PRODUCT BROCHURE

GSS6450 Record and Playback System

Bringing the Real World into the Lab in Dynamic Detail

KEYSIGHT

From smartphones to autonomous vehicles, modern applications are placing greater demands on positioning, navigation, and timing performance. The GSS6450 Record and Playback System delivers the realism and repeatability developers need to deliver world-beating products, bringing the real world into the lab in dynamic detail.

Proven Technology

Developed using Keysight's 35 years of industry-leading expertise, the GSS6450 has been designed and built for next-generation PNT testing. With expert support and consultancy around the globe, Keysight is the trusted partner of the leading GNSS and other PNT developers, delivering maximum performance without compromise through dedicated test solutions.

Uncompromising Performance

Modern applications require higher precision and continuity than ever before, and this demands uncompromising performance in test and development. Combining high dynamic range and a wide bandwidth with high recording fidelity, facilitated by the premium OCXO, the GSS6450 delivers the realism and rich real-world detail needed for comprehensive testing.

Unrivaled Capability

In addition to supporting all current GNSS signals, the GSS6450 facilitates the development of integrated PNT technologies through the ability to record any RF in the 80 MHz to 6,000 MHz frequency range, record CAN and CAN FD, and up to four concurrent HD video streams. With these features, the GSS6450 is the most capable record and playback system available for developers in industries ranging from automotive to handset to defense.

Ultimate Flexibility

Feature key configuration, field upgrades, and simple re-configuration between runs make the GSS6450 ideal for efficient data-collection exercises, as well as for growing and evolving test requirements.

Practical Ease of Use

Weighing just 2.2 kg and with a small form factor, the GSS6450 is highly practical. Added to this, a range of control options that includes touchscreen, WiFi, web server, and script control delivers the ease of use needed.

Key Features

- Record up to 4 concurrent signals
- 3 independent RF ports
- Built-in real-time spectrum analyzer
- Record/playback up to 4 video streams
- Embedded GNSS receiver for performance verification
- Touchscreen, WiFi, web server, or script control

GSS6450

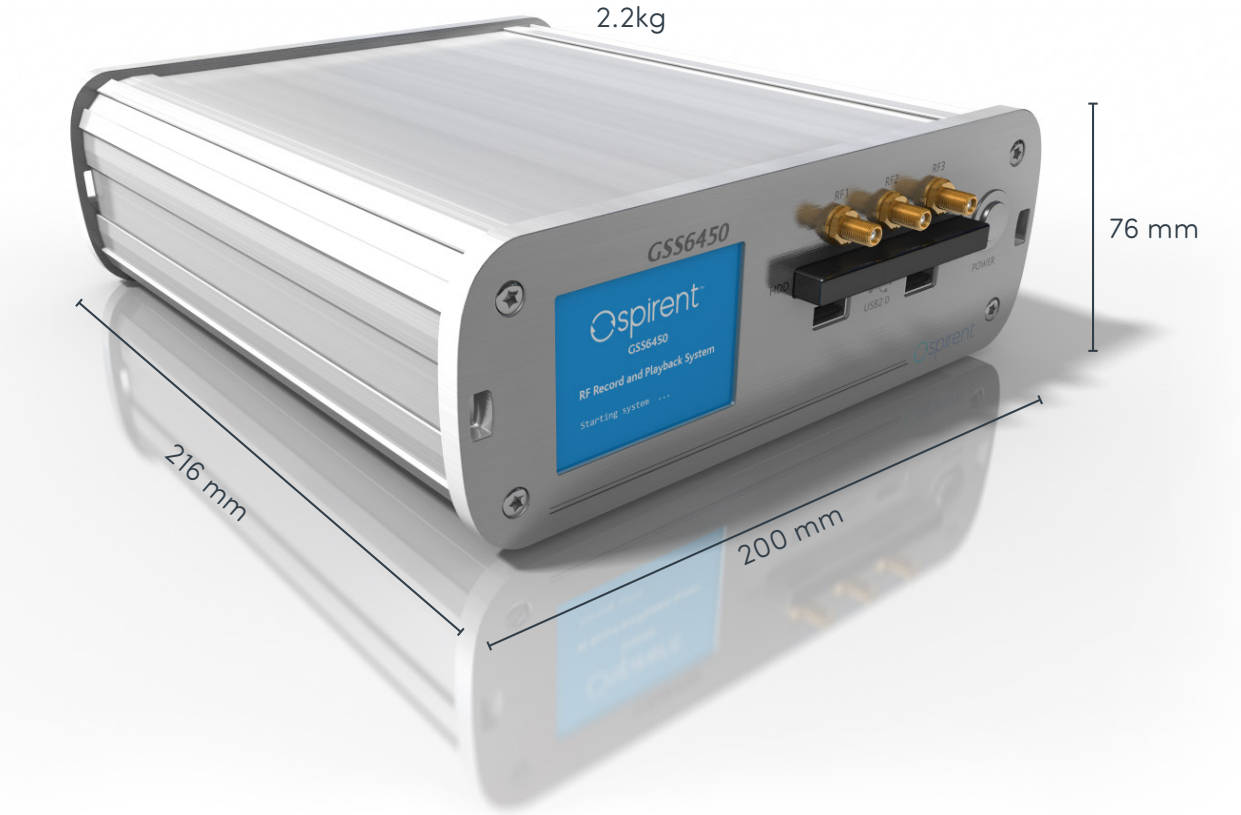

Figure 1. Keysight GSS6450 record and playback system

Supported Signals

Signal	Frequencies
GPS	L1, L2, L5
Galileo	E1, E5, E6
GLONASS	G1, G2, G3
BeiDou	B1, B2, B3
QZSS	L1, L2, L5, L6
IRNSS	L5
SBAS	L1, L5
Signals of opportunity (SOOP)	WiFi, LTE/Cellular
Additional	Inmarsat, TerraStar, OmniStar, Starfx

Performance

Up to 80 MHz bandwidth enables users to capture a significant portion of the RF spectrum in a single channel, opening up the ability to record signals such as WiFi as well as GNSS. In addition, users can be confident that all signal sidelobes and even nearby out-of-band interference are captured.

Up to 80 dB dynamic range gives a realistic representation of the real world, capturing wanted signals alongside interference and other sources of error, such as signal fading from interactions like multipath and atmospheric interference. This dynamic detail means that challenging urban environments can be captured and used for thorough application testing.

High-frequency stability on record and playback through OCXO ensures you always get a representative playback of the recording. Particularly for precise positioning applications, this certainty that error sources were captured in the field, rather than added by the instrument, is critical.

Multi-frequency GNSS and additional signals capability are helping in the shift towards multi-frequency, improving test coverage in just a single unit.

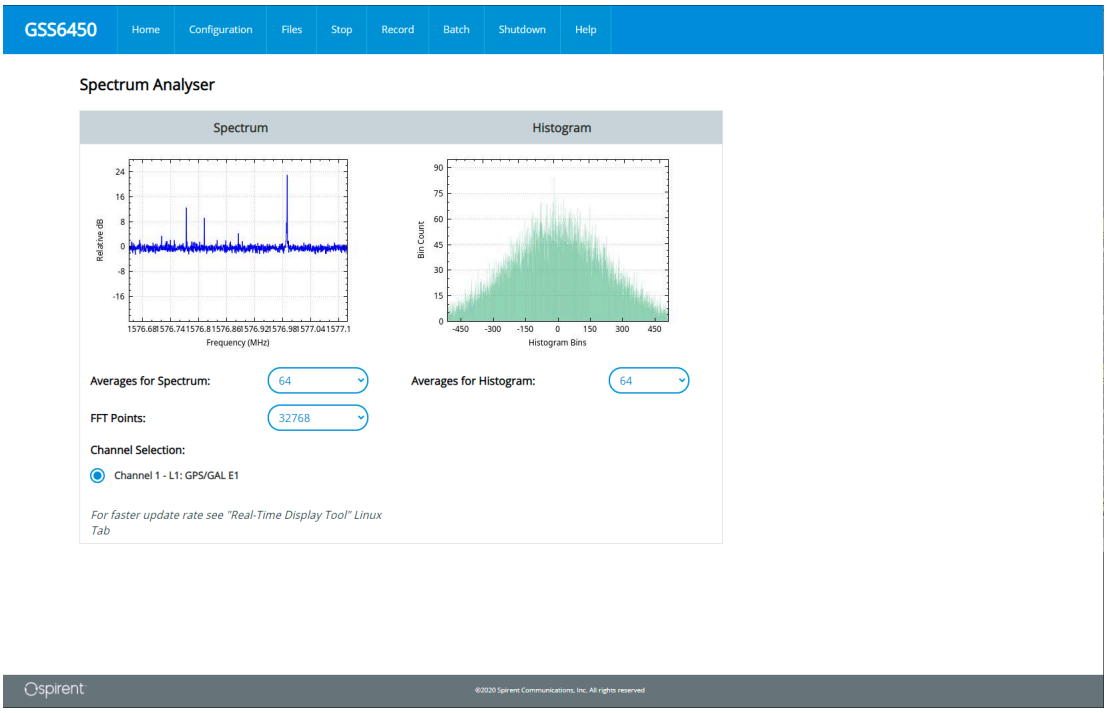

Figure 2. Onboard spectrum analyzer

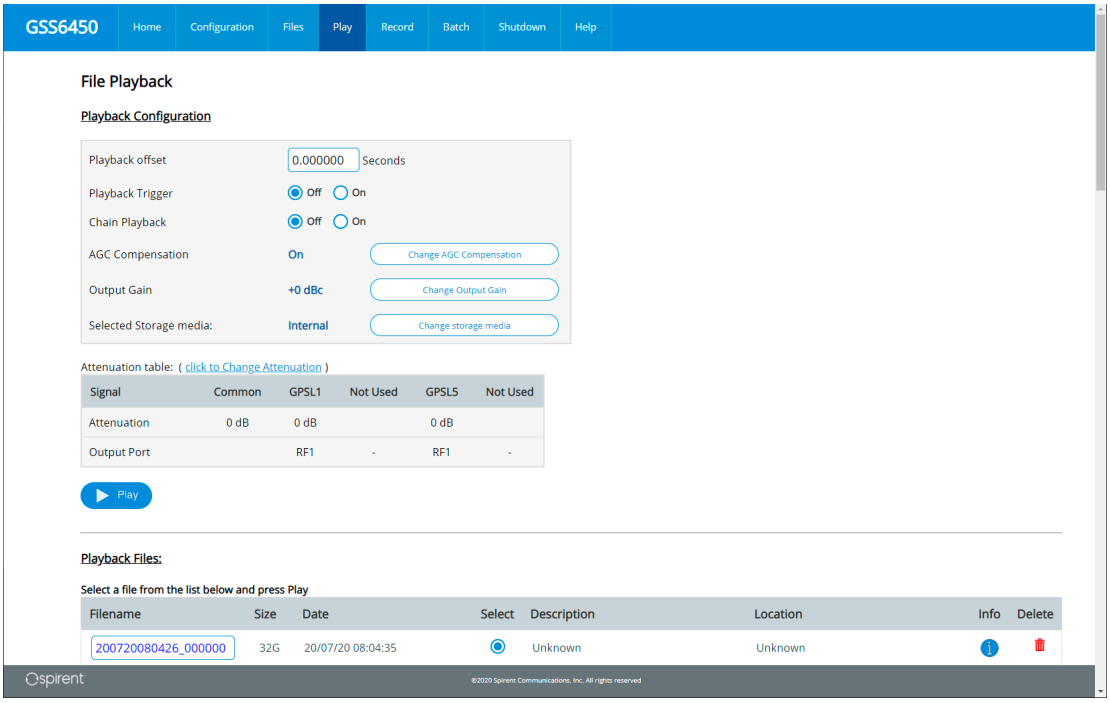

Figure 3. GSS6450 playback interface

Applications

Automotive

The GSS6450 is the ideal partner for automotive development due to the ability to:

- Capture multipath, obscuration, and interference
- Record and replay CAN Bus data — such as IMU, odometer, and other sensors
- Record correction data services via NTRIP, serial data, or over satellite link
- Record up to 4 video streams
- Capture multi-antenna data through two dedicated GNSS RF ports

Chipset

Already established as a key instrument in the development of new chipsets, the GSS6450 offers:

- Capability to have record-only and playback-only products
- Clock stability and signal stability needed to capture signals with high fidelity for development
- Multi-frequency, multi-constellation
- Access to and replay of I/Q data files
- Large storage capability

Defense

Leading defense agencies are utilizing the GSS6450 for a number of reasons, including:

- High dynamic range
- Removable storage ideal for a secure lab environment
- Onboard spectrum analyzer to ensure expensive and hard-to-repeat test cases are occurring as planned
- High bandwidth for out-of-band and secure signals

Environmental, Social and Governance (ESG)

Keysight's Positioning Technology business unit has been committed to ESG good practice and improvement since achieving ISO14001:2015 Environmental Managemental System certification in 2004.

ESG is a priority for Keysight across all aspects of our business, from sustainable buildings and sustainable product design to sustainable supply chain, manufacturing, and shipping/export processes. As is best practice, we follow a continuous improvement process in respect of ESG.

Many of Keysight's test solutions rely on physical test equipment used in situ by our customers. We are working to reduce the lifecycle impacts of our products, and the environments in which they are used, in a number of ways:

- Designing for environment and end of life, including compliance with all legal requirements
- Reducing the size, weight, noise, and power use of our products
- Virtualization and the development of Test-as-a-Service via PNT Professional Services
- Improving utilization and automation
- In-field servicing and upgrades

We use formal sustainability metrics in the product development process.

For more specific information on how ESG applies to our PNT test solutions, please contact your Keysight representative.