



CASE STUDY

Airwave - Heathrow Airport

RED-M PROVIDES MISSION CRITICAL RADIO COMMS INFRASTRUCTURE FOR USE BY EMERGENCY SERVICES AT THE WORLD'S BUSIEST AIRPORT - HEATHROW



RESERVED EXCLUSIVELY FOR THE UK EMERGENCY SERVICES & OTHER ORGANISATIONS WITH A RECOGNISED PUBLIC SAFETY RESPONSIBILITY, AIRWAVE IS A NATIONWIDE SECURE DIGITAL RADIO NETWORK DESIGNED TO PROVIDE ESSENTIAL VOICE & DATA COMMUNICATIONS SERVICES. THE SERVICE MUST OPERATE IN ALL AREAS WHERE EMERGENCY SERVICE PERSONNEL NEED ACCESS, INCLUDING ALL THE TERMINAL BUILDINGS, HANGARS, CAR PARKS, PEDESTRIAN SUBWAYS, ROAD TUNNELS AND OPEN SPACES AT LONDON HEATHROW AIRPORT.

AIRWAVE

The Airwave service uses a technology known as TETRA 'Terrestrial Trunked Radio', an ETSI standard digital Private Mobile Radio (PMR) system which provides communications to keep emergency & public safety teams in touch using portable handheld & fixed vehicle radios.

Airwave works in much the same way as a commercial mobile phone network using transmitters to provide radio coverage across geographic areas or 'cells', with users maintaining contact with the transmitters through their radio handsets.

24 hours a day, every day, Airwave's digital voice and data service is trusted by emergency service teams, as well as other public safety agencies.

THE WORLD'S BUSIEST AIRPORT

Located 15 miles west of Central London, Heathrow Airport has five passenger terminals (Terminals 1, 2, 3, 4 & 5) and a cargo terminal. Used by over 90 airlines flying to 170 destinations worldwide, Heathrow served more than 67.9 million passengers in 2007.

EMERGENCY SERVICES AT HEATHROW

The nationwide roll-out of the digital Airwave network meant the old analogue radio communication system used by the emergency services would be replaced.

At Heathrow, with its myriad of buildings and infrastructure, it was soon identified that an airport wide communications system would need careful planning to achieve the required operational criteria.

To ensure that their needs would be met, the customer was in close dialogue with Airwave as the new network was being created.

This early involvement meant Airwave soon concluded they would need a company with specialist knowledge and experience of TETRA technology to deliver their customers needs at Heathrow Airport.

Based on their long established working partnership on TETRA networks, Airwave's natural choice was Red-M, confident in the knowledge that the needs of their customer would be fulfilled.

WHAT THE CUSTOMER SAID

"Red-M have been a trusted partner of Airwave for many years.

Throughout the implementation they have been responsive and easy to work with.

We have now awarded Red-M the maintenance contract to ensure the comprehensive coverage is maintained, providing users with the highest levels of availability and reliability throughout the airport."

Martin Benke
Operations Director
Airwave

COVERAGE FAR AND WIDE

Airport coverage requirements were specified and this turned out to be almost everywhere!

As Red-M was responsible for designing the system, it was down to them to satisfy the customer that all the airside, landside, public & private areas had the coverage required. In fact coverage was so important that the customer said they wanted to independently test the system during final Commissioning to ensure it met their requirements.

A CHALLENGING ENVIRONMENT

The network was designed to ensure that users have instant communication, even in remote areas & within the confined spaces of the buildings and tunnels where radio coverage has often failed in the past. To make this a reality required Red-M's in-depth skills and expertise in design to create and construct the wireless infrastructure to bring the network to life.

Due to the size of the airport, this was no minor undertaking. Red-M has been 'on-site' since 2005, installing the system in phases across and throughout the airport. The network's comprehensive indoor and outdoor coverage is now operational in all these areas:

INDOOR COVERAGE

- Terminals 1, 2, 3, 4 and 5
- All public car parks
- Pedestrian subways linking T1, T2 & T3
- Airside road tunnels under the runway (South Cargo Tunnel from T1/2/3 to T4;

Red-M Wireless Solutions encompass all the key areas to deliver a turnkey, all-embracing service.

Design

- **Radio Frequency** - Many wireless networks are designed with insufficient focus on RF aspects, usually due to a lack of in-depth expertise in this complex & technical area. Red-M use RF as the key foundation for all it's designs.
- **Physical** - Buildings have a significant & varying impact on RF performance so by combining RF measurements with physical site data, Red-M arrives at the best possible solution.

Implementation

- **Equipment Supply** - Red-M has close relationships with all the leading equipment suppliers, choosing the best and most appropriate products for each situation.
- **Installation: Equipment and Cabling** - Working closely with the customer & any on-site contractors, Red-M prepares detailed schedules of works to ensure a smooth installation with minimum disruption. A dedicated Red-M project manager oversees the installation & controls day-to-day site activity.

Commissioning

- **Complete System Commissioning** - Red-M's tried & tested methodologies ensure project integrity as part of the commissioning process.
- **Acceptance Testing** - a thorough on-site walk around is undertaken to satisfy the customer that implementation meets expectation &, upon handover, a detailed document is submitted that contains an installation inventory & system drawings and, if relevant, configuration settings, test & compliance certificates & a photographic record.

Support

- **Ongoing Maintenance** - Red-M offers a comprehensive range of maintenance & support options, both planned &

Southern Airside Road Tunnel 'Taxibridge 3', from T1/2/3 to T5]

- M4 spur road tunnel

OUTDOOR COVERAGE

- One rooftop macro cell inside the airport
- Seamless external coverage from neighbouring TETRA cells outside the airport boundaries

For the last phase, Red-M completed work in the new T5 building and on the connecting tunnel to the terminal. During the past three years Red-M has worked under demanding security conditions, because of the nature of the environment, which has meant the engineers and project managers have had to be very flexible and reactive to changing requirements - a challenge

they have taken on with great success!

Red-M now provides reactive & preventative maintenance for the infrastructure- providing first line support, remote monitoring and coverage verification assessments to ensure the high quality performance and reliability continues..

SUMMARY

The TETRA system at Heathrow Airport is now fully operational and is the biggest indoor solution in the Airwave network.

As a long standing and trusted supplier to Airwave, Red-M's wireless expertise made them the only company in the UK with the expertise to carry out such a project...and they did so, successfully, getting it right, first time!

Independent of equipment vendors and technologies, Red-M enables organisations to fully realise the benefits of wireless systems by delivering high quality solutions through an integrated five step cycle of best practice:

1. CONSULTING

Defining exactly how, when and where wireless will be used.

2. AUDIT

Understanding what is happening and developing a design baseline.

3. DESIGN

Optimum wireless performance from a design that works right, first time.

4. IMPLEMENT

A non-disruptive installation using best-of-breed technologies.

5. MANAGE

Maintaining a healthy network that continues to meet your needs.



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DOC.REF: CAST-AWHR-1208:1



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