

Microchip Technology at Jammertest

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What is Jammertest, and why is it important for the GNSS industry?

Jammertest is an annual open-air GNSS interference testing event held in Andøya, Norway. It brings together industry professionals, government agencies, and researchers to evaluate how GNSS-dependent systems respond to real-world jamming and spoofing threats.

What makes Jammertest particularly valuable is the opportunity to expose equipment to controlled interference conditions that are difficult to replicate in a laboratory. As industries become increasingly dependent on GNSS for positioning, navigation, and precise timing, understanding these vulnerabilities is critical. The event helps us identify weaknesses, evaluate mitigation technologies, and develop more resilient systems.

What equipment did Microchip bring to Jammertest, and can you describe the test setup?

Microchip brought several of our timing and synchronization products, including the BlueSky® GNSS Firewall 2200, TimeProvider® 4100 and 4500 series, SyncServer S650, GridTime™ 3000 time server, and the PCI/PCIe® time and frequency processor.

Our test setup was designed to evaluate how these systems respond to different jamming and spoofing scenarios, with a particular focus on interference detection, timing performance and system resilience. We use a Notavel 850 antenna, a Sync System 4380A with a 4393A TIC card, a 5071A Cesium reference and automated data collection software to continuously monitor system behavior throughout testing. This allowed us to analyze GNSS tracking performance, timing accuracy, alarm generation, and equipment responses when GNSS signals became degraded or unreliable. Our main objective was to evaluate the resilience of Microchip's timing and synchronization solutions under realistic interference conditions.

What types of jamming and spoofing tests are conducted during Jammertest?

Jammertest includes a wide variety of interference scenarios designed to simulate real-world threats to GNSS systems. Jamming tests involve transmitting interference signals that disrupt or block GNSS reception, including continuous-wave interference, swept-frequency signals, broadband noise and varying transmission power.

Spoofing tests are more sophisticated because they involve manipulated GNSS signals that can cause a receiver to calculate incorrect positioning or timing information. Scenarios can involve position changes, simulated movement, or time offsets. Some tests combine jamming and spoofing to examine how equipment responds when legitimate signals are disrupted before a spoofing attack. Timing-related spoofing is particularly important because even small timing errors can affect critical infrastructure that depends on precise synchronization.

Microchip has participated in Jammertest for three consecutive years. How has this continued participation benefited the company and its technology?

Each year, we've been able to build on our previous testing experience, refine our test methodologies, and gain a deeper understanding of how our products perform under real-world jamming and spoofing conditions.

Our continued participation reflects Microchip's dedication to staying ahead of emerging interference challenges and providing our customers with reliable timing solutions, even in increasingly complex GNSS environments.

What were the key takeaways and lessons learned from this year's event?

We gathered a significant amount of data and gained valuable insights into how our products perform under real-world jamming and spoofing conditions. The testing helped us identify areas where we can further improve our products and strengthen their resilience against GNSS interference.

We're looking forward to taking what we've learned and incorporating those improvements into our technologies over the coming year. One of the most exciting aspects of participating in Jammertest is the opportunity to return and evaluate our progress. We're looking forward to Jammertest 2027, where we hope to test these improvements and see how they impact our products' performance.

Ultimately, each year builds on the last, allowing us to continuously learn, innovate and develop more resilient timing and synchronization solutions for our customers.

What benefits does participating in Jammertest provide for Microchip and its products?

Participating in Jammertest provides Microchip with a unique opportunity to evaluate our timing and synchronization technologies against realistic GNSS threats. The data we collect helps us better understand product performance, validate interference detection capabilities, and identify areas where we can make further improvements. It also provides valuable insight into emerging jamming and spoofing techniques, allowing us to better anticipate the challenges our customers may face.

Beyond the technical benefits, Jammertest is an excellent opportunity to collaborate with other industry professionals, researchers and government organizations that are working toward improving GNSS resilience.

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