

GNSS Test Solution: StellaNGC by M3 Systems

Advanced Driver Assistance Systems (ADAS) and infotainment applications require test systems designed to test geolocation components. Increasing standards, frequencies, and test scenarios, as well as multiple user-configuration needs, and the systems' extreme technicality, require customizable, proven solutions with the support and expertise of the right partner to meet test requirements.

Application Challenges

- **Test Flexibility**— Test GNSS sensors for a wide range of use cases, from prototyping to manufacturing
- **System Scalability**— Add custom plug-ins and a global test bench with open interfaces
- **Short Time to Test**— Take control with immediate embedded simulation scenario and test system automation

The NI+M3 Advantage

- Create scenarios using an intuitive user interface
- Achieve easy integration with multiple APIs and data flow that fits your application
- Utilize a single software suite and compatible hardware for both simulation and record-playback

StellaNGC Solution

Take advantage of high-end GNSS sensor test functionalities leveraging software defined radios and the NI Vector Signal Transceiver.

Generate signals for main constellations—up to 108 GNSS satellites in real time.

Complete scenario definition: mobile dynamics, constellation selection, antenna modeling, propagation effects and multipath.

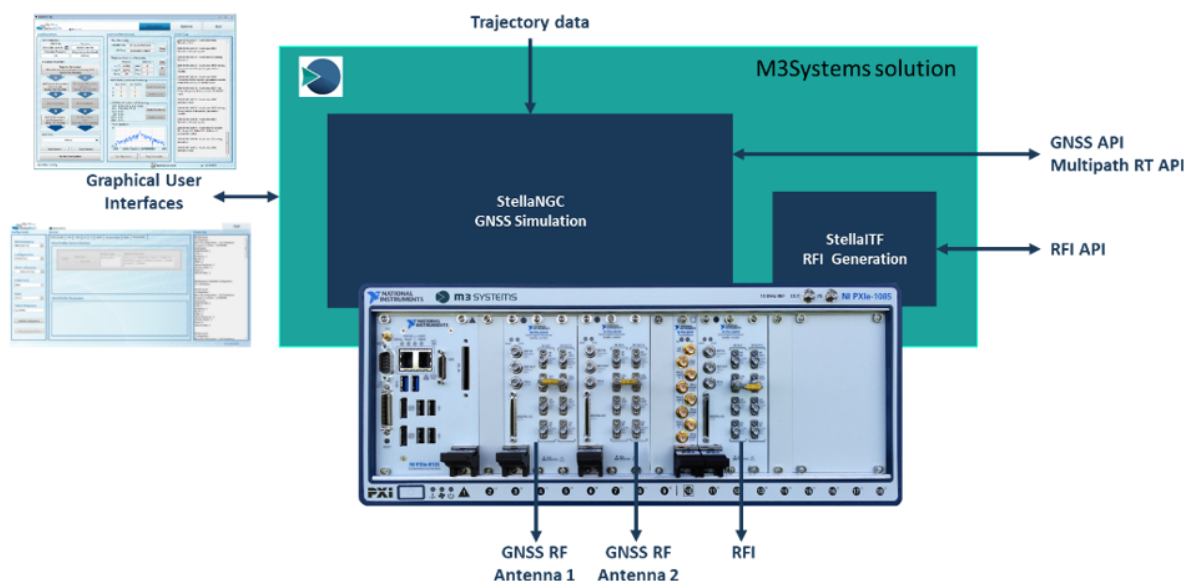


Figure 1. StellaNGC Architecture for Testing a Multiantenna GNSS System with Interferences

M3 Systems StellaNGC



The M3 Systems StellaNGC is a compact and cost-effective tester with best-in-class automotive ADAS and infotainment GNSS validation test specifications.

The StellaNGC, compliant with the NI software defined radio solution, supports all GNSS signals (multiconstellations), integrates hardware-in-the-loop capabilities, and synchronizes with other sensor simulation.

This platform has a wide application range and supports all phases of the product life-cycle—from early design to manufacturing.

Key Specifications

- **StellaNGC Plug & Play:** Multiconstellation/frequency GNSS simulation (GPS, Galileo, GLONASS, QZSS, BeiDou, satellite-based augmentation system), closed-loop capability (100 Hz rate), multi-antenna and trajectory (fine synchronization <1 ns), raw data availability (postprocessing analysis and differential corrections), vulnerabilities (multipaths, obscuration and atmosphere effect)
- **StellaNGC Record & Playback:** Full L-band range, configurable quantization (two to 16 bits), configurable bandwidth, channelizing, AGC, high accuracy (>97 percent)
- **StellaNGC ITF:** Interferences generator. Unintentional: DME-TACAN, VOR, ILS, primary/secondary radars, JTIDS/MIDS, wind profiler. Intentional: Multitone, spread-spectrum techniques (DSSS, FHSS, THSS), white noise

System Integration on Your Terms

NI offers a variety of solution integration options customized to your application-specific requirements. You can use your own internal integration teams for full system control or leverage the expertise of our worldwide network of NI Partners to obtain a turnkey system. To learn how you can increase product quality and shorten test timelines, contact your account manager or NI at (888) 280-7645 or info@ni.com.

Contact M3 Systems or your NI account manager to learn more about how we can increase your product quality and accelerate testing timelines.

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