



5GAA C-V2X TECH DEMOS

Berlin, October 2024

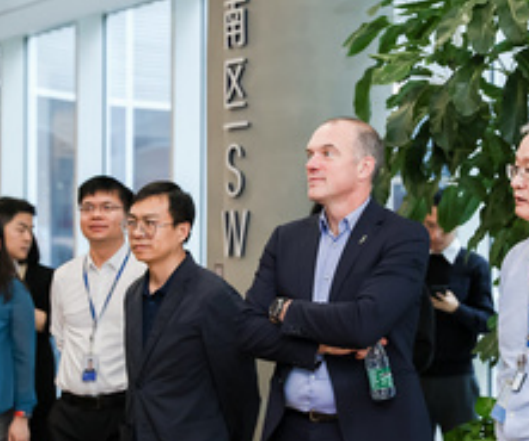
CONNECTED MOBILITY FOR PEOPLE, VEHICLES, AND TRANSPORT INFRASTRUCTURE

The 5G Automotive Association (5GAA) is a global coalition of automotive, technology and telecommunications companies driving the deployment of smarter, safer, and more sustainable mobility and transportation services.

5GAA actively promotes the adoption of C-V2X (or cellular vehicle-to-everything) as the critical technology to deliver full connectivity and be a disruptive force in the automotive market.





Quickly evolving in Europe, the US, China and Japan, C-V2X is already revolutionising the mobility ecosystem and how drivers interact with the world. It provides real-time, highly reliable, and actionable information flows to improve the overall transport experience for vehicles, road users, and the surrounding infrastructure.





Created in September 2016, 5GAA has rapidly expanded to include key players with a global footprint in the automotive, technology and telecommunications industries. This includes automotive manufacturers, tier-1 suppliers, chipset/communication system providers, mobile operators and infrastructure vendors.

We bring together:

-  115+ global members
-  10 of the top 15 automakers
-  8 of the top 10 mobile operators
-  2 top smartphone vendors

PROGRAMME

At 5GAA, we champion C-V2X as a comprehensive technology package that integrates direct and mobile network communications. In Berlin, we will highlight both.

The event will begin at the Steigenberger Hotel, where we will focus on C-V2X mobile network communications with an exciting live demonstration on Berlin’s public roads. Following this, participants will board mini-buses and head to the T-Systems offices, where they will witness advanced 5G-V2X capabilities in another thrilling live demo.

In addition to these two real-time outdoor demos, supporting table presentations will be offered at both venues and provide deeper insights into the technology.



LOCATION 1: STEIGENBERGER HOTEL

LIVE DEMO



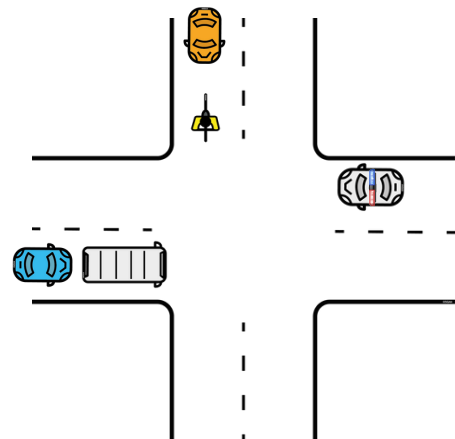
Automotive, telecom and tech experts unite to showcase C-V2X services over mobile networks, **focusing on use cases designed to enhance driver awareness of vulnerable road users** (VRUs). The use cases, based on global standards, include pedestrians—both with and without signalling devices—as well as road workers and cyclists. Additionally, we’ll demonstrate alerts for approaching emergency vehicles.

The fast and reliable exchange of information is **possible thanks to commercial Multi-Access Edge Computing (MEC)** platforms from **Deutsche Telekom** and **Vodafone Germany**, with a low-latency interconnection between the two Mobile Network Operators.

All use cases will take place on Berlin's public roads, utilising live 4G/5G mobile networks.



Example: cyclist in one-way street



Example: emergency vehicle approaching

STATIC PRESENTATIONS



Digital Twin

A digital replica of the route and use cases showcased in the live demo, designed to illustrate the benefits of presence awareness for pedestrians and cyclists, including a VRU Digital Twin and Network KPI Digital Twin with measurement results.



Smart Glasses: Bicycle Proximity Alerts

Experience real-time bicycle-centric proximity alerts displayed on smart sports glasses. Using Vodafone's Safer Transport for Europe Platform (STEP) with C-V2X technology, participants will take part in simulated journeys around the Steigenberger Hotel.



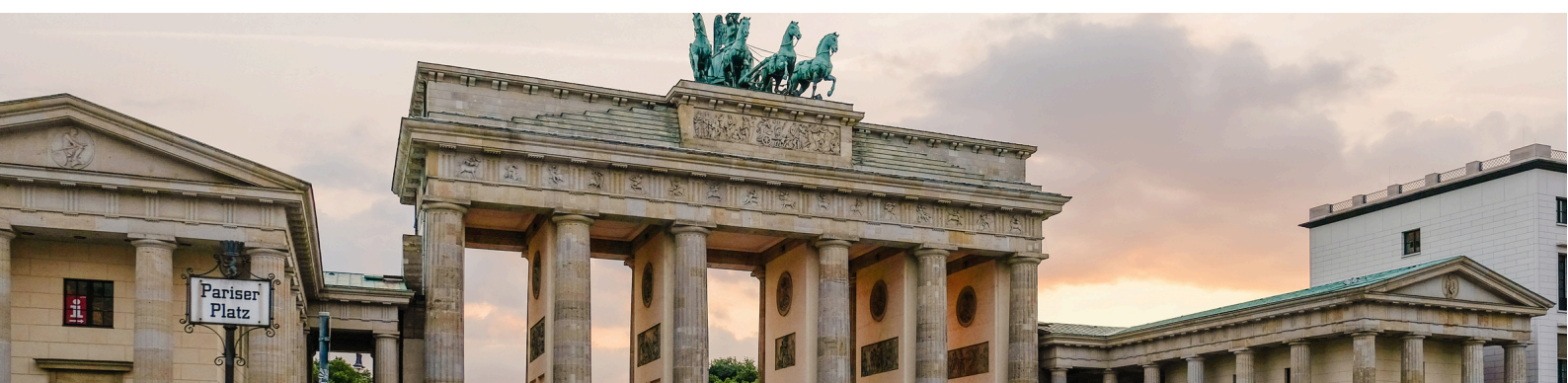
Live Demo from a Bird's-Eye View

Watch the main demo from a bird's-eye perspective using Commsignia Central, a centralised platform for managing and operating C-ITS Vehicle to Everything (V2X) services. Additional information will be displayed on a separate monitor, highlighting the showcase architecture, Deutsche Telekom's MEC infrastructure, advanced Quality-on-Demand features, and the broader relevance of this demonstration for future business projects.



Video Representation of Live Demo

A video explanation of the live outdoor demo will be presented by LGE at their table, offering a detailed breakdown of the use cases and technology involved.





LOCATION 2: T-SYSTEMS OFFICES

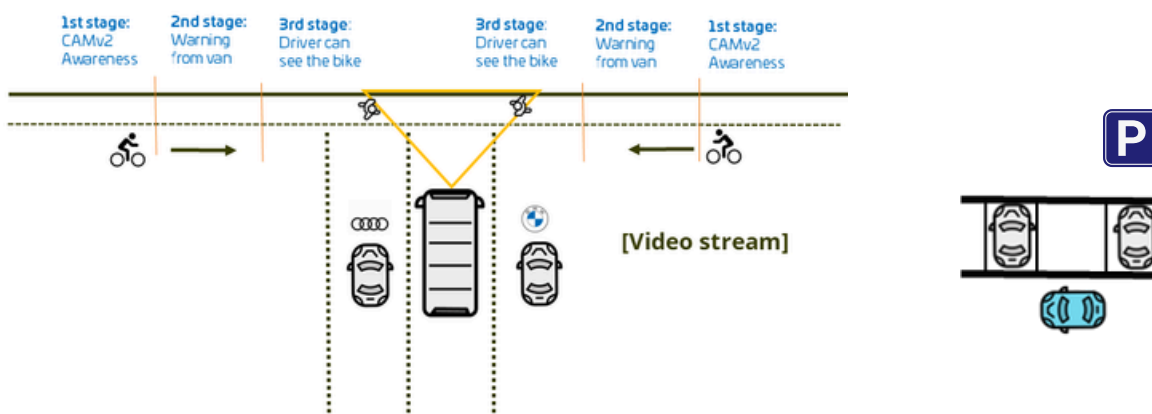
LIVE DEMO



According to 5GAA’s roadmap, 5G-V2X Direct is on track for mass deployment by 2026-2029, with European carmakers rallied behind it. **In Berlin, for the first time ever, we will see it in action and already integrated into vehicles from different manufacturers**—showing the new stage reached by the ecosystem and bringing us one step closer to the roads.

This demonstration will underscore the benefits of 5G-V2X Direct for drivers’ safety. **With its reliable, high-bandwidth transmission** and the implementation of ETSI Release 2 messages, the demo will reveal advanced use cases like obstruction-of-line-of-sight detection, collective perception and movement coordination, bicycle detection, and even real-time video streaming. An additional, second demonstration will showcase the potential of 5G-V2X Direct for improving traffic efficiency via parking information messages.

All of these use cases will be performed live, offering participants a unique glimpse into how 5G-V2X Direct is set to transform future mobility by enabling advanced applications.



STATIC PRESENTATIONS



5G-V2X Interoperability Bench-level

Different 5G-V2X modem vendors will engage in interoperability tests among their devices, proving how collaboration among providers is key to ensure optimal, reliable connectivity.



5G-V2X Service Map and Message Counter

The service map demonstrator will provide an overview of key performance indicators for the 5G-V2X direct channel, including metrics such as transmitted bytes, packets per second (PPS), and the number of Cooperative Awareness Messages (CAMs), Cooperative Perception Messages (CPMs), and video frames. Additionally, a map will illustrate the objects.



Collective Perception Messages

A smart camera installed on a post detects attendees and displays the video on a monitor, with an explanation of CPM's benefits.



Verification of Conformance with 3GPP Standards

This exhibit showcases a benchtop solution designed to test a device's conformance and interoperability with 5G-V2X standards. The test scenario will verify the standard ITS message flow between the test system and the device under evaluation.



Verification of Radio Performance via KPIs

In this case, participants will see a benchtop solution paired with software applications that simulate the transmission of CAM messages from a moving vehicle over the 5G-V2X sidelink (SL). The live transmission and simulated vehicle movements will also be displayed in real time, offering a dynamic view of 5G-V2X SL communication.



5G-V2X sensor sharing, 5G-V2X SL channel statistics and monitoring

Live video streaming reception from the outdoor demo, along with real-time monitoring of statistics and parameters for the 5G-V2X sidelink (SL) in the assigned channel.



CONTACT

marcom@5gaa.org

WEBSITE

www.5gaa.org

ADDRESS

Neumarkter Str. 21
81673, Munich, Germany