

# TagMaster

North America, Inc.



*Positioning for Onboard Management*

## **TagMaster RFID system for automatic change of talkgroups in the London Underground**

### **Summary**

Motorola Ltd is the provider of a TETRA radio system for the entire Underground in London. This system constitutes a vital part of London Underground Limited's (LUL) overall Connect Project. TagMaster is a TETRA System Application Partner to Motorola and has provided the Beacon system for the positioning of the London Underground trains. The Beacon system encompasses train mounted Readers and sleeper mounted ID-tags, which are used together with the Motorola Train Mobile Unit.

### **Challenge**

In the London Underground, different talkgroups are used for TETRA radio communication in different zones. One of the requirements from the Connect project was to provide Automatic change of talkgroups to ensure that the mobile radio on board the train communicates with the correct Signal Operator. Radio calls from a train addressed to a signal operator shall be directed to the signal operator who is currently controlling the location from which the call originated. To be able to automatically change talkgroups, a positioning system connected to the on board radio system was required.

### **Solution**

Since the underground environment is electronically and physically very demanding, the obvious choice was to use an RFID based positioning technology. The necessary mounting of the reader under the train further increased the requirements of the equipment. To meet customer needs TagMaster developed the Heavy Duty reader. The Heavy Duty Readers are mounted underneath the train cab and communicate directly with the Motorola Train Mobile unit via an RS485 interface. Mounting brackets were designed for various types of rolling stock in the London Underground. The ID-tags,



which are to represent certain positions on the track, were specially designed for mounting on the sleepers. For the Beacon system, the S1456 ID-tag was the most suitable choice, since the maximum speed was 120 km/h and the distance between reader and ID-tag was very short.

### **Conclusion**

In close cooperation with Motorola, TagMaster successfully developed the Heavy Duty reader to be used in the Beacon system. The Beacon system meets the high standards and regulations of London Underground, the European and British railways as well as those of Motorola itself. This means that the equipment is approved for installation in the London Underground, and thereby fulfils the requirements for installation in metros worldwide.

### **Products used:**

S1566 Heavy Duty Reader  
S1510 Hand Held Reader  
S1456 Heavy Duty Speed MarkTag