

DMR R9.0 New Enhancement and Changes

Hytera Communications (Canada) Ltd (Hytera) is officially announcing its newest firmware Release 9.0. There are several high value feature enhancements included with R9.0 which Hytera is offering to our customers at no additional cost.

R9.0 firmware is applicable to the following equipment:

- Potables: PD6i, PD7i and PD9i Series
- Mobiles: MD652i and MD782i
- Repeaters: RD9i Series

Once upgraded to R9.0, you can expect to see the following changes:

1. In CPS, the radio model will append an “i” as shown under the Radio Information screen. For example, PD602 will become PD602i. This change will not impact programming or operation of your newly upgraded R9.0 radio and will continue to interoperate with radios with earlier firmware versions.
2. Release 9.0 requires a dedicated CPS for R9.0. R9.0 CPS is not back compatible with firmware versions earlier than R9.0 i.e. the R9.0 CPS will only be able to read and write radios operating on firmware R9.0 or later.

All radio upgrade kits, CPS and documentation is uploaded to the Hytera Technical Portal. Please contact your Hytera representative with any questions.

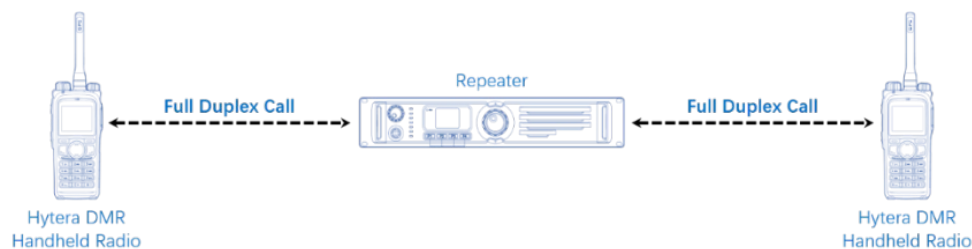
Valuable R9.0 features are highlighted below. Other advanced functionality is offered with R9.0, such as mixed channel timeout timer, mixed channel receive, long press power off, smart battery upgrade, and so on. For a complete list of features, please refer to the R9.0 Release Notes.

These features apply to all equipment listed above unless noted otherwise.

1. Enhanced Full Duplex Capacity

Operational Mode: Direct Mode (Simplex), Repeater Mode (Tier II), XPT Mode (Pseudo Trunk), Trunking Mode (Tier III)

R9.0 introduces full duplex calling while operating in Repeater Mode (RMO), where radios transmit and receive simultaneously using a frequency pair. Calls are made hands-free (without the need to PTT) and can be established as an individual (non-group) call between two radios or between a radio and telephone (via PSTN/PABX interconnect).



Full Duplex Call in RMO

Note that full duplex calling feature was previously introduced with R8.5 in Direct Mode (Simplex), where Radio 1 transmits on slot 1 and receives on slot 2 under the same frequency, as well as in Trunking Mode (Tier III).

Applicable Models: Enhanced MD782i (Full Duplex version) and PD982i

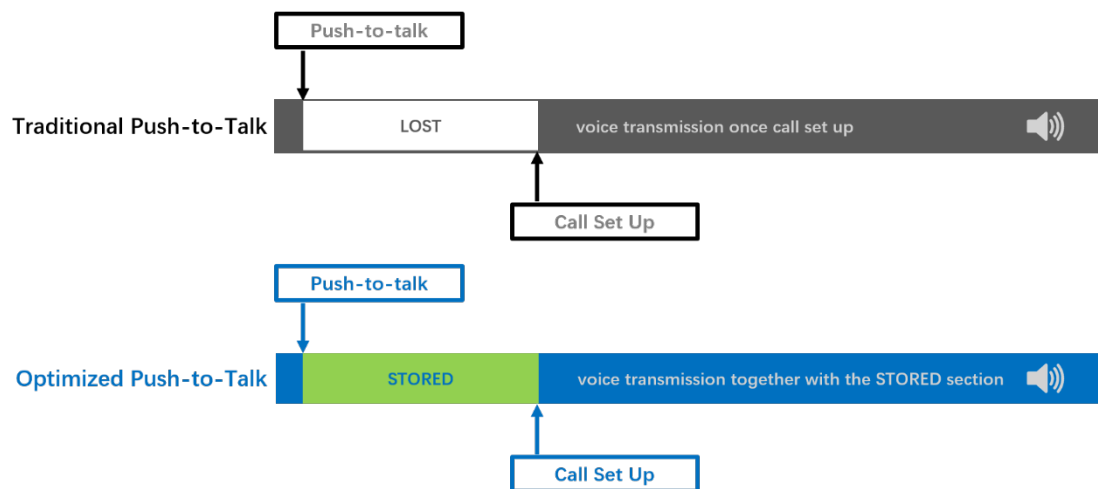
2. Voice Buffer

Operation Mode: XPT Mode (Pseudo Trunk)

The Voice Buffer feature enables the radio to activate the microphone in advance of the call being established. User audio is buffered in the radio until the call is successfully established. This allows the user to start speaking into the microphone after PTTing, without having the need to wait for the call to establish. After the call is successfully established, the radio sends the audio stored in the buffer.

In addition, during handover between sites, the radio continues to buffer the user's speech, and transmits the buffered voice as soon as the handover is completed. This addresses the problem of loss of audio during site handover.

The Voice Buffer will store up to 1.4 seconds of audio.



3. Single GPS

Operation Mode: Repeater Mode (Tier II), XPT Mode (Pseudo Trunk)

The Single GPS feature further optimizes data channel resources and increases GPS data transmission speed, beyond what Quick GPS can offer. With this feature enabled, the radio reports GPS data using the Unified Single Block Data format (based on the DMR standard Universal Single Frame Data format), only transmitting longitude, latitude, reason for GPS transmission, and source address to the dispatch station.

The Single GPS is available only when Quick GPS is enabled and increases system capacity to up to four times the users for GPS data transmission.

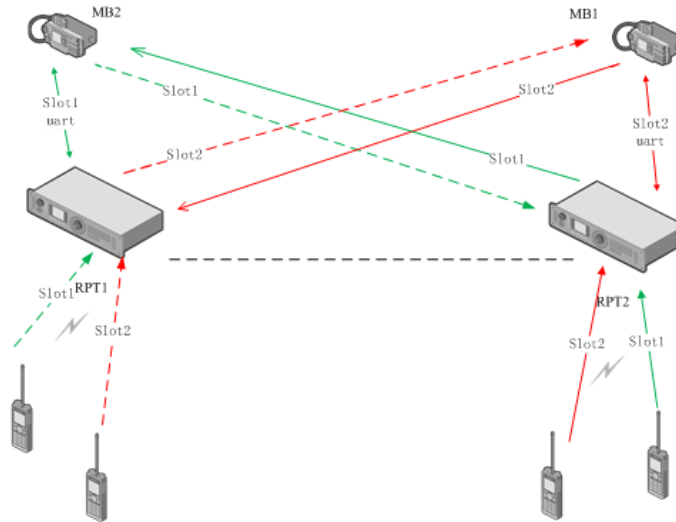
Single GPS also supports single frame GPS encryption.

4. Wireless Link Communication Between Repeater and Mobile

Operation Mode: Repeater Mode (Tier II)

In scenarios where there are limitations to extending the IP network between two sites in an IP Multi-Site Connect system, a wireless link can be established to provide the necessary digital service transmission. A wired UART connection is required between the repeater and an external mobile.

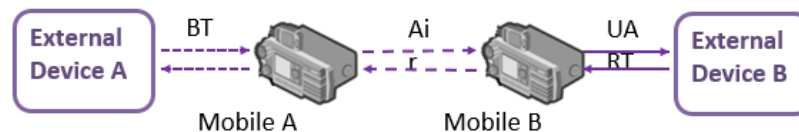
In the figure below, Repeater 1 (RPT1) and Repeater 2 (RPT2) are connected via Mobile 2 (MB2) and Mobile 1 (MB1) respectively, via a wired UART connection. When a user on Repeater 1 wants to talk to a user on Repeater 2, its signal is transmitted to Repeater 1, which in turn is repeated over the air. The mobile attached to Repeater 2 receives the transmission and sends it to the repeater over the wired UART link, which in turn repeats the transmission over the air. User 2 then receives the transmission from Repeater 2 over the air.



5. Bluetooth Data Transmission for User Applications

Operation Mode: Direct Mode (Simplex)

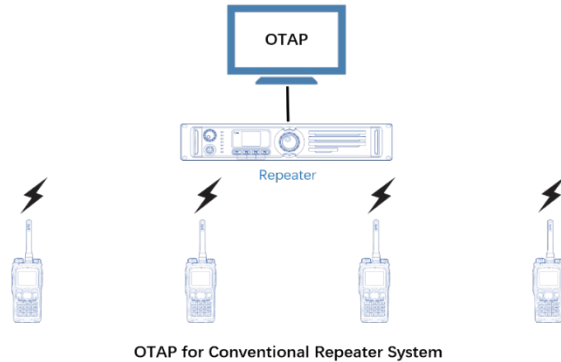
Data transmission of user applications is now available. An external device (Device A below) connected to a mobile via Bluetooth (using Hytera Bluetooth 4.0 adaptor ADA-01) can transmit data (such as a simple file) to another mobile via RF. The receiving mobile (Mobile B) then transmits the data to the external device (Device B) attached to it via UART communication.



6. Over-the-Air Programming

Operation Mode: Repeater Mode (Tier II)

Over-the-Air Programming (OTAP) modifies common parameters of remote terminals through the air interface signaling. OTAP saves time and manpower when operating and maintaining a radio system.



7. Mode Switch Between Tier II and Tier III

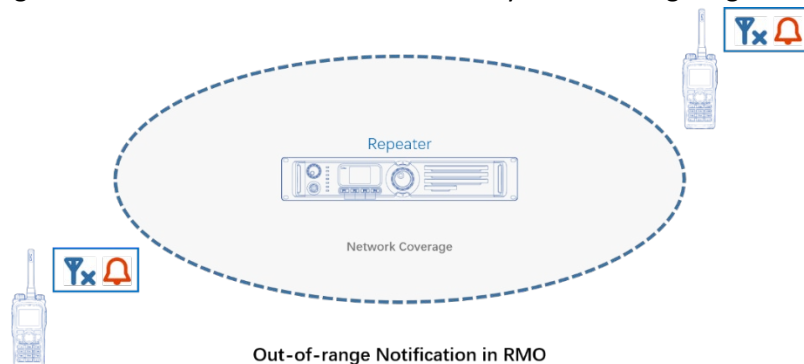
Operation Mode: Repeater Mode (Tier II) and Trunking Mode (Tier III)

The enhanced Mode Switch feature enables a radio to switch between trunking and conventional mode of operation, by simply pressing a button or twisting the channel knob, without the radio restarting. During this process, registration and deregistration on the trunking system is done automatically. Over-the-air authentication of the terminal is maintained.

8. Out-of-Range Notification

Operation Mode: Repeater Mode (Tier II)

Out-of-Range notification is now available on a radio operating in Repeater Mode (RMO), or conventional repeater. The radio is notified via an alert when it leaves the coverage footprint of the repeater, thus providing the user continued notification that they are in talking range of the repeater.



9. Automatic Power Adjustment

Operation Mode: Repeater Mode (Tier II) and XPT Pseudo Trunking

The Automatic Power Adjustment feature optimizes power consumption of the radio and further improves battery life. With this feature enabled, the radio's transmit power is automatically adjusted according to repeater RSSI, which is detected while the radio is transmitting. Based on the detected repeater RSSI, the radio automatically increases or decreases its transmit power.

The PD982i can switch between three (3) levels, high, middle and low. All other radios offer two (2) levels, high and low.

10. Fusion System

Operation Mode: Repeater Mode (Tier II) and XPT Pseudo Trunking

Many users need communications across different systems, such as IP Site Connect system and XPT Trunking system.

With this feature enabled, the repeater maps a group call or private call into a system ID according to the Mapping Table, and then sends the system ID to another repeater in the other system. This repeater decodes the system ID according to the local number scheme for repeating.

