CUSTOMER SUCCESS STORY

Trimble navigates GNSS testing challenges
with field-ready Record & Playback

Challenge

After years of manual GNSS receiver testing, Trimble sought to eliminate many time-consuming steps while also ensuring the utmost in test coverage and quality.

Solution

Averna's rugged and portable RP-3200 Wideband RF Record & Playback simplifies Trimble's data-collection process, while eliminating many environmental variables.

Result

Trimble now spends more time in the lab with high-quality, real-world signals, allowing them to perform more comprehensive testing in shorter timeframes.

Trimble

Trimble's productivity-enhancing solutions are focused on applications that require position or location – including surveying, construction, agriculture, public safety and mapping. In addition to utilizing positioning technologies, such as GPS, lasers and optics, Trimble solutions may include user-specific software, while its wireless technologies deliver the solution to the user and ensure a tight coupling of the field and the back office.

www.trimble.com

Trimble brings real-world to the bench

GNSS receiver makers know that high performance depends on repeated testing with accurate data. Consequently, huge efforts go into manual data collection, field analysis and lab-based debugging. With all of this activity, GNSS testing cycles are long and prone to setbacks. They are further exacerbated by the development of new receivers and devices with additional functionality, as well as regular updates to navigation infrastructure and ever-evolving industry standards. Gathering quality, dependable measurements with manual tools has never before been such a costly and painstaking process.

As a developer of GNSS receivers and software, Trimble's Mapping & GIS division in New Zealand is well aware of the industry challenges. They test their product accuracy from meter-level down to centimeters, employing rigorous test procedures that emulate their customers' working conditions, surveying dozens of control points under tree canopies and near buildings, as well as in more open conditions. In the past, Trimble's testers used a GNSS receiver to manually collect positional data, comparing it to their control coordinates and performing statistical error analyses.

Averna's R&P solution eliminates repetitive field testing

In just one year, Trimble's testers had to perform 680 GPS-related field tests, with one engineer alone collecting 900 files. To further complicate the process, there was significant variability from test to test because each test included many variables such as the satellite constellation, the operator's field technique and position at each control point, affecting which satellites were blocked. All tests were repeated to ensure the validity of the results and most tests had to be performed outside, which increased the setup time.

As Peter France, Technical Consultant with Trimble Navigation, says, "We need to test in the difficult conditions in which our customers work. Repetitive manual testing is very time-consuming, and the signal obstruction and multipath conditions meant that there was no way we could use a simulator to get acceptable results." To resolve these significant efficiency issues, Trimble turned to Averna and purchased its RP-3200 Wideband RF Record & Playback (2x50 MHz version) solution.

Averna

CUSTOMER SUCCESS STORY

Tried and Tested

Averna delivers industry-leading test solutions and services for communications and electronics device makers worldwide, accelerating product development, quality and innovation.

1 Bring real-world to the bench

Efficiently record and play back all common radio, video, and navigation signals in use today.

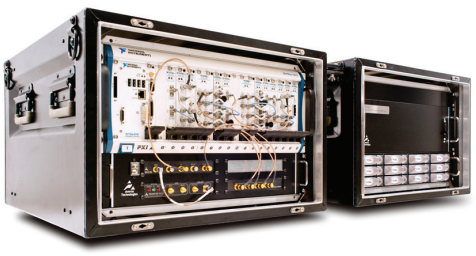
2 Award-winning R&P solutions

Deploy portable and rugged one- to three-channel RF recorders for any environment, including impairments.

3 Substantial return on investment

Reduce field-testing time, cut travel costs, optimize receiver performance and accelerate product lifecycles.

www.averna.com/solutions/test-instruments



Trimble now employs the RP-3200's Playback feature as a key time-saver for regression testing, especially when the receiver's firmware or data-collection software has changed. Before they had the RP-3200, the test team manually collected and analyzed around 50 GNSS data files during a busy week, which represented typical end-user workflows in various hardware-software combinations. Now the testers can replay and analyze over 500 files a week, while the data-collection task, courtesy of the RP-3200's Record feature, has been reduced to mere hours.

Trimble has also derived multiple benefits using the RP-3200 for self-jam testing. As more electronics – including cellular and Bluetooth transmitters – are added to devices that also include a GNSS receiver and antenna, and multiple GNSS bands and wider bandwidths need to be tracked, self-jamming has become a significant issue. While it is possible to use live-sky signals to test performance, the results vary widely and it's difficult to identify improvements. Playback eliminates those variables and reduces the amount of testing required.

Trimble increases output and saves on costly global travel

To adequately perform Satellite-Based Augmentation System (SBAS) testing, the Trimble team had to ship GNSS receivers around the world. Location-specific data collection was expensive and time-consuming. When receiver algorithm problems surfaced, debugging had to be done blind back in the office, and then retested on location. With the RP-3200, the SBAS RF signal is available in the lab for repeat testing and analysis, allowing Trimble to reduce travel costs and to accelerate their testing cycle significantly.

With all these advantages, Averna's RP-3200 has truly transformed Trimble New Zealand's GNSS testing process, as Peter France concludes, "The RP-3200 now allows us to efficiently perform the most rigorous testing and analysis. Gone are the days of labor-intensive manual testing, variable run-to-run outcomes, and uncontrollable environmental factors. With the Averna system, we record some runs and then replay them repeatedly for improved efficiency and highly repeatable results."

> *"Averna's RP-3200 Wideband RF Record & Playback provides us with many tangible benefits – now we can collect 10 times more files, eliminate environmental variables and replay GNSS signals in our lab to save on travel and repeated location testing."*
>
> **Peter France**
> Technical Consultant, **Trimble Navigation**

CANADA ■ UNITED STATES ■ MEXICO ■ JAPAN ■ HUNGARY

Toll-free in North America: +1 877-842-7577
Elsewhere: +1 514-842-7577

www.averna.com

Averna