Spirent **V2X Emulator**

Validation and Performance Benchmarking of V2X Applications

Benefits

- Real-life conditions in the lab
  - Hybrid test environment combining emulated components (MiL) with real hardware devices (HiL)
- Solution significantly reducing deployment, operation and maintenance costs
  - Optimizing the effort of field tests in regard to quality and quantity
- Performance assessment and benchmarking of V2X safety applications

Tata Elxsi offers customized R&D services spanning advanced research, product development, testing and deployment support to automotive OEMs and suppliers. Tata Elxsi's industry experience in working with leading OEMs, tier 1 suppliers, tool and chip vendors, makes Tata Elxsi the preferred partner for system and sub-system design for the entire product lifecycle.

In partnership with Tata Elxsi, Spirent has developed a V2X test bed that can be used for validation and performance benchmarking of V2X applications running on V2X ECUs.

The V2X test bed provides the ability to bring real-world traffic scenarios into the LAB and thereby significantly reduces costs and time associated with extensive field testing.

It is the ideal test environment for testing and performance benchmarking of V2X applications, in various stages of the development cycle, such as from early research up to pre-production.
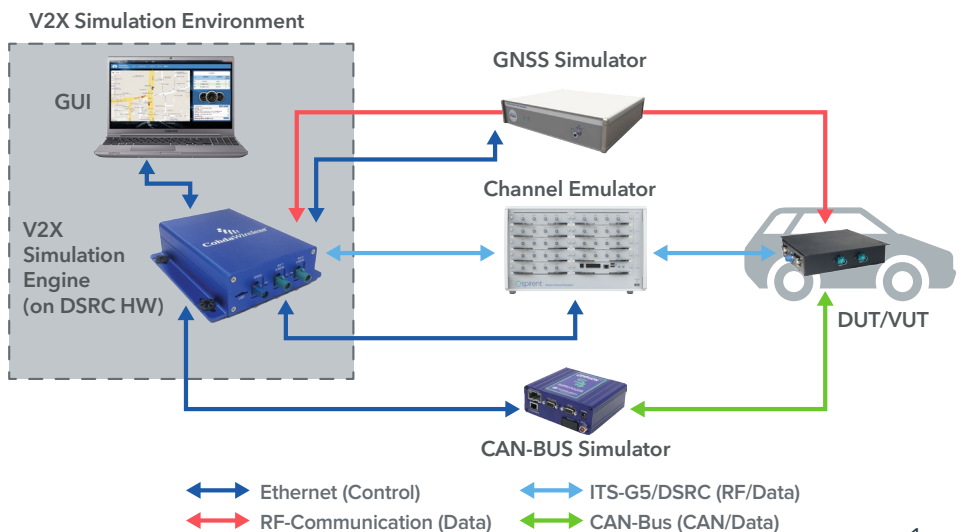
V2X Test Bed Supports

- WAVE and ITS
- Upto 25 emulated OBUs/ RSUs on single DSRC hardware
- GNSS signal simulation
- CAN emulation
- Wireless channel emulation
- V2X security testing
- Functional and performance assessment of V2V and V2I/I2V safety applications
- Test report generation

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About Spirent Communications

Spirent Communications (LSE: SPT) is a global leader with deep expertise and decades of experience in testing, assurance, analytics and security, serving developers, service providers, and enterprise networks.

We help bring clarity to increasingly complex technological and business challenges.

Spirent's customers have made a promise to their customers to deliver superior performance. Spirent assures that those promises are fulfilled.

For more information, visit: www.spirent.com

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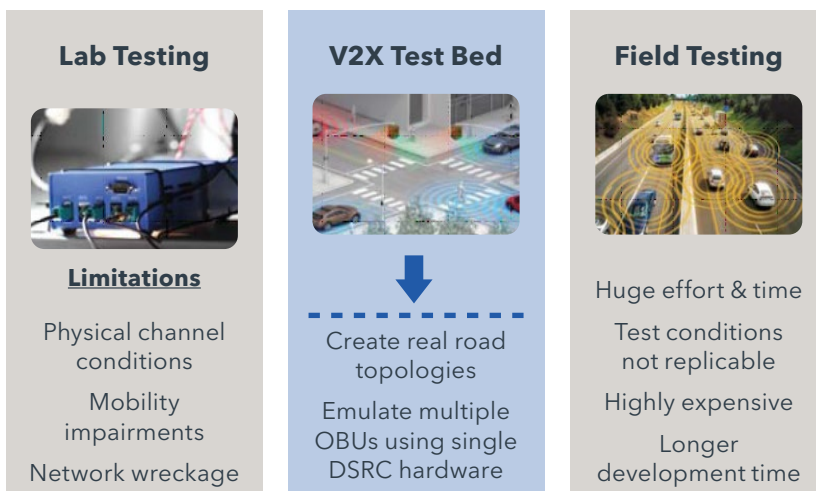
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Features

- Create field scenarios around real road topologies using Google maps
- Create traffic conditions involving multiple emulated OBUs (On Board Unit) and RSUs (Road Side Unit)
- Test V2X security features of the participating OBUs and RSUs
- Accurate position simulation for the V2X ECU under test using Spirent's GNSS simulator
  - Also simulate various atmospheric conditions that can have an impact on the accuracy of the GNSS receiver of the ECU under test
- Re-create actual real world channel conditions within the lab using Spirent Vertex Channel Emulator integrated into the test bed
- CAN restbus simulation for the controlling and observing device under test (DUT)
- Record and play back of field test scenarios within the lab environment

Lab Testing	V2X Test Bed	Field Testing
Limitations	Create real road topologies	Huge effort & time
Physical channel conditions	Emulate multiple OBUs using single DSRC hardware	Test conditions not replicable
Mobility impairments		Highly expensive
Network wreckage		Longer development time

Requirements

- Tata Elxsi V2X Advanced Simulation Environment
- GNSS Simulator GSS6300M/GSS6700
- DG Technologies Gryphon S4 CAN-Bus Simulator
- Spirent Vertex Channel Emulator

Ordering Information	
Part Number	**Description**
TEC-KIT-V2XE-BAS-01	V2X EMULATOR BASIC KIT
TEC-KIT-V2XE-ADV-01	V2X EMULATOR ADVANCED KIT
TEC-KIT-V2XE-BAS-02	V2X EMULATOR BASIC KIT - ITS-G5
TEC-KIT-V2XE-BAS-03	V2X EMULATOR BASIC KIT - WAVE DSRC

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