Standpoint™

Live sky synchronization solution
for Spirent GNSS simulators

Spirent™

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GNSS simulators are used in labs around the world to develop and test robust positioning, navigation and timing systems. Unlike live sky testing, simulators provide full control of the satellite signals and environmental conditions of the test. Simulations can include scenarios for any location, from Earth to the Moon, and at any time past, present or future.

For some applications, the ability to synchronize the simulation time and/ or orbital parameters with the live sky GNSS time and ephemeris is critical. Spirent Standpoint addresses this need, enabling simple and precise synchronization in the lab or in the field.

Introducing Standpoint

Standpoint comprises two key components: the Standpoint Reference Receiver and the Standpoint Software Utility.

Standpoint Reference Receiver

The reference receiver acquires the live sky GNSS signals from an active antenna (provided), synchronizes the Spirent GNSS simulator via 1PPS and 10 MHz signals, and passes live sky satellite data to the simulator via a USB connection.

Standpoint Software Utility

The Standpoint Software Utility is a web service application used to control the reference receiver and communicate with the simulator control software – PosApp. The utility is installed on the simulator's controller, or on a separate controller, if required.
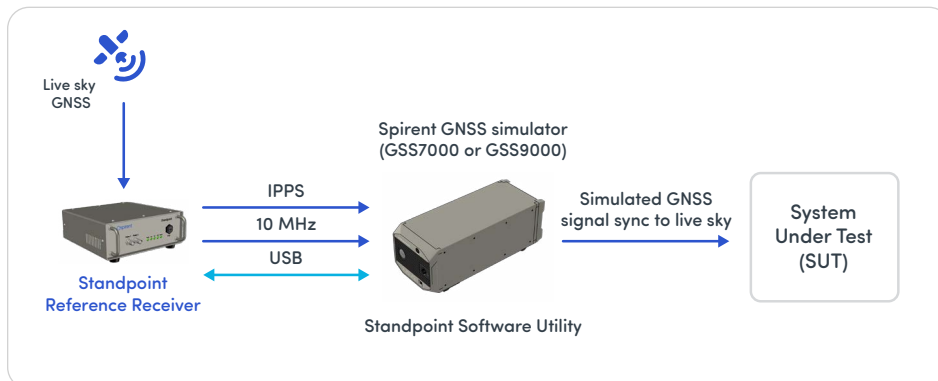
Key benefits

Realism

- 50 ns synchronization between simulator time and live sky GNSS time

- Alignment of orbital parameters in real-time in simulated scenario

- Enables spoofing testing using live sky GNSS signals

Cost

- Standpoint enables powerful spoofing testing with a single RF output GNSS simulator

Time

- Removing the need to cold start a receiver when moving from the real world to the lab can save a significant amount of engineering time

- Remove the need to invest time and money designing, testing and implementing your own live sky synchronization

Live sky GNSS

Spirent GNSS simulator (GSS7000 or GSS9000)

IPPS
10 MHz
USB

Standpoint Reference Receiver

Simulated GNSS signal sync to live sky

System Under Test (SUT)

Standpoint Software Utility

Use case: Lab-based live sky synchronization

The first task when connecting any device under test (DUT) to a GNSS simulator is to cold start the GNSS receiver. This clears position, time, almanac and ephemeris from the module's memory. However, in some cases, cold starting the receiver is not possible:

- When the receiver is embedded in a product with no access to cold start
- When the DUT uses another live time source that must match the receiver time (e.g. in-vehicle infotainment getting time from GNSS and cellular)
- When long time to first fix (TTFF) impacts time constraints

Standpoint overcomes the need to cold start the GNSS receiver by aligning the time, almanac and ephemeris of the GNSS simulator with real world signals.

Use case: Spoofing testing

Spoofing testing can be conducted by coupling two synthetic signals generated by a GNSS simulator. With direct control over both the "real" and spoofed signals, it is relatively simple to align pseudoranges. However, this method is very much a worst-case scenario. Using live sky signals represents a better test case - spoofing a device that is positioning using real signals more accurately represents real-world operational threats.

However, the first epoch of simulation must be tightly aligned to the real signals, and this makes the test set-up more complicated. Standpoint is capable of synchronizing to live sky with an accuracy of 50 ns. This enables realistic spoofing testing, with live sky signals providing the truth data, and complete user control over the spoofed signals. Standpoint integrates seamlessly with Spirent GSS7000 and GSS9000 GNSS simulators, making set-up of spoofing tests easier and faster than ever before.

Americas   Europe   Asia

About Spirent Positioning Technology

Spirent enables innovation and development in the GNSS (global navigation satellite system) and additional PNT (positioning, navigation and timing) technologies that are increasingly influencing our lives.

Our clients promise superior performance to their customers. By providing comprehensive and tailored test and assurance solutions, Spirent assures that our clients fulfil that promise.

Why Spirent?

Over five decades Spirent has brought unrivalled power, control and precision to positioning, navigation and timing technology. Spirent is trusted by the leading developers across all segments to consult and deliver on innovative solutions, using the highest quality dedicated hardware and the most flexible and intuitive software on the market.

Spirent delivers

- Ground-breaking features proven to perform
- Flexible and customisable SDR technology for future-proofed test capabilities
- World-leading innovation, redefining industry expectations
- First-to-market with new signals and ICDs
- Signals built from first principles — giving the reliable and precise truth data you need
- Unrivalled investment in customer-focused R&D
- A global customer support network with established experts

INVESTORS IN PEOPLE
We invest in people Platinum

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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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