

# Malaysia Express Rail Link

## TETRA Digital Data Communications System



Motorola's TETRA-compliant system, Dimetra, was operational in April 2002 – Asia's first TETRA system for transit rail and the first TETRA system for Malaysia.

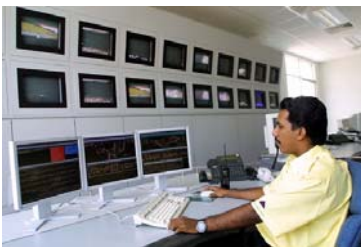


### BACKGROUND

In May 2000, Motorola was awarded a contract by the Siemens Transportation Systems Group to provide a TETRA system for Malaysia's Express Rail Link (ERL) Sdn Bhd between Kuala Lumpur City Air Terminal and Kuala Lumpur International Airport.

ERL's main business is Air-Rail Intermodality.

The company provides airport services at the Kuala Lumpur City Air Terminal and high-speed rail services between the air terminal and the Kuala Lumpur International Airport.



The Dimetra system is an integrated digital and data communications solution that offers excellent communication coverage spanning the 57 km KLIA Express line, two airport terminals and 3 intermediate stations such as Bandar Tasik Selatan, Putrajaya /Cyberjaya and as well as the operation control centre and maintenance depot at Salak Tinggi.

Motorola was selected for the project for the following reasons:

- Motorola's TETRA leadership
- Motorola's technical solution was well-proven and accepted; with a system release that met the project schedule
- Motorola's ability to provide complete end-to-end radio communications solutions for rail applications

- Motorola has available documentation on Application Programme Interfaces to support external interfaces and customisations
- Motorola has a strong local presence and support

### CUSTOMER NEEDS

- The primary use of the radio system is to provide effective command and control between the control centre and the ground staff, especially the train drivers. Radio communications is considered one of the vital components for the rail Electrical and Mechanical system.
- In addition, ERL wanted a communications system that would provide superior audio clarity even in trains running at a high speed of 160km/h.

Motorola's system also has added capabilities to handle emergency management and passenger public address announcements. The control centre can send data messages containing information about delays or changes in the timetable to passengers in the trains. The ERL is the first high-speed train in Malaysia and Motorola's TETRA system will significantly enhance the communication efficiency for ERL to achieve its operational and safety goals.



#### BENEFITS

##### Safety:

- Superior audio clarity improves communications among staff
- Passengers are immediately alerted of emergencies through the in-train information screens
- Accessible safety measures such as the Emergency Communications Button

##### Reliability

- Efficient and reliable dispatch operations for passenger trains and maintenance vehicles
- Operational staff benefit from reliable, instant communication anywhere within the network; from the control centre to the stations and onboard the trains

##### Performance

- Enhances response times
- CAD application translates train radio IDs to train run numbers enabling easy clarification

#### MOTOROLA SOLUTION

Motorola provided ERL with an end-to-end train radio communications solution that includes a Computer-aided Dispatch (CAD) system for train dispatch and trainborne radio equipment.

The total solution is an integration of various subsystems to Motorola's 380-400MHz Dimetra system:

- CAD system to support the Train Run Number (TRN) calling features' with an interface to the Automatic Train Supervisory system to extract train location information
- Trainborne Radio system to support the interface to the train's Emergency Communications Button, Public Address system and other monitoring equipment

Spanning seven sites, Motorola's Dimetra system is used primarily by ERL's Dispatchers and Train Operators for better co-ordination and monitoring of passenger train fleets.

Reliable instant communication access is available anywhere within the network - from the 28 minute ride, at the stations, in the control room and even off-site at the maintenance depot.

Communications between the Operating Control Centre with the train operators as well as with the Station Control staff is highly effective as the system reduces voice transmission delays and the risk of miscommunication. ERL's operational staff can now enjoy greater communication efficiency and improved productivity.

In line with providing customized solutions, Motorola also incorporated CAD and graphical user interface solutions into the Dimetra system, enabling efficient and reliable dispatch operations for the fleet of passenger trains and maintenance vehicles.

The CAD is basically a server system that allows the translation of train radio IDs to the train run numbers for easy identification by the train controller. On board the train, in addition to the radio unit, a customised Radio Control Panel that incorporates a Request-To-Talk status button is provided for the driver and a Train Control Interface is provided for linking to other train equipment such as the Public Address system.

Our Dimetra Alliance partner, Silicomp Asia Pte Ltd, developed the CAD system and the Trainborne radio related applications and equipment.

Future expansion possibilities include easy customisable solutions that include advanced telephony, complex data and passenger management information systems.



Motorola Solutions Singapore Pte Ltd, 80 Pasir Panjang Road #18-01, Singapore, 117372 +(65) 68176800

[https://www.motorolasolutions.com/en\\_xp/solutions/rail-transportation.html](https://www.motorolasolutions.com/en_xp/solutions/rail-transportation.html)

MOTOROLA and the Stylized M Logo are registered in the US Patent & Trademark Office. All other product of service names are the property of their respective owners. © Motorola Inc. 2020 All rights reserved.