Brochure

Mission-Ready 5G
From Lab to Battlefield

THE MISSION HAS EVOLVED. THE NETWORK MUST, TOO.

Modern missions demand secure, resilient, and intelligent communications—anywhere, anytime. VIAVI is a trusted partner to defense agencies worldwide, delivering advanced test and assurance solutions across the communications spectrum.

With over a century of innovation in military communications, we help you build, test, secure, and deploy 5G networks that are ready for the real world—and the battlefield.

Why 5G is a Game-Changer for Defense

Private 5G (P5G)

Deploy secure, high-speed networks wherever your mission takes you.

Open RAN (O-RAN)

Gain security, control and flexibility with vendor-neutral infrastructure.

Non-Terrestrial Networks (NTN)

Maintain global connectivity - on land, at sea, in the air, and space.

AI-RAN Enablement

Train mission critical AI/ML applications.

1279.900.1022

THE 5G CHALLENGE IN DEFENSE

Deploying 5G for military and tactical applications, whether through a Service Provider or self-deployed, brings unique challenges:

Spectrum Dominance	Ensure clean, interference-free signals in contested environments.
Cyber Resilience with Quantum Safe Migration	Defend against jamming, spoofing, DDoS attacks before they happen. Eliminate the threat of Store Now Decrypt Later with Quantum level security, whilst maintaining performance.
Mobility Stress	Keep drones, vehicles, and connected aircraft in motion.
Latency Pressure	Enable real-time ISR, autonomy, and remote operations.
Legacy Integration	Seamlessly connect 5G with tactical radios, SATCOM, and existing systems.
Primed for AI RAN and Core	AI/ML based network optimization requires reliable, scalable, repeatable training data driven by an extensive range of battlefield RAN scenarios.

WHAT MAKES A 5G NETWORK MISSION-READY?

To be truly mission-ready, a 5G network must be validated across every layer—from Core to RAN to the Edge—for performance, security, and resilience. VIAVI enables comprehensive testing and assurance before and during deployment, with a portfolio of field-proven solutions trusted by defense agencies worldwide.

Before Deployment: Build with Confidence

Core Network Validation: TeraVM Core Tester and Core Emulator

- Validate 4G/5G core networks for mission-critical deployments
- Emulate base stations and user endpoints to test mobility, failover, and terrestrial/non-terrestrial handover
- Verify network slicing, tunnelling, tactical edge QoS, and security enforcement
- Simulate real-world cyber threats to validate interoperability with hybrid and tactical systems

RAN Performance Testing: TM500 UE Emulator

- Stress-test beamforming, mobility, and Open RAN interoperability under mission-scale loads
- Emulate thousands of UEs with realistic battlefield scenarios
- Test 3D mobility, timing synchronization, and massive MIMO performance

Edge and UE Readiness: VIAVI TM500 and Rohde & Schwarz

- Emulate soldier radios, drones, and UGVs to validate connectivity, encryption, and edge compute integration
- Validate performance under encrypted traffic and dynamic handovers

Radio Communication System Integration: VIAVI ComXpert Family

- Seamlessly connect 5G with tactical radios and land mobile radio using VIAVI tools designed for depot, lab and field environments

Cyber Resilience and Security: TeraVM Security Test

- Simulate cyberattacks, validate VPN and zero-trust architectures
- Test post-quantum cryptography readiness to ensure mission continuity in contested environments

Post Quantum Cryptography (PQC) Test: TeraVM PQC

- Test high-capacity TLS/IPsec performance at scale when PQC enabled
- Test QKD performance (key management systems)

AI RAN and Core Enablement: TeraVM AI-RSG (RAN SCENARIO GENERATOR)

- Generate realistic battlefield scenarios by combining synthetic and field data
- Import GIS maps, terrestrial/non-terrestrial cells, drones, LEO/GEO satellites
- Emulate UE mobility for personnel and vehicles with obstacles
- Create scalable datasets for AI/ML training, interference mitigation, and rAPP/xAPP development
- Integrate into RAN Digital Twins for accelerated validation

Mission Simulation and Timing Assurance: VIAVI SecurePNT 6200 and Secure µPNT-440 families

- Recreate battlefield, maritime, and aerospace scenarios using digital twins
- Validate Positioning, Navigation and Timing (PNT) to ensure synchronization-critical operations

During Operations: Assure Mission Continuity

RF and Spectrum Assurance: VIAVI OneAdvisor 800 Wireless and T/Rx and Ranger

- Disrupt enemy signals and perform jamming, while also locating interference or jamming sources (DF), mitigating spectrum conflicts in real time with portable, rugged tools for spectrum clearance and signal analysis

Coverage and EMF Validation: VIAVI OneAdvisor 800 Wireless

- Map signal strength and radiation exposure with precision to ensure safe and effective deployment in any environment

NTN and Antenna Alignment: VIAVI RF Vision

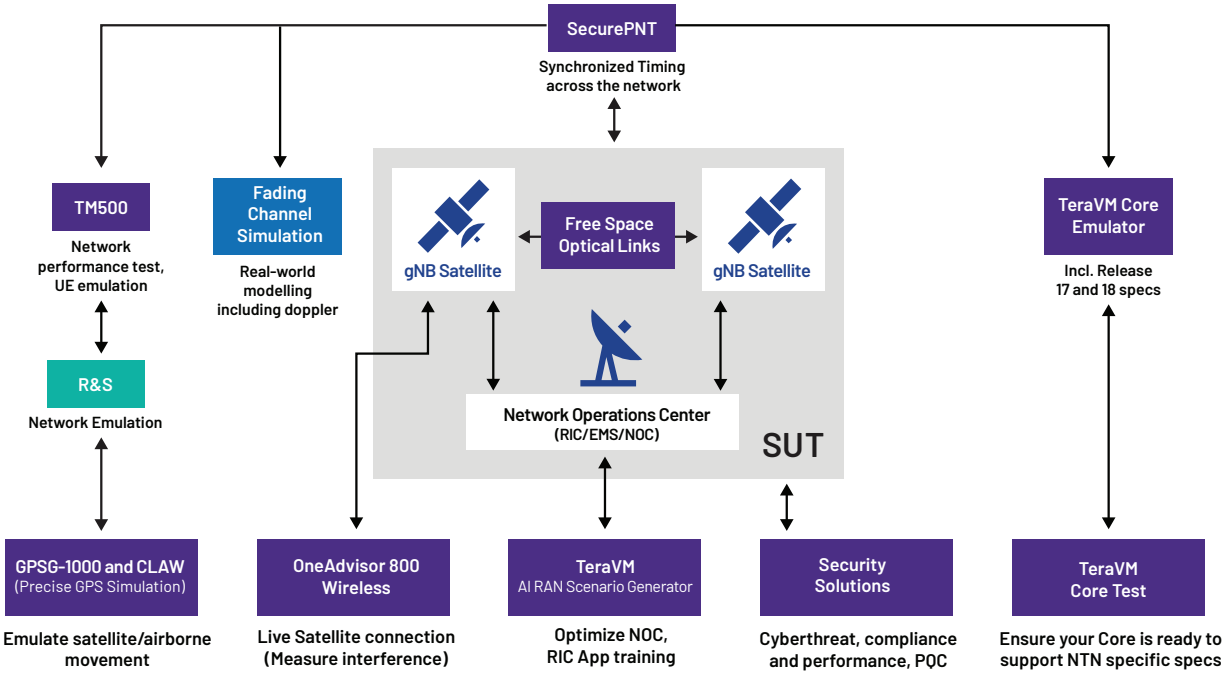
- Validate satellite links and align antennas and microwave links for optimal performance in dynamic conditions

Go/No-Go Testing: VIAVI OneAdvisor 800 Wireless

- Rapidly verify network and radio readiness before deployment or redeployment with intuitive, field-ready test kits
- All-in-one tool for fiber inspection and validation, cable and antenna analysis, and over-the-air tests with spectrum and interference analysis

SUPPORTING THE FULL 5G LIFECYCLE

Test, Train and Optimize: 5G NTN Networks



1983.900.0725

In the Lab

- **Validate next-gen tech:** Test Open RAN and NTN components under real-world conditions
- **Train with digital twins:** Recreate high-fidelity field scenarios for safe, repeatable testing
- **Simulate mission-scale loads:** Emulate thousands of UEs, drones, and autonomous systems in 3D space
- **Build cyber resilience and Quantum safety:** Stress-test for mission-critical performance
- **Assure timing:** Validate Positioning, Navigation and Timing (PNT) with precision

In the Field

- **Deploy with trust:** Verify RF coverage, timing, and beamforming on-site
- **Clear the spectrum:** Perform real-time spectrum clearance and interference detection and location
- **Align with precision:** Tune antennas and microwave links for peak performance
- **Operate securely:** Ensure encrypted, high-performance communications in any environment

WHY VIAVI

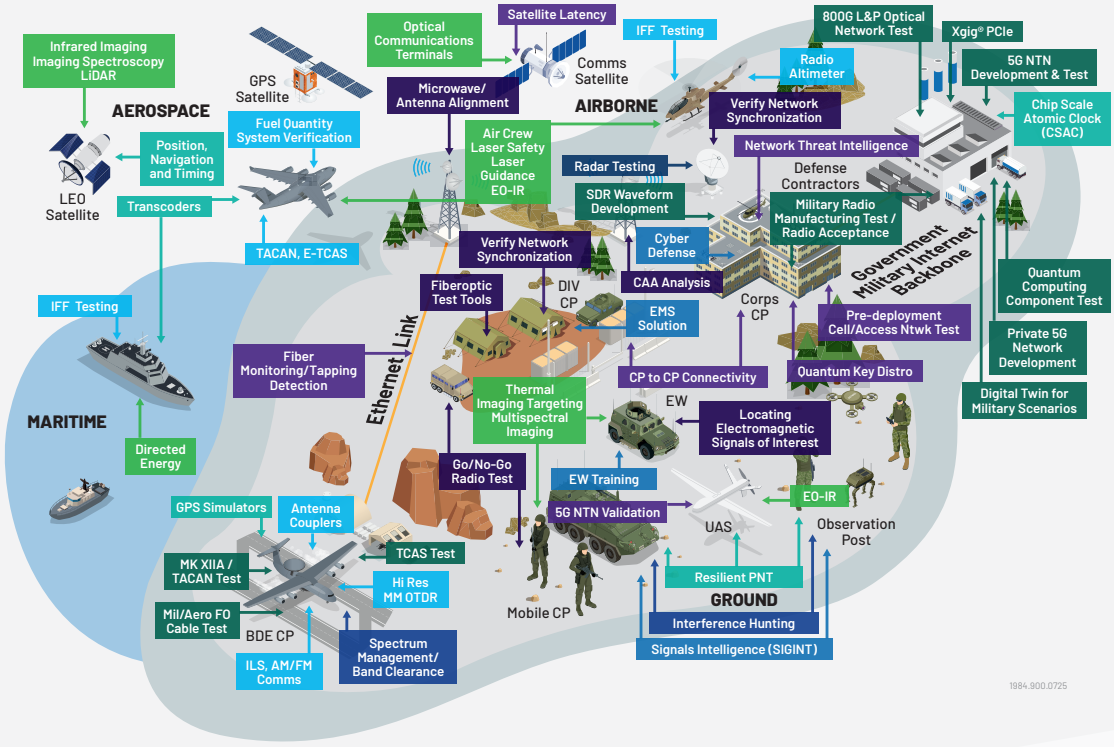
VIAVI offers a complete portfolio of solutions for Defense, Aerospace, and Security, including:

- Secure and Reliable Communications
- Electronic Warfar
- Radar and Aerospace Systems
- Spectrum Monitoring and Signal Analysis
- Position, Navigation and Timing (PNT)
- VIAVI Automated Lab-as-a-Service for Open RAN (VALOR™): a highly automated, cooperative, open and impartial Lab-as-a-Service/Test-as-a-Service offering dedicated to Open RAN interoperability, performance and security.

  The project is funded by the Public Wireless Supply Chain Innovation Fund.

VIAVI Solutions Supporting Military, Aerospace and Security

Field Test
Secure Communications
Spectrum Monitoring and Signal Analysis
Electromagnetic Warfare
Radar
Aerospace
R&D Manufacturing
Position, Navigation and Timing
Payload and Device Optical Elements



WE ARE VIAVI

- 100+ Years — OF INNOVATION IN MILITARY COMMUNICATIONS
- Trusted — BY DEFENSE AGENCIES WORLDWIDE
- 1.8M+ — INSTRUMENTS IN USE
- 2900+ — PATENTS ISSUED
- 10K+ — ASSURANCE SYSTEMS DEPLOYED

viavisolutions.com

Contact Us +1 844 GO VIAVI | (+1 844 468 4284)
To reach the VIAVI office nearest you, visit viavisolutions.com/contact

© 2025 VIAVI Solutions Inc.

Product specifications and descriptions in this
document are subject to change without notice.
Patented as described at viavisolutions.com/patents

labtobattlefield-5g-br-wir-nse-ae
30194530 900 0725