



TETRA Provides Trusted Communications Platform for Hong Kong International Airport

Airport deploys TETRA Digital Radio System for Mission-critical Communications



With close to 48 million passengers passing through its gates in 2007, the Hong Kong International Airport (HKIA) is one of the busiest aviation and logistic hubs in Asia and the world. Operated and maintained by the Airport Authority Hong Kong (AA), the Airport links Hong Kong with more than 150 destinations around the world, including some 40 cities on the Chinese Mainland, and sees some 800 aircraft movements every day. As one of the busiest international cargo facility in the world, HKIA facilitates over 3.7 million tonnes of air cargo passing through Hong Kong in the same year.

One of the fundamental factors for the Airport's success is a firm commitment to providing passengers with customer-focused world class facilities and services, with a heavy emphasis on the efficient turnaround of both passengers and cargo. With the sheer volume of passengers and cargo being managed around-the-clock, there was a strong impetus to constantly improve the quality standards, productivity and efficiency of HKIA's operations and systems – in short, the best airport experience.

The Challenge: Providing a Reliable, Trusted Communications Platform

Charged with the mandate to maximize the value of Hong Kong International Airport (HKIA) for the benefit of the territory, the Airport Authority (AA) is driven to uphold high standards in safety and security, as well as foster a culture of innovation.

Given that the Airport was being serviced with an analogue trunked radio system that was put in place 10 years ago, AA started looking for a new digital solution that can meet the stringent requirements and operational needs of HKIA.

Additionally, modern air travel hubs like HKIA require highly sophisticated communications solutions to manage and cope with the complex network of commuting systems that range from airport operations to ground transportation serving the airport itself. These systems need a high level of security, safety and efficiency to function effectively.

Reliable communications is thus vital in ensuring efficient operations and optimal coordination of resources across wide and diverse groups of users on the ground, inside the building and in airside operations – such as airport management, government officials, security staff, airline operators and apron control.

It was clear that any new system would have to dramatically improve the overall communications within the airport and its overall efficiency. The system had to provide first-rate coverage both indoors and outside to support apron operations. It needed to be secure and highly resilient and must support both voice and data communications. In addition, AA required the re-use of the existing radio frequency distribution system to minimize any disruption to passenger flow and changes to the aesthetics in the terminal buildings.



“Hong Kong International Airport (HKIA) needs a trusted radio platform which users with mission-critical responsibilities in the airport can deploy easily, and Motorola had the necessary product range and expertise to implement such a large-scale project smoothly. As the operator for one of the busiest airports in the world, we are always looking to improve our operations so that our passengers, customers and business partners get the best air transportation experience.”

Ricky W K Leung
General Manager,
Technical Services
Hong Kong
Airport Authority

The Solution: Using TETRA for HKIA Communications

To address its demands for reliability and security, AA decided to deploy Motorola’s TETRA (TErrestrial Trunked RAdio) digital radio system. The solution used was the Dimetra IP system, the latest in TETRA technology that would provide HKIA with more efficient and failsafe radio communications.

A Digital Trunked Radio System (DTRS) such as TETRA makes an ideal communication backbone for efficient airport communications. TETRA is based on open standards for digital mobile communications established by the European Telecommunications Standards Institute (ETSI) and has become the de-facto professional radio standard for integrated mobile voice and data communications. TETRA-based systems offer high flexibility and scalability; as well as a secure environment for routine daily communication requirements. In addition, their highly resilient architecture can form the heart of a swift and efficient response network during a crisis such as a terrorist attack or major incident.

For airport operators, efficient and failsafe communications are crucial to ensuring passenger safety and security. This was a major factor why AA opted to go for a TETRA digital trunking system to support their critical communications.

Motorola’s solution comprises an upgrade of the existing analogue system to the Motorola Dimetra IP system that supports simultaneous voice and messaging, multi slot packet data (MSPD), telephone interconnect, voice logging and encryption. Through just one integrated communications platform, HKIA is now able to provide seamless communications and full

interoperability across users in airport operations such as airport security, operations maintenance, baggage handling and other ground handling services.

The system consists of three base stations, eight dispatch consoles and will support over thousands of subscribers and users. The system went live by September 2008, with refinements to be added over the years and/or as new requirements surface. Motorola will also provide first-year on-site maintenance service, including training HKIA personnel to operate and manage the system.

According to Ricky W K Leung, General Manager, Technical Services of Airport Authority Hong Kong (AA), the decision to partner with Motorola was in part due to Motorola’s extensive experience and heritage in public safety deployment and leading position within the TETRA market. “HKIA needs a trusted radio platform which users with mission-critical responsibilities in the airport can deploy easily, and Motorola had the necessary product range and expertise to implement such a large-scale project smoothly,” said Mr. Leung.

“As the operator for one of the busiest airports in the world, we are always looking to improve our operations so that our passengers, customers and business partners get the best air transportation experience.” Mr. Leung added.

Motorola has already been providing resilient communications solutions to support airport operations such as fleet, cargo and logistics management for many years. A typical Motorola TETRA system - a combination of an IP-based TETRA switch, and Base Stations - provides optimum network coverage across airport operations.



Motorola's comprehensive range of TETRA radio terminals including handheld radios and mobile radios offer advanced communications features to harness both the voice and data capabilities of Motorola's IP-based TETRA systems, including integrated GPS receivers which can enable the location of users to be monitored to enhance safety and operational efficiency. Due to the sophisticated voice technology that is implemented in TETRA, the loud background noise typical at airports will hardly interfere with the voice communications among the TETRA radio system users. In addition to voice, Motorola's TETRA solutions enable secure data communication and are scalable to support future network growth.

Benefits of the TETRA solution

After the Dimetra IP system started operation in September 2008, AA received feedback from users commenting on the great improvements in size and weight of the portable digital radio sets. There were also positive reactions on the clear digital audio quality and the tremendous capacity for value-added applications.

Coverage has been significantly improved, especially for indoor locations. The system is also equipped with encryption capabilities for high level security communications.

In addition, AA will also be considering the adoption of value-added airport applications such as remote access to flight schedules and location tracking services.

"Airport operators worldwide are looking for efficient and reliable communications to improve operating efficiency and ensure passenger safety and security standards. The Hong Kong International Airport's decision to go with Motorola as the provider of TETRA radio communications solutions demonstrates the growing demand for Motorola TETRA solutions in the industrial, commercial and transportation markets," said Phey Teck Moh, vice president, Motorola Government and Public Safety, Asia Pacific.

More than 80 airports, including many of the busiest airports worldwide, have used Motorola's radio communications solutions specially tailored for the airport environment. In Asia, major airports such as the new Bangkok International Airport (Suvarnabhumi) in Thailand, Kuala Lumpur International Airport in Malaysia and more than 20 airports in China are using Motorola radio communications solutions.

In Hong Kong, Motorola has implemented other TETRA systems in various industries including rail, seaports and the government. Through cutting edge IP-based solutions Motorola is leading the development and deployment of interoperable, scalable TETRA solutions that seamlessly connect people, assets and information to grow businesses, and increase efficiency and customer satisfaction.

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**Phey Teck Moh
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