



Spirent Solutions for the Automotive Industry

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Testing Advanced Information & Communications Technologies

Spirent is your partner of choice for testing in-vehicle and V2X connectivity. The world's leading automotive brands and sub-system developers rely on Spirent solutions to verify their systems deliver outstanding user experience and performance. Our expertise enables the deployment of life enriching communication networks, devices, services and applications.

Spirent is working closely with the automotive industry to successfully implement new features and services that form the intelligent transportation systems and connected vehicles of the 21st Century.

Commitment to Innovation in Automotive

As transportation becomes more connected, and new features become more critical, systems designers, OEMs and suppliers need to verify their operation at all stages of development.

Spirent is working with government agencies and laboratories, standards bodies and commercial organizations to help create innovative new systems and features.

Spirent's lab test solutions are perfectly suited for evaluating performance of the latest technologies. As new communication services and applications are launched, Spirent provides tools for service management and field test to improve troubleshooting and quality.

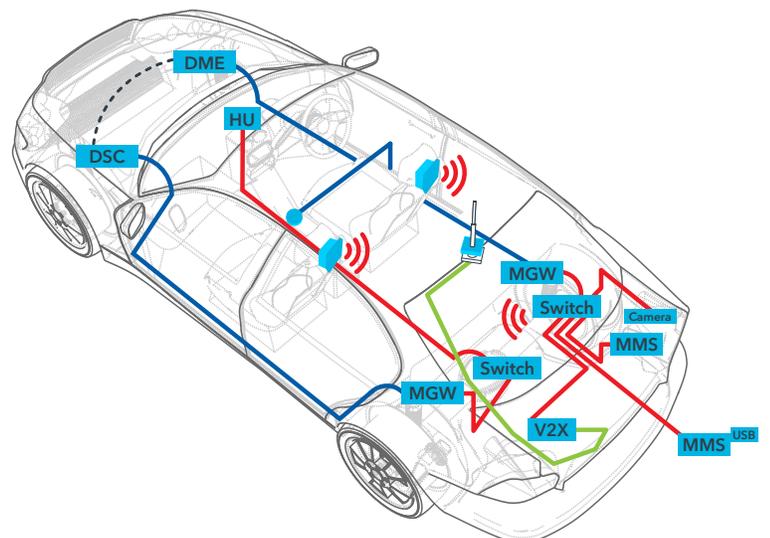
Unmatched Range of Test Solutions

Spirent's test solutions help verify that automotive networking and communication systems perform as intended.

We offer a wide range of solutions for network and connectivity testing to ensure that new systems conform to regulations, meet customer expectations, and deliver market-leading performance—supporting the entire development process, from R&D to production and after-market.

Spirent Areas of Expertise Include

- **Automotive Ethernet Testing**
 - 100/1000Base-T1
 - MultiGig Copper/Fiber
 - AUTOSAR conformance
 - OPEN Alliance conformance
 - Avnu AVB conformance
 - Functional and performance protocol testing
- **TSN/AVB Compliance and Performance Testing**
- **V2X Testing**
 - V2X signaling conformance testing
 - V2X functional & performance testing
 - Multi-PHY support (DSRC, C-V2X)
 - Multi-protocol stack support (EU ETSI, US WAVE/OmniAir, China ITS)



Standard & 2-wire Automotive Ethernet (100/1000Base-T1, MultiGig Copper/Fiber)

Automotive manufacturers adopted the Ethernet technology for building next-generation passenger vehicles. Due to the increasing demand for features like cameras, infotainment and radar, they are prompted to invest in higher-capacity in-vehicle networks based on the Automotive Ethernet standards.

Spirent's expertise in this area makes it the ideal test partner to help capitalize on this technology.

Time-Sensitive Networking (TSN) Simulation Testing

Modern in-vehicle systems such as infotainment, automated driver assistance or on-board diagnostics, need to simultaneously access information over the Ethernet network while performing millions of application transactions per second.

As many of these applications are time-sensitive and safety-critical, the automotive industry must ensure that in-vehicle data services are delivered reliably and securely.

Spirent's test solutions support TSN simulation testing so automotive system designers can meet all requirements for latency, synchronization, availability, and QoS

Vehicle-to-everything (V2X) Communication Testing

Every day, vehicles are becoming more connected—with each other, with the Internet, and with the surrounding infrastructure. V2X is one of the key technologies that autonomous vehicles will be relying on to operate safely on the road.

Drivers will expect V2X communication to work correctly, under all possible conditions independently of the RF technology (i.e. DSRC 802.11p or LTE-V/ 5G Cellular V2X) and of the protocol stack (i.e. US WAVE, EU ITS...) being used. This presents a unique combination of challenges and requires intensive and careful testing.

Spirent test solutions enable engineers to design and implement sophisticated V2X communications services by subjecting emerging V2X systems through rigorous testing. They ensure to be conform to regulations, meet customer expectations, and deliver market-leading performance.



Satellite Positioning Systems Testing

Leading Automotive navigation system providers rely on Spirent's test solutions during research and development (R&D). Today, testing is predominantly carried out in the field with fleets of vehicles and personnel validating new hardware and software releases.

OEMs aim to improve supplier coordination when verifying new software and hardware, and to introduce a lab based system to improve accuracy, repeatability and reliability of infotainment and telematics validation. They require user-friendly test solutions, with real-world simulation and data libraries that help to formalize standardized testing processes across their vehicle infotainment ecosystem.

Automotive and Industrial Testing Services

Spirent makes anything possible to guide you with technical expertise in testing - whether you need physical on-site support, remote assistance, testing equipment or even consider shipping your tools to us.

Benefit from 20+ years of cross-vendor technology expertise in diverse industries and from dedicated high-end test equipment. Rely on testing support in all development phases to ensure highest product quality at optimized effort and costs.

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

Technological Innovation & Collaboration

Over 3 decades of experience in developing test solutions for the wired, wireless, positioning and navigation ecosystem enables Spirent to help their customers develop and operate innovative communication networks, devices and applications.

For the advancement of new technology and test methodologies, Spirent works diligently in conjunction with standard bodies, independent test labs and industry forums.

In the automotive domain, Spirent is involved in standards initiatives and is an active member of Avnu, OPEN Alliance SIG, OmniAir Consortium, IEEE, and ETSI.



Spirent pioneered testing of many of the technologies adopted by the automotive industry, including Ethernet networks, mobile connectivity and service quality, or location-based services. Our engineers provide valuable counsel to many of the leading communication standards organizations.

To help customers truly put their solutions to the test, Spirent has partnered with several companies who share its vision in delivering the industry's highest value in test and measurement solutions. Partnerships include Hyundai, Ruetz System Solutions, Technica Engineering, Techways, and TÜV NORD GROUP.

In addition, Spirent offers state-of-the-art testing facilities for customers to validate and showcase their products while leveraging the latest test tools, technologies, and Spirent's expertise in Automotive test solutions.

Contact Us

For more information, call your Spirent sales representative or visit us on the web at www.spirent.com/ContactSpirent.

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