

# UTMC, the British Government and an open-source approach to traffic management

# Introduction

In the modern transportation industry, intelligent transport systems (ITS) bring efficiency and improved safety to drivers and public transportation. The infrastructure that provides these features has grown over the past two decades, with modern roads having a wide range of sensors and technologies to optimise road travel.

A side effect of the growth of ITS technology and infrastructure is the significant number of systems and networks required for them to be operable, as well as their lack of interoperability. As a solution, Urban Traffic Management and Control (UTMC) systems in the UK brought an open-source approach to ITS infrastructure, showcasing a freedom of network usage so that businesses can focus on their individual technologies.

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## The challenge of traditional intelligent transport systems

**An ITS operates via the seamless data communications of road infrastructure.**

They make mobility **safer, more efficient and more sustainable** by enabling real-time communications between drivers and traffic management systems. An example of this is closing lanes or lowering the speed limit once a traffic collision occurs to reduce the risk of further incidents.

In the traditional era of ITS, individual technology developers and third-party pioneers would develop new devices and technologies to be applied as part of a traffic management system. These technologies would be based on proprietary systems to seamlessly integrate and communicate with existing road infrastructure, creating traffic optimization opportunities that would benefit drivers and public transportation.

However, as the number of innovations in ITS infrastructure grew, this proprietary stance towards technology became a hurdle in the way of efficiency. Each company would need to build their own infrastructure, networks and wireless communications to compete with others, creating a significant end cost. Customers directly suffered from this too, as the cost would inevitably fall on them for the sake of competition. As this problem grew, it became clear that a standardised approach would benefit all parties involved in the ITS space.





## What is UTMC?

**Urban Traffic Management and Control (UTMC) is a UK initiative that actively drives an open-source approach to the traditionally proprietary ITS industry.**

UTMC systems are built on network interoperability and technical standardisation, providing suppliers and developers of ITS infrastructure with an equal level of access and utilisation of established systems. What this means for businesses is that they can each focus on their own infrastructure with the freedom to share networks and systems rather than being forced to build their own separate versions.

UTMC was initially launched in 1997, and has since grown into the standard for traffic-related ITS in the UK, with almost every single UK local authority having a UTMC core to their systems. A key aspect of a UTMC is wireless technologies and the establishment of cost effective communication architectures that are future-proof for innovations and developments. These can range from Bluetooth and Wi-Fi technologies to cellular and WLAN (wireless local area network) solutions; it depends on the location, application and bandwidth availability, but ultimately offers open-source connectivity between infrastructure.

8.2.4 of UTMC Frame Technical Specification states: “Good design practice should be used to ensure that antenna mounting, power emissions and other features provide an end-to-end bit error rate of better than 1:10<sup>4</sup> under all operating conditions likely to be experienced at each installation site.”

# How does UTMC enhance intelligent transport systems?

**One of the key advantages of UTMC systems is centrality.**

This represents the connectivity of various technologies to create a single holistic system that can be accessed anywhere with internet access. An example of this is with the ITS at Warrington, that combined various subsystems to become interoperable;

## Urban Traffic Control (UTC)

Provides strategic management and traffic control including the monitoring of subsystems.

## Remote Monitoring System (RMS)

Features monitoring and fault reporting via PSTN/GSM networks, allowing the most cost effective communications for traffic signal sites isolated from the UTC network which do not require coordination with other signals.

## Variable Message Sign (VMS)

Signs displaying non-dynamic information messages set manually via the UTMC control room.

## Car Park systems

Signs displaying non-dynamic information messages set manually via the UTMC control room.

**By integrating these subsystems together, they enhance the individual capabilities of each whilst simultaneously making them easier to use and integrate with new and old ITS infrastructure.**

Another key example of UTMC enhancing ITS is the interoperability of the Highways Agency (HA) and the local authorities with Automatic Number Plate Recognition (ANPR) systems. Due to the open-source functionality of UTMC, ANPR systems are able to utilise HA infrastructure to provide greater levels of safety and control over motorway networks. They are able to inform drivers of journey time measurements via VMS, warn drivers of incidents on the same motorway and suggest diversions based on real-time traffic data.

# Seamlessly integrate with UTMC and ITS with reliable wireless connectivity

**UTMC systems bring interoperability and centrality to ITS infrastructure.**

They benefit businesses by providing an open-source approach to network and system usage, and benefit customers by enhancing the constant technological innovation in road transportation.

A foundational element of UTMC is the support of wireless communication technologies and networks. ITS Infrastructure needs to be able to communicate reliably on a range of networks, technologies and frequency bands depending on the application; UTMC amplifies this requirement by providing wireless standards for businesses to follow, such as 8.2.4 in their technical specification.

At Antenova, we provide a wide range of high-performance antenna solutions that are fully compliant with UTMC across wireless technologies. Our products are compact, come in a variety of form factors and bring ease of integration for any design. To find out more about our antennas in the context of UTMC, **contact a member of our team today**



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