

BroadSim

Software-Defined GPS/GNSS Simulator for Advanced Signal Simulation

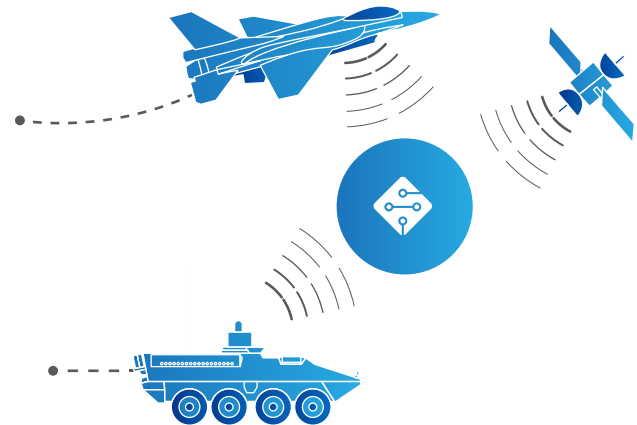
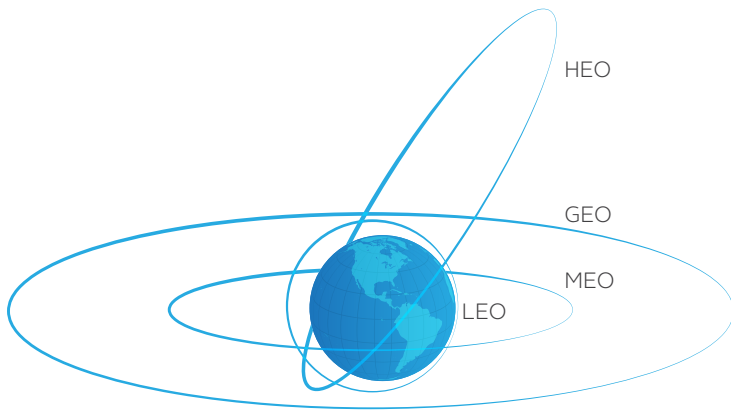


- 1,000 Hz simulation iteration rate
- Live Sky time synchronization
- High end performance (precision, resolution, ultra-high dynamic motion)
- Simulate hundreds of satellites in real time, using off the shelf graphics cards (GPU)
- Differential GNSS and multi-vehicle simulation (Real Time Kinematics – RTK)
- Comprehensive and intuitive API (Python, C# and C++ open source client)
- Scalable and highly flexible architecture using software-defined radios
- On-the-fly scenario reconfiguration
- 6 Degrees of Freedom receiver trajectories

Orolia's BroadSim GPS/GNSS Simulator supports high dynamics, advanced jamming, spoofing and encrypted military signals. Powered by our Skydel SDX GNSS simulation technology, BroadSim can simulate multi-frequency/multi-GNSS signals, including P-Code, P(Y) Code, and AES M-Code. It also has a path to MNSA M-Code.

Why Choose BroadSim?

BroadSim is revolutionizing the GNSS industry with its extraordinary flexibility, affordability and rapid development cycles. By leveraging Orolia's 1,000 Hz Skydel SDX navigation technology and Commercial Off the Shelf (COTS) radios, it can simultaneously simulate encrypted and unencrypted GNSS signals at a fraction of the cost of comparable simulators. BroadSim is unique in that it takes advantage of state of the art RF COTS hardware during processing and generates signal data within the Graphics Processing Unit (GPU). Its ability to generate multi-frequency encrypted codes on a COTS system maximizes scalability and value, while reducing time to market.



Specifications

Supported Signal Types

GPS Open Codes

- L1C, L1-C/A, L1-P, L2-P, L2C, L5

GPS Encrypted Codes

- L1-Y, L2-Y L1-M-AES, L2-M-AES
- L1-MNSA, L2-MNSA (coming soon)

GLONASS

- G1, G2

Galileo

- E1, E5 AltBOC

BeiDou

- B1, B2

SBAS

Signal Propagation and Errors Simulation

- Multiple ionospheric models
- Multiple tropospheric models
- Transmitter/receiver antenna pattern models
- Relativistic effects
- Multi-path
- Additive pseudo-range ramps
- Satellite clock error modification
- Navigation message error mitigation

Signal Specifications

Signal Dynamics

- Maximum relative velocity: 120,000 m/s
- Maximum relative acceleration: No limits
- Maximum relative jerk: No limits

RF Signal Level

GNSS

- Output power: -80 to -50 dBm
- Dynamic range: -45 to +30 dB
- Total range: -125 to -20 dBm

Jamming

- Output power: -80 to -25 dBm
- Dynamic range: -45 to +30 dB
- Total range: -125 to +5 dBm

Advanced Jamming

- Generate jamming signals within BroadSim (no additional hardware needed)
- Generate unlimited jamming signals on one RF output
- Control jamming through the Skydel SDX GUI and/or API
- Specify different power levels, modulations and locations for each jamming signal
- Calculate jamming power at the receiver based on the location and jamming parameters
- Utilize various propagation loss models
- Model a Blue Force Electronic Attack (FBEA)

Service Plan

Software updates, maintenance and support are included in the first year. UMS service plans are available for additional years.

