Hytera

Hytera iMesh

Emergency Communications Solution

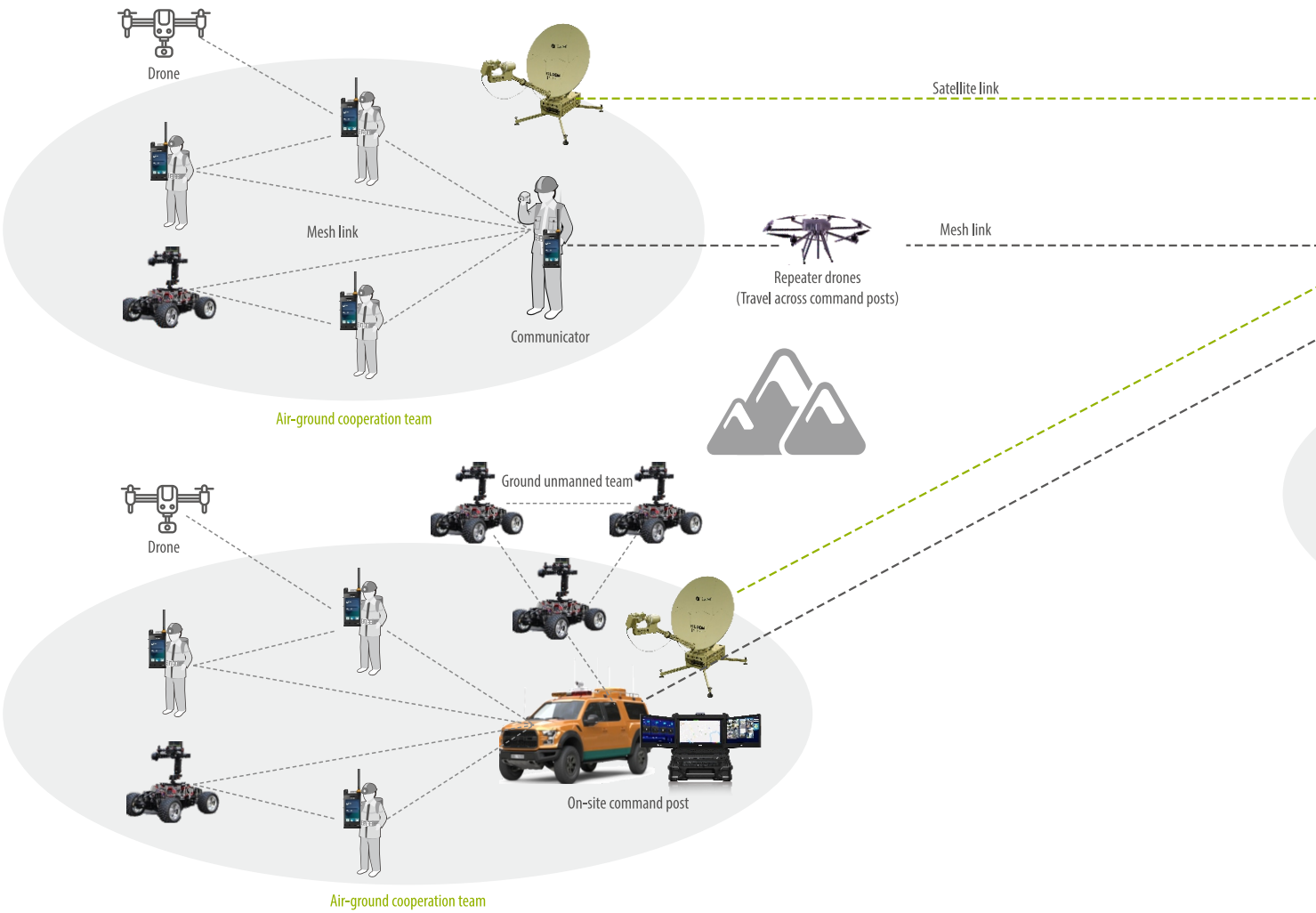
www.hytera.com

Air-Ground Integrated Emergency Communication Solution

Wireless communication is the most essential and important method of information transmission in the emergency rescue work. Traditionally, the emergency wireless communication, as the lifeline, focuses on mission-critical voice communication over narrowband networks. However, with the ever-increasing demand for rescue efficiency, nowadays the wireless emergency communication is required to integrate multimedia services, such as voice, data, image, and video, to improve the situational awareness. In this case, the technology of broadband emergency communication becomes indispensable in emergency communication.

Emergencies are generally sudden and unexpected, making the rescue work hard to planned in advance. Therefore, the emergency communication equipment must feature flexible networking, fast deployment, and easy operation, which can adapt to various application scenarios. Characterized by these features, the mesh network technology is thereby widely used in emergency management.

With the extensive application of unmanned equipment such as drones and ground robots, the emergency rescue work gradually transforms from the traditional ground mode to the air-ground combined mode. Accordingly, emergency communication evolves to the air-ground multi-level communication system.



Air-Ground Integrated Emergency Communication Solution

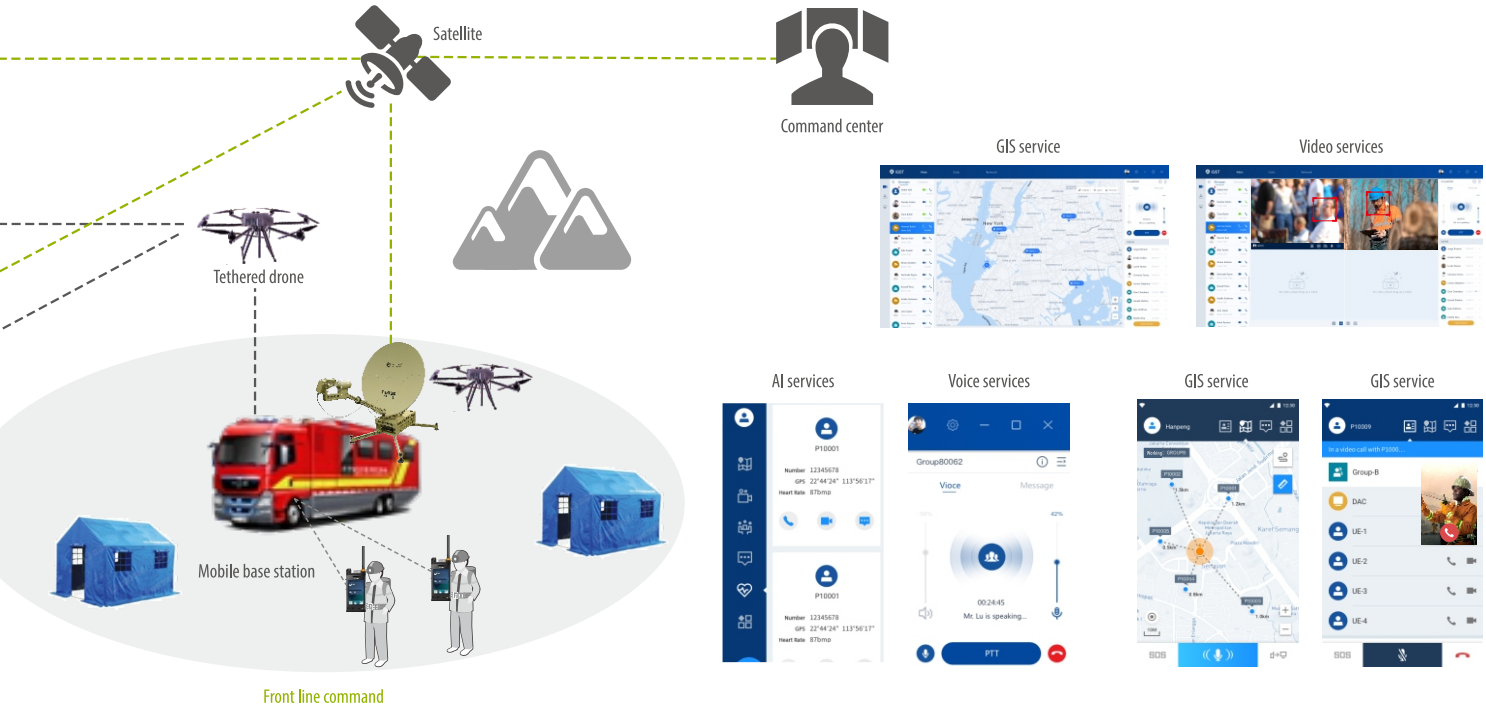
Leveraging the advanced broadband emergency communication technology, Hytera introduces the air-ground integrated emergency communication solution with a series of communication products. This solution consists of three subnets:

Subnet within the group: Through portable mesh radios, this subnet provides the voice, data, and video services for the group members within one kilometer.

Subnet between the group and front line: Through mesh devices of high power and low frequency band, such as the manpack radio, this subnet builds the communication links between groups or between the group and front line over a long distance in non-line-of-sight (NLOS) environment.

Subnet between the front line and command center: Relying on the satellite, public network, and wired network, this subnet connects the front line and command center over a rather long distance.

As different subnets supports different coverages and application scenarios, the frequencies adopted by different subnets may be different. The multi-subnet and inter-frequency networking ensures that the transmission capacity of each subnet is independent, significantly increasing the system capacity for large-scale emergency rescue.



Network Adaptation Technology

The iMesh solution delivers intelligent routing and network management services. It can dynamically decide the network topology according to the node location and channel quality. It supports star, tree, and mesh topologies, as well as hybrid topology with cellular networks or wired networks for largescale system. In this case, the flexible networking and fast deployment can be realized for various scenarios.

iMesh-3800V Vehicle Node

Overview

The iMesh-3800V vehicle node features fast deployment, flexible networking, and easy operation. The iMesh-3800V is typically mounted on the pole to provide critical transmission links for long-distance and large-capacity communication. Moreover, the device supports portable, vehicle-mounted, ship mounted, and even drone-mounted deployment for flexible and mobile networking.

Highlights

- High throughout
- High RF performance Long transmission distance
- Rich interface for extended features
- Flexible deployment without configuration, easy operation
- Compact and portable
- Rugged and durable

Specifications

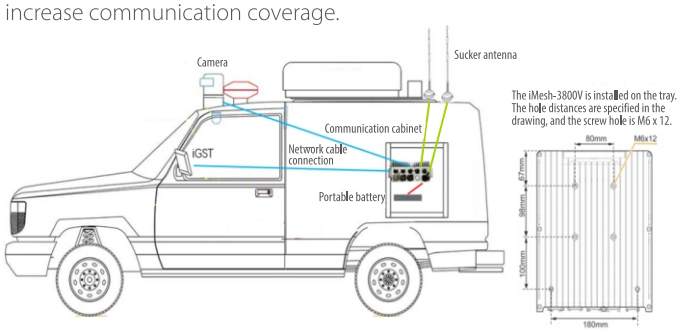
Frequency Band	320-344 MHz, 320-400 MHz, 542-582 MHz, customizable
Operating Bandwidth	10 MHz, customizable
Antenna Configuration	MIMO: 2T2R
TX Power	2 x 5 W (typical), 2 x 20 W (maximum)
Sensitivity	≤-105 dBm @ 10 MHz
Spectrum Efficiency/Throughput	MIMO: 6 ps/Hz, 60 Mbps
Authentication and Encryption	Supported

Power Consumption	< 75 W, 45 W (typical) @ 2 x 5 W
Power Supply	+12 V to +24 V DC
Dimensions	330 mm x 240 mm x 114 mm
Weight	7 Kg
External Interface	Standard: GE (O/E), GNSS, AISG Optional (either-or): WLAN or 4G module
Operating Temperature	-40°C to +55°C
Operating Humidity	5%RH to 100%RH
IP Rating	IP67

Typical Installation Mode

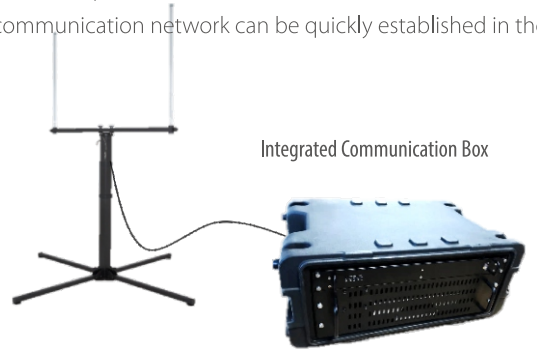
Vehicle Mounted

The iMesh-3800V can be installed in the vehicle (wall mounted) or on the roof for mobile scenarios. For the large communication vehicle, the fiberglass antenna can be installed on the lifting rod to increase communication coverage.



Portable

The iMesh-3800V can be installed in an customized communication box with integrated batteries and other accessories for portable scenarios. The portable antenna is install on the bracket. In this case, the communication network can be quickly established in the field.



iMesh-3800P Backpacked Node

Overview

The iMesh-3800P backpacked node is easy to use and carry and supports flexible networking. With typical manpack deployment, the iMesh-3800P can provide critical transmission links for long distance and large-capacity communications. Moreover, the device can be mounted on the pole, on the ground, and even on the medium or small-size drone for flexible and mobile networking.

Highlights

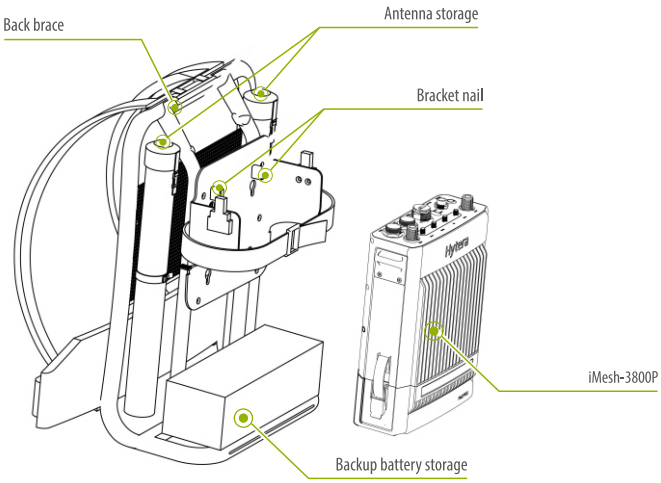
- High throughout
- High RF performance Long transmission distance
- Rich interface for extended features
- Flexible deployment without configuration, easy operation
- Compact and portable
- Rugged and durable

Specifications

Frequency Band	320-344 MHz, 320-400 MHz, 542-582 MHz, customizable
Operating Bandwidth	10 MHz, customizable
Antenna Configuration	MIMO: 2T2R
TX Power	2 x 2 W (typical), 2 x 4 W (maximum) (For details, refer to the user manual.)
Sensitivity	≤-105 dBm @ 10 MHz
Spectrum Efficiency/Throughput	MIMO: 6 ps/Hz, 60 Mbps Non-MIMO: 30 Mbps
Authentication and Encryption	Supported

Power Consumption	< 50 W, 30 W (typical) @ 2 x 2 W
Power Supply	+12 V DC
Dimensions	266 mm x 206 mm x 87 mm
Weight	5 Kg (battery included)
External Interface	Standard: FE, GNSS, BT Optional (either-or): WLAN, HDMI
Operating Temperature	-20°C to +55°C
Operating Humidity	5%RH to 100%RH
IP Rating	IP67

Typical Installation Mode



Accessories


Rucksack


Carbon fiber back brace


Folding antenna


Backup battery


Transport case

PNE380 Multi-mode Mesh Radio

Overview

The Hytera PNE380 is a multiple-mode mesh radio integrating the voice, data, and video services. Built on an intelligent operating system, the PNE380 features high integration, strong processing capacity, low power consumption, rich interfaces, and high security. Compact and portable.

Highlights

- Dual-frequency configuration
- Automatic frequency selection
- Network switch between mesh or cellular
- Rich interface for extended features
- Eight core CPU, android system, various applications
- Low consumption
- Large capacity, long transmission distance
- High security, rugged design

Specifications

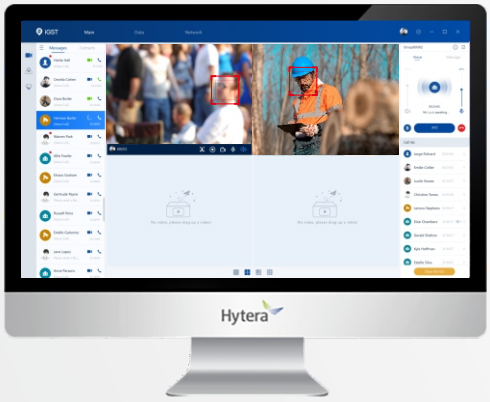
Frequency Band	320-344 MHz and 1430-1444 MHz, 512-582 MHz and 1430-1444 MHz, customizable
Operating Bandwidth	10 MHz to 3 MHz, customizable
Antenna Configuration	UHF: 1T1R L-band: 1T2R
TX Power	0.5W (typical), 0.75W (maximum)
Sensitivity	UHF: ≤99 dBm @ 10 MHz L band: ≤ 102 dBm @ 10 MHz
Throughput	30 Mbps @ 10MHz
Anti-interference	Automatic frequency scan and selection, with anti-narrowband interference
Memory	RAM 2 GB + ROM 16 GB (optional)

Power Consumption	< 3.5 W (typical)
Dimensions	137.5 mm x 60 mm x 27.8 mm
Weight	< 350 g
Battery	2400 mAh/7.4 V (typical), 4000 mAh/7.4 V(maximum)
Battery Life	> 6 hours (conventional services); 24 hours (standby)
Audio Interface	Duckbill-shaped connector (for the remote microphone or earpiece), BT
Video Interface	HDMI to USB video coding accessory (optional)
USB port	Duckbill-shaped connector or USB type-C connector
Operating Temperature	-20°C to +55°C
Operating Humidity	5% to 100% RH
IP Rating	IP67

Standard Accessory

Optional Accessory

Network Management System



Overview

The iGST is the C/S-based intelligent network management system (NMS) for the iMesh products. The server software can be deployed on the computer, server, or mesh device, while the client software can be installed on the smart terminal connected to the mesh network.

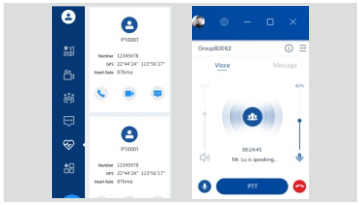
Highlights

- High integration
- Network management
- Enhanced video services

Specifications

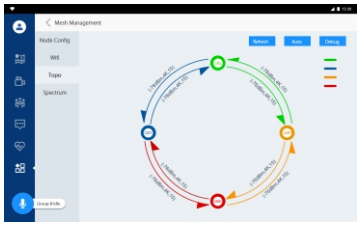
Maximum number of managed cameras	16
Maximum number of video surveillance lines	9 (maximum 20 M)
Maximum number of online terminals	32
Maximum number of voice call lines	32
Maximum number of parties in a conference call	6
Maximum number of video call lines	8 for video pull or upload, 24 for video private call

CPU	Intel-i5-6500 (4 core, 3.2 GHz) or higher
Memory	12 G or larger
Hard disk	50 G or larger
Graphics Card	Intel HD Graphics 520 or higher
Resolution	1920 x 1080, 1360 x 768
Operating system	Windows 7 or 10 64 bit version



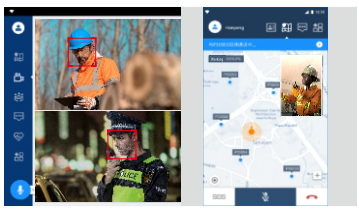
Voice Services

- Voice private call
- Voice group call
- Multi-party call
- Logic group
- PTT



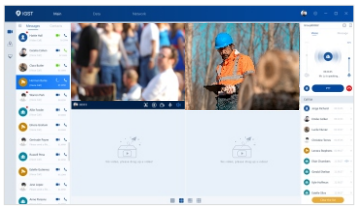
Network Management

- Network topology
- Network alarm
- Node status
- Node configuration
- Node version upgrade
- Spectrum scan



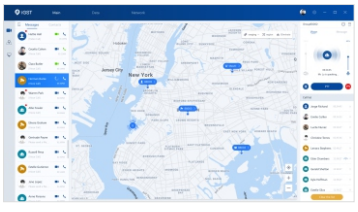
Intelligent Applications

- Vital signs monitoring
- Face recognition



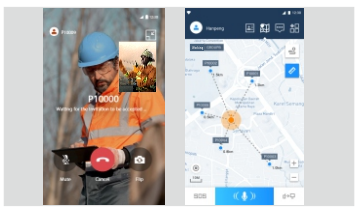
Video Services

- Camera auto discovery
- Parameter configuration
- Code rate and frame rate adjustment
- Surveillance polling
- Video recording



Positioning Services

- Location report
- Location display
- Group-based display
- Distance measurement



Terminal Multimedia Services

- Video call
- Voice call
- GIP display
- Short message

PDC760 Multi-mode Advanced Radio

Overview

The PDC760 multi-mode advanced radio combines the narrowband voice services with the broadband data features. It supports the unified communication across the PMR and public networks, broadband and narrowband. With it, users can access secured communication and rich applications.

Highlights

- Light weight
- DMR trunking services
- P-PoC and C-PoC trunking voice services
- Rich interfaces for extended features
- Android system, rich applications
- Authentication and encryption: hardware and software encryption

Specifications

Narrowband	Standard: DMR/Analog Frequency band: UHF: 350–527 MHz, VHF: 136–174 MHz
Public Network	4G
WLAN	802.11 b/g/n, 2.4 GHz
NFC	Supported
BT	Supported
Positioning	GPS/BDS
Dimensions	139.5 mm x 68 mm x 25.3 mm
Weight	378 g (antenna and standard battery included)
Processor	Qualcomm 8-core, 2.0 GHz
Memory	RAM 3 GB ROM 32 GB eMMC Expansion memory card (microSD): 128 GB (maximum)
Top Screen	1 inch, resolution: 128 x 88, color: black & white
Main Screen	4 inches, resolution: 1024 x 600, usable with gloves

Card Slot	2 x SIM card slot 1 x narrowband microSD card slot 1 x broadband microSD card slot
Camera	Front: 13 MP Rear: 13 MP
Operating Voltage	7.6 V (rated)
Battery	Standard: 2900 mAh Optional: 4000 mAh
Battery Life	Standard: 14 hours, 12 hours voices (5-5-90 duty cycle) + 2 hours videos Optional: 20 hours, 18 hours voices (5-5-90 duty cycle) + 2 hours videos
Operating System	Android 6.0
Dust and Water Proof	IEC 60529-IP67
Shock and Vibration Proof	MIL-STD-810G
Electrostatic Discharge (ESD)	IEC 61000-4-2 Level 3
Operating Temperature	-20°C to +60°C
Storage Temperature	-30°C to +80°C
Humidity	95%RH

Optional Accessories


Body Worn Camera


Wired Earpiece


Earpiece with Transparent Acoustic Tube


Wireless PTT


Remote Microphone


Portable Camera


4000 mAh Smart Battery


Multi-unit Charger


Smart Charger


Programming Cable


Carkit

Fire Rescue Solutions

Top Priorities

Fire Fighting

Explosion Rescue

Disaster Relief

Public Safety Management

Challenges

Severe signal attenuation in the complicated environment

Communication blind spots due to limited coverage

Severe interference

Heavy load for the individual solider

Demands

Flexible networking and stable signals

Unified communication and unified dispatch

Intercommunication and information sharing

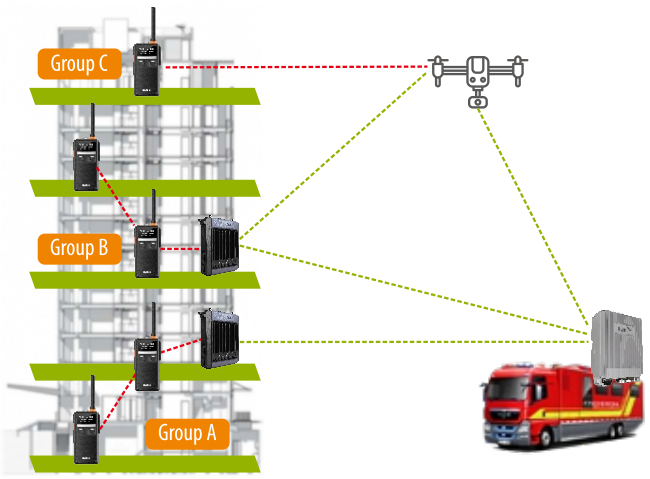
Fast deployment without blind zone

Integrated device with high functionality

Comprehensive and intelligent alarm

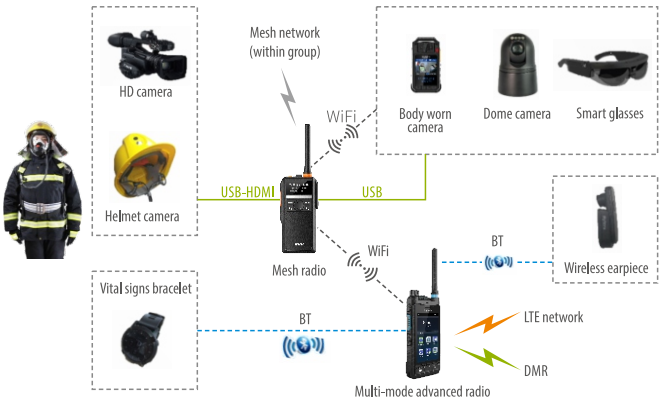
Solution

The iMesh solution consists of the iMesh network, intelligent NMS, integrated wearable devices, and unmanned platforms. It adopts the group-based management, multi-level architecture, and the inter-frequency networking mode. This solution is designed to provide various services for large-scale fire rescue, such as the video surveillance, trunking voice, positioning, sensor data, and vital sign monitoring.

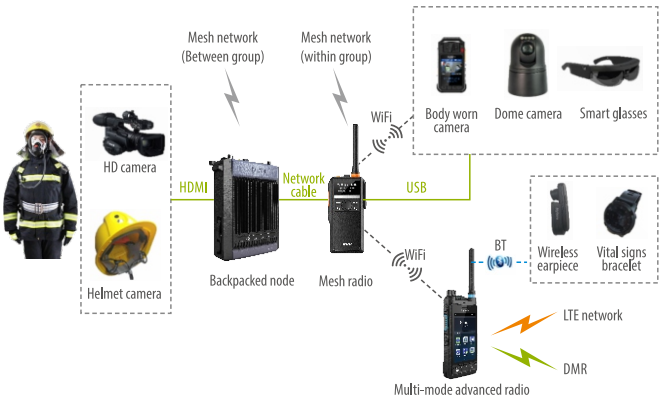


Deployment for the Individual Solider

Optional accessories are available, such as the body worn camera, dome camera, bracelet, multiple-mode advanced radio, and earpieces.



Typical deployment for the group member and leader



Typical deployment for the communicator

Applications

Trunking voice services

Private call, group call, broadcast call, multi-party call

GIS service

Positioning, location sharing, location mark, historical track playback

Sensor monitoring

Vital sign, oxygen pressure, man down status, environment information

Video services

Private call, group call, video upload, video forward

Application Scenarios

Earthquake

Mudslide

Landslide

Tsunami

Values

This solution delivers voice, data, and video communication services with large capacity, significantly improving the rescue efficiency and thereby reducing the property and personnel losses.

This solution supports the flexible networking with multiple layers and frequency bands, which extents the network coverage and facilitates the deployment.

The device is compact and lightweight, and of long battery life. It can be used with the smart radio, greatly reducing the burden of the individual soldier and improving the combat capability.

Geological Disaster Rescue Solution

Demands

Geological disasters are highly destructive. A disaster may destroy large areas of land and severely damage the infrastructure and communication networks. During disaster relief, it is necessary to quickly set up the wireless communication network that covers the affected area. In this case, the multimedia data, such as voice, images, and videos, can be transmitted between the filed and the command center to improve rescue efficiency and minimize losses.

Earthquake

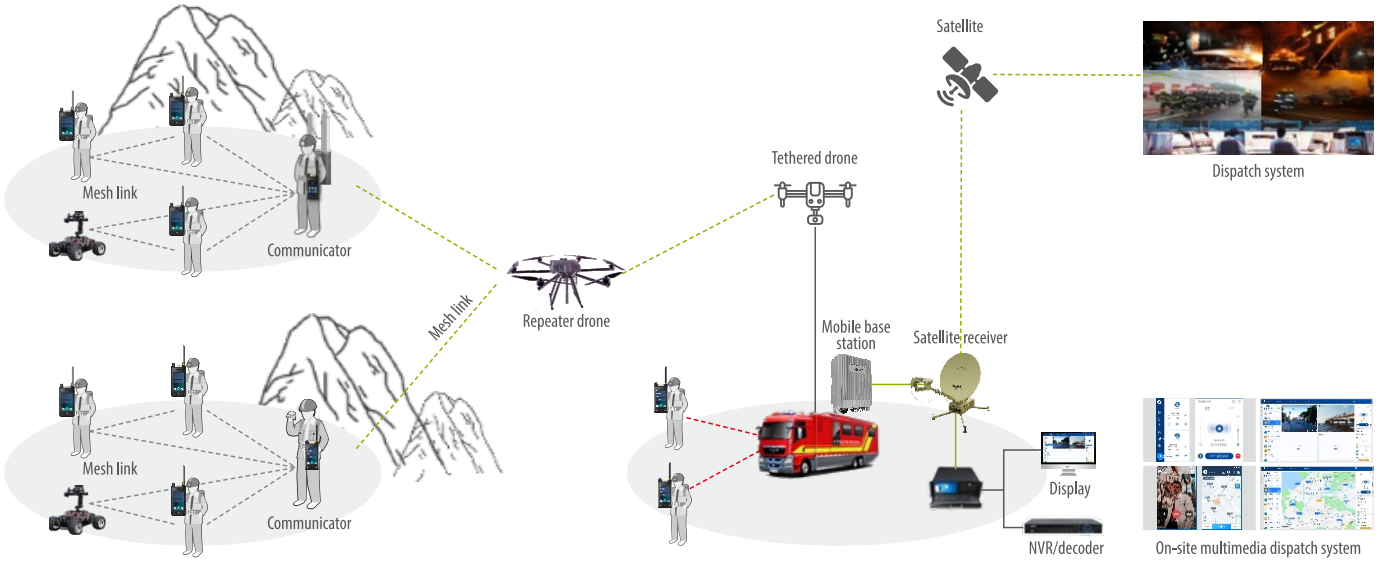
Mudslide

Landslide

Tsunami

Solution

The iMesh solution consists of the iMesh broadband network, LTE integrated base station, multimedia dispatch system, narrowband network, integrated wearable devices, and unmanned platforms. This solution is designed to provide various services for disaster rescue, such as the video surveillance, trunking voice, positioning, sensor data, and vital sign monitoring.



Application Scenarios

National Health
Emergency Management

Fire Drill
in Guangxi Province

Emergency Drill
in Sichuan Province

Fire Drill
in Sichuan Province

Hytera

Respond & Achieve

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