

Eurasia Tunnel

Connecting continents: Public safety network deployed in world-first intercontinental road tunnel

COBHAM

Case Study

The most important thing we build is trust

Overview

Cobham Wireless, together with systems integrator partner, Yapı İDİS, deployed a public safety communications network within the new Eurasia Tunnel. The construction is the world's first undersea road tunnel linking two continents, spanning Europe and Asia.

Challenge

The turnaround time for the deployment was very tight; a matter of months. Within this strict timeframe, Cobham Wireless was required to deliver a multi-band, multi-technology solution for emergency services communication.



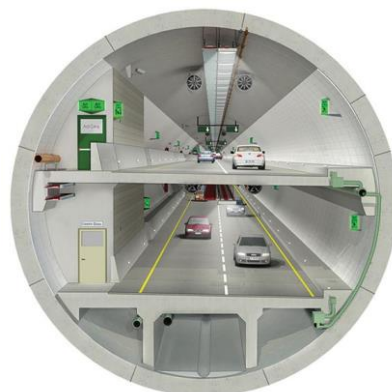
The Challenge

In mid-2016, Cobham Wireless was selected to provide a public safety communications system for the Eurasia Tunnel, the first undersea road tunnel to connect two continents. The completion of the project was a landmark feat of engineering, linking two areas of Istanbul on either side of the Bosphorous Strait, and reducing the cross-continental journey time from around 100 minutes to just 15.

Constructed by Yapı Merkezi and SK E&C, the tunnel spans 5.4km and is open to traffic 24 hours a day, 365 days per year. Seven hundred engineers and more than 12,000 employees were involved in the tunnel's construction, which included the deployment of infrastructure and technologies to ensure the highest level of safety for drivers and passengers.

Cobham Wireless was awarded the tender for the public safety communications network project due to its experience as a provider of public safety network equipment, which includes numerous tunnel and underground deployments. However, the scale and significance of the Eurasia Tunnel, as well as the very short lead time, set this deployment apart.

A multi-band, multi-technology solution was required to provide emergency services cover within the tunnel, supporting UHF, VHF, DMR and FM technologies. A purchase order for Cobham Wireless' equipment was received in September 2016, with the Turkish government giving a deadline of December 20th for the completion of the project. This allowed roughly three months for the customised solution to be installed and tested within the space allocated in the tunnel.



The Solution

Despite the challenging turnaround time, Cobham Wireless delivered the public safety network prior to the tunnel's inauguration ceremony and subsequent commercial opening at the end of 2016. To deliver the project, the company partnered with systems integrator Yapı İDİS.



"The tunnel is of huge strategic importance to the region, and, with so many vehicles and their passengers passing through every day, public safety was our number one concern," commented Dr. Tamer Taşkın, General Manager of YM İDİS, Yapı Merkezi Group's technology company. "It was only due to our close partnership with Cobham Wireless and the hard work of all involved, that we were able to deliver the project in time, and ensure the safety within the Tunnel."

The deployment is a customised solution incorporating our D-CSR (Digital Channel Selective Repeater) and BSR (Band Selective Repeaters), supporting UHF, VHF, DMR and FM technologies developed in-house by Yapı Merkezi İDİS. The two master sites (one active, one redundant) each contain one VHF repeater for communication between ambulance services, and one UHF repeater each for police, fire and DMR/AFAD (Istanbul's Disaster and Emergency Management Authority) communication. The sites also contain one combiner and one Optical Master Unit (OMUII). These master sites sit at either end of the tunnel, with one providing back-up coverage in the case of fibre loss in any of the remotes. This second redundant site will prove essential in guaranteeing communications between vital public services at all times.

Five remote sites were positioned along the tunnel, each containing the same repeaters for each emergency services group, in addition to an FM repeater, combiner and dual fibre repeater. The entire system can be overseen and controlled off-site, using the Active Element Manager (AEM) system.



The Benefit

The public safety communications network deployed by Cobham Wireless completes the tunnel's comprehensive range of integrated solutions, ensuring the safety and security of those travelling the Eurasia Tunnel.

Cobham Wireless' solution features a remote unit dedicated to each of the emergency services teams utilising the network. This allows members of police, fire and AFAD departments to communicate with each other with clarity, as well as allowing for simultaneous inter-department communication, with no interference.

As the digital off-air repeaters are software based, new features and capabilities can be easily installed in the future via a remote download, making this solution future-proof.

Thanks to the solution, drivers and passengers in the tunnel can also benefit from one-way communication from emergency service teams. This break-in system allows operational teams to access the FM channel and alert drivers to potential safety issues in the tunnel, over their FM radios.

"The tunnel opening was a historic moment for the region," commented Dogan Ozturk, Country Sales Manager, Turkey, at Cobham Wireless. "Our involvement in the project provides a benchmark of success, and will open the door to further opportunities throughout Turkey and beyond."

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Dr. Tamer Taşkın, General Manager,
Yapı Merkezi İDİS

