All bolts shall have hexagonal heads and nuts. The bolts shall be treated with standard threads to take the full depth of the nut. All nuts shall fit hand tight to the bolts. No appreciable fillet shall exist at the point where shank of the bolt connects to the head. Lock nuts and washers shall be provided to all bolts and nuts. The Tenderer shall include sufficient spare bolts and nuts to compensate for loss in the field during erection. The cost of bolts and nuts shall be included in the cost of tower.

b) For Tubular Tower

- 1) Main legs of the tower shall be of high quality M.S. tubular sections conforming to IS standard, 1161 and bracing of M.S. tubes/angular sections conforming to relevant IS Codes.
- 2) All steel used shall be hot dip galvanized conforming to relevant IS specification i.e. IS 4759 for tower members, nuts & bolts and for washers etc.
- 3) Assembly of tower members and other structures on tower shall be by means of nuts and bolts with locking nuts. Riveting and welding may be done if the design demands and it shall conform to relevant IS specifications.
- 4) The quality of steel used for nuts & bolts shall comply with the requirement of IS 1364-1967, spring washers as per IS-3063-1972 and plain washers should conform to IS 2016-1967 and IS 5369-1975. Dimensionally it shall conform to IS 1363. The heads being forged out of solid, truly concentric with the shank and shall be perfectly straight. All bolts shall have hexagonal heads and nuts. The bolts shall be treated with standard threads to take the full depth of the nut. All nuts shall fit hand tight to the bolts. No appreciable fillet shall exist at the point where

shank of the bolt connects to the head. Lock nuts and washers shall be provided to all bolts and nuts. The tender shall include sufficient spare bolts and nuts to compensate for loss in the field during erection. The cost of bolts and nuts shall be included in the cost of tower.

Other Factors

- 1) The overall force coefficients for wind load on tower shall be taken from DOC SMBDC 7(2005) P 3 (Draft Indian Standard for self supporting steel towers, Part-1. Loads and Permissible Stresses). For calculating the solidity ratio actual obstruction area of tower shall be considered. Separate wind obstruction areas shall be taken for ladder, cable rack and platforms etc.
- 2) The basic dynamic wind pressure at different heights for different zones shall be taken from the Draft Indian Standard Code mentioned above.
- 3) The basic wind velocity for the site is to be taken from the revised BIS Code No. IS 875 (revised).
- 4) The permissible stresses in the various structural members of tower shall be adopted from the relevant clauses and tables of IS 800 amended upto date.
- 5) All loading effects due to antenna and various accessories as indicated at Sl. (5) will be taken into consideration.
- 6) Loading effect of seismic forces as per IS 1893 and cyclic winds and conditions of frost etc. if any may also be taken into consideration.

Foundations

- 1) Concrete grade for RCC shall be M15/M20 and for PCC, M10. Reinforcement steel grade high yield deformed bar as

per IS: 1786 Fe 415 Gr. & stirrups as per IS: 432 or IS: 226. Bending of bars shall be according IS: 2502

- 2) Clear cover to reinforcement bars IS 50mm. All bolts and nuts shall be according to IS: 2502.
- 3) Reinforcement bars to be tied at each junction with a binding wire of grade not exceeding 18. Where exact length of bars are not available. Splicing shall be done as per IS: 456- 1978.
- 4) Form work concrete and concrete workmanship etc. shall be as per IS: 456, 1978.
- 5) Maximum size of aggregates is 20mm. Suitable chairs of 16mm shall be provided to hold the top reinforcement at the base during concreting as per the directions of the site Engineer.
- 6) All grade of weld material shall be of Fe415 and thickness not less than 6mm unless otherwise specified.
- 7) The cement, sand and concrete used shall be best grad and the concrete shall preferably be mixed in a mechanical mixer in the standard ratio. The foundation shall be watered and cured for at least 14 days and the erection of the tower shall be commenced only after the foundations are thoroughly cured.
- 8) Left out item if any shall be covered as per relevant IS codes.

Verticality, Deflection & Twist

- a) Under Still Air Conditions:
The tower shall be vertical after erection and no straining shall be permitted to achieve this. This erection tolerance of verticality shall be within permissible limits.
- b) Under Maximum Wind Load Conditions:

The average slope of the axis of the antenna support column shall not depart from the vertical by more than 1 deg. Under maximum wind load conditions. The successful Tenderer will have to satisfy that verticality is maintained at not more than 1 deg. At the maximum wind load conditions.

Protection Against Lightning

The tower shall be provided with a suitable designed complete system of lightning protection in accordance with the provision of IS-2309-1969 including necessary earthing based on the specific resistivity of the soil and sub-soil water level. The lightning protective system shall be got approved, before execution.

Painting

- 1) The tower shall be given two coats of paint in addition to primer coats after erection. The tower shall be painted to have equal alternate bands of international orange and white colors with top and bottom bands painted in orange as per civil aviation regulations.
- 2) The paints used in painting shall be in accordance with IS-2074/62,2932 & 2933/75. Before applying coats of primer, the surface shall be given a coat of 'Pickling agent' so as to avoid the flaking of painting. The Tenderer should furnish the details about the pickling intended to be applied.
- 3) The Tenderer shall indicate the brand of the paints proposed to be used by him for painting of the tower.

Earthing

All the tower legs shall be grounded properly, following the standard practice of earthing of such structures in level ground and mountainous regions. The earth resistance of the tower shall be within 2 ohms.

Facilities On Tower

1. Platform

Provision of one working platform at about 1 meter below the top, extended in all the sides about 1meter and two rest platforms in between the tower at suitable intervals for access to the antenna and cable at different levels to be made. 1.5 meter high handrails would be provided at platform level with expanded metal net for additional safety. Platform flooring will consist of checkered plate conforming to IS 3502 and shall be designed as to take stationery and moving load of 2 persons plus equipment weighing about 100Kg. At each platform - "Top-plates", as a form of protection against accidental dislodging of small tools, are to be provided.

2. Ladders

An internal ladder of width not less than 300mm starting from about 0.5 meter level of the tower from the ground and going upto the top with openings at all the platforms shall be provided.

Aviation Obstruction Light, Power Cable & Coaxial Cable

- 1) Twin lamp fitting equipped with appropriate colour prismatic globes shall be provided as per latest civil aviation regulation for marking and lighting of obstacles. The globes and their housings shall be strong, weather proof and of approved manufacture. Each globe shall house a 250-volt bulb of appropriate wattage to yield specified illumination. The bulb should be of bayonet cap type and not of screw type.
- 2) Power supply cable for the lights and power sockets shall conform to IS-1554 (part-I) of 1976. Lighting cables and

power shall be terminated in T.P.N. switch fuse units in the control room at the site.

- 3) Distribution of supply to aviation obstruction light shall be through 4 way weatherproof junction boxes. The power socket with switch shall be provided at the platform levels.
- 4) The Tenderer shall provide temporary aviation obstruction lights during erection of tower as soon as the tower reaches the minimum height to be lighted as prescribed in civil aviation regulation.
- 5) The coaxial cable shall also be terminated in control room.

Cable Run-Way and Antenna Supporting Ladders:

- 1) The vertical cable rack for supporting RF feeder cable, power cable starting from the base of the tower and going up to the junction box position shall be routed along the tower face.
- 2) Provision for fixing the supporting pipe of suitable diameter for hoisting antenna shall be made on the tower. The fitting and fixtures along with the antenna and the feeder cables shall be assembled by the Tenderer to the entire satisfaction of the indenture.
- 3) Horizontal feeder rack to support the cables on the ground from tower base to the control room shall also be fabricated as per relevant IS Codes and shall be supplied by the Tenderer. The approximate length of cable rack required is 30 meter, which may be included in the quote. The maximum spacing between the vertical supports of the cable rack shall be 4.0 meter. The cable rack shall be provided with a G.I. sheet cover so that falling object shall not damage the cable. The height of the cable rack will be about 3.0 to 4.0 meter from ground level.

Loading due to Antennas, Microwave Dish & RF Feeder Cables etc.

- 1) For designing of tower load of Tetra antenna including diversity and required no. of microwave antenna may be kept into considerations. In addition to above the others forces acting on the tower may be taken into account as per latest IS Codes relevant to designing of towers.
- 2) The total number of cables to be installed on tower is as below. Wind loading due to these may also be taken into consideration.
 - (i) Power supply cable for AOL.
 - (ii) Co-axial cable for M/W Dish.

6.22 Specifications for Microwave System

6.22.1 Engineering requirements

- 6.22.1.1 The equipment shall adopt state of the art technology.
- 6.22.1.2 The equipment shall be of compact and composite construction and lightweight. Manufacturer shall furnish the actual dimensions and weight of the equipment.
- 6.22.1.3 All connectors shall be reliable and of standard type to ensure failure free operation over 500 mating and under environmental conditions specified in this GR.
- 6.22.1.4 All connectors and the cables used shall be of low loss type and suitably shielded.
- 6.22.1.5 The equipment shall be housed in standard 19" rack, 600mm rack or slim rack with a maximum heights of 2250mm and with front access.
- 6.22.1.6 The equipment shall have natural cooling which shall not involve any forced cooling such as by using fans etc. either inside or outside the equipment. However, in case this is unavoidable and the fans are used, these shall be DC

operated and shall not impact on the MTBF of the equipment.

- 6.22.1.7 The supervisory indications and other control switches shall be provided at convenient locations on the bay preferably at a height around 1500mm for ease of maintenance.
- 6.22.1.8 The plug- in units shall be hot swappable to allow their removal/insertion while the equipment is in energised condition.
- 6.22.1.9 The mechanical design and construction of each card/ unit shall be inherently robust and rigid under all conditions of operation, adjustment, replacement, storage and transport and conforming to Paragraph 12 of BSNL QA document no. QM 333 {Latest issue} "specification for environmental testing of electronic equipments for transmission and switching use".
- 6.22.1.10 Each sub- assembly shall be clearly marked with schematic reference to show its function, so that it is identifiable from the lay out diagram in the handbook.
- 6.22.1.11 Each terminal block and individual tags shall be numbered suitably with clear identifying code and shall correspond to the associated wiring drawings.
- 6.22.1.12 All controls, switches, indicators etc. shall be clearly marked to show their circuit designation and functions.

6.22.2 OPERATIONAL REQUIREMENTS

The manufacturer shall guarantee the satisfactory performance of the equipment with out any degradation at an altitude up to 3,000 metres.

The equipment should be able to work with out any degradation in saline atmosphere near costal areas and should be protected against corrosion.

Visual indication to show the power ON/OFF status shall be provided.

Where ever the visual indications are provided, green colour for healthy and red colour for unhealthy conditions should be provided. Some other colour may be used for non- urgent alarms.

The software/ hardware in equipment shall not pose any problem due to changes in date and time caused by the events such as change over of millennium/century, leap year etc. in the normal functioning of the equipment.

6.22.3 Quality Requirements

The manufacturer shall furnish the MTBF value. MTBF should meet the values specified in GR. The calculations shall be based on the guidelines in either BSNL QA document no. QM- 115 {January 1997} “Reliability Methods and Predictions” or any other international standard.

The equipment shall be manufactured in accordance with international quality standards ISO 9001 OR ISO 9002 for which the manufacturer should be duly accredited. A quality plan describing the quality assurance system followed by the manufacturer would be required to be submitted.

The equipments shall confirm to the requirements for environment specified in BSNL QA document QM-333 {Latest issue} “Specification for environmental testing of electronics equipment for transmission and switching use” for operation, transportation and storage. The applicable test shall be for environmental category B-2 including vibration and corrosion (salt mist).

6.22.4 Maintenance Requirements:

6.22.4.1 Maintenance philosophy is to replace faulty units/subsystems after quick on-line analysis through monitoring sockets, alarm indications and build-in test equipment. The actual repair will be undertaken at centralized repairs centres. The corrective

measures at site shall involve replacement of faulty units/sub-systems.

- 6.22.4.2 The equipment shall have easy access for servicing and maintenance.
- 6.22.4.3 Suitably alarms shall be provided for identification of faults in the system and faulty units.
- 6.22.4.4 Suitable provision shall be made for extension of summary alarms.
- 6.22.4.5 As and when software bugs are found/determined, the manufacturer shall provide patches/firm ware replacement if involved as mutually agreed between the purchaser of the equipment and the supplier. Modified documentation wherever applicable shall also be supplied.
- 6.22.4.6 Rating and types of fuses used are to be indicated by the supplier.
- 6.22.4.7 The supplier shall have maintenance/repair facility in India, preferably in Daman/Silvassa.

6.22.5 ACCESSORIES

The supplier shall provide one complete set of :

- (a) All the necessary interfaces, connectors, connecting cables and accessories required for satisfactory and convenient operation of equipment. Types of connectors, adopters to be used and accessories of the approved quality shall be clearly indicated in the operation manuals, which should be in conformity with the detail list in the GR.
- (b) Software and the arrangement to load the software at site. Additional sets may be ordered optionally.

Special tools, extender boards, extender cable and accessories essential for installation, operation and maintenance of the equipment shall be clearly indicated and supplied along with the equipment.

Special tools, extender boards, extender cables and accessories essential for repair of the equipment shall be clearly indicated and supplied in case the same are ordered.

6.22.6 Documentation

Technical literature in English with complete layout, detailed block is schematic and circuit diagram of various assemblies with test voltages/ waveforms at different test points of the units shall be provided. All aspects of installation, operation, maintenance and repair shall be covered in the manuals. The manual shall include the following:

- Installation, operation and maintenance manual
 - a) Safety measures to be observed in handling the equipment.
 - b) Precautions for installation, operation and maintenance.
 - c) Test jigs and fixtures required and procedures for routine maintenance, preventive maintenance, and troubleshooting and sub- assembly replacement.
 - d) Illustration of internal and external mechanical parts.
- **Repair manual (To be supplied when ordered)**
 - a) List of replaceable parts used including their sources and approving authority.
 - b) Detailed ordering information for all the replaceable parts shall be listed in the manual to facilitate reordering of spares as and when required.
 - c) Procedure for troubleshooting and sub assembly replacement shall be provided. Test fixture and accessories required for repair shall also be indicated. Systematic troubleshooting

charts (fault free) shall be given for the probable faults with their remedial actions.

6.22.7 Protection requirements

- 6.22.7.1 The equipment shall have a terminal for grounding the rack.
- 6.22.7.2 Protection against short circuit/ open circuit in the accessible point shall be provided.
- 6.22.7.3 All switches/ control on front panel shall have suitable safe guards against accidental operations.
- 6.22.7.4 The tubes, if any, used in the equipment shall be of implosion type, and explosion type.
- 6.22.7.5 The equipment shall be adequately safeguarded to prevent entry of dust, insects and lizards.

6.22.8 Safety requirements

- 6.22.8.1 The operating personnel should be protected against shock hazards as per IS 8437 {1993} “Guide on the effects of current passing through the human body” [equivalent to IEC publication 479-1 {1984}].
- 6.22.8.2 The equipment shall be confirming to IS 13252 {1992} “Safety of information technology equipment including electrical business equipment” [equivalent to IEC Publication 950{1986}] and IEC 215{1987} “safety requirements of radio transmitting equipments”.

6.22.9 Electromagnetic compatibility (EMC)

- 6.22.9.1 The equipment shall conform to the EMC as per the following standards and limits indicated therein. A test certificate and test report shall be furnished.
 - a) Conducted and radiate emissions:- to comply with class A of CISPR 22{1997}” Limits and methods of

measurement of radio disturbance characteristics of information technology equipments”.

- b) Electrostatic discharge: - To Comply IEC 61000-4-2” Testing and measurement techniques of Electrostatic discharge immunity test” under following test levels:
 - Contact discharge level 2{ $\pm 4\text{kV}$ }
 - Air Discharge level 3 { $\pm 8\text{kV}$ }
- c) Fast transients common mode (burst): - To comply with IEC 61000-4-4 “Testing and measurement techniques of electrical fast Transients/burst immunity test “under level 2{1 KV for DC power lines; 1KV for signal control lines};
- d) Immunity: IEC61000-4-3 “radiated RF electromagnetic field immunity test” under test level2 {test field strength of 3V/m }
- e) Surges lines to earth coupling and line to line coupling:- To comply with IEC 6100-4-5 “Test and Measurement techniques for surge immunity tests”. Under test levels of 0.5 kV for differential mode and 1KV for common mode.
- f) Radio frequency common mode:- To comply with IEC 61000-4-6 “Immunity to conducted disturbances induced by radio frequency fields” under the test level 2 {3 V r.m.s}, Clamp injection method for DC lines and signal control lines.

[Note:- For tests for checking compliance to above EMC Requirements, the method of measurements shall be in accordance with TEC standard no. SD/EMI-02/02 SEP.2001 and the references.

6.22.10 PERFORMANCE REQUIREMENTS

The shall be tested for error performance as follows:-

- a) laboratory:- BER performance over simulated hop shall be tested for no errors on each channel at reference receive level (nominal level) for 24 hour duration at 50°C.

b) field:- BER performance of each channel shall be established for conformance to ITI-T Recommendations G.821/G.921 For 48 hour duration.

6.22.11 SPECIFIC REQUIREMENTS

6.22.11.1 The operation of the equipment shall be in the **licensed microwave frequency band of 2/5/6/7 GHz.**

6.22.11.2 The system shall operate with adjacent channel spacing of 7.0 MHz and TX – RX separation of 161 MHz.

6.22.12 SYSTEM SPECIFICATIONS

Frequency band (licensed)	2 /5/6/7 GHz
Bit rate from/to MUX	4 x 2.048 (As per vendor's requirement)
Interface towards MUX	HDB-3 as per ITU-T G-703 120 ohms.
Repeater	Regenerative type or back to back terminals with the conditions that supervisory and order wire shall be trough all the repeater station
Jitter <ul style="list-style-type: none"> • out put jitter (in the absence of input jitter) • Input jitter tolerance • Jitter transfer 	As per ITU – T G-823/ G-921(for international network)
Bit rate tolerance	As per ITU-T G703

Line data rate	To be furnished.
Type of modulation	To be furnished
Modulation method	Modulation at RF or IF
Type of Demodulation	To be furnished
Adjacent channel spacing	7MHz
TX-RX separation	161MHz
Co-channel D/U (for threshold degradation of 2.0 db)	20 db
Adjacent channel D/U(For threshold degradation of 2.0db	: -10db
Intermediate frequency	Intermediate frequency if Used, may be indicated
Supervisory channels	Supervisory channels for omnibus order wire and remote supervisory shall be provided. Express order wire and telecomm and channels are optimal.

6.22.13 Order wires

6.22.13.1 **Type** - Digital.

6.22.13.2 Features - 0.3 to 3.4 KHZ with omnibus calling facility on loud speaker and buzzer with visual indication and speech on loud speaker and handsets. Potential free contact for extension of buzzer calling facility to be centralised place shall be provided. Handsets, loudspeaker and buzzer shall form part of the equipment.

6.22.13.3 Nominal 4W Trans/Rec level - -3.0 to dBm desirable. Level adjustment facility shall be provided. Suitable access for line up shall be provided.

6.22.14 Type of operation

6.22.14.1 **Configuration** - (1+1) configuration with (2+1) option with automatic and manual change over facility. It should be possible to use the standby channel for regular traffic in (N+0) Mode.

6.22.14.2 Changeover criteria - Automatic change should take place based on continuity criteria (any unit failure) and quality criteria(loss of sync or BER worse than (1×10^{-4}) or (1×10^{-5}) selectable). Appropriate hysteresis to be provided for restoration.

6.22.14.3 Priority protection should be programmable by the user. Visual indication for RF bearer carrying traffic should be provided.

6.22.14.4 Switching scheme - Hitless/Error switching.

6.22.14.5 Switching circuitry - Completely solid state.

6.22.14.6 Monitoring with bite - Built in test equipment(BITE) Hand held terminal for monitoring TX power, receive signal level or AGC shall be parameters monitored additionally may be indicated.

6.22.14.7 In-servicing monitoring - Monitoring sockets measurements with regular instruments shall be provided for receive signal level or AGC. For PSU voltages and health of TLO/RLO, either monitoring sockets or monitoring with BITE shall be provided. Additional parameters for which monitoring sockets are provided shall be indicated.

6.22.14.8 Visual Alarm - Visual indication for parameters such as system failure, power supply output failure, TX power low, TLO/RLO un-healthy conditions, quality determination (high

BER/Sync failure), no data input etc. to be provided. There shall be facility to disable the “no data input” alarm.

6.22.14.9 Audible Alarm - Suitable provision shall be made for extension of audible alarm for given parameters. Reset facility for audible alarm shall be provided. Alarms once resets shall be ready to take any other fault, which may occur in the equipment. Change of status of alarms shall be provided.

6.22.14.10 Remote supervision - The terminal station (controlling station) shall monitor the status of the unattended repeater station and also the far end terminal station (controlled station). The following parameters are to be monitor locally and conveyed to the controlling station from each repeater and far end terminal station.

- I RF path failure
- II Any sub- system failure
- III Two other parameter related to the station.

The details of alarms provided may be indicated with diagnostic procedure. If grouping of alarms is done for remote supervision, clear explanation should be given.

6.22.15 Transmission Specifications

Trans power at antenna port	+32 dBm (Max)/50 ohms
Trans power at TX Branching filter IN	To be indicated
TLO/TX frequency stability	±20 PPM
Type of transmission	direct of heterodyne
Spurious and harmonic emission at antenna port	25 micro watt max
protection	Transmitter shall be protected

	against infinite VSWR.
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6.22.16 Receiver Specifications

Noise figure at receiver input	To be furnished
RLO stability	±20ppm
IF frequency	If used/Direct demodulation may be indicated
3db IF band width	to be furnished
IF impedance and return losses	To be furnished if IF point Accessible.
Reference RF level at receiver i/p	-50dBm/50 ohms
AGC range	45-dB minimum from threshold. Linearised AGC Voltages should be available for recording
Image frequency rejection	90dB or better
Maximum receive level for no Deterioration of quality (no errors):	-35 dBm or better
Receiver threshold in the absence Of interfering signal for BER OF (1X10 ⁻³)	To be furnished
System performance value from TX port RX port for BER of (1x10 ⁻³) for any RF bearer	114 dB.
Operating range	From max receive level to threshold
Squelch	To be operated for quality

	deterioration(Sync fail or BER of (1×10^{-3}) . Under squelch Conditions AIS shall be transmitted towards MUX.
--	---

6.22.17 Power Supply

The power supply to the equipment shall be fed from the station power plant. The equipment shall meet the following requirements in respect of the power supply: Nominal power supply is –48 volts DC with a variation over the range –40 volts to –60 volts. The equipment should operate over this range with out degradation in performance. The equipment shall be protected in case of voltage variation beyond the range specified in sub clause (a) and also against input reverse polarity. The manufacturer shall furnish data on voltages at which protection will operate.

The power consumption should be minimal. The manufacturer shall furnish the actual power consumption.

The derived DC voltages in the equipment shall have protection against over voltages, short circuit and overload.

6.23 Leased Line Modems

Lease line modems will be used to provide backup connectivity between the base station sites on BSNL lines and these modems should be TEC approved. Leased line rental shall be borne by DD & DNH Police.

6.23.1 All modems should be G.SHDSL based operating in full duplex mode over 2/4 wire leased lines at N*64 Kbps upto 2 Mbps speed.

6.23.2 Central and remote modem must be configured through front panel Menu driven configurations/ console port and not through

jumper settings. The device to configure through console port should also be a part of solution.

6.23.3 The modem at aggregation point i.e. at vertical POP's and in bandwidth provider premises should be chassis based while the modem in Horizontal office should be standalone with rack mountable attachments.

6.23.4 The modem must have TEC approved G.703, V.35.

6.23.5 Clocking options, as Internal, External and Recovery clock must be provided.

6.23.6 G.SHDSL Line Interface

Line Coding:	TCPAM as per ITU-T G.991.2
Line Type:	2 wire twisted copper wire upgradable to 4 wire.
Line Impedance	135Ω
Distance:	Minimum 5 Km @ 2 Mbps in 2 wire.
Connector	RJ-45

6.23.7 Interface (V.35) :

Line Rate:	2.048Mbps
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6.23.8 Digital Interface (G.703) :

Line Rate	2.048Mbps
Line Code	HDB3
Interface	E1 interface as per ITU-T G.703, G.704
Impedance	120 Ω (Balanced)
Jitter Performance	according to ITU-T G.823

Frame Format:

Framed G.704 and Unframed G.703, PCM 31 CCS, PCM 30 CAS, CRC

6.23.9 CONFIGURATION & MONITORING:

- ITU-T G.826 Performance Monitoring

- Using console port / DIP Switches / Menu Driven LCD and Keys on Front Panel. The device to configure through console port
- should also be a part of the solution.
- LEDs on Front Panel should indicate status like Line Sync, Alarms, Errors, etc.
- The Modem should have a Management (NMS) port for Status
- Monitoring and perform Diagnostics using SNMP.

6.23.9.1 DIAGNOSTICS:

- Local Loop back, Digital Loop back and Remote Digital Loop back.
- Test Pattern Generator and Checking (BERT).

6.23.9.2 Environmental Conditions :

- Operating temperature 1° to 60° Centigrade
- Humidity 5 % to 85% R.H
- Surge Protection as per ITU-T K.20/K.21

6.23.9.3 POWER: Dual Mode AC/DC; 230V AC +/- 10%, AND –48 V DC +/- 10%.

6.23.9.4 TEC approval: TEC certificate should clearly specify approval for single and double pair operation as well as the range of the modem.

Section - 7
Sample Forms

Section - 7
Sample Forms
Tender Letter Form

Date: _____

From

(Registered name and address of the Tenderer.)

To,

Deputy Inspector General of Police,
UT's of DD & DNH,
Daman

Sir,

Having examined the tendering documents, we the undersigned, offer to supply, install, test, integrate and commission Digital Radio Trunking (TETRA) System under the project of modernisation of DD & DNH Police communication systems, also called the “**Systems**” as detailed in the bidding document (as enclosed) in response to T/E numberdated

we undertake to:

1. maintain validity of the Tender for a period of 6 months from the last date of Tender submission as specified in the bidding document or extended. The same shall remain binding upon us and may be accepted at any time before the expiration of that period.
2. supply, install, test, integrate, commission and maintain the “**Systems**” for a period of 24 months (warranty period) in conformity with the bidding documents (and as amended from time to time).
3. Comprehensive Maintenance of system for a period of 3 years(after warranty period).
4. Commission the “**Systems**” within the time frame as defined in the Tender documents (and as amended from time to time)

5. execute all contractual documents and provide all securities & guarantees as required in the Tender document (and as amended from time to time).
6. until a formal Contract is prepared and executed, this Tender, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract on us.
7. certify that products and Systems to be supplied shall be from eligible countries as specified in the above mentioned T/E document.
8. we enclosed checklist for tender as per Article 2 of Section 4 duly filled.

Dated this _____ day of _____.

Signature

.....

(in the capacity of)

Duly authorised to sign Tender for and on behalf of

Witness:

(Signatures with name and designation)

Address:

Enclosure:

1. Check list as above
2. Bidding document

EMD Form

Whereas (hereinafter called “the Tenderer”) has submitted his Tender dated. for the Supply, Installing, Testing, Integrating and Commissioning of Digital radio trunking (TETRA) System under the project of Modernisation of DD & DNH Police communication systems, (hereinafter called “the Tender”).

Know All men by these presents that WE.....(Branch Name) of(Bank Name) having our registered office at(hereinafter called “the BANK”) are bound unto UT of DD & DNH (hereinafter called “Govt.”), in the sum **of Rs XXXXX/- (Indian Rupees XXXXX Lacs Only)** for which payment well and truly to be made to the said Govt., the BANK binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said BANK this..... day of2009.

The conditions of this obligation are:

1. If the Tenderer withdraws their Tender during the period of Tender validity specified by them on the Tender letter form
2. If Tenderer does not respond to requests for clarification of their Tender
3. If Tenderer fails to co-operate in the Tender evaluation process, and
4. In case of a successful Tenderer, if the said Tenderer fails or refuses :
 - a) to sign the Contract Agreement in time; or
 - b) to furnish Performance Security

We undertake to pay the Govt. upto the above amount upon receipt of its first written demand, without the Govt. having to substantiate its demand, provided that in its demand the Govt. will note that the amount claimed by it is due to it owing to the occurrence of any one or more of the conditions specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including 30 days after the period of Tender validity, and any demand in respect thereof should reach the BANK not later than the above date.

(Signature for and on behalf of Bank)

Name of Witness

(Signature of the Witness)

Address of Witness

Date:

Producer's Authority Letter-1

(It should be submitted on original letterhead of Manufacturer)

To

Deputy Inspector General of Police,
UT's of DD & DNH,
Daman

Dear Sir,

Whereas *[name of the Producer]* who are established and reputable producers of *[name/or description of the products]* having production facilities at *[address of factory]* do hereby authorize *[name and address of the Supplier]* to submit a Tender, and subsequently negotiate and sign the Contract with you against T/E No.....dated..... for the above products produced by us.

We hereby extend full guarantee for the products offered for supply by the above firm against the said T/E and duly authorize said firm in fulfilling all installation, technical support and maintenance obligations required UT of DD & DNH.

[Signature for and on behalf of Producer]

Note: This letter of authority must be on the letterhead of the Producer, must be signed by a competent person and having the power of attorney to bind the Producer, and must be included by the Tenderer in its Tender.

PRODUCER's AUTHORITY LETTER-2.

(It should be submitted on original letter head of Manufacturer)

We, M/s.....
registered SSI unit with DIC having manufacturing unit at
 Taluka..... District..... hereby authorize
 M/s..... to participate on behalf of
 us in Tender Enquiry No..... due
 on.....of The Deputy Inspector General of Police, Police
 Head Quarters, UT Admn. of DD & DNH for the Supply, Installation,
 Testing, Integration and Commissioning of Digital Trunked Radio (TETRA)
 System for DD & DNH Police Communication System. They are our
 Authorized Dealer/Holder of Authority Letter for this T/E. We undertake to
 supply the goods mentioned in tender inquiry. The particulars are as under:-

1. Name & Address of the SSI Unit:
2. Name of proprietor/Partner or Managing Director :
3. a) Telephone Number :
 b) Fax Number :
4. SSI Registration No: (Please enclose attested copy of SSI Registration).
5. Items of Manufacture
7. Details of turnover of last three years (As per balance-sheet)

2006-2007		2005-2006		Production capacity & Production			
Quantity	Value	Quantity	Value	2007-08		2006-2007	
				Capacity		Production	
				Quantity	Value	Quantity	Value

8. a) For the items/ equipments of T/E
 b) For the entire range of production: (If required more space may please be attached in separate sheets)

Date:

Seal

Signature

Place:

(Name of Proprietor/ Partner/ Managing Director)

FORM -TECHNICAL BID

T/E No.Due date.....

Enclose following documents/mentioned in technical Bid

1	P.T.S.	Purchase and duly signed
2	(a) Name of the Bank (Nationalized Bank only)	Mentioned Yes/No (Bank Guarantee shall be put up in EMD cover)
3	Authority letter	(If Tenderer is not a self manufacturer)
4	Literature	(Wherever applicable shall be enclosed)
5	T/E validity	
6	Place of Inspection	
7	Details of specifications	
8	Latest Sales-tax clearance certificate & sales-tax document submitted	
9	Delivery period	
10	Payment conditions	
11	Please state here that wherever the stores Tenderer have offered are as per TIE specifications in all respect or as may YES or NO	YES /NO.
12	FOR/ Free Delivery (Tenderer rates are on FOR destination basis inclusive of Insurance charges)	YES /NO.
13	Sample (Have Tenderer submitted sample?)	YES /NO.
14	Name of proprietor/partner/Director with full Contact details (residential address and telephone No. FAX No. etc.)	
15	Have Tenderer submitted all documentary evidence duly attested?	YES /NO.

Signature

Name & Designation:

TAX DECLARATION CERTIFICATE

Enclose following form and relevant details in technical Bid

A.	Whether the commodity is taxable?	Yes/No
B.	If Yes, what is the rate?	
C.	Whether Tenderer quoted price is exclusive or inclusive of taxes?	Exclusive/Inclusive
D.	If Tenderer are from outside UT of DD & DNH whether Tenderer rate is inclusive of GST and local taxes or not?	Exclusive/ inclusive
E.	Will Tenderer bill Tenderer products from UT of DD & DNH	Yes/No
F.	If Tenderer are from UT of DD & DNH J10W much GST will be charged?	
G.	Are Tenderer from backward area of UT of DD & DNH?	Yes/No
H.	Have Tenderer opted for sales-tax exemption?	Yes/No
I.	Have Tenderer opted for sales-tax deferment?	Yes/No

(Signature of Tenderers)

Compliance Statement

(Please give clause-by-clause compliance statement for the entire T/E document in the format given below)

T/E No.

S. No.	Section/Article/ Clause	Specification Asked for	Complied / Not Complied	Reference

Note:

1. Bidder shall not use any other words except complied or not complied. The words like noted, seen, partially complied etc. will not be acceptable.

2. Failure to provide documentary evidence in the prescribed format may result in rejection of bid.

* Bidders to provide documentary proof/reference for each and every clause mentioned in the tender document. All the documentary proof/reference pages should be numbered, and only the relevant statement in the document should be highlighted indicating the corresponding clause no. In addition, the original tender document countersigned in all pages should be submitted along with the bid.

Formats for Pre-qualifications of Party (Technical)

(Experience in supply, Installation, testing, integration and commissioning of similar Systems)

T/E No.:

Name of the Tenderer:

S. No.	Name of the customer	Address of the Installation	Start Date of Project	Completion Date of the Project	Scope of the work. Also specify the systems installed	Value of the Contract in Rupees.

Note: - Please attach purchase order/ contract agreement and completion certificate for each of the project details mentioned above in physical form along with Sealed Technical tender.

Formats for Pre-qualifications of Party (Financial)
(Financial Standing of the Applicant)

S.N.	Name of Applicant	Turnover (in Lakhs of Rupees)			Net worth (in Lakhs of Rupees) 2007-2008
		2007-2008	2006-2007	2006-2005	

Note: Please attach duly certified and audited financial statements by a Chartered Accountant of last three financial years with annual report (balance sheet and Profit & Loss account) of last 3 years.

Commercial Bid

Form-C1

Name of the Tenderer:

T/E No.:.....

Due on.....

Pageof...

Location of the Site:

All Prices (including warranty for 2 years) to be quoted in Indian Rupees

S. No.	Item Description	Item wise details
1	Name of the Item	
2	Country of origin	
3	Product Producer	
	System Integrator responsible for Supply and Installation	
4	Quantity	
5	Rates per unit	
6	Total sales and other taxes *	
7	Freight, insurance, and other cost	
8	Total unit Price ((6)+(7)+(8))	
9	Total Price ((5) * (9))	
10	Total Price in words	
11	Remarks if any	

*With break-up of all taxes including Octroi as may be applicable.

Signature:

Name:

Designation:

Note: This form needs to be filled up separately for each item including optional items.

Commercial Bid

Form-C2

Comprehensive Maintenance Period (3 years after warranty)

Name of the Tenderer:

T/E No.:.....

Due on.....

Pageof.....

All Prices to be quoted in Lump sum in Indian Rupees (Inclusive of all taxes)

Serial #	Items	Year-1	Year-2	Year-3
1	Comprehensive Maintenance for Digital Radio trunking (TETRA) System.			

- with break-up as per Form-1
- AMC Percentage with respect to S. No. 10 in Form- 1

Commercial Bid
Form-C3 Total Price

Sr. No.	Form C1	Form C2	Total (In Indian Rupees)
1			
2			
3			
4			
5			
6			
7			
8			
9			
Grand Total			
In Words			

Note: To include all items except optional items

Annexure-1

Definitions

Annexure – 1

Definitions

Article – 1: Definitions

In this T/E document, the following terms shall have respective meanings as indicated:

- 1.1 **“Acceptance”** means the Daman, Diu and Dadra & Nagar Haveli Police’s written certification following installation; the System(s) (or specific part thereof) has been tested and verified as complete and/or fully operational, in accordance with the acceptance test defined in the Acceptance Test Documents.
- 1.2 **“Acceptance Test Documents”** means a mutually agreed document, which defines procedures for carrying out complete test on the **“Systems”** against specifications. It should define tests to be carried out, test equipment and expected test results.
- 1.3 **“Authorised Representative/Agency”** shall mean any person/agency authorised by Daman, Diu and Dadra & Nagar Haveli Police. This includes M/s Telecommunications Consultants India Limited (TCIL), New Delhi.
- 1.4 **“Contract”** shall mean the Contract to be entered into between the Daman, Diu and Dadra & Nagar Haveli Police and successful Tenderer and all attached exhibits and documents referred to therein and all terms and conditions thereof together with any subsequent modifications thereto.
- 1.5 **“GC”** mean the General Conditions for Bidding.
- 1.6 **“Installation”** means the tenderer’s written notification that the system(s) (or specific part thereof) have been installed by the Tenderer in accordance with Daman, Diu and Dadra & Nagar Haveli Police’s requirements and the project plan, and is ready for the acceptance testing.

- 1.7 **“Intellectual Property Right”**, also called “IPR”, means any and all copyrights, moral rights, trade marks, patent , and other intellectual proprieties.
- 1.8 **“Law” or “Legislation”** - shall mean any Act, notification, bye law, rules and regulations, directive, ordinance, order or instruction having the force of law enacted or issued by the Government of India or State Government or regulatory authority or political subdivision of government agency.
- 1.9 **“Party”** shall mean Daman, Diu and Dadra & Nagar Haveli Police or Tenderer individually and **“Parties”** shall mean Daman, Diu and Dadra & Nagar Haveli Police and Tenderer collectively.
- 1.10 **“Products” or “Goods”** means all of the equipment, hardware, software, supplies and consumable items along with associated documentation that the Tenderer is required to install or provide.
- 1.11 **“SCB”** means the Special Conditions for Bidding.
- 1.12 **“Services”** means services associated with the supply, installation, integration and commissioning of the **“Systems”**.
- 1.13 **“Site”** means the location(s) for which the work has been allotted and where the delivery and installation of the equipment/system(s) to be made.
- 1.14 **“Specifications”** shall mean and include schedules, details, description, statement of technical data, performance characteristics, standards (Indian as well as International) as applicable and specified in the T/E Documents.
- 1.15 **“System”**, means all or any of the products to be installed, integrated and made operational, together with the services to be delivered by the Tenderer.
- 1.16 **“Tenderer or tenderer”** means the firm offering the solution(s), services and / or materials required in the T/E. The word Tenderer when used in the pre award period shall be synonymous with Tenderer, and when used after intimation of Successful Tenderer shall mean the successful Tenderer, with

whom Daman, Diu and Dadra & Nagar Haveli Police signs the Contract.

- 1.17 **“Tender Enquiry”**, also called “T/E”, means the detailed notification seeking a set of solution(s), services, materials, or any combination of them as laid down in this document.
- 1.18 **“Third Party Agency”** shall mean any agency appointed by Daman, Diu and Dadra & Nagar Haveli Police for monitoring the **“Systems”** during commissioning and operation.
- 1.19 **“Warranty Period”** is the period specified following Acceptance of the **“Systems”**, during which the Tenderer’s warranty obligations in respect of the Systems are in force.

Annexure-2

Site Survey

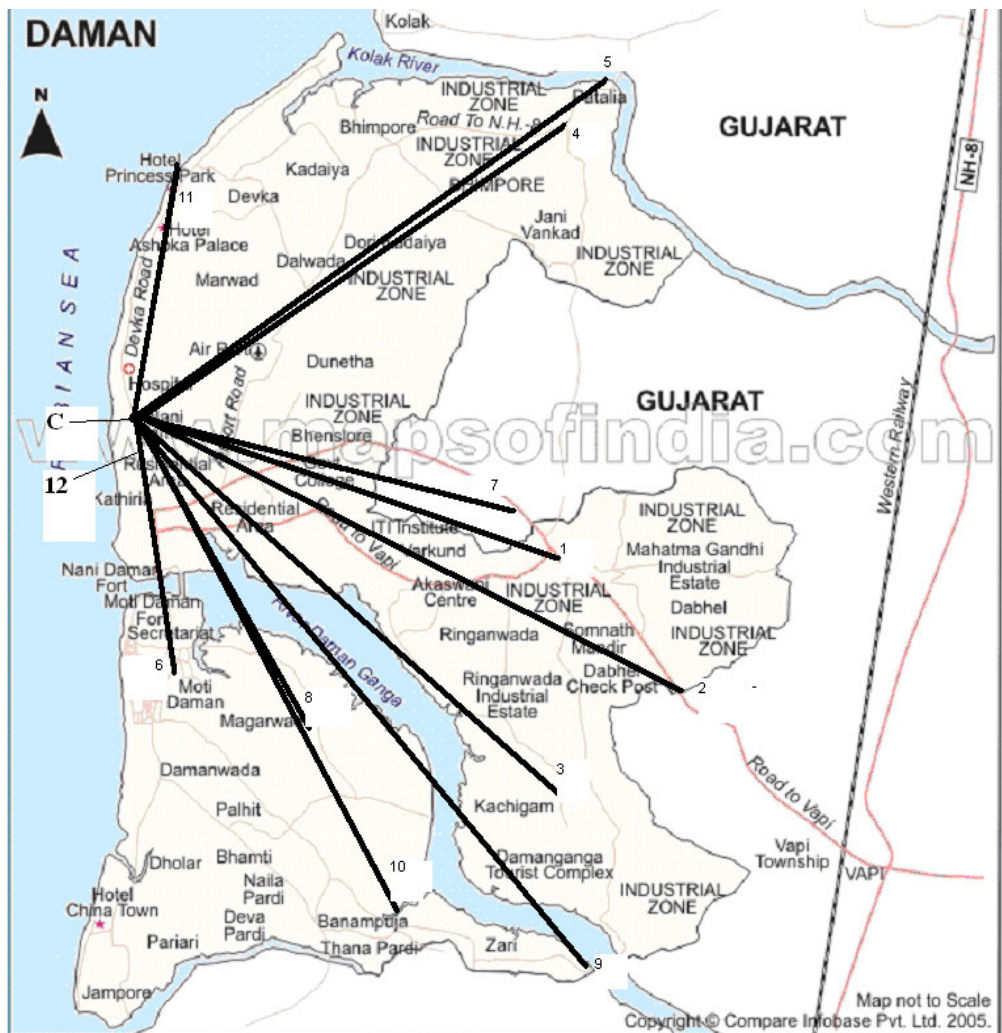
Annexure-2
Site Survey

2.0 Site Survey

Site survey was conducted to assess the existing infrastructure, communication network, the map of the city is placed at 2.1

Bidder is advised to visit each site and verify the informations given below. If the bidder finds that information provided here is incomplete in some respect for the implementation of project, he is responsible for identifying the same and accordingly including the same in his bid

2.1 Daman Map



S. No.	Name of Police Station/Out Post (OP)/ Check Post (CP)	Latitude	Longitude	Distance from Control room Nani Daman (in Kms)	Height from Sea level(In Meters)	Proposed on road coverage in walled city(%)
	Nani Daman Control Room	72°50'3"	20°24'59"	0	33	85
1	Dabhe OP	72°52'39"	20°24'47"	05	10	85
2.	Dabhel CP	72°53'25"	20°23'56"	07	82	85
3.	Kachigam OP	72°52'57"	20°23'5"	08	25	85
4.	Bhimpore OP	72°52'39"	20°27'19"	06	30	85
5.	Pathliya CP	72°53'11"	20°27'19"	07	14	85
6.	Moti Daman OP	72°49'57"	20°23'50"	04	7	85
7.	Kalaria OP	72°52'32"	20°24'57"	04	28	85
8.	Coastal Police Station Moti Daman	72°51'23"	20°22'58"	07	9	85
9.	Zari Causeway OP	72°52'43"	20°22'11"	10	24	85
10.	Bhamanpoja CP	72°51'23"	20°22'21"	09	12	85
11	Devka OP	72°50'4"	20°26'43"	05	5	85
12	DIG office	72°50'00"	20°24'50"	0.2	23	85

2.1.1 Dadra & Nagar Haveli Map



S. No.	Name of Police Station/Out Post/ Check Post	Distance from Control room Silvassa (in Kms)	Latitude	Longitude	Height from Sea level (In Meters)	Proposed on road coverage in walled city(%)
1.	Police Control Room , Silvassa	0	73°00'15"	20°16'29"	47	85
2.	Police Station, Silvassa	0.1	73°00'15"	20°16'29"	47	85

S. No.	Name of Police Station/Out Post/ Check Post	Distance from Control room Silvassa (in Kms)	Latitude	Longitude	Height from Sea level (In Meters)	Proposed on road coverage in walled city(%)
3.	Dadra OP	06	72°57'45"	20°19'22"	40	85
4.	Galonda OP	06	73°03'33"	20°16'51"	58	85
5.	Masat OP	04	73°00'39"	20°14'43"	52	85
6.	Naroli OP	08	72°56'28"	20°16'16"	39	85
7.	Piparia OP	03	72°59'45"	20°15'56"	40	85
8.	Rakholi OP	07	73°01'32"	20°13'14.7"	54	85
9.	Randha OP	18	73°08'6"	20°18'38"	82	85
10.	Kilvani OP	10	73°05'37"	20°20'14"	66	85
11.	Saily OP	07	73°03'18"	20°13'57"	75	85
12.	Khanvel PS	18	73°04'07"	20°07'38"	107	85
13.	Dudhani OP	20	73°09'28"	20°10'24"	60	85
14.	Kherdi OP	24	73°01'17"	20°06'12"	90	85
15.	Mandoni OP	28	73°08'51"	20°06'36"	263	85
16.	Surangi OP	13	73°00'28"	20°09'14"	60	85
17.	Athal OP	05	72°56'28"	20°15'56"	40	85
18.	Dadra CP	07	72°57'37"	20°19'28"	43	85
19.	Naroli CP	10	72°55'9"	20°16'43"	36	85
20.	Khadoli CP	13	73°01'26"	20°09'15"	69	85
21.	Kherdi CP	26	73°01'17"	20°06'12"	90	85
22.	Sindoli OP (Proposed)	35	73°10'3"	20°05'8"	350	85
23.	Velugam OP (Proposed)	20	73°00'28"	20°09'14"	60	85
24.	Khadoli OP (Proposed)	13	73°01'55"	20°09'32"	80	85
25.	Morkhal CP	18	73°05'16"	20°20'13.5"	65	85
26.	Khedpa CP (Proposed)	41	73°10'24"	20°03'4"	390	85

2.2 Daman and Dadra & Nagar Haveli Information

Daman, the second smallest Union Territory of India, is located on the west coast. Daman and Diu are two separate areas, geographically located within the state of Gujarat.

Daman is situated on the west coast of India on the Arabian Sea are exotic locations that are blessed with sun, sand & sea. Due to their Locational advantages, they offer excellent potential for tourist traffic.

Daman is situated at 20-22'-00" to 20-27'-25" latitude north of equator and between meridian 72-49'-42" to 72-54'-43" longitude. An important locational advantage of Daman is its close proximity to Bombay and it is just 13 kms away from the nearest rail road, Vapi. Geographical area of Daman is 72 square kms.

Locational advantages made Daman, excellent and exotic tourism destinations with tourist traffic rising year by year.

- **Geographical Area**

- Urban : 5.60 square kms.
- Rural : 66.40 square kms.
- Total : 72.00 square kms.

- **Climate**

- Maximum Temperature : 38.80 degree centigrade
- Minimum Temperature : 11.40 degree centigrade
- Average Annual Rainfall : 1687 mm

- **Administrative Setup (Daman)**

- District : 1
- Tehsil : 1
- Block : 1
- Village : 22
- District Panchayat : 1
- Village Panchayats : 10
- Municipal Council : 1

- Towns : 1
- Parliamentary Constituency : 1
- **Population (as per 2001 census)**
- - **Daman**
 - Total : 1,13,989
 - Rural : 78,219
 - Urban : 35,770
 - Male : 71,634
 - Female : 42,355

About Dadra and Nagra Haveli

Since 1961, a Union Territory of west India, between Gujarat and Maharashtra states; area 491 sq km/190 sq mi; population (2001 est) 220,500. The capital is Silvassa. Four-fifths of the population belongs to the Adivasi ethnic group, which includes the Varli, Dhodia, and Kondkan peoples. The predominant religion is Hinduism, with Christian and Muslim minorities. Until 1954 the territory was part of Portuguese Daman. Most of the population depends on agriculture, producing rice, wheat, and millet, although there are some industrial estates manufacturing plastics, chemicals, and fertilizers largely with the aid of migrant workers. 40% of the total area is forest, and felling of the valuable teak timber is regulated.

NOTE: Tenderer should do survey of Daman and Dadra & Nagar Haveli and identify the most appropriate sites for covering whole of UT and neighboring Police stations, Check post and Out post as stated above, to provide 90% on road coverage for mobile units as marked above, and 100% coverage for all the static stations. However, Daman, Diu and Dadra & Nagar Haveli Police has existing towers at Nani Daman of height 30 mtrs, Silvassa of height 30 mtrs & Khanvel of height 20 mtrs and one spare tower at Dabhel and plan to use them. Coverage plan with (parameter details with assumptions) these sites should also be included in the offer. To make the towers suitable for bidder's use is the responsibility of bidder. Failure to do so may make the bid liable for rejection. The final network implementation shall entirely be the responsibility of the Tenderer. The successful tenderer will also have to carry

out survey of all Police Station, Check post and Out post to reconfirm the coordinates.