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Professional Communication
 Networks and Solutions

CASE STUDY

Dublin Port Tunnel Communications System.

The Dublin Port Tunnel comprises of approximately 5.6km of dual carriageway that includes up to 2.1km of twin cut and over tunnels and a minimum of 2.4km of twin bored tunnels together with associated interchanges and infrastructure.

The communications systems are critical in supporting the operations of the Tunnel, from Traffic Management to managing an emergency situation where integration to the emergency services command and control systems and timely accurate information are critical.

The system was designed to operate in different radio-frequency bands :

- VHF Low Band (66-88Mhz)
- FM Broadcast Band (88-108Mhz, unidirectional into tunnel)
- UHF High Band (450-470Mhz)
- UHF Low Band (380-430Mhz - Option for Tetra)

(see our TETRA Case Study Here)



"The network designed and implemented by Sigma Wireless is the backbone of our safety systems. In addition to supporting the on-going management of the tunnel the system allows the optator to override all other communications systems, even local radio stations when necessary, in the event of an emergency or when a key traffic announcement must be delivered. It is also fully integrated with the fire, ambulance and Garda in terms of both their internal and external command and control systems."

Tim Brick - Dublin City Council Project Engineer



The Sigma Wireless / Axell Wireless system design was based on two 7/8" leaky cables fed in either direction down both bores of the tunnel. Because of the associated longitudinal losses a number of remote fibre-fed repeaters are used along the 4.5km length of the Tunnel.

The design is based upon up to 20 RF Channels. Each emergency service and FM broadcast service operator have their own equipment on their own sites. At the tunnel master site channel selective cell enhancers are used. These cell enhancers take a single RF Channel "Off-Air" from the emergency service's donor site and feed the signal into the fibre-optic network.

For further information on this or other projects contact us through the website or call us on + 353(0)1 8142100.