

Technical Report

1. Intra District Digital Mobile Network.

In Intra District communication Network, static stations will be used to communicate locally within the District on voice and DATA with location tracking. DMR Repeater will be installed at Strategic locations to give maximum coverage in VHF communication within Districts of J&K. All Analog VHF Radios will be replaced with VHF DMR Static, vehicle mounted and Hand held radios having advanced features like:

- **High Security:** Prevents unauthorized user from accessing the system, in addition the network manager disable feature makes it easy for you to remotely deactivate a lost or stolen radio.
 - **Higher Capacity:** Delivers better capacity than of an analog conventional system using TDMA two slot technology
 - **Text Messaging :** Pre-defined and editable messages from keypad
 - **Integrated GPS :** Locate mobile teams using integrated GPS
 - **Voice Logging:** Voice and events would be recorded, if required.
 - **Audio:** Loud and Intelligent Digital Audio feature that automatically adjusts the radio Volume according the environments noise Level.
 - **Caller ID, Selective Calling, Group Calling etc.**
 - **Enhanced encryption:** Encryption for voice and data for enhanced security
 - **Transmit voice interrupt:** Enables a user to interrupt another radio conversation to deliver **critical communication** exactly when and where immediately required for supervisory control.
 - **Remote monitoring.** Remote target radio's PTT is switched on.
 - **Fast Access for those who need it Most:** user interrupt feature enables the key officials or personnel to interrupt existing communication during emergency situations.
 - **No need to change channels:** As you travel from one site to the next, you can keep focus on the task instead of hassling with manual site changes. Dynamic site roaming automatically registers you with the nearest sites so you can travel and always stay connected
 - **Save on infrastructure :** Two slot DMR technology require less number of repeaters and more spectrum efficiency
 - **In-built Bluetooth:** For hands free operation
 - **Emergency Button:** Orange/Red button on the top of the radio should be programmable to send an alert to a control Room or dispatcher during an emergency situation .
- Text Messaging :** Pre-defined and editable messages from keypad.



Kashmir Zone:-

S.No	Name of the Districts	DMR Repeater Locations
1	Srinagar.	Shankar Acahariya Hill
2	Kulgam.	
3	Shopian.	
4	Pulwama.	
5	Ganderbal.	
6	Anantnag.	
7	Baramulla.	
8	Kupwara.	Vilgam
9	Bandipora	
10	Budgam.	
11	P.D Handwara.	
12	P.D Awantipora	
13	P.D Sopore	
14	Leh.	
15	Kargil	

Jammu Zone:-

S.No	Name of the Districts	DMR Repeater Locations
1	Jammu	DHQ Jammu
2	Ramban	Patnitop Hill
3	Doda	Thuba
4	Kishtwar	Dool, Palmar Hill
5	Udhampur	
6	Reasi	Sanjichhat, Sar,
7	Samba	
8	Kathua	
9	Rajouri	DKG Hill
10	Poonch	Mangladavi Hill

2. Inter District Digital Mobile Network

In **Inter District Network**, IP based DMR Repeaters will be installed at strategic locations to give maximum coverage and multiple repeater sites will be connected through IP for voice and data transfer. The microwave towers will be erected at below mentioned locations.

- i. **R.F IP Link** from Srinagar(PCR & PHQ) to Jammu(PCR & PHQ) with minimum through put 50 Mbps

R.F IP Link for Braches

- i. RPTR Shankarachariya,
- ii. RPTR Lethpora,
- iii. RPTR Jawhar Tunnel,
- iv. RPTR Beoli BN Hqrs Doda,
- v. RPTR Patinitop,
- vi. RPTR Sanjichhat Katra,
- vii. RPTR DKG
- viii. RPTR DHQ T/Com Jammu,
- ix. RPTR PTTI Vijaypur

On minimum through put of 20 Mbps for IP Wireless based applications for digital Repeaters & DATA transfer from PHQ /PCR Jammu to PHQ/PCR Srinagar and vice versa.

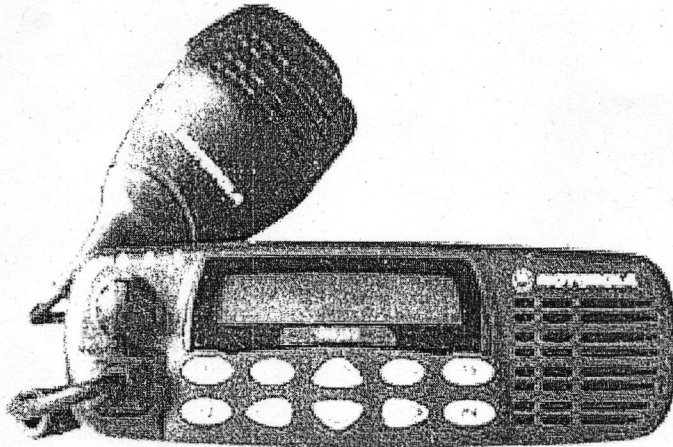
All Analog VHF Radios and VHF Repeaters will be replaced with VHF DMR Repeaters , VHF DMR Static, Vehicle mounted and Hand held Radios having advanced features like :

- **High Security:** Prevents unauthorized user from accessing the system, in addition the network manager disable feature makes it easy for you to remotely deactivate a lost or stolen radio.
 - **Higher Capacity:** Delivers better capacity than of an analog conventional system using TDMA two slot technology
 - **Text Messaging :** Pre-defined and editable messages from keypad
 - **Integrated GPS :** Locate mobile teams using integrated GPS
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 - **Remote monitoring.** Remote target radio's PTT is switched on.
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 - **No need to change channels:** As you travel from one site to the next, you can keep focus on the task instead of hassling with manual site changes. Dynamic site roaming automatically registers you with the nearest sites so you can travel and always stay connected
 - **Save on infrastructure :** Two slot DMR technology require less number of repeaters and more spectrum efficiency
 - **In-built Bluetooth:** For hands free operation
 - **Emergency Button:** Orange/Red button on the top of the radio should be programmable to send an alert to a control Room or dispatcher during an emergency situation .
- Text Messaging :** Pre-defined and editable messages from keypad.



3. Static Digital Mobile VHF Radios Sets

For Intra District digital mobile Networks & Inter District Digital Mobile Network , Static VHF DMR will be installed at Fixed stations by replacing Static/Fixed Analog VHF Radios. The analog VHF Radios are outdated and does not provide communication security at all



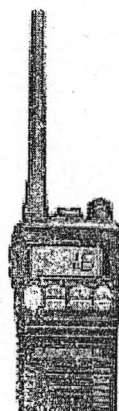
4. Vehicle mounted Digital Mobile Sets.

For Intra District digital mobile Networks & Inter District Digital Mobile Network , Vehicle mounted VHF DMR will be installed in the vehicles by replacing Vehicle mounted Analog VHF Radios having advanced features. The Vehicle mounted analog VHF Radios are outdated and does not provide communication security at all.



5. Handheld Digital Mobile Sets.

For Intra District digital Hand held Networks & Inter District Hand held Network , Hand held VHF DMR will be installed by replacing Hand held Analog VHF Radios having advanced features. The Hand held analog VHF Radios are outdated and does not provide communication security at all.



6. Duplex Radios

Two types of RF Radios will be installed at different locations of J&K to provide RF connectivity of 50 Mbps between Jammu and Srinagar and RF connectivity of 20 Mbps between the VHF DMR Repeaters of Inter District mobile VHF Network

- i. RF IP RADIO 200Mbps (for 50Mbps Link) with self supporting mast /Tower with lighting protection design& height as per requirement. (Important Note: Equipment should have support for integration with DMR Dispatch System)
- ii. RF IP RADIO 50Mbps (for 20Mbps Link) with self supporting mast /tower as per requirement (Important Note: Equipment should have support for integration with DMR Dispatch System)

The locations of the Microwave towers are as under

- i. R.F IP Link from Srinagar(PCR & PHQ) to Jammu(PCR & PHQ) with minimum through put 50 Mbps

R.F IP Link for Braches

- i. RPTR Shankarachariya,
- ii. RPTR Lethpora,
- iii. RPTR Jawhar Tunnel,
- iv. RPTR Beoli BN Hqrs Doda,
- v. RPTR Patinitop,
- vi. RPTR Sanjichhat Katra,
- vii. RPTR DKG
- viii. RPTR DHQ-T/Com Jammu,
- ix. RPTR PTTI Vijaypur

On minimum through put of 20 Mbps for IP Wireless based applications for digital Repeaters & DATA transfer from PHQ /PCR Jammu to PHQ/PCR Srinagar and vice versa.

7. Packet Radio System.

Packet Radio system will be installed at all District Hqrs and BN's Hqrs including CID, Security and Railways of J&K for data transfer over intra District digital mobile networks and inter district mobile network without using external VHF Radio modem. The description of the Packet Radio system is mentioned below

Computer System : Processor i5 or above with minimum 04 COM- ports, 2GB DDR RAM, 1TB TB HDD, DVD RW Drive, 21" inch TFT, internal PSTN Modem, 100/1000 Mbps LAN Port ,Multimedia Keyboard, Optical Mouse, & Windows 8.1 /10 OS , Mother board drivers and Antivirus software (Branded system, latest configuration preferred).

Communication Software:-

Software with protocols PSTN, TCP/IP, Polnet and DMR should be available. The software must be able to receive/Transmit messages with inbuilt encryption. Supplied DMR radio should be directly interfaced to computer without any external hardware or modem in digital mode

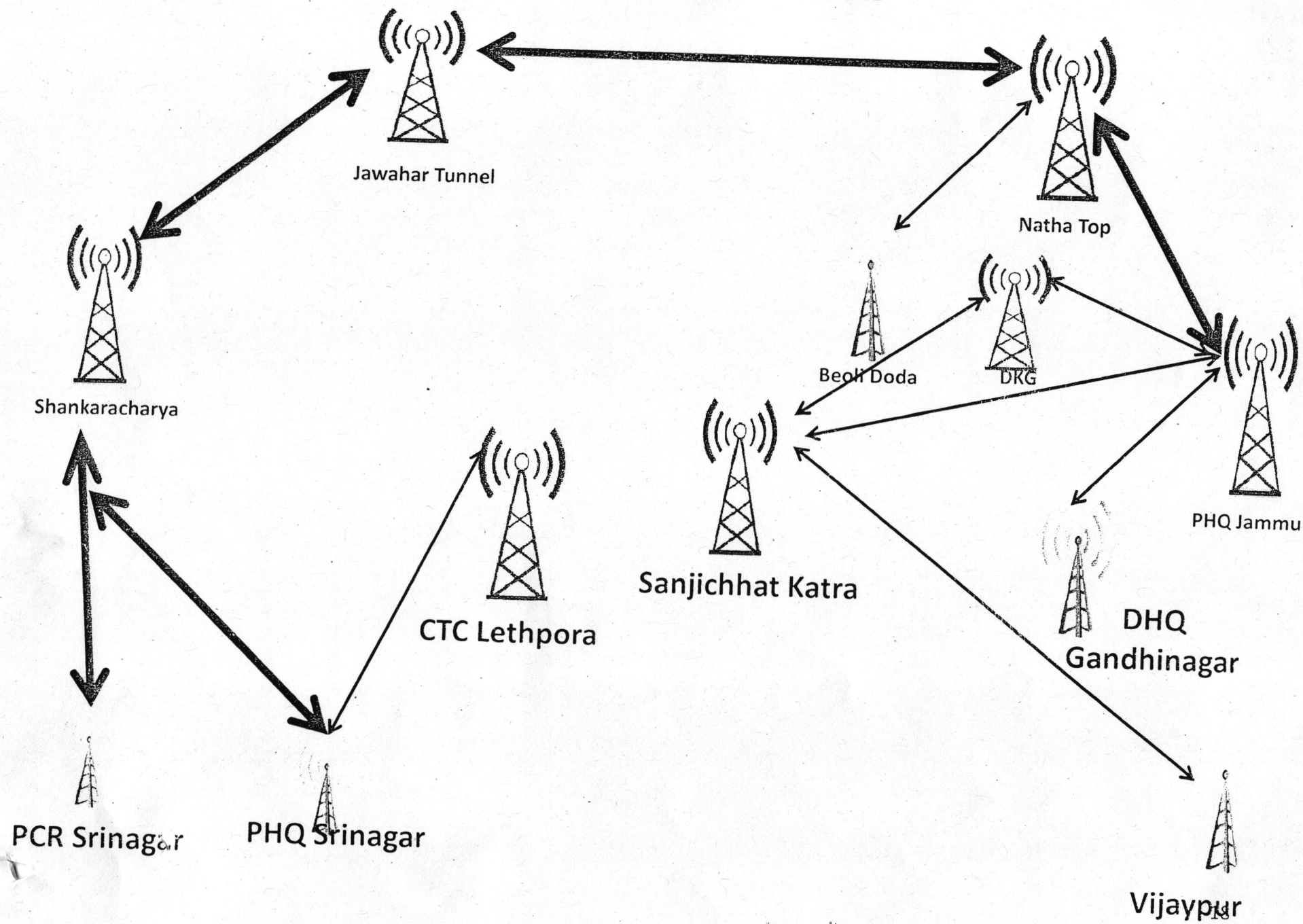
- i. Configurable Message Scheduling/Message Priorities
- ii. Log facilities (TX, Rx, and Failed / Print Messages) with date / time & acknowledgement.
- iii. Tool bar Icons for SEND,PRINT,CONNECT,DISCONNECT, LOG, ADDRESS DIRECTORY, EDITOR FOR Messaging , INBOX, OUTBOX, SENT MSG, Receive MSG and other features relating data communication.
- iv. On Screen connection status viz IDLE, BUSY, CONNECTING, RECEIVING and SENDING. User & admin password protected.
- v. Message arrival indicator.
- vi. Message transmits acknowledgement/failure indication.
- vii. The software should be fully compatible with existing AMSS software.
- viii. Required protocols for email applications.

8. Digital Repeater High Power

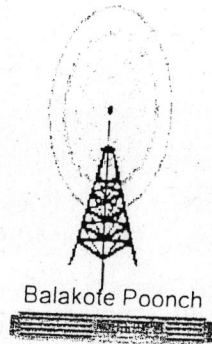
For Intra District digital mobile Networks & Inter District Digital Mobile Network Digital Repeaters High Power will be installed to maximize VHF communication coverage area. VHF DMR High power Repeaters will be installed at the different locations in the J&K and will be connected with each other by RF Link for wide area VHF communication coverage. The Digital Repeater High Power is having advanced features as compared to Analog VHF Repeater. The analog VHF Radios Repeaters are outdated and does not provide wide area communication.



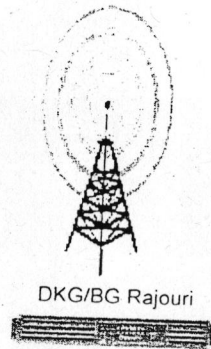
J&K POLICE RF IP LINK ARCHITECTURE



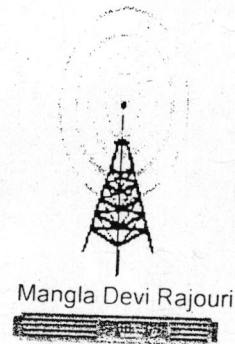
J&K Police Standalone Repeater Sites



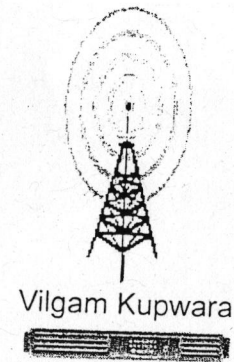
Balakote Poonch



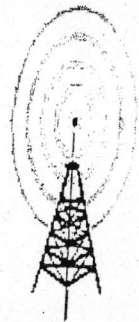
DKG/BG Rajouri



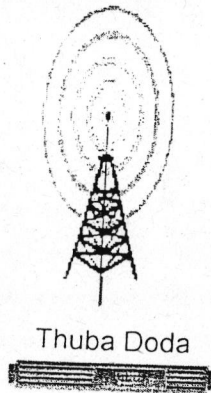
Mangla Devi Rajouri



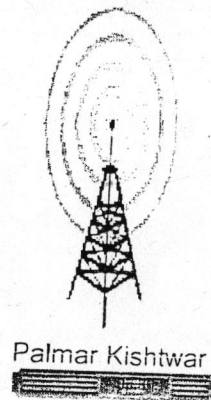
Vilgam Kupwara



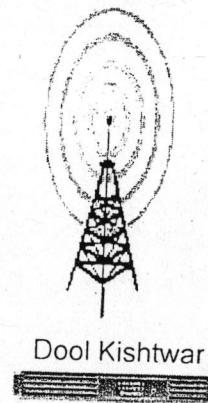
Sarh (Moher) Reasi



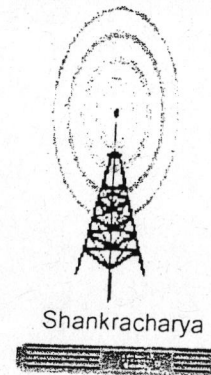
Thuba Doda



Palmar Kishtwar



Dool Kishtwar



Shankracharya