LabSat

LabSat 3 Wideband

Compact yet powerful multi-constellation, multi-frequency GNSS simulator for reliable, repeatable and consistent testing.

- All GNSS constellations
- 3 simultaneous frequency bands
- 56 MHz bandwidth
- Up to 3-bit resolution
- HTML interface
- Record & Replay or Replay options

Record & Replay more GNSS signals than ever before

With three channels, a bandwidth of up to 56 MHz and 3-bit sampling, **LabSat 3 Wideband** can handle almost any combination of constellation and signal that exists today, with plenty of spare capacity for future planned signals.

Small, battery powered and with a removable solid state disk, **LabSat 3 Wideband** allows you to quickly gather detailed, real-world satellite data and replay these signals on your bench.

LabSat 3 Wideband can record and replay the following signals:

- GPS: L1 / L2 / L5
- GLONASS: L1 / L2 / L3
- BeiDou: B1 / B2 / B3
- QZSS: L1 / L2 / L5
- Galileo: E1 / E5a / E5b / E6
- NavIC: L1 / L5 / S
- SBAS: WAAS, EGNOS, GAGAN, MSAS, SDCM

labsat.co.uk/wideband

Product Features

Wide Bandwidth
LabSat 3 Wideband RF bandwidth recording at up to 56 MHz

Multi-Frequency
Record & Replay all GNSS signals in the upper and lower L Band

Multi-Constellation
Record & Replay RF signals from every GNSS constellation

External Signals
Record a range of additional signals synchronised to the GNSS input

API Available
API available for development teams

Portable
Compact yet powerful for easy testing on the move

Internal Battery
Up to 2 hours runtime for remote working or field testing

Easy to Use
One touch Record & Replay with simple configuration

Configuring a LabSat 3 Wideband

LabSat 3 Wideband has an internal web server to simplify configuration. This can be easily accessed via a standard web browser on your PC.
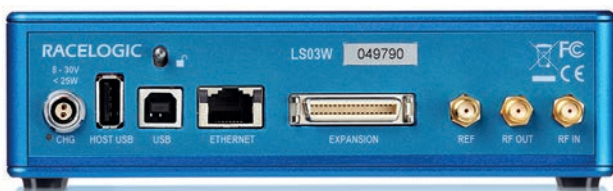
The image (right) shows an example test setup within the **LabSat 3 Wideband** web server. All GNSS signals and three signal bands are selected, with a bandwidth of 56 MHz and a current quantisation of 1.

Record & Replay additional signals

Dual-CAN

RS232

Digital Inputs

LabSat 3 Wideband can record a range of additional signals, synchronised to the GNSS input, including dual-CAN, RS232, and digital inputs.

This allows for products which use these signals to be tested with absolute convenience on the bench; without the need for costly field trials. NMEA data is also captured using the inbuilt GNSS receiver.

Using LabSat as a GNSS test solution

| Record

Record live-sky GNSS signals anywhere in the world to create test scenarios that replicate the device under test's use in the real-world.

Compact and portable for recording on the move with the option of recording additional synchronised data.

| Replay

Replay live-sky recordings or simulated scenarios for repeatable and consistent testing.

Automate test programmes using the available API and use ethernet connectivity to deliver global testing from a centralised point of control.

| Simulate

Create custom scenarios at any time, date and location using **SatGen** simulation software, to test how a device would perform in any conditions.

Scenarios can feature multi-stop routes and include the crossing of time zones, leap seconds and roll-overs.

Test and develop for a wide range of applications

LabSat 3 Wideband is used across the world by companies and organisations that span a wide variety of industry sectors. Specialist features for industry specific applications include:

- Synchronisation with a **VBOX VIDEO** to record and replay a video of the test route to monitor performance against exact external conditions
- Use of an RF splitter to allow multiple devices to receive the same scenario from a single **LabSat**
- Space simulation scenarios with automated elevation mask to follow the true horizon
- Addition of timed stops to scenarios to simulate multi-stop routes

Visit **labsat.co.uk/industry-sectors** to discover how **LabSat** can solve the GNSS testing needs of your industry sector.

Product Specifications

Constellations	GPS L1, L2, L5; Galileo E1, E5a/b, E6; GLONASS L1, L2, L3; BeiDou B1, B2, B3; QZSS L1, L2, L5; NavIC L1, L5 & S; In Band SBAS Further signals in the upper and lower L band can be configured with the internal webserver. Bespoke requirements like Iridium & Sirius XM radio frequencies are available on request
Nominal Output Signal Level	-93dBm/MHz @ 0dB Variable attenuator provides between +20 dB & –69 dB of adjustment during replay
RF Channels	3
RF Channel 1 Centre Frequency	Selectable
RF Channel 2 Centre Frequency	Selectable
RF Channel 3 Centre Frequency	Selectable
Number of Satellites Observed	All in view
Sampling Frequency	10.23 MHz, 30.69 MHz, 58 MHz
Quantisation	1, 2 or 3-bit (I & Q)
Data Format	I & Q
Additional Logging	2x CAN channels, 4x Digital channels
Removable Battery Pack	Yes
Media Storage Included	1TB SSD & 8GB SD card (SD card for firmware upgrade only)
Active Antenna Voltage Supply	2.8 - 4.6V

	TCXO	OXCO
Reference Oscillator	Temperature Stability +/- 2.5 ppm Frequency Stability +/- ppm over first year	Temperature Stability +/- 0.05 ppm Frequency Stability +/- 0.3ppm over first year

Operating Voltage	8V to 30 VDC
Size	167 mm x 128 mm x 46 mm
Weight	1.2 kg