



# NAVX<sup>®</sup>-NCS

## Navigation Constellation Simulator

**NavX<sup>®</sup>-NCS – the new reference in Multi-GNSS RF signal simulation. Unique testing capabilities for your benefits.**

108 channels  
9 frequencies  
all GNSS

**Capable**

► **Capability by 'All-in-one-Box'**

With up to 108 signal channels and 9 L-band frequencies, all current GNSS systems can be simulated simultaneously. The best 'All-in-one-Box' performance available today!

12 - 108  
channels  
by HW 'plug-in'

**Scalable**

► **Scalability by 'HW Plug-In'**

Scale your system from a 12 channel starter system up to a full multi-GNSS system with 108 channels. Low entry price and full scalability according to your needs!

Add GNSS and  
frequency  
by SW 'license'

**Extendable**

► **Extendability by 'SW-Licensing'**

GNSS (GPS, Galileo, GLONASS, QZSS, SBAS, ...) capabilities can be easily added by SW license to your base system when having additional testing needs. One step after another!

Combine GNSS,  
frequency &  
channels

**Flexible**

► **Unique 'Flexibility-by-Design'**

Configure your system by free combination of 'performance' (signal channels) and 'capability' (modulation & frequency) is the real value you get from the NCS. Unlimited!

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## Navigation Constellation Simulator

### OVERVIEW



To cover the different user testing needs for GNSS applications, the NavX<sup>®</sup>-NCS RF constellation simulator is available in different versions.

- The 'NavX<sup>®</sup>-NCS Standard' is focused on system integration, conformance and production testing for L1 'Mass Market Applications'
- The 'NavX<sup>®</sup>-NCS Professional' is optimised for research and development of multi-frequency GNSS 'Safety & Professional Applications'

Due to its flexibility, scalability and extendability, a NavX<sup>®</sup>-NCS is a 'future-proof-investment' in your testing needs!



### FEATURES

NCS Type	Capability	Channels	Frequencies	Options	Physical
 <b>Standard</b>	GPS L1 Galileo E1 GLONASS G1 SBAS on L1	12 - 36	1 - 3 in upper L-Band (1 frequency per module selectable per configuration)	up to 3 modules: NCS-MODULE-S	Size: 19" / 1 HU Weight: < 7 kg Power: < 70 W
 <b>Professional</b>	GPS L1, L2, L5 Galileo E1, E5, E6 GLONASS G1 QZSS L1 SBAS on L1, L5	12 - 108	1 - 9 in L-Band (1 frequency per module selectable per configuration)	up to 9 modules: NCS-MODULE-P Noise generator Advanced multipath & trajectory simulation	Size: 19" / 2 HU Weight: < 10 kg Power: < 120 W

### SYSTEM SPECIFICATION

#### System Components

- 1 x NCS signal generator HW
- 1 x NCS 'Control Center' SW
- 1 x NCS control notebook HW

#### Signal Bandwidths

- 20,46 MHz for GPS L1, L2
- 24,00 MHz for GPS L5
- 40,92 MHz for Galileo E1, E6
- 92,07 MHz for Galileo E5ab

#### Modulation Schemes

- BPSK, QPSK, BOC, CBOC
- AltBOC, Tri-Phase Interplex

#### Signal Dynamics

- Max. velocity (LOS):  $\pm 22.800$  m/s
- Max. acceleration:  $\pm 780$  m/s<sup>2</sup>
- Max. jerk:  $\pm 15.600$  m/s<sup>3</sup>

#### Signal Accuracy

- Pseudorange:  $< \pm 0,01$ m RMS
- Pseudorange rate:  $< \pm 0,005$ m/s RMS

#### Signal Quality

- Spurious (max.): < -70 dBc
- Harmonics (max.): < -40 dBc
- Phase noise (max.): 0,015 rad RMS
- Frequency stability (24h):  $< \pm 5 \times 10^{-10}$

#### Signal Level Control

- RF monitoring port: -60 dBm
- RF signal output(max.): -90 dBm
- RF signal output(min.): -170 dBm

#### Simulation Capabilities

- Simulation configuration & control
- Space and user segment
- Signal propagation (multipath, ionosphere, troposphere)
- User trajectories (NMEA, pre-defined, editor)
- Analysis & interactive control

### OPTIONS

#### Capability Options and Description

- NCS-GPS-L1 GPS on L1
- NCS-GPS-L2 GPS on L2/L2C
- NCS-GPS-L5 GPS on L5
- NCS-GAL-E1 Galileo on E1/CBOC /CASM
- NCS-GAL-E5 Galileo on E5a/b AltBOC
- NCS-GAL-E6 Galileo on E6
- NCS-GLO-G1 GLONASS on G1
- NCS-QZSS-L1 QZSS on L1
- NCS-SBAS-L1 WAAS/EGNOS/MSAS on L1
- NCS-SBAS-L5 WAAS/EGNOS/MSAS on L5

#### Hardware Options and Description

- NCS-MODULE 12 additional channels
- NCS-NOISE Integrated noise generator

#### Software Options and Description

- NCS-AMP Advanced multipath simulation
- NCS-ATS Advanced trajectory simulation

In co-operation with



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