Hytera DS-6210 DMR Trunking Pro

- Enhanced Capacity
- Extended Coverage
- High Security
- Field Proven Reliability

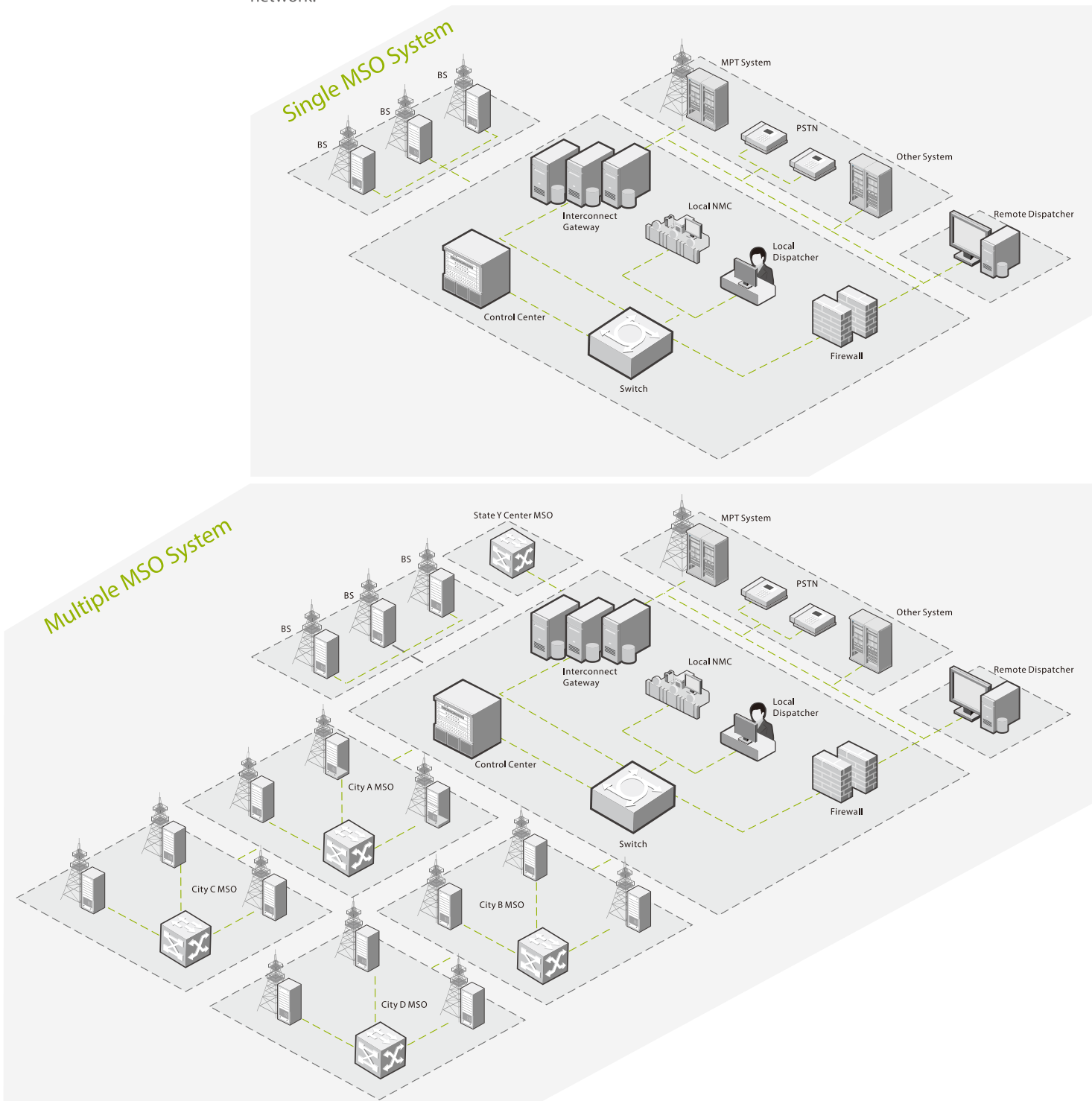**DMR**
DIGITAL MOBILE RADIO ASSOCIATION

System Overview

Hytera DS-6210 DMR Trunking Pro , developed from ETSI DMR open standard, is an IP-based Digital Trunked System Infrastructure specifically designed to provide mission critical voice, dispatching and management capacity across various geographic areas. With all-IP architecture, centralized networking and modular design, the system delivers the solution with high spectrum efficiency, wide coverage, flexible networking, cost effective and high security. The trunking system network scale can be from a single site network to nationalwide network.

System Structure ⟩⟩

The Hytera DMR Trunking Pro logically consists of base station system, service terminal, bearer network and mobile switching office (MSO). One MSO supports up to 256 base stations, 2048 carriers. A single base station supports up to 16 carriers.

Multiple MSOs can interconnect with each other via IP bearer network so as to build a large scale network.

Single MSO System

BS
BS
BS
MPT System
PSTN
Other System
Interconnect Gateway
Local NMC
Local Dispatcher
Remote Dispatcher
Control Center
Switch
Firewall

Multiple MSO System

State Y Center MSO
BS
BS
BS
MPT System
PSTN
Other System
Interconnect Gateway
Local NMC
Local Dispatcher
Remote Dispatcher
Control Center
Switch
Firewall
City A MSO
City C MSO
City B MSO
City D MSO

As the core of Hytera DMR Trunking Pro , MSO comprises a wide array of subsystems to enrich the application functions, such as Network Management System (NMS), Dispatching System and Digital Voice Recording System (DVRS).

System Key Features ⯈⯈

① Superior Reliability

● Modularized design and multi-level fault-tolerant capability for enhanced reliability and efficiency.

● MSO supports local and geography redundancy mechanism. When one fails, the other one can take over its services immediately.

● Interference monitoring and link detection features guarantee the high performance of the system.

● Redundancy capability for key hardware components such as base station control unit, trunking main control channel and power supply unit.

② Versatile Services

● Registration/deregistration/periodic registration, handover/roaming, subscriber area restriction,control channel reselection, etc.

● Data services: text message, GPS data polling, status message, emergency alarm, etc.

● Advanced services: late entry, ambience listening, discreet listening, interrupt/override, dynamic group number assignment, voice recording, remote monitor, include call, super group call, OTAP, Vote now, Group patching, etc.

● Voice services: individual call, group call, emergency call, broadcast call, all call, dispatcher call, PSTN call, MPT call, DMR conventional call, analog conventional call, full duplex individual call, etc.

● Security services: ESN check, authentication, stun/revive, kill, end-to-end encryption, etc.

● Providing AIS and API for further development, such as customized dispatcher, billing system, etc..

● Multiple dialing scheme: DMR dial scheme, MPT1343 dial scheme, CPS-P3 dial scheme.

③ Wider Coverage

- Fully Compliant with DMR Tier 3 technology which born with the advantage of wider coverage over other technologies.

- Non-linear amplifier.

- Innovative triple-diversity receiving technology with 3-5dB gain.

④ Flexible Networking

- The IP-based architecture enables flexible networking.

- Different gateways are provided to connect with other system, such as PSTN, MPT, Tetra, FM, DMR conventional, etc.

⑤ Powerful Dispatching Capability

- The Client/Server structure ensures networking and expanding capabilities.

- GPS visual dispatching system.

- User-friendly operation interface and versatile functions.

⑥ High Spectrum Efficiency

- 2-Slot TDMA technology.

- DMR trunking simulcast feature enable the same frequency used for the whole network.

Base Station ⯈⯈

Overview

Powered by cutting-edge technology and versatile functions, Hytera DMR Trunking Pro base station offers refreshing communication experience with ultimate reliability and scalability.

Base Station Components

❶ Channel Unit (CHU)
❷ Base Station Control Unit (BSCU)
❸ Power Supply Unit (PSU)
❹ Fan Unit (FAN)
❺ Divider Unit (DIU)
❻ Router
❼ Combiner Unit (COM)
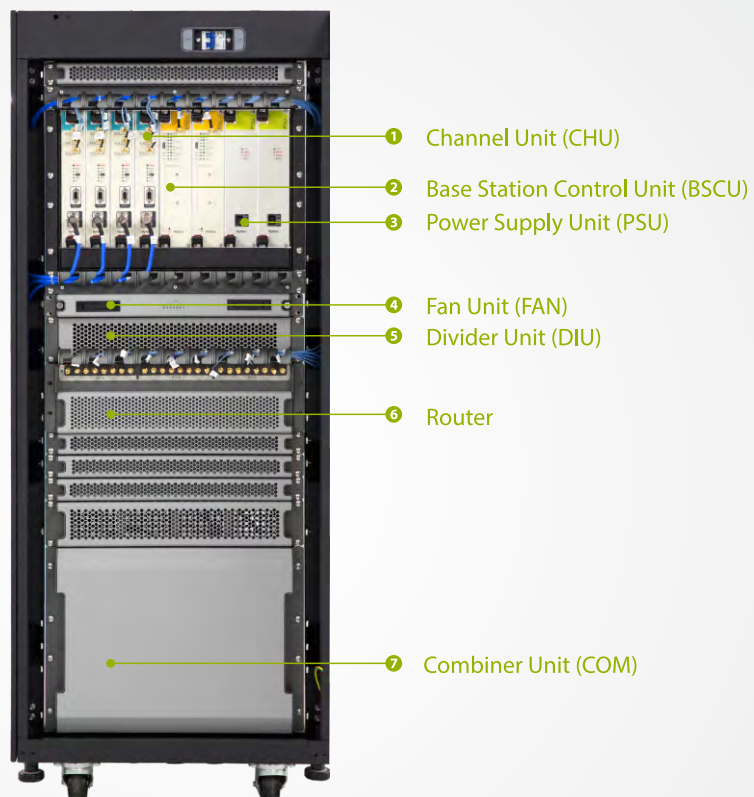
Highlights

Innovative Design

● Blade structure to facilitate O&M and enhance cooling performance.

● Modularized design for customization.

● Triple diversity technology to increase dynamic receiving sensitivity.

● Input & output alarm port.

High Reliability

● Modularized design and fault-tolerant capability to significantly enhance reliability and efficiency.

● The redundancy mechanism is employed for key devices such as the base station control unit (hot standby), trunking channel unit, power supply unit, link, etc.

Network Management System ▷▷

Overview

Network Management System (NMS) is composed of the server and network management client (NMC).
It supports management, monitoring, operation and maintenance functions for the DMR Trunking Pro system.

Key Features

● Provide a complete management capabilities such as subscriber management, configuration management, fault management, security management, topology management and performance statistics.

● Support SNMP to facilitate integration into different NMS as required; adopt C/S structure to support multi-user operation in complex and large networks.

● Easy maintenance with remote upgrade, OTAP, IP link detection, system health monitoring, etc.
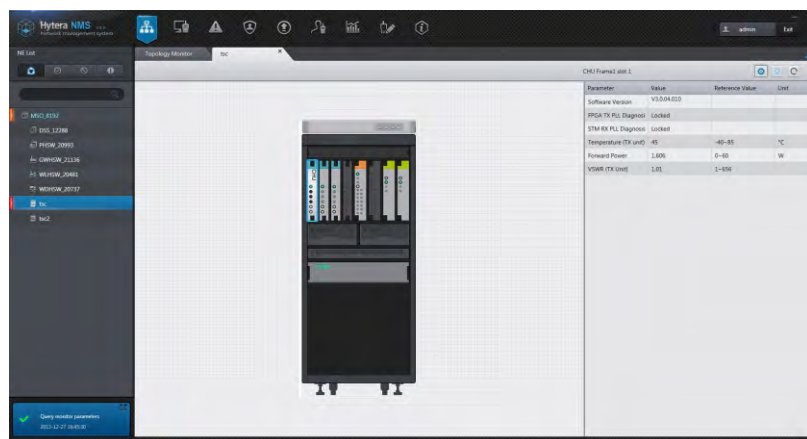
Dispatching System ⥤

Overview

Dispatch Workstation(DWS) is composed of modules such as dispatch sever and dispatch clients. As a part of the Hytera DMR Trunking Pro , the dispatching system provides basic voice services such as individual calls and group calls. By maximizing the benefits of digital trunking and incorporating data services (SMS, status message, and GPS data) with voice dispatching capability, the system enables the Hytera DMR Trunking Pro to deliver enhanced dispatching capabilities for professional users in public security, public utility, enterprise and business .

Key Features

- Voice call
  - Support versatile voice calls, including individule call, group call, broadcast call, PSTN call, PABX call and all call.
  - Support group call late-entry and emergency call.
  - Detailed call history to record call parties.
  - Various indicating sound & light.

- Text message
  Support predefined text message, status message, text messaging group sending; message template and emergency messaging.

- External call
  Support calls between dispatchers.

- Advanced function
  Support DGNA,Group patch, multi-select call,automatic voice recording, channel monitor,RSSI Report, etc.

- The system supports external tools like multi-touch touch screen, foot-tap PTT, and microphone with PTT.

- Automatic Vehicle Location (AVL)
  - GIS map load & display.
  - Terminal location tracking & display.
  - Track playback.
  - Geo-fencing.

- Security Services
  Supports Kill / Stun / Revive, ambience listening, discreet listening, interrupt / override,end to end encryption, etc.

Main Interface

AVL Interface
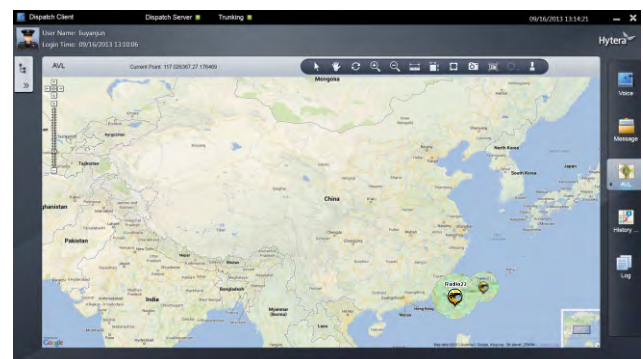
Digital Voice Recording System ⋙

Overview

Digital Voice Recording System(DVRS) is a recording solution based on IP network. The voice recording capacity is huge, which can record both voice and SMS conversations over the whole network without any omission and maintain high voice quality of the audio files. The access control based on the licensing mode presents high security for voice recording, while the B/S architecture allows query and playback of the audio files at any time anywhere.

Key Features

- IP-based digital network-wide voice recording.

- Browser/Server architecture.

- Hot standby for stability improvement and 24-hour voice and SMS recording.

- Access control based on licensing mode with high security.

- Statistics analysis for voice and SMS recording data.

- Files online playback and download.

- Flexible recording based on subscriber,Base station and MSO.

Main Interface

PD68X	PD78X	PD79X Ex	PD98X

X1e	X1p	MD65X	MD78X

DMR Trunking Terminals ▶▶

Highlights

- The most complete DMR trunking terminal portfolio. Portable radio PD70X, PD78X, PD98X, X1e and X1p, mobile radio MD78X, intrinsically-safe radio PD79X Ex.

- The smallest full power DMR trunking portable terminal in the world-X1e & X1p. The world's first full duplex DMR Trunking mobile radio, MD78X.

- Four-mode DMR Trunking terminal, supporting analog conventional mode, DMR conventional mode, MPT Trunking mode and DMR Trunking mode.

- All the terminals support software upgrade from conventional mode to trunking mode.

- All the portable terminals support at least IP67, all the terminal radios supports GPS and MIL-STD-810C/D/E/F/G.

X=0, 2, 5,6 or 8, model number varies geographically. For details, please contact our regional sales representatives.

System Specifications ▶▶

General

Max.MSO Capacity(pcs)	360
Max. Base Station Capacity (pcs)	256
Max. Carrier Capacity per Base Station	16
Network Capacity (carrier)	2048
LDS Capacity (pcs)	5000
NMC Capacity (pcs)	32
PSTN/PABX Interconnect (way per gateway)	120 (4*E1)/ 30 (1*E1)
Group Call Set-up Duration (ms)	<300 (within a single MSO)

BS Specification

Frequency Range	U1: 400-470MHz; U2: 450-520MHz; U3: 350-400MHz; U5: 806-941MHz; V: 136-174MHz
Carrier Capacity	1-16CH
Max. Power Consumption	4 - carrier: ≤1000W 8 - carrier: ≤2000W 16 - carrier: ≤4000W
Operating Temperature	-15°C to +35°C
Extreme Operating Temperature	-30°C to +60°C
Storage Temperature	-40°C to +85°C
Dimensions (H×W×D)	29U: 1,430 * 600 * 600 mm 42U: 2,000 * 600 * 700 mm

Receiver

Static Sensitivity	−118dBm@BER5%
Dynamic Sensitivity	−112dBm@BER5%
Blocking	≥84dB
Co-channel Rejection	−12dB to 0dB
Adjacent Channel Rejection	≥60dB@12.5KHz
Intermodulation Response Rejection	≥70dB
Spurious Emission	9.00KHz-1.00GHz −57dBm@100kHz 1.00GHz-12.75GHz −47dBm@1.0MHz

Transmitter

Rated TX Power	≤50W (VHF, UHF1, UHF2, UHF3) / ≤35W(UHF5)
Adjust power range	1-50W
Occupied Bandwidth	≤8.5kHz@-3dB
Max. Modulation Frequency Deviation	±3.15KHz
Frequency Offset	±100Hz
Intermodulation Attenuation	≤−60dB
Adjacent Channel Power Rejection	≥60dB@（12.5KHz）
Spurious Emission	9.00 kHz to 1.00 GHz ≤-36 dBm@100 kHz 1.00 GHz to 12.75GHz ≤-30 dBm@1.0 MHz

System Reliability

Mean Time between Failures (MTBF)	100,000 hours
Mean Time to Repair (MTTR)	30 minutes

Hytera

Respond & Achieve