Hytera TETRA System Gets New Indonesian Airport Off to A Flying Start

* Aerial view of Dhoho airport

Introduction

Dhoho International Airport is currently being developed on the island of Java in Indonesia. PT Angkasa Pura I, the airport operator, needed a highly reliable radio network capable of handling large numbers of users and multiple talk groups to ensure the airport could operate efficiently and safely. Hytera supplied a TETRA two-way radio network, radio terminals and SmartOne Dispatch system, along with gateways to interconnect with PSTN telephone systems to provide a flexible and reliable solution.

The Background

Dhoho International Airport is the first privately developed airport in Indonesia. The airport is currently under construction at Kediri, 150 km south-west of Surabaya, on the island of Java. The airport is being developed in three phases under a public-private partnership scheme with a concession period of 30 to 50 years. PT Gudang Garam, a Kediri-based cigarette manufacturer, is developing the airport through its subsidiary PT Surya Dhoho Investama.

User Name
PT Angkasa Pura I

Time
2023 – work ongoing

Industry
Aviation

Products
- ACCESSNET®-T IP TETRA Communication System
- Network Management System (NMS)
- DIB-R5 Advanced TETRA Base Station
- SmartOne Dispatch System for TETRA
- Multimedia Recording and Playback System (MRPS)
- PT580H Plus Hand Portable Radios
- PT790Ex Intrinsically Safe Hand Portable Radios
- MT680 Plus Mobile Radios
- PSTN/SIP Gateway System

PT Gudang Garam also owns an airline called Surya Air, which is planning to use the new airport as its main hub. After completion the airport will be managed by the state-owned airport operator PT Angkasa Pura I, while PT Sinergi Teknoglobal Perkasa will manage and oversee the security and communication systems at Dhoho International Airport.

The Challenge

The airfield and associated buildings cover a vast area totalling some 330 hectares. Given the size of the airport, it is essential that a reliable communications system is deployed to support the many operational requirements and enhance airport security.

The customer was looking for an integrated solution that not only provided robust emergency call capabilities, but one that also ensured seamless communications for a diverse user base across multiple talk groups. Airports are like small cities and a very wide range of departments and job roles need access to reliable, instant group, individual, broadcast and emergency calling facilities.

As there is limited availability of frequency licences within the airport area, it is of the utmost importance that any communication solution has the flexibility to scale up frequency arrangements to cope with increases in user capacity and radio traffic.

The radio system also needed to incorporate robust redundancy measures to boost reliability and minimize potential disruptions by ensuring the resilience of both the physical network infrastructure and the overall system architecture.

The Solution

Hytera proposed a TETRA two-way radio system as the best solution for ensuring resilient communications and to enhance security and operational efficiency throughout the airport. Following implementation of the system, Hytera will also provide comprehensive ongoing technical support and maintenance services.

The Hytera ACCESSNET-T IP mobile radio system for Dhoho Airport consists of a TETRA Advanced DIB-R5 base station. Flexibility is ensured as up to four additional Channel Units (transceivers) can be added in one rack (up to eight carriers can be supported with an extension rack) to increase capacity if more users are added to the system.

System redundancy is ensured by implementing geographically separate IP Network (IPN) sites. Even if one IPN site fails, the system will be supported by other IPN sites to ensure continuous radio operation.

Hytera also implemented a SmartOne Dispatch system, which provides a unified communication platform able to combine a variety of professional functions, such as dispatching, voice recording, AVL and camera monitoring, using one intelligent interface.

Hytera also supplied TETRA terminals including the Hytera PT580H Plus and PT790Ex handheld radios, and the MT680 Plus mobile radio for vehicles and desks. The PT580H Plus is an extremely durable and robust radio with IP67-rated protection against dust and water ingress. It features an advanced audio chip with the latest noise-cancelling capability.

The PT790Ex is an intrinsically safe radio for use in potentially explosive environments. It meets the highest intrinsic safety level "ia", so it can be used in areas in which an explosive atmosphere containing a mix of air and combustible gases, vapours or mists are permanently present (Zone 0). This makes it the ideal choice for airport fire services and aircraft refuelling staff.

The Benefits

Secure Transmissions
End-to-end security is provided by TETRA encryption ciphers, including E2EE and AIE, as well as rigorous user authentication procedures, so only authorised users can access the network.

System Redundancy
The network aims to ensure continuous voice and data communication without any disruptions or failures at each site due to the high levels of redundancy built into the radio system.

SmartOne Dispatch
The SmartOne Dispatch solution ensures all radios are centralized and monitored on a single dashboard. It not only facilitates audio communication and messaging/data communication, but also enables the tracking of the location of each radio via built-in GPS positioning technology. The multimedia recording and playback system (MRPS) logs all calls and texts and enables them to be played back for post-incident analysis and training.

Products

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TETRA Radio Connect to PSTN

The radios located within the airport area are connected to the central system allowing them to easily make calls to external networks via a PSTN/SIP gateway. This enables the radios to make calls not only to in-airport fixed telephone users, but also to external emergency centres such as the fire department, police and hospitals.

Interface to Other Systems

One of the strong points of the Hytera solution is that it allows voice and message services to be transmitted between the TETRA network and other networks. This can be achieved by connecting the customer's existing mobile radio terminal to a Hytera multi-functional server equipped with a A-CAPI (ACCESSNET-T Common Application Programming Interface) software interface.

Enhanced Worker Safety

In addition to the priority and emergency calling features, workers get enhanced protection with the PT580H Plus and PT790Ex handheld radios, as they are also fitted with lone worker and man down alerts, and emergency alarm features.

The overall Hytera TETRA solution was specifically designed to provide critical communications users with a highly reliable, highly available and highly secure private radio system, ensuring Dhoho airport meets its demanding operational schedules.

Combined with the flexibility of TETRA system, which allows it to connect to other communications technologies such as PSTN networks, and the SmartOne Dispatch platform that enables intuitive and rapid dispatch, the solution is poised to significantly enhance the efficiency and security of Dhoho airport.

Hytera
Respond & Achieve

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