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Professional Communication  
Networks and Solutions

## CASE STUDY ■■

### Communications Network for Light Rail System. LUAS - Dublin.

#### Benefits

The TETRA network designed and commissioned by Sigma Wireless Communications has provided the LUAS operator Veolia Transport the flexibility to deliver operational efficiencies, combined with the resilience required in an environment where public safety is critical. The TETRA solution integrates voice and data communications in one secure network, providing virtually instant communication and 100% coverage.

**Sigma Wireless designed the TETRA network system with a reduced number of base stations against the origin requirement and successfully exceeded the desired coverage area.**



would support, among other applications, real time positional updates on each train. Their communications partner AMOS carried out an international tender process, choosing the TETRA system proposed by Sigma.

#### Business Requirements

The LUAS is Dublin's light rail system, designed as a public transport system to meet the needs of a thriving European capital city in the 21st century. As a new operator of a major public transportation system in Ireland, Veolia Transport required a voice and data communications system, which would meet the requirement of supporting over 70,000 customers per day, along two separate light rail lines. In addition to providing a mission critical voice communication system, supporting one to one and group communications, Veolia also required a robust data network, which

#### TETRA

TETRA is a professional mobile radio system which utilises digital wireless communications technology similar to that used in mobile phones. TETRA has been designed to meet the requirements of mission critical communications in the public and private sectors and offers many benefits over mobile phones. These include a higher level of coverage through a smaller number of base stations, very fast call set up time (more than 10 times faster than a mobile phone), group calling, high levels of encryption and the ability to build private networks at affordable prices. With quality of service ensured in the network, TETRA also delivers higher call quality than often experienced with mobile phones, with no network congestion being perceived.

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## The Solution

The construction of the LUAS was a truly international project, with the contract to build and operate the system being awarded to international public transport operator Veolia, and the communications being subcontracted to Rome based Alcatel Metro Operations Systems (AMOS). The TETRA network proposed by Sigma Wireless Communications was designed to meet the initial requirements of Veolia, but also to deliver enhanced functionality and performance, which would offer greater efficiencies and security.

Through implementing superior radio planning, John Reilly, Director of Engineering and his team were able to reduce the number of base stations to only four, while exceeding the original coverage requirements. The cost

benefits of this, combined with the level of service which TETRA offered, ensured that this was the winning solution.

The installed Motorola TETRA switch can support up to 64 base stations, which ensures that the system is capable of supporting future expansion of the network, as well as supporting voice calls between trams and the control room. The TETRA network also supports Automatic Vehicle Location (AVL), supporting status updates at tram stops and the public address system.



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### Additional Benefits

In addition to meeting all of Veolia's original communication requirements, Sigma Wireless also delivered the ability to support Automatic Vehicle Location Services. This has been used to make sure that the exact location of each train is known to the control room and that customers at the station know exactly when the next train is due.

In addition to the two fully installed TETRA devices on each train, security personnel and ticket inspectors also carry TETRA portable devices, ensuring clear and smooth communications between all parties involved in the smooth running of the network.

"We transport over 70,000 passengers a day through the heart of one of Europe's busiest cities. Reliable, secure and flexible communications are essential to this. The Motorola TETRA network, supplied and implemented by Sigma Wireless, has met all our requirements for both voice and data.

We look forward to implementing the system on the latest extension to the LUAS network."

Eamon O' Modhrain  
Veolia Transport



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#### Sigma and TETRA

Sigma Wireless is committed to the TETRA standard and has experience in the design and manufacture of antennae as well as network design, build and commissioning. Director of Engineering John Reilly has lectured and published extensively on TETRA implementation. Sigma Wireless implemented the first Tetra network in Ireland and is responsible for the construction and ongoing support of the national TETRA network in Ireland, which is utilised by all Public Safety agencies.



#### About Sigma Wireless

Sigma Wireless evolved from Motorola Ireland in 1991 and continues to represent Motorola, as well as other leading manufacturers of communications products. In addition to local projects, Sigma Wireless has engaged in many projects throughout Europe, Asia and the Middle East. With over 25 years experience in the design, implementation and support of professional communications systems, we are recognised as a leading International Motorola partner.

"Sigma Wireless demonstrated a deep understanding of the customers requirements and a total commitment to exceeding their expectations.

In a complex project of significant public interest they delivered on all their commitments in a truly professional manner."

Eamon O' Modhrain  
Veolia Transport