

# 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, connectivity, and wireless/RF testing ensuring 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
  - 10/100/1000Base-T
  - MultiGig Copper/Fiber
  - 10G (SFP+)
  - BroadR-Reach®
  - AVB conformance
  - AUTOSAR conformance
  - OPEN Alliance SIG conformance
  - Noise impairment
- **AVB/TSN Compliance and Performance Testing**
- **V2X Testing**
  - V2X emulation
  - ITS-G5 conformance
  - WAVE-DSRC conformance
- **eCall & ERA-GLONASS Testing**

## **Standard & 2-wire Automotive Ethernet (100/1000Base-T1, BroadR-Reach® and 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 BroadR-Reach® standard. Spirent's BroadR-Reach expertise makes it the ideal test partner to help capitalize on this emerging 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.

## **Noise Impairment Testing**

In-vehicle networking systems are susceptible to external noise bleeding into the cable binder. Spirent test solutions help verify that systems can withstand these noise conditions, enabling manufacturers to deliver world-class products and an unrivalled end user experience.

## **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. 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, ensuring they conform to regulations, meet

customer expectations, and deliver market-leading performance.

## **eCall & ERA-GLONASS Testing**

When it comes to saving lives on our roads, seconds can represent the difference between life and death. The Pan-European Emergency Call (eCall) and the Russian ERA-GLONASS initiatives are designed to accelerate emergency response times to road traffic incidents. Spirent is leading the testing of the eCall/ERA-GLONASS In Vehicle Systems (IVS).

To ensure test quality and efficiency, eCall/ERA-GLONASS component test regimes must be both highly controlled and flexible. Rigorous, comparative testing relies on a level of absolute test repeatability that's unachievable in real-world conditions, especially given the constantly changing nature of wireless communication. System simulation is a key technique in any eCall/ERA-GLONASS test regime, helping to ensure the accurate reproduction of test cases, and giving component R&D teams the power to reliably benchmark performance, with automated, repeatable test runs.

## **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.

## **User Experience (UX) Testing**

With Spirent's suite of User Experience analytics systems, service providers and device makers can measure and analyze user experience on any device, operating system or network around the world. These test solutions provide analytics services and systems for improving the user experience of mobile devices and services, and an important understanding of the end-user experience throughout the product life cycle.

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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](http://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, CANsystem 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](http://www.spirent.com/ContactSpirent).

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Americas 1-800-SPIRENT

+1-800-774-7368 | [sales@spirent.com](mailto:sales@spirent.com)

US Government & Defense

[info@spirentfederal.com](mailto:info@spirentfederal.com) | [spirentfederal.com](mailto:spirentfederal.com)

Europe and the Middle East

+44 (0) 1293 767979 | [emeainfo@spirent.com](mailto:emeainfo@spirent.com)

Asia and the Pacific

+86-10-8518-2539 | [salesasia@spirent.com](mailto:salesasia@spirent.com)