

# Hytera DMR Simulcast System Improves Services for South Korean Fire Department

## User

Fire Department, Jeollanam-do Province,  
South Korea

## Industry

Public Safety

## Project time

2017-2020

## Products

DMR PD988 and PD668 hand portable radios  
DMR MD788 mobile radios  
DMR DS6310 base stations  
Mobile Switching Office (MSO)  
Network Management System (NMS)  
SmartOne Unified Communication Platform



## Introduction >>

Hytera replaced the Jeollanam-do Fire Department's old analog network with a DMR Simulcast Solution. This made better use of limited existing spectrum and supported a much wider range of features and functionalities to deliver a more efficient service.

## Background >>

Jeollanam-do, also known as Jeonnam, is a province located at the south Korea with Muan County as its capital. It has a population of 1,902,324 (3.9% of the national population). The coastline includes 2,000 islands, three-quarters of which are uninhabited. The population density is 162 per Square kilometer, which means public safety organizations need long distance communications.

The Jeollanam-do Fire Headquarters is an administrative agency overseeing fire response in the province. It is responsible for fire suppression and rescue, relief of emergency patients, prevention of disaster, disaster response, and providing recovery after a disaster occurs. To ensure an effective response to any situation the Fire Department requires a reliable communications platform to be able to efficiently command and coordinate the various departments.

DS6310 base stations





## The Challenge >>

The Jeonnam Fire Department's existing radio communications solution was based on out-of-date analog technology. The system did not have enough radio spectrum to support an adequate number of radio channels. It was also not able to provide an all-channel call network. In addition, the analog technology could only support a limited number of functions. This made it difficult to provide efficient management of staff when responding to incidents and it also resulted in high network operating costs.

## The Solution >>

The decision was made to upgrade to a digital two-way radio system. A Hytera Digital Mobile Radio (DMR) Simulcast System solution was chosen. The simulcast system comprises DS-6310 base stations and Mobile Switching Offices (MSO) each capable of controlling 100 base stations. The individual network constituents are connected with each other via an IP transport network.

The great advantage of simulcast technology is that it enables organizations with limited amounts of radio spectrum to increase network capacity by simultaneously broadcasting the same signal across multiple overlapping sites on the same frequency. The solution also delivers reliable DMR radio coverage over large areas, such as across Jeollanam-do Province.

The Fire Department also installed a Hytera SmartOne Unified Communication Platform and Network Management System (NMS). The solution provides the all-channel network the customer required, as well as supporting a much increased range of services, including dispatch, interconnection with and unified management of, other networks and technologies.

Hytera also supplied 3,000 DMR PD988 and PD688 hand portable radios and MD788 mobile radios.

## The Results >>

The Hytera Simulcast Solution successfully converted the existing analog radio frequency spectrum to digital to provide wider coverage, including over the complete road network and linking up all the individual fire stations across the province.

The adoption of a digital solution meant the fire service was able to take advantage of the much richer functionality and variety of services provided by digital. The DMR solution provided improved sound quality, a greater variety of voice calls, encryption, remote monitoring capability, GPS positioning and so on.

The DMR network combined with the SmartOne platform enabled all the fire stations across the province to be interconnected, as well as being able to work independently of each other. The global network enabled unified scheduling and unified management of all the Fire Department's resources to provide a much more efficient and coordinated response to any incident or emergency situation.

## Voice from Customer >>

*"It is really hard to imagine that the whole network and the global network can be established with so few frequency points."*

*"The simultaneous broadcasting system is much easier to use than analog. It not only has clear sound quality, but also has rich functions, which can improve efficiency and better management."*



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