Echo 4RP™

Portable and flexible high bit depth and fidelity Multi-frequency GNSS record and playback system

Putting the «real» into Real World Tests

Whether developing new components, improving algorithms, working on the integration of an entire receiver system, or analyzing any kind of phenomenon in the real life, ECHO 4RP GNSS Recorder & Player is the perfect fit for your testbed environment.

Based on specific features below, Echo is customizable, scalable and evolutive to support your current and future GNSS Record and Playback requirements.

Available options:

- 4x1.92TB SSD drives
- 4x3.84TB SSD drives
- 4x7.68TB SSD drives
- 4x15.36TB SSD drives
- External Battery
- Laptop with control software

Supported by cnes

Embedded in a vehicle or in an aircraft, it can then precisely analyze the different phenomenon encountered: electromagnetic environment disruptions (from natural sources or generated by the human activity), reflections & masking, reflectometry or any other specific application.

Don't hesitate to contact us for more information about the ECHO 4RP.

CONTACT US

VISIT WEBSITE

- 1 single unit for record and playback
- Up to 4 RF channels configured either as Input or Output
- Portable (10kg excl. battery)
- All GNSS spectrum covered + C band
- Flexible and scalable: each RF channel is configurable: resolution, sampling frequency/ bandwidth, AGC settings, Signal Spectrum
- Ability to record or replay up to 4 RF channels @16bit I&Q and 92.16MHz sampling rate (each) simultaneously, in a single machine
- Possibility to couple multiple ECHO 4RP equipment, with synchronization

Echo 4RP™

Specifications

ECHO-4RP
GNSS RECORDER &
PLAYBACK SYSTEM

General

Flexible product struture	Depending on configuration : number of concurrent bands, bit depth, sampling frequency, bandwidth, storage size, customization for external sensors…
Multiple constellations	GPS, GLONASS, Galileo, BeiDo, IRNSS, QZSS
Multiple bands Frequency bands	Up to 4 bands in a same rack Generic (1160MHz to 2500MHz), L Band (1160MHz to 1300MHz; 1560MHz to 1610 MHz; 1615MHz to 1630MHz) S Band (2483MHz to 2500MHz) C Band (LEO PNT, from 5010 to 5030 MHz)
Center frequency for RF channels	Selectable (ex L1, L2, L5, S, C), for each individual band or all, possible to configure a center frequency only shifted of a few hundreds of kilohertz from the targeted one.
Number of RF channels	Up to 4 simultaneously. Each channel can be configured as Input for recording or as output for playback

Storage

Standard	4 x 3.8 TB SATA removable SSDs
Options	4 x 1.9 TB | 4 x 7.6 TB | 4 x 15.3 TB
Max Write and Read Speed	400 MB/s per channel

Interfaces

RF Channels	SMA
Antenna power supply (bias tee)	5V / 120 mA
Internal / external 10MHz	SMA
High speed interface (opt.)	Ethernet 10Gb/s PCIe Gen2x4 over cable
Trig & Interfaces	1 PPS (SMA) Trigger (SMA)
Serial	RS422, RS485, RS232
Other	Ethernet 1 Gb/s for equipment control

RF & Digital Quality

Bit depth (quantization)	16 bits for I 16 bits for Q Possible decimation to 8, 4, 2 or 1 bit
Bandwidth of each RF band	Up to 147MHz effective bandwidth with 184.32MHz sampling (I/Q) on 8 bits IQ. 73MHz effective bandwidth with a 92.16MHz sampling (I/Q) on 16 bits IQ.
ADC sampling frequency	184.32 MHz
Frequency decimation / interpolation factor	1; 1.5; 2 to 16
Rx Bandwidth digital filter	From 80% to 50% of decimated sampling frequency
Rx Power Level	-130 to 0 dBm
Maximum Rx gain	100 dB
Rx Noise Factor at maximum gain	< 3.5 dB
Rx Level resolution	1 dB
Rx Selectivity	40 dB @ 30MHz from pass band
Tx maximum output power	+10 dBm (L1, L2, L5, S bands) 0 dBm (C band)
Tx Level resolution	1 dB
Tx Harmonic Spurious	< -65 dBc
Non-Harmonic Spurious (Replay)	< -55 dBc
Output IP3	> +25 dBm

Control

Built-in real-time IQ display	HMI
Built-in real-time spectrum analyzer	HMI
Built-in real-time power display	HMI
Graphical user interface available through the connection of a remote laptop	Laptop and GUI for configuration and signal quality analysis before recording

Physical & Environmental

Size (approx.)	345 x 320 x 133 mm (case) 345 x 420x 133 mm (with cables)
Weight	10 kg excl. battery
Power Supply	20 to 32V DC (an AC adapter is delivered)
Power consumption	60W
Operating/ Storage Temp. Range	+0 to +50°C / -20 to +85°C
Battery in option	2 hours autonomy minimum

Reach us

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