

C-ITS Project in Germany

Europe's largest cooperative Intelligent Transport Systems (C-ITS) project for regular highway traffic

Kapsch TrafficCom signed in October 2023 a contract for a groundbreaking C-ITS (Cooperative Intelligent Transport Systems) project with the German Autobahn GmbH of the Federal Government.

C-ITS: Intelligent Mobility for enhancing safety, optimizing traffic flow, and reducing emissions on German highways. It also lays the foundations for automated driving.

Under this project, Autobahn GmbH is implementing the C-ITS communication service called Road Works Warning (RWW) system on all of Germany's approximately 13,000 km of highway corridors for the first time in Europa into regular operation. For this, mobile barrier panels indicating limited-time work sites will be equipped with ITS Roadside Stations (IRS), which send warning messages directly to approaching vehicles. This can reduce the risk of accidents in dangerous road works areas, as drivers are informed in time and directly about road works.

Autobahn GmbH uses C-ITS to transmit information from roadworks trailers directly to vehicles, which increases road safety by providing information that is accurate in terms of time and location.

The aim of Autobahn GmbH is to develop Germany's highways into a fully digital, networked and automated traffic system. To achieve this, vehicles will be connected to each other and to the traffic infrastructure in order to exchange information securely, accurately and, most importantly, in real time. This will enable vehicles to react independently to traffic situations.



Project Scope:

For the implementation of the C-ITS project, the German highway network is divided into 3 regions of operation, lots. Kapsch TrafficCom was awarded Lot 1 and Lot 2, covering over 8,600 km of roads, or two-thirds of all German highways.

Kapsch TrafficCom is supplying for this project its proven C-ITS hardware and software products for up to 13 C-ITS Services. In addition to the installation of the hardware, which is carried out in cooperation with a local partner company, Kapsch TrafficCom is also responsible for the operation and maintenance of all system elements for a period of up to 12 years together with Autobahn GmbH.

In the Call-Off 1 which is the first phase of the project, Kapsch TrafficCom is responsible for:

- Delivery, installation, commissioning, testing, technical operation
- Inventory at 130 highway masteries, about 1,000 mobile barrier panels
- Delivery of the C-ITS communication units, about 1,200 ITS Roadside Stations
- Delivery of the cloud-based software, the Connected Mobility Control Center (CMCC)
- External connection to mobile safety trailers, Public Key Infrastructure (PKI), ITS Central Station (ICS)
- C-ITS Service, Priority 1 & 2:
 1. Delivery, installation, commissioning, testing, technical operation
 2. Inventory at 130 highway masteries, about 1,000 mobile barrier panels

Kapsch TrafficCom has global experience with the implementation and operation of C-ITS projects to ensure the long-term availability and interoperability of the systems. The C-ITS technology, which can be used for both highway and urban applications, is future-proof - the system can be expanded to include additional C-ITS services such as traffic congestion warnings, approaching emergency vehicles, or local weather information such as rain or fog on the road. The existing hardware and software is ready for this.

The Solution:

The ITS Roadside Station (IRS), the Kapsch RIS-9160, is mounted on the mobile barrier panel. It transmits information about the road works to the approaching vehicles. This happens at a distance of about 500 meters. The roadworks warning is shown on the display of the receiving vehicle and is simultaneously repeated audibly. The Kapsch cloud-based Connected Mobility Control Center (CMCC) software controls the RIS-9160 and acts as a pre-computer interface to other traffic management systems.

On the one hand, the information is transmitted from the ITS Roadside Station via C-ITS directly to the vehicle and simultaneously to the traffic control center. At the traffic control center, the Mobility Data Marketplace information is made available through back-end solutions to vehicles and other road users that are not equipped with C-ITS technology.

The communication is based on C-ITS-G5 (IEEE802.11p™) technology and is according to the C-ROADS platform specifications.

The Public Key Infrastructure (PKI) ensures that messages exchanged between vehicles and infrastructure come from secure sources and have not been tampered with. Vehicle manufacturers must ensure that the messages they display to drivers are accurate.



Your Added Value:

C-ITS service Road Work Warning (RWW) has two main objectives:

- *Improve road safety by providing early warning to road users.*
- *Protect construction workers, especially in short-term construction sites and when working in moving traffic.*