

Driving the future of automotive technology with SMVIC

The Customer

The automotive industry's drive towards autonomy is creating greater requirements for precision and robustness, as well as for standards that govern that performance. The Shanghai Motor Vehicle Inspection Centre (SMVIC) performs critical tests of in-vehicle navigation systems for its customers, helping them to integrate and optimise the operation of their new and existing vehicles. In addition, SMVIC intends to create the first nationally unified set of standards for autonomous vehicle operation on public roads.



The Challenge

SMVIC needed to create a robust testbed that could thoroughly evaluate the performance of critical navigation and positioning systems. These need to be proved to a high degree of accuracy and certainty, in static and dynamic scenarios, and with the challenges and richness of the real world incorporated. This needed to involve high fidelity signal generation that could be incorporated into a hardware-in-the-loop (HIL) configuration.

The Solution

After an extended consultation with SMVIC, Spirent proposed a solution based on the GSS7000 multi-frequency, multi-GNSS simulator. A number of factors made this the ideal system:

- 256 channel capacity – meaning the system can be configured to deliver a full constellation of every available constellation and frequency, as well as support any future multipath modelling. Delivery included the first deployment of the full BeiDou-3 constellation.
- Support for multiple vehicles at one RF output – meaning multi-antenna applications can be tested.
- High fidelity signal generation – with all signals generated commensurate with the current signal in space (SIS) interface control documents (ICDs), the GSS7000 delivers the closest approximation to real-world signals available.
- Low latency with predictive sampling for ultra-consistent HIL testing.
- Future proofing capability to support real-time kinematic (RTK), Sim3D environment modelling, and advanced jamming and spoofing testing – to move forward with the rapidly evolving industry.



*GSS7000 multi-frequency,
multi-GNSS simulator*



The GSS6450 is a powerful partner for automotive PNT testing

SMVIC also purchased Spirent's GSS6450 RF record & playback system in order to bring real-world signal environments back to their labs for repeatable testing. Delivering high bit depth and dynamic range, combined with the ability to capture synchronous Cellular/LTE, CAN/CAN-FD, and WiFi data, the GSS6450 enables SMVIC to incorporate real-world signals-of-opportunity (SOOP) and automotive sensor data into their testing.

Spirent's expert in-region team supported SMVIC throughout the delivery and configuration of the system, ensuring a working solution was installed ahead of schedule.



GSS6450 RF record & playback system

The Result

SMVIC is already qualifying vehicle performance using Spirent's GNSS simulation integration. Plans to build a unified framework of requirements for autonomous vehicles are facilitated by the high level of accuracy and fidelity delivered by the GSS7000.



There is a lot of cooperation with Spirent. Spirent's GNSS testing equipment and services provide good technical ability, with an emphasis on integrity.

Professor Shen Yafei, SMVIC

Contact Us

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

www.spirent.com

© 2020 Spirent Communications, Inc. All of the company names and/or brand names and/or product names and/or logos referred to in this document, in particular the name "Spirent" and its logo device, are either registered trademarks or trademarks pending registration in accordance with relevant national laws. All rights reserved. Specifications subject to change without notice.

Americas 1-800-SPIRENT
+1-800-774-7368 | sales@spirent.com

US Government & Defense
info@spirentfederal.com | spirentfederal.com

Europe and the Middle East
+44 (0) 1293 767979 | emeainfo@spirent.com

Asia and the Pacific
+86-10-8518-2539 | salesasia@spirent.com