

Heathrow T2

Providing 4G to travellers at Heathrow's new Terminal 2

COBHAM

Case Study

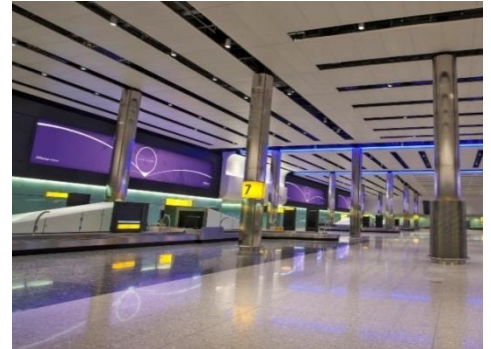
The most important thing will build is trust

Overview

The Terminal 2 building needed to be fitted out with both cellular and public safety coverage to provide the millions of visitors with the mobile coverage they have come to expect, whenever and wherever they are.

Challenge

The cellular coverage system needed to serve multiple mobile operators, and cope with running 2G, 3G and 4G services with minimum equipment deployed to ensure efficiency when it came to both cost and installation time. The public safety system needed to support all the emergency services as well as the radio system that Heathrow staff and air-traffic personnel would communicate on.



The Challenge

Heathrow Terminal 2 – or the Queen's Terminal as it is also known – is one of the UK's largest construction projects, costing £2.5bn and marking the newest phase of development at Heathrow Airport in London. The old terminal building was demolished in 2009 and work started immediately on the first phase of the new development.

The construction of the new terminal is to be spread across two phases and when complete, Terminal 2 (T2) will have capacity for 30 million passengers each year. The building for the first phase needed to be fitted out with both cellular and public safety coverage to provide the millions of visitors with the mobile coverage they have come to expect, whenever and wherever they are. The cellular coverage system needed to serve multiple mobile operators, and cope with running 2G, 3G and 4G services with minimum equipment deployed to ensure efficiency when it came to both cost and installation time.

The public safety system would need to serve all the emergency services as well as supporting the radio system that Heathrow staff and air-traffic personnel would communicate on.

All these services needed to be supplied within a tight time-frame and were to be fully operational when the terminal opened to passengers for the first time on 4th June 2014.

The Solution

Cobham Wireless worked with one of the world's leading engineering and project management consultancies, Atkins, to deliver the in-building coverage equipment the newly constructed Heathrow Terminal 2 required. The coverage project required a multi-band, multi-operator cellular system made up of seven sectors so Cobham Wireless supplied a fibre distributed antenna system (DAS) throughout the location.

The system architecture consisted of a base station hotel (BTS) housed within the communications room of T2. The BTS then linked up to a series of optical master units (OMUs) that were connected, via fibre, to the remote units spread around the facility. There were a total of 36 tri-band units and 36 dual-band units deployed to provide the necessary coverage across 5 frequency bands (800MHz, 900MHz, 1800MHz, 2100MHz and 2600MHz).

The public safety system was fed from two different base station locations employing different fibre-optic paths with automatic and manual switching, providing secure and reliable redundancy in the event that one of the base stations fails.

The system provides both UHF and TETRA coverage allowing the London Fire Service and

other emergency services workers to communicate effectively inside T2 in a disaster scenario. The public safety system also supports the airport's trunked radio system utilized by airport staff and services personnel.

The entire coverage system is monitored using Active Element Manager (AEM) – allowing for alarms to be detected quickly and for changes and upgrades to the system to be made with minimum disruption and often completely remotely.



Optical Master Unit (OMU)

The deployment itself was on a tight timescale and the team was even able to bring forward the supply of the equipment earlier than the original project planned dates, in order to de-risk the installation and testing in time for the grand opening of the new Terminal.

Having the engineering capability to be able to provide a complete range of equipment on a system that covers both cellular and public safety led to Cobham Wireless being chosen as the main provider for the in-building solution at Heathrow Terminal 2.

The Benefit

The Queen's Terminal at Heathrow Airport now boasts one of the world's leading in-building coverage systems, provided by Cobham Wireless, serving both the emergency services and the mobile operators and their customers throughout the entirety of the facility.

Transport Secretary Patrick McLoughlin is quoted by the BBC as saying: "The new terminal is a perfect example of cutting-edge technology and design that can combine to make the best use of capacity, to improve the passengers' journey and experience, further reinforcing Heathrow's reputation as a world class airport."

Passengers who visit the terminal with even the most recently released 4G smartphones can use their devices safe in the knowledge they will receive a good quality connection. And the emergency services have a fully redundant UHF and TETRA communications system at their disposal should the need arise.

Using one supplier for the whole solution brings several benefits, including a common supervision and monitoring system that manages all the equipment, as opposed to deploying different systems requiring further training and incurring additional cost as a result. System maintenance and upgrades are also simplified as a result of all the equipment coming from the same supplier.

