Dubai Metro

Keeping the Dubai Metro connected

Case Study

The most important thing we build is trust

Overview

Cobham Wireless was tasked with installing a resilient public safety coverage system supporting TETRA communications. This was a complex environment that couldn't afford to be without a reliable communication system.

Challenge

The metro system consists of both underground and elevated sections creating very different environments. The system needed to be fail-safe therefore it needed to customised to meet the strict requirements.





The Challenge

The Dubai Metro makes it into the Guinness World Records as the world's longest fully automated metro network, spanning a total of 75km. The network consists of two lines: the Red Line and the Green Line, and they run both underground in some areas of the city, and on elevated viaducts elsewhere.

In underground locations like this that are heavily used by the public, robust wireless networks are crucial for the provision of continuous communications during emergencies. The technology of choice for public safety authorities is often TETRA, due to its resilience and reliability during disaster scenarios. However, with new standards and regulations changing the public safety network landscape, TETRA has to continuously evolve to keep pace.

Cobham Wireless was tasked with providing a TETRA public safety system for both lines on the Dubai Metro network. The system needed to provide coverage inside the metro tunnels as well as some of the indoor areas on those routes.

It needed to be fully redundant and would require a completely customized solution to meet the extensive requirements of the project. As such a modern, high-profile transport system, the Dubai Metro needed fail-safe public safety coverage they could rely on. The combination of a rapidly growing population and severe traffic congestion meant that building this urban rail system was a necessity and hundreds of thousands would be using it on a daily basis.

The Solution

ATLAS Telecom, the telecommunications supplier on this project, worked out the design for the proposed system and selected Cobham Wireless to develop and supply the safety critical repeaters for the metro.

Using Cobham Wireless' repeater systems in TETRA networks overcomes the challenges of deploying underground by leveraging usability and flexibility. The use of these repeaters allows base station coverage to be boosted and extended over great distances to remote locations; removing the issues associated with continuous communications underground. A reliable TETRA radio system must continue performing despite any failures to the system itself. This problem is solved by adding Cobham Wireless' repeaters to the TETRA base stations, which are configured to feed several repeaters placed inside the tunnels.

Due to the complexity of the project, Cobham Wireless designed and supplied three fully customized channel selective repeater systems for each line.



"We worked with Cobham Wireless because their flexibility and adaptability enabled them to provide us with a completely customized system, which was what this project required. The network configuration provides guaranteed redundancy which is vital in a demanding environment such as a metro system".

Ramzi Fayez, Sr. Sales Manager, ATLAS Telecom

Each of the three repeater systems consisted of two channelized repeaters, with three channels on each. Each separate system was fed from two base stations, ensuring full redundancy at all times and the repeaters then connect to leaky feeder cables that provide the coverage inside the metro tunnels and indoor areas on the transport network.

Cobham Wireless' TETRA products are software based, so new features and capabilities can be easily installed in the future on the Metro. The products feature an innovative 'time slot ALC' mechanism which reduces noise transmitted to the base station thus improving overall network performance and selectivity.

The Benefit

ATLAS Telecom partnered with Cobham Wireless to ensure that the Dubai Metro had a fail-safe public safety communications system of the highest standard. The transport network now operates a fully redundant, highly flexible, future-proofed TETRA network throughout its tunnels.

Ramzi Fayez, Sr. Sales Manager at ATLAS Telecom commented "We worked with Cobham Wireless because their flexibility and adaptability enabled them to provide us with a completely customized system, which was what this project required. The network configuration provides guaranteed redundancy which is vital in a demanding environment such as a metro system".

Cobham Wireless is proud to have one of the most experienced TETRA engineering and design capabilities in the industry and are regularly called upon by network operators, public safety systems integrators, base station manufacturers and public safety authorities to help solve coverage issues such as this one.

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