

# Madrid Metro

## TETRA Solution for the Metro System of Spains Capital



### BACKGROUND

Madrid is Spain's capital city, situated in the centre of the country. The historic heart of the city is surrounded by densely populated urban commercial and residential areas and, in turn, is skirted by many new peripheral developments. With a city population of over 3 million inhabitants with some 5 million in the metropolitan area, efficient public transport mechanisms are vital to Madrid's daily existence. In 2007, the Madrid Metro will be the second largest metro network in Europe after London.

Madrid Metro chose Motorola and Amper Sistemas, Motorola's partner and system integrator in Spain, for the following reasons:

- State of art and proven technology demonstrated in Motorola's products
- Evidence of Motorola's TETRA solutions in use for other transport users elsewhere in the world
- Ability to develop specialised solutions such as consoles & charging arrangements for use on metro trains
- Demonstrated programme of application development - in house and with specialist partners (Application Partner Programme)
- Technology roadmap for IP platforms to support enhanced data

### CUSTOMER NEEDS

- Improved information management between train operators and train controllers
- More efficient use of transport resources
- Better reaction to incidents that could affect service levels (traffic problems, breakdowns etc.)
- Integrated communication between front line operation staff and support organisations

“It was clear to our public safety organisations that they needed a dedicated, secure private communication network in order to deal with life threatening situations, day in day out. The recent terrorist attacks have re-enforced this belief and I am pleased that we made the right decision back in 2001 and had chosen TETRA.”

Javier Quiroga, Telecommunications Director, SAMUR (Madrid Municipality)



### MOTOROLA SOLUTION

The initial deployment was based on a Dimetra solution for three of the 12 metro lines (29 base stations). This was expanded to the new MetroSur network, adding a further 29 base stations and upgrading to a Dimetra IP system.

Initial deployments of terminals included 200 MTP300 TETRA portables and 100 MTM700 mobile terminals. First users of the terminals were the Train Operators and the Control Room staff. Security and Maintenance teams joined later. When fully installed and operational approximately 2.700 users will share the network.

Users initially used the following features.

- Voice – Group and Individual Calls
- Text messages (SDS) Short Data Services
- Status Messages
- Telephony (Internal and external)

The customer's future plans are to exploit all possibilities of an IP network. In addition, the customer intends to use the data transmission capability of the Dimetra solution with a variety of specialised applications.

As part of Motorola's innovative solution, specially designed consoles were produced to the trains.

### BENEFITS

- Integrated voice and data communications solution to help deliver more effective public transportation services
- Enabling technology that will support significant improvement to working practices throughout the network
- Dispatcher driven group call communication
- Simple text based services for messaging
- Private (individual) and telephone calls
- Reliable and robust mobile terminals for use in trains, fitted in a specially designed console
- Purpose designed holder/charger for portable terminals
- Expansion capacity for other data based services



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