



High-Tech Chipmaker Deploys MOTOTRBO™ Digital Radio in Shanghai Plant

Providing reliable communications for industrial disaster prevention and highly efficient production



Established in 1997, this world-renowned chipmaker specializes in developing, manufacturing and marketing of integrated circuit products. Their product line include chips for a wide range of smart cards, such as for China's second generation ID card, LCD driving chips, analog and power supply control chips, RF chips and consumer chips. The MOTOTRBO™ digital radio system was deployed in Plant I located at an export processing zone in Shanghai, China, paving the way for an integrated communications platform with Plant II in the future.

Challenges

This manufacturing plant uses cutting-edge technologies to produce chips and places great importance on production safety and efficiency. It has established stringent anti-disaster contingency systems such as safe production management regulations. To be well prepared for possible disasters, the chip-making factory has also formed many disaster relief teams responsible for conducting daily safety patrols and regular anti-disaster drills.

As part of the safety measures, system debugging is regularly carried out for all production equipment. The communications systems undergo real-time testing while thorough checks are done on relevant data of the different equipment. Reliable radio communications is crucial to ensure timely coordination and quick responses during an unexpected emergency.

As an integral part of the anti-disaster system and essential for workforce communications, the factory management was looking to implement a professional radio system that could meet their dual needs. The new radios should also be suited for the factory's environment and provide these benefits:

- Save as much frequency spectrum as possible as the factory has tight supply in Shanghai
- Radio signals should cover a wide range of areas and without blind spots, ensuring communications at any time and any location in the factory during an emergency
- Capable of communicating with the talk groups and teams as well as individual users to support communication needs in the daily work. Combustible chemical products are involved in the chip-making process, therefore the radios must be anti-explosive
- Chip-making equipment uses precise instrument and mechanisms, hence must be free from electromagnetic interference
- Calls should be quick, accurate and convenient for the radio users wearing chemical protection outfit during an emergency
- Communications should be secured for highly confidential communications to protect business secrets
- Interconnectivity of communications systems for Plant II which is located five kilometers from Plant I

Products:

- MOTOTRBO XiR P8268 portable radio
- MOTOTRBO Control Station
- MOTOTRBO XiR M8268 mobile radio
 - Desktop microphone
 - Speaker
 - Power supply with battery backup
- XiR M8268 mobile radio
 - Table microphone
 - Speaker
 - Power source with battery backup
- MOTOTRBO XiR R82000 Repeater

Solution

Motorola and its channel partner - Wireless RF Technique Shanghai EVERTAC Communication & Project Ltd (WRF) recommended the MOTOTRBO™ digital system to provide a customized solution based on the factory's unique needs.

Benefits:

- TDMA, saving investment with better frequency utilization
- Clear audio, wider coverage, ensuring clear communications over a long distance
- High safety level without the risk of eavesdropping
- IP Multi-Site Connect and roaming to realize joint cross-factory disaster prevention

The roll-out of MOTOTRBO digital system took half a year, from planning to installation and testing, comprising one unit of XiR R8200 repeater, two units of XiR M8268 mobile radio, ten units of XiR P8200 two-way radio and two units of XiR P8200 Intrinsic Safe (IS) radio. The new communications system provided total radio coverage of the factory premises. One mobile radio was deployed at a fixed location and the other catered for mobile use, facilitating the coordination of the disaster relief efforts.

To meet the special needs of the chip-making factory, WRF also worked out the second development for the system, its communication coverage and accessories. For example, with MOTOTRBO, the factory implemented a specifically-designed indoor communications that could provide clear audio despite low power, thus solving the problem of electromagnetic Interference with chip-making equipment. Using special earpiece designed for MOTOTRBO, the new portable radios enable disaster relief workers who are wearing chemical protection outfits to communicate in an easy way by pressing the Push-to-Talk (PTT) button attached on their outfits.

Extraordinary Efficiency

The chip-making factory is highly satisfied with the outstanding and unique features of the MOTOTRBO digital solution.

After installing the MOTOTRBO digital system, the customer conducted a fire drill. Coordinating through the safe channels, workers inside the factory could rapidly evacuate to the safe zones accordingly to pre-determined safety plans. Within minutes, the key Disaster Relief Team rushed into the factory premises where the fire outbreak was identified. Having carefully observed the situation, the team leader pressed the PPT button of MOTOTRBO portable radio to report crucial information such as fire location, the number of fire points, fire intensity and nature of the burning articles to the Command Centre. In turn, the centre was able to direct the second Disaster Relief Team to the scene with the right firefighting equipment so as to put the fire under control and finally extinguished it.

"MOTOTRBO digital radio is highly efficient and reliable for meeting the unique challenges in our chip making environment. For example, the portable radio is able to operate at low power, ensuring there is no electromagnetic interference with our plant's precise instruments. More importantly, we are able to stay in contact with the Command Centre from any place and any time during our disaster relief drill. We can rest assured of the reliability and stability of this robust communications system," said the Director of the Command and Control Centre.

For the day-to-day operation, the MOTOTRBO digital solution could also facilitate the work crew's communications for maintenance, repair and servicing of the equipment at the plant.

Features and Benefits

MOTOTRBO digital radio also delivers these benefits:

1. **TDMA technology, higher utilization ratio of frequency:** MOTOTRBO leverages the TDMA technology with two time slots. One relay channel can be divided into two logical channels, not only saving more investment on equipment than analog relay channels but also helping the customer to deploy radios with high utilization ratio of frequency.
2. **Clearer audio, wider coverage:** Longer distance usually results in bad audio quality. But the digital correction technology ensures high quality audio and data to ensure clear communications over a long distance.
3. **High safety level, without the risk of eavesdropping:** The inherent safety of the digital solution can effectively prevent eavesdropping using the scan feature. It is a one in every 16 million possibilities that eavesdropping can take place even when the Motorola equipment is used.
4. **IP Multi-Site Connect and Roaming:** With the IP Site Connect application, users can realize cross-regional voice and data communications, such as short messages and GPS information. Using this feature, Plant I can achieve inter-connection and roaming with the communications system deployed at Plant II for joint efforts in disaster prevention and relief.

"MOTOTRBO digital radio is a high quality, easy-to-use system that supports both fixed and mobile modes, making coordination during an emergency more flexible and timely. Two time slots used simultaneously by the repeater, not only improves the utilization of frequency but also simplify the complexity of the repeater setup. The inherent confidential intensity of the digital solution fully prevents the business secrets of users from being leaked. The IP network can be used to realize networking in different regions and wider coverage," said Meng Chao, Manager of radio channel business sales and technology support, Motorola.

"We have been supplying professional radio services to companies from sectors like chip-making for many years and clearly know how valuable it is to offer customized solutions for our clients. Given the specific needs of the chip-making factory for its disaster prevention and daily operations, we collaborated with Motorola to provide a customized solution for the factory, leveraging on our experiences in serving chip-making companies over the past years and understanding of MOTOTRBO digital solution," said Ni Jie, GM of Wireless RF Technique Shanghai EVERTAC Communication & Project Ltd (WRF).

"MOTOTRBO radio has clear audio and good signal coverage for both indoor and outdoor. The user-oriented design of its PPT button complemented the chemical protection outfit and considerably facilitates disaster relief work," said a disaster relief team member of the factory.



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