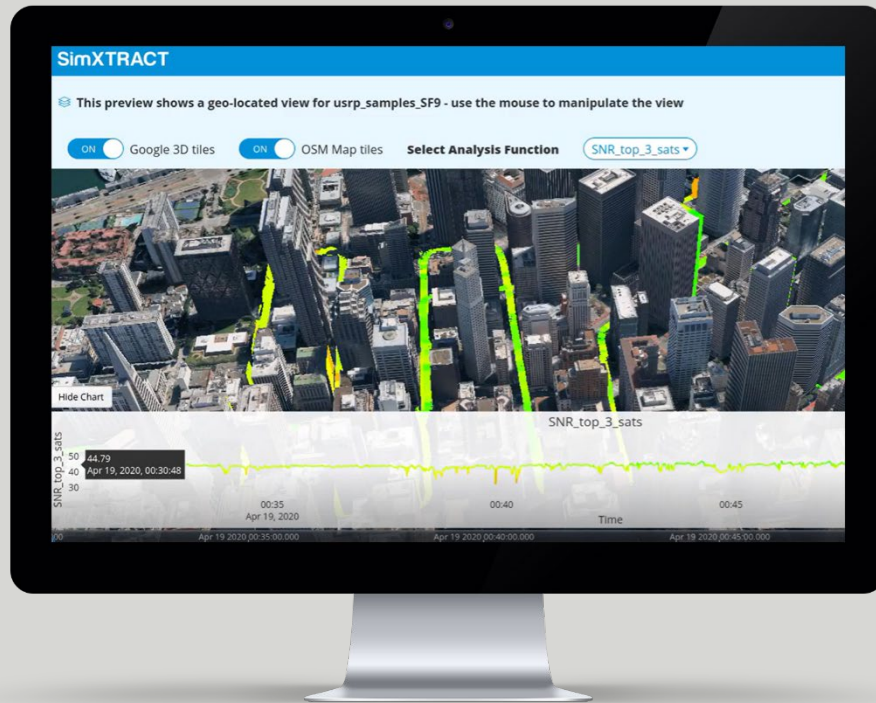




SimXTRACT

Redefine PNT Testing with Real-World Insight

Meet SimXTRACT

SimXTRACT is a groundbreaking GNSS test tool that transforms how you develop, test, and debug PNT-enabled systems. By decomposing real-world captured GNSS IQ recordings into precise signal components and creating test scenarios from that data, it brings unprecedented insight, realism, repeatability, and control to your test workflows. For the first time, you can bridge the gap between the field and the lab by recreating realistic signal environments in a GNSS emulator. This enables you to use the effects of real-world signals from the earliest stages of product development, helping optimize your solutions for their intended operating environment long before production begins. Identifying and resolving issues early is far less costly than discovering them during manufacturing—or worse, after products have been shipped.

In today's high-precision PNT ecosystem, testing with realistic signals is critical. SimXTRACT delivers what others can't: the power to extract real-world data, giving you the flexibility to investigate, manipulate, and control your testing like never before.

Bridging the gap between real-world environments and highly controllable simulations



Unprecedented Realism in the Lab

SimXTRACT performs signal decomposition on scenarios captured on record & playback devices, breaking down each received signal into discrete components (line-of-sight and multipath) with metadata such as doppler offset, power level, and angle of arrival (AoA). This decomposed environment is then converted into fully controllable simulation scenarios for Keysight's PNT emulation and software solution, reducing time spent in the field, cutting the cost and complexity of scenario capture and generation, and enabling repeatable, high-fidelity testing.

- Combine the benefits of field and simulated testing
- Modify, add, remove, or isolate signal components to diagnose edge cases
- Save exponential time and money in field testing, recording capture, and scenario creation
- Reduce data size from terabytes to megabytes for easy storage and sharing.

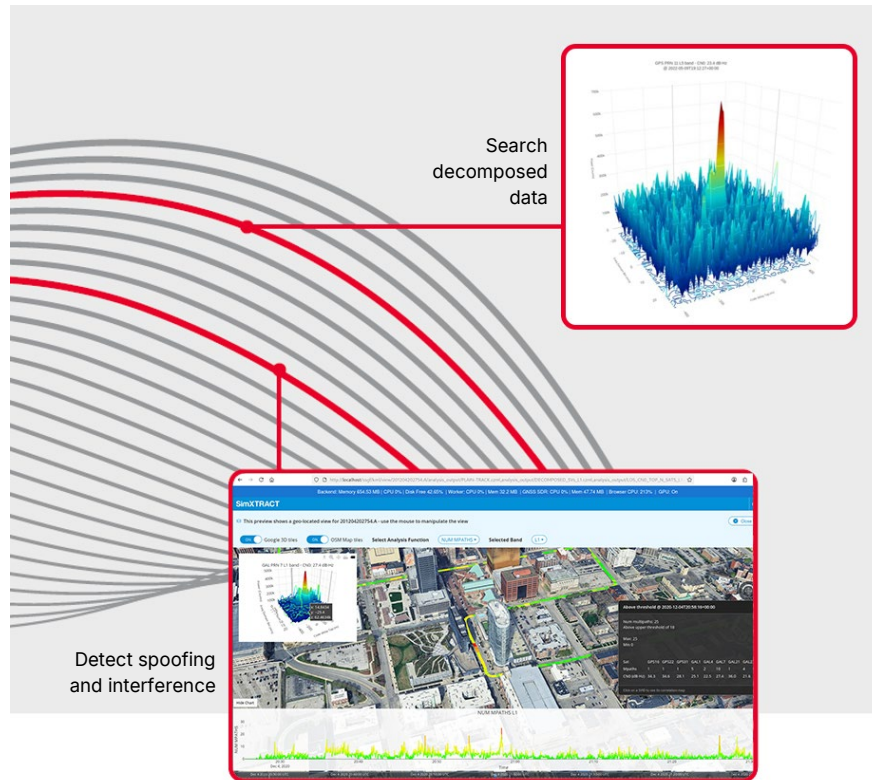
Advanced Signal Analytics

Analyse decomposed data by:

- Number of multipaths
- Satellites in view
- Signal-to-noise ratio (SNR)
- Signal type

Core Capabilities

- Captures and breaks down recorded I/Q into discrete signals
- Supports GPS (L1, L5), Galileo (E1, E5a); GLONASS, BeiDou, QZSS coming soon
- Calculates multipath code error, Doppler error and power level.
- Operates on dedicated Linux Laptop
- Outputs PosApp scenario test files for Keysight emulators (PNT X, GSS7000, PNT Xe)

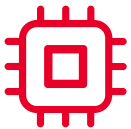


Use Case Highlights

From initial R&D to final system validation, SimXTRACT streamlines development and enhances realism across every stage of your workflow.



Receiver R&D: Combine realism with scientific control throughout development. Adjust power levels, test interference responses, and simulate real-world failure conditions.



Algorithm & Chip Design: Explore real-world acquisition, tracking, and bit sync to accelerate the development and optimization of measurement engine (ME) and positioning engine (PE) algorithms.



PNT Integration: Validate DUT performance in actual operating conditions. Gain understanding of the root cause of issues observed in the field. Reduce design risk and field surprises with quantifiable realism.



Chamber Testing: Convert drive tests into chamber-ready signal sets with accurate AoA. Reuse test environments without re-driving routes.

Why SimXTRACT?

Unparalleled realism: Simulation that reflects the real world.

Shift-left testing: Diagnose bugs earlier, debug faster, avoid late re-engineering. Redress the balance between lab and field testing, saving time and money while generating more actionable data.

Field-to-lab workflows: Replay recorded scenarios in controlled, repeatable, and tunable test environments.

Scalable testing: Expand test coverage from a single field capture.



Turn Real-World Data into Real Results

- Reduce issue resolution time by up to 50%
- Convert recordings into easily transferrable megabyte-sized scenarios
- Accelerate chamber testing with dramatically shorter setup times Unlock years of drive test data with actionable insight Validate PNT performance in the environments where it matters most.

Environmental, Social, and Governance (ESG)

Keysight's Positioning Technology business unit has been committed to ESG good practice and improvement since achieving ISO14001:2015 Environmental Management System certification in 2004.

ESG is a priority for Keysight across all aspects of our business, from sustainable buildings and sustainable product design to sustainable supply chain, manufacturing and shipping/export processes. As is best practice, we follow a continuous improvement process in respect of ESG.

Many of Keysight's test solutions rely on physical test equipment used in situ by our customers. We are working to reduce the lifecycle impacts of our products, and the environments in which they are used, in a number of ways:

- Designing for environment and end of life, including compliance with all legal requirements
- Reducing the size, weight, noise, and power use of our products
- Virtualization and the development of Test-as-a-Service via PNT Professional Services
- Improving utilization and automation
- In-field servicing and upgrades

We use formal sustainability metrics in the product development process. For more specific information on how ESG applies to our PNT test solutions, please contact your Keysight representative.

As a mission-critical design enablement partner, Keysight connects design, emulation, and test so customers can solve the world's most complex engineering challenges. Accelerate innovation at www.keysight.com.



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