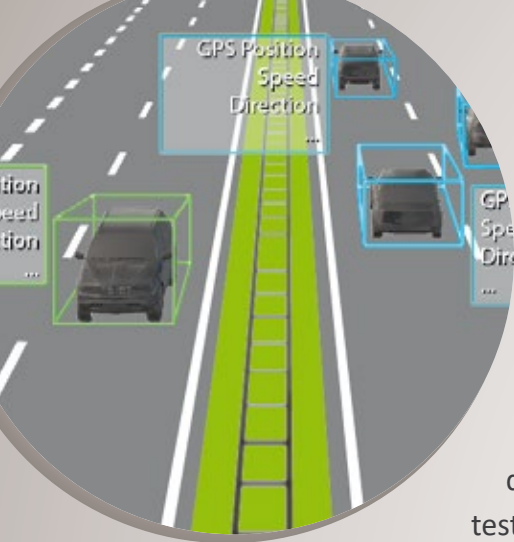


V2X SIM4REAL SOFTWARE

TEST YOUR C-ITS SYSTEM
IN A COST AND TIME EFFICIENT MANNER
UNDER REAL TRAFFIC CONDITIONS



Simplified Testing and Evaluation with V2X sim4real Software

C-ITS systems using V2X communications are developed for large scale deployment. However, before any C-ITS system is fully developed and deployed, an extensive phase of testing is required. Using dedicated private test tracks and simulations are two key methods for testing C-ITS systems.

While test tracks allow testing systems under realistic conditions but suffer from cost and scale constraints, simulations provide cost, repeatability and scale benefits although they require accurate and interconnected models for obtaining realistic results.

OECON's "V2X Sim4real software" implemented on a section of Lower Saxony Testbed bridges the gap between these methods and provides a cost and time efficient alternative to test your single cooperative vehicle in daily traffic with your desired penetration rate. This is achieved by emulating V2X messages by real time monitoring of traditional vehicles driving on the same road in the vicinity of the test vehicle.

As the emulated messages are generated from the kinematic traffic behaviour of physical vehicles, they are accurate, realistic and consistent with the on-board sensors of the test vehicle.

V2X sim4real

cost and time efficient alternative to test your single cooperative vehicle in daily traffic with your desired penetration rate



Test Bed Lower Saxony

The Test Bed Lower Saxony is a purpose-built facility for the development, testing, evaluation and validation of connected and automated driving technologies. The test field is located in the triangle Hannover-Salzgitter-Braunschweig/Wolfsburg, and expected to be approximately 280 kilometres long until 2020. It consists of motorways and urban environments as well as junctions to federal and rural roads. The entire route is precisely mapped. On a section on the A39, between exit Cremlingen and interchange Wolfsburg/Königslutter, communication units and video cameras are also installed to enable the monitoring and tracking of all vehicles in real time. This allows analysing traffic situation and serves as the basis for testing as well as for realistic simulation studies. OECON is core partner of the test field.





Technical Details

- 7 km motorway including 70 stereo cameras on 6 meter high masts, up to 20 roadside units (RSUs) and LTE communication for real-time vehicle detection and tracking
- Test control and monitoring for testing third-party communication and application units
- Emulation of V2X messages for traditional vehicles broadcasted from RSUs to select any penetration rate of cooperative vehicles between 0 and 100%.
- 24/7 recording of traffic situation for creating a catalogue involving numerous traffic situations

Application Areas

- V2V and V2I applications
 - Shock wave damping
 - Cooperative adaptive cruise control (CACC)
 - Traffic jam warning
 - Road hazard warning
 - Emergency brake light warning
 - Emergency vehicle warning
- Intersection collision warning



Your Benefits

Cost effective

Testing interoperability

Easy selection and implementation

Instant testing activities

Recorded tracks

V2X
Vehicle to Everything

V2V
Vehicle to Vehicle

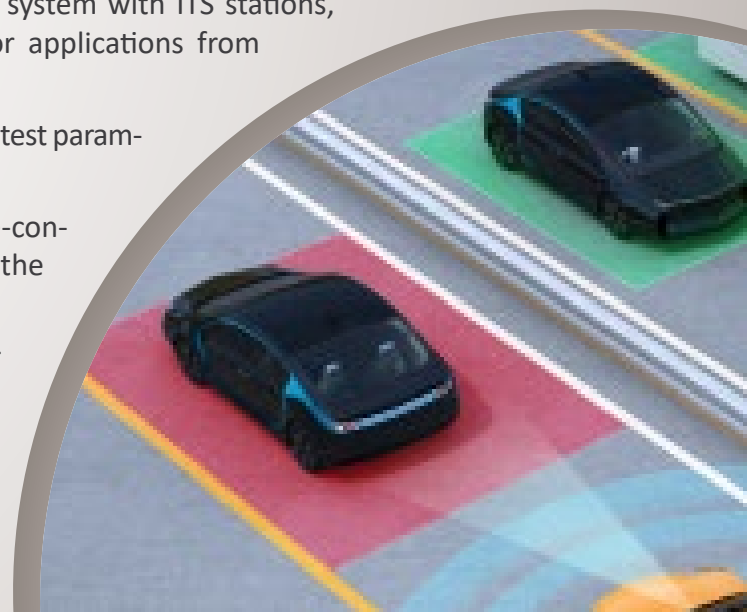
V2I
Vehicle to Infrastructure

Our offer

- Independent test services for the evaluation and validation of C-ITS systems
- Assessment of the impact of cooperative systems on traffic
- Verification of V2X components
 - Multi-vendor interoperability testing
 - Closed track testing as well as public road testing in mixed traffic
 - Reproducible traffic situations
 - Live recordings for simulation tests

Your Benefits

- A cost effective approach to test your single cooperative vehicle in daily traffic with the desired penetration rate.
- Testing interoperability of your system with ITS stations, communication stacks, facilities or applications from different manufacturers
- Easy selection and implementation of test parameters
- Instant testing activities requiring no time-consuming simulation preparation. Drive through the test field with your test vehicle and have fun!
- Recorded tracks allowing you to replay them later in lab simulation to test the performance of the software of your C-ITS systems in real world scenarios.





About Us

We are one of the world's leading providers of cutting-edge testing and location-based smart mobility solutions that support manufacturers and suppliers of the automotive industry and associated industries. Driven by our passion for innovation, we develop solutions enabling the cost and time effective high quality testing processes, and applications of information communication technologies to accelerate the transition to intelligent transport systems.

Our Business

Our broad portfolio of innovative products and services is organized into four main segments. OECON's market-leading eCall products; smart solutions and test systems for connected and automated driving including innovative applications and "V2X sim4real software"; end-to-end solutions for UAV management as well as smart parking systems. Our products and services support customers' needs across the entire technology life cycle from proof of concept to the actual implementation.



eCall & TPSP



UAV Management



Connected & automated driving

Smart Parking



Our Customers

Numerous customers in EMEA, East Asia and North America take advantage of our cutting-edge testing and smart mobility solutions. Additionally, PSAPs all over Europe trust our eCall Router technology. We thrive on and strive for delivering outstanding customer service, while meeting business objectives of increasing profitability, productivity and growth.

Industry Experts

We are the experts in PSAP Services, information communication and mobile positioning technologies. With our team of dedicated and specialized professionals who are connected with opinion leaders and important decision makers as well as our experiences gained from various projects for the last 15 years, we are equipped to provide products and services to meet your specific requirements.



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