

Company Information	Company Name	JVCKENWOOD				Industry	Manufacturing / System Integrator	
	Website	https://www.jvckenwood.com/jp/ https://comms.kenwood.com/en/index.php https://www.efjohnson.com/home https://www.radioactivity-tlc.it/index.html						
	Tech/Solution Name	Professional Radio Equipment and Radio Systems						
	Which field does the tech/solution contribute to?	Quality Infrastructure and Smart City						
	~Quality Infrastructure~ Which category can the tech/solution be applied to?	Road/Bridge	—	Port	☐	Airport	☐	
		Water and Sewage	—	Power generation /Energy	—	Railroad	☐	
		Housing	—	ICT	☐	Others (Free Writing)	警察・消防・救急	
	~Smart City~ Which problem can the tech/solution solve?	Traffic/Mobility	—	Energy	—	Disaster Prevention	☐	
		Infrastructure Maintenance	—	Community Activation /Sightseeing	☐	Health/Medical	—	
		Agriculture, Forestry and Fisheries	☐	Environment	☐	Security	☐	
		Logistics	☐	Urban Planning /Maintenance	☐	Others (Free Writing)	警察・消防・救急	
	Key words	Professional radio, private communication network for disaster response, public safety, police, fire and emergency services, coordination with local governments, mobile-phone-independent communication, secure communication, confidentiality, information control, dedicated radio network, mission-critical communication						
	Overview of the tech/solution	This solution uses professional radio equipment and radio systems to build a private communication network that does not depend on mobile phone networks. In particular, in public safety fields such as police, fire and emergency services, sensitive information such as field information, personal information, and command instructions is handled. Therefore, using ordinary mobile phones or smartphones as the primary communication infrastructure is not suitable from the perspective of security and information control. In addition, during disasters, mobile phone networks may become difficult to use due to network congestion, power outages, base station failures, or loss of coverage. For this reason, it is essential to secure a private radio network or dedicated radio network that can ensure confidentiality, availability, and operational control. This solution supports initial communication, command instructions, location sharing, and emergency alerts among field personnel, local governments, police, fire and emergency services, and other related organizations. In fields such as ports, airports, railways, power generation and energy, factories, agriculture, forestry and fisheries, local governments, and public safety, the system combines voice communication with GPS location information, simple data transmission, and remote monitoring and control. This helps improve field safety, operational efficiency, and infrastructure maintenance. By using relay equipment and linking with IP lines, satellite communication, and other communication networks, the system can flexibly secure the necessary communication coverage even in mountainous areas, large facilities, and areas where communication is difficult.						

Technology / Solution	Discription of the tech/solution	This solution utilizes professional radio equipment and radio systems to build a private communication network that does not depend on mobile phone networks. In particular, in public safety fields such as police, fire, and emergency services, sensitive information such as field information, personal information, and command instructions is handled. Therefore, using ordinary mobile phones or smartphones as the primary communication infrastructure is not suitable from the perspective of security and information control. In addition, during disasters, mobile phone networks may become difficult to use due to network congestion, power outages, base station failures, or loss of coverage. For this reason, it is essential to secure a private radio network or dedicated radio network that can ensure confidentiality, availability, and operational control. This solution supports initial communication, command instructions, location sharing, and emergency alerts among field personnel, local governments, police, fire and emergency services, and other related organizations. In fields such as ports, airports, railways, power generation and energy, factories, agriculture, forestry and fisheries, local governments, and public safety, the system combines voice communication with GPS location information, simple data transmission, and remote monitoring and control. This helps support field safety, operational efficiency, and infrastructure maintenance. By using relay equipment and linking with IP lines, satellite communication, and other communication networks, the system can flexibly secure the necessary communication coverage even in mountainous areas, large facilities, and areas where communication is difficult. Private Radio Communication System Architecture The diagram illustrates the Private Radio Communication System Architecture. It features four main functional blocks at the top: 1. Talk and alert in the field (blue), 2. Receive and extend radio coverage (green), 3. Link multiple sites (orange), and 4. Centralize control room operations (purple). Below these are the core components: Field Devices (FD), Radio Relay Equipment (RE), Site-to-Site Network (NW), and Control Room (CR). Field Devices include handheld radios, vehicle radios, push-to-talk voice, and location/emergency alerts. Radio Relay Equipment extends coverage in buildings, outdoor areas, and remote locations, relaying calls between field devices. The Site-to-Site Network connects remote relay equipment and sites, supporting wide facilities and multiple areas with one communication structure. The Control Room collects voice calls, location information, and emergency alerts, supporting quick instructions from managers. Below these are the Management Server (MS), Secure Communication (SC), and External Connection (EC). The Management Server manages users, call groups, and equipment status, supporting configuration changes and maintenance. Secure Communication protects voice communication, secures site-to-site links, and disables lost or stolen devices. The External Connection can connect to phone systems and other tools as needed, supporting records and logs. A section titled 'What this architecture enables' lists four key benefits: Emergency communication (backup against mobile network congestion, outages, and dead zones), Wide-area coverage (relay equipment supports buildings, outdoor areas, and remote locations), Field visibility (location information and emergency alerts can be checked in the control room), Secure operations (helps manage sensitive public safety communication), and Scalable design (can expand with more users, sites, and operational areas).							
Glocal Expansion	Asia	Already developed	Africa	Already developed	Middle East	Already developed	Europe	Already developed	
	Russia	Already developed	Oceania	Already developed	North America	Already developed	Mid/South America	Already developed	

Case Study	Country	All of World https://comms.kenwood.com/en/case_studies/ https://kenwoodcommunications.co.uk/comm/case-studies/radioactivity-cs/
	City	All regions worldwide
	Project name	Implementation Cases of Professional Radio Systems in Large-Scale Global Facilities and Public Safety Fields
	Project Overview	In the airport sector, NEXEDGE Gen2 is used at Istanbul New Airport, a large-scale airport described as the “world’s largest airport,” to support operationally critical communications. In the public safety sector, in addition to advanced markets such as the United States and the United Kingdom, a nationwide NEXEDGE digital radio system has been introduced for the Bulgarian National Police. It is used for voice communication in police operations, GPS-based location tracking, and coordination with other organizations. At SP-PSA International Port in Vietnam, a radio system designed for future expansion has been adopted as a communication infrastructure to support a planned terminal with four container berths, a total quay length of 1,200 meters, and an annual capacity of 2.2 million TEUs. In the factory and plant sector, the NEXEDGE digital PMR system supports on-site communications for security, maintenance, and ambulance vehicles at the Guinness St James’s Gate Brewery in Ireland, a complex site covering 63 acres and 52 buildings. These examples demonstrate the importance of private communication networks that connect field sites, management bases, and public safety organizations without relying solely on mobile phone networks. Such networks serve as an important foundation for smart city infrastructure in airports, ports, factories, police, fire, and emergency services. In the public safety field, private radio networks and dedicated radio networks are important not only for availability during disasters, but also from the perspective of security when handling sensitive information.
		This figure shows the basic configuration of a private professional radio communication system. The system consists of field terminals, radio relay equipment, a site-to-site network, and a control room / management site. Field terminals are handheld or in-vehicle radios used for voice communication, location information transmission, and emergency alerts. Radio signals transmitted from field terminals are received and retransmitted by radio relay equipment, which helps cover areas where communication is difficult, such as inside buildings, outdoor areas, and mountainous regions. By connecting multiple relay facilities and sites, the system can be operated as a single communication network even across remote facilities and wide areas. This enables group-based calls and broadcast communication among field personnel, vehicles, management sites, and the control room. At the control room / management site, voice calls, location information, and emergency notifications from the field are centralized, supporting situation monitoring and instruction delivery. In addition, the management server supports daily operation and maintenance by managing users, call groups, equipment status, and configuration information. The system also supports secure operation required for public safety applications by protecting communication content, securing site-to-site communication, and disabling lost terminals. If necessary, the system can also be linked with telephone equipment and other systems, and can be used for

