

# *Hytera DMR Solution Enhances Safety and Efficiency Across 140+ Mines in South Korea*



## Introduction

The Government of South Korea launched an initiative to improve safety and operational efficiency in the country's mining industry via the deployment of reliable digital communications. Hytera deployed its Digital Mobile Radio (DMR) communication solution in around 140 medium to large mines. The project established a reliable communication network by integrating DMR repeaters with an IP network optimized for mining conditions. Additionally, Hytera provided miners with DMR portable radios and vehicle radios, which enable seamless wireless roaming, ensuring stable and uninterrupted communication and a safer working environment.

## The Background

The Korea Mine Rehabilitation and Mineral Resources Corporation (KOMIR) is a state-owned agency under the Ministry of Trade, Industry and Energy. It was established in 2021 to manage mineral resources and mine reclamation

### Project Name

South Korean Mining Enterprises  
DMR Radio Project

### Client Name

South Korean Mining Enterprises

### Project Start/End Dates

October 2022 – Ongoing

### Industry

Mining

### Products/Solutions

HR658 DMR Repeater  
HR1068 Ultra-thin DMR Repeater  
RD988 DMR Repeater  
BP568 DMR Portable Radios  
HP608 DMR Portable Radios  
HM658 DMR Mobile Radios

policies in South Korea. As part of its remit, KOMIR manages a subsidy program launched by the Korean government to tackle the two critical challenges facing the mining industry: improving safety; and, enhancing operational efficiency. The program aims to prevent serious industrial accidents and strengthen real-time safety management in mining sites. New communication and safety monitoring solutions are a key part of this initiative.



## The Challenge

Due to the nature of underground operations, mining sites experience extensive radio signal coverage dead zones. This makes it difficult to manage safety and ensure efficient teamwork using conventional analog two-way radios or LTE-based broadband communication systems.

These types of radio systems suffer from unstable connectivity, insufficient audio volume and limited coverage. The lack of comprehensive coverage throughout mines causes communication dead zones in tunnels and underground spaces, which can lead to delays in emergency response. Dropped calls occur frequently as miners and vehicles move about, resulting in inefficient command and control of operations.

Older radio systems also suffer from noise interference issues, delivering poor audibility, particularly in high-noise and dusty environments. It was apparent that the lack of a unified, scalable communication solution applicable across multiple mines nationwide meant there was a strong need for a standardized solution.

Furthermore, quite apart from the need to improve operational efficiency, immediate and reliable voice communications were also deemed essential to prevent accidents. To overcome these challenges, the Korean government initiated the subsidy-supported project to implement a digital wireless communication infrastructure across the country's mining sites.

## The Solution

Hytera was selected to undertake the project, which covered approximately 140 medium- and large-scale mines across South Korea. To address the challenge, Hytera implemented a comprehensive Digital Mobile Radio (DMR) solution.



The two-way radio network included the deployment of around 140 HR1068/ RD988 and 300 HR658 DMR IP-linked repeater units, which were installed in underground tunnels and across key operational zones. The repeaters were interconnected via IP-links to ensure wide network coverage and seamless roaming communications.

Hytera also supplied approximately 500 BP568/HP608 DMR handheld portable radios equipped with high-output speakers for clear audio in noisy environments, along with long-lasting batteries to support extended shifts. Some 40 HM658 DMR mobile radios were installed in transport and heavy-duty vehicles, enabling stable communication even when moving between underground and surface areas.



## The Benefits

### Enhanced Safety

Mines are inherently dangerous working environments, but the DMR radios enable a faster emergency response through instant PTT group calls and real-time worker location tracking, so help can be sent to exactly the right place and delays are avoided.

### Improved Operational Efficiency

The DMR network supports smooth and reliable communications between on-site workers and vehicle operators, increasing operational efficiency and boosting overall productivity.

### Nationwide Expansion

The DMR technology has now been successfully deployed in about 140 mid- to large-scale mines and there are plans to expand the network to smaller mine sites.

### Sustainable Scalability

The DMR infrastructure is fully capable of supporting future mine expansion plans and technology upgrades to deliver greater safety and reliability.

### Loud and Clear Audio

Mines are noisy environments and it is vital that workers can clearly hear instructions or warnings over the radio. Hytera BP568 portable radios feature a 3W loudspeaker with a loudness of up to 90dB and intelligent noise reduction and howling suppression technology.

## Products

- HR658 DMR Repeaters
- HR1068 Ultra-thin DMR Repeater
- RD988 DMR Repeaters
- BP568 DMR Portable Radios
- HP608 DMR Portable Radios
- HM658 DMR Mobile Radios



## Conclusion

Underground mines are particularly difficult environments within which to provide reliable radio communications. However, DMR two-way radio technology enables the RF design to be specifically tailored to each individual mine site's surface buildings and infrastructure, shafts, tunnels and excavation faces to ensure reliable coverage everywhere. IP-links enable individual repeaters to be interconnected across entire regions and beyond. These private radio networks are highly resilient with many redundancy features built in. This enhances operational efficiency and improves safety by delivering early warnings of trouble and speeding up the emergency response.

## Customer Testimonial

*"After adopting Hytera's HR658, HR1068 and RD988 repeaters along with HP608, BP568 and HM658 radios, we achieved seamless communication even deep underground. The IP-based roaming allows workers to move around freely without losing connection. Despite the high-noise environment, the loud and clear audio resolved our communication issues completely. Most importantly, our emergency response time has significantly improved, elevating the overall safety management level at our mining sites."*

— Hong-ki Kim, CEO of Paran



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