

# THE NEW GENERATION OF DMR

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*HYTERA R9.0 FIRMWARE*



Hytera 

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# INTRODUCING THE NEW GENERATION OF DMR RADIOS

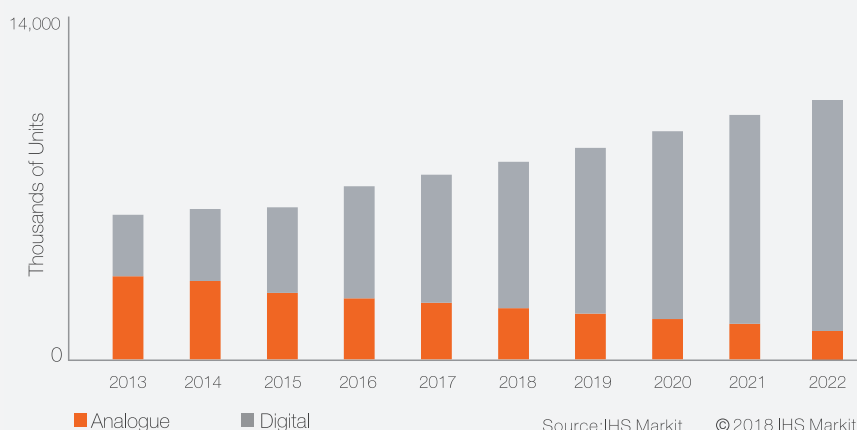
Hytera has launched a new generation of innovative features for its Digital Mobile Radio (DMR) portfolio including repeaters, mobile and portable radios, with the introduction of the new R9.0 firmware. These exciting new features are designed to both enhance the user experience and provide greater versatility.

DMR is an open standard developed by the European Telecommunications Standards Institute (ETSI), which is now widely accepted across the globe. Analyst firm IHS Markit reports that cost-optimized digital technologies (e.g. DMR, NXDN and PDT) are the fastest-growing digital licensed mobile radio (LMR) technology and are expected to remain so at least until 2022, as global LMR users continue to migrate to digital.

IHS states that deployments increased by 16 percent in 2017, reaching more than \$1 billion in revenue, compared with an average of 7 percent growth for the overall LMR market. More than three million users adopted cost-optimized digital technologies for the first time in 2017, and the installed base of these types of solutions is predicted to more than double between 2017 and 2022.

IHS Markit notes that digital LMR users outnumbered analog users for the first time in 2017. However, there still remains a huge opportunity for the market to convert to digital. The largest markets in 2017 were North America and Asia. Transportation, utilities and the industrial sector are the largest adopters of the technology in developed regions, while in developing regions it is also used by public safety and security organizations.

Shipments of Terminals by Technology - World



Despite the emergence of LTE and next-generation mobile broadband technology, IHS Markit projects LMR adoption will continue to grow. It believes that over the next few years LTE will complement critical voice with data, rather than replace LMR altogether. Only in the medium- to long-term of five to ten years will LTE substitute for TETRA, TETRAPOL and other high-end LMR technologies.

# R9.0 FIRMWARE

However, many businesses and non-public safety related organizations are to continue to want to use DMR, as it provides a cost-effective communications solution that is simple to use and easy to deploy. It enables customers to implement coverage and capacity exactly where it is needed, as well as providing a highly robust, resilient and secure communication system. Above all, the owner/operator is in full control of the system.

There is no question that 4G LTE cellular technology is a more efficient bearer than DMR for fast broadband applications. But LTE subscribers are largely reliant on 'best effort' networks provided by commercial mobile phone operators. End users have no control over the coverage, capacity, availability, resilience and security of the LTE network even if they opt for the wider functionality of push-to-talk over cellular (PoC).

The appeal of DMR is further enhanced by Hytera's latest innovations. For example, Hytera has now extended the ability to make full duplex calls to Repeater Mode Operation (RMO) and Direct Mode Operation (OMO). No investment in additional hardware is required. Users can remain 'hands-free' and get on with their jobs while making long calls.

Hytera is offering an Advanced Back-to-Back Connection, which sends not only audio, but also signaling and data. It has also added over-the-air programming (OTAP) for conventional repeater systems, allowing DMR Tier II users to change terminal configurations.

Another useful feature is of/line GPS Data Storage. Radio models with micro SD cards can now store GPS data of/line when the terminal is outside of system coverage. Once back in the office, the data can be easily exported to the dispatch system to retain an accurate record of the radio's history.

Enhanced Quick GPS enables compressed GPS data to be packaged into a single frame thereby tripling the capacity of DMR Tier II systems from 180 units/min to 450 units/min. This improves channel efficiency for data and reduces the cost of hardware.

Optimized Push-to-Talk is a further new feature that enables the user to begin speaking before the call is established. Users can therefore speak before hearing the 'go-ahead tone'. The feature also enhances the handover function when the radio switches between sites in Tier III trunking systems.

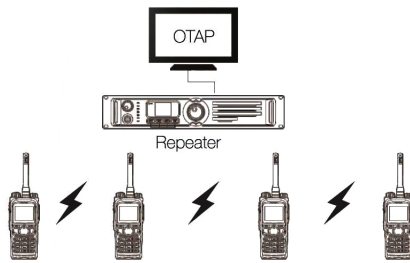
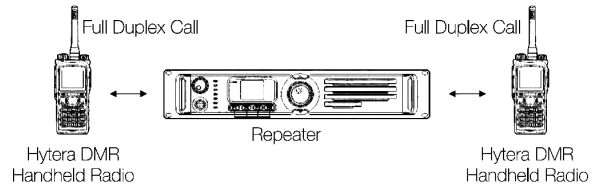
Hytera has also made it easy to switch between trunking and conventional modes without having to restart the session by either pressing a single button or turning the channel knob. Finally, Hytera has added an out-of-range notification in RMO to notify users if they go out of repeater coverage. The alert tone lets them know if they are within range.

These exciting next generation features will greatly enhance the versatility and functionality of your DMR system aiding performance and productivity without putting a strain on your communications budget.

# R9.0 FIRMWARE NEW FEATURES

## 01

Full Duplex Call in RMO: Simultaneous voice transmission and reception in full duplex call now is available in Repeater Mode Operation (RMO) and Direct Mode Operation (OMO). It greatly enlarges full-duplex coverage beyond Trunking Mode Operation (TMO); long calls are made hands-free and much more efficiently between radios, and even between radios and phones.

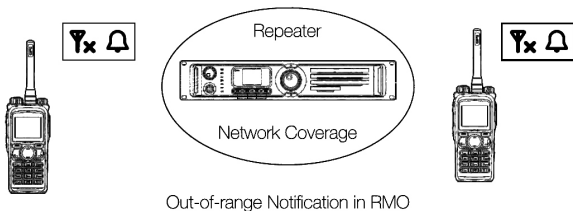
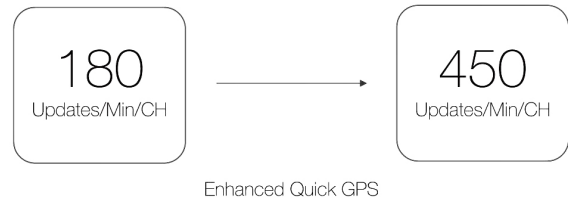


## 02

OTAP for Conventional Repeater System: Over the Air Programming modifies the parameters of remote terminals through the air interface signaling, including digital conventional channel parameters and part parameters of the terminal. It saves time and manpower to operate and maintain a radio system.

## 03

Enhanced Quick GPS: Compressed GPS data can be packaged in a single frame to greatly increase the capacity up to 450 units/min, which is tripled in DMR Tier II system. This enhancement improves channel efficiency for data and reduce hardware cost.

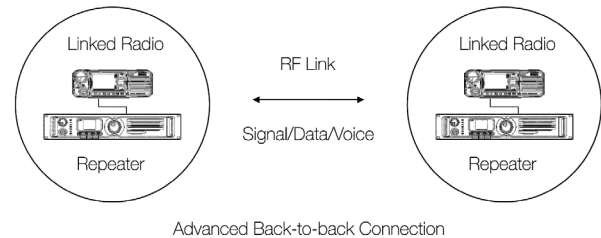


## 04

Out-of-range Notification in RMO: A radio is always notified when it has left the repeater coverage. The users can realize if they are in the talk range all the time by paying attention to the alert tone.

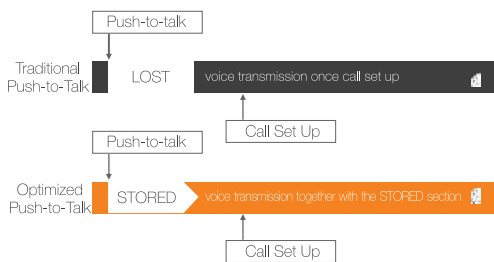
## 05

**Advanced Back-to-back Connection:** More powerful than traditional back-to-back connection, this new feature sends not only audio, but also signaling and data. With the Advanced Back-to-back Connection, a radio receives a bunch of cross patch calls from another system, recognizing the PTT ID and receive text messages from initiator. It also establishes remote RF link between sites; through serial port back-to-back connection to repeater, the mobile transmits signal, data and voice. Data relays through serial port interconnection between the mobile and repeater. With this new feature, Hytera control station can provide RF link for the repeater network when there is no solid backhaul connection.



## 06

**Optimized Push-to-talk:** It allows a radio to set up audio buffer and store what the user speaks before the call is established. Then it sends the stored audio together with the coming real-time audio after the call is established. Therefore, users can talk right after pressing PTT without waiting for the “go-ahead tone”. This feature also enhances the handover function without dropping communications in Tier III system during sites switch.



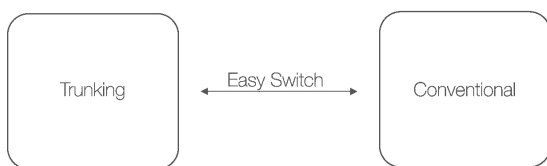
## 07

**Offline GPS Data Storage:** The radio model with micro SD card inside can store offline GPS data now when you are not in the system coverage. Getting back to the office, it's quite easy to export the offline data to the dispatch system to record the history track of a radio.



## 08

**Trunking & Conventional Switch:** By pressing a single button or twisting the channel knob, it enables radios to be switched between trunking and conventional mode without restarting. During this process, registration & deregistration in trunking system is done automatically, and over the air authentication is still available.





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