

U.S. Air Force Deploys Terra Quantum Platform to Advance Quantum-Secure Communications in DDIL Environments

Following successful SBIR I and II programs, the quantum-secure

communications platform moves from research into operational evaluation within U.S. Air Force.

MUNICH, BAVARIA, GERMANY, May 7, 2026 /EINPresswire.com/ -- Terra Quantum, a global leader



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Markus Pflitsch, Founder and CEO of Terra Quantum

in quantum technology, today announced the delivery of its quantum-secure communications simulation platform to the U.S. Air Force, enabling evaluation of post-quantum cryptographic communications in mission-critical DDIL environments. The milestone follows successful SBIR Phase I and Phase II collaborations with the U.S. Department of the Air Force (DAF) focused on enabling quantum secure communications in denied, degraded, intermittent, and low-bandwidth (DDIL) operational environments. The delivery marks the platform's transition to operational defense testing and capability evaluation.

The platform enables defense teams to simulate and validate quantum secure communications architectures under denied, degraded, intermittent, and low-bandwidth DDIL conditions, modeling realistic operational constraints encountered in contested environments. The system bridges the gap between emerging post-quantum cryptography (PQC) standards and real-world operational deployment by allowing PQC protocols, key exchange mechanisms, and networking architectures to be tested under realistic mission conditions.

The quantum secure communications simulation platform models PQC secured data transmission, key exchange processes, and network behavior under realistic operational constraints. By reproducing contested network conditions such as intermittent connectivity, degraded infrastructure, and limited bandwidth, the system allows organizations to evaluate quantum-safe communications architectures before deployment in mission environments. The project demonstrates how advanced quantum-security technologies can transition from research programs into operational defense capability development.

During SBIR Phase I, Terra Quantum demonstrated the feasibility of its approach for enabling quantum secure communications in DDIL environments, where limited connectivity and degraded infrastructure create significant challenges for cryptographic security. SBIR Phase II expanded the platform to support simulation and validation of PQC protocols under realistic operational constraints, including limited bandwidth, intermittent connectivity, and contested network conditions.

Following completion of these research phases, Terra Quantum delivered new software capabilities within its

quantum secure communications simulation platform. This allows the U.S. Air Force to evaluate next-generation cryptographic technologies in complex mission environments.

“The delivery of this platform to the U.S. Air Force represents an important step in transitioning quantum-secure communications from research into operational capability,” said Markus Pflitsch, Founder and CEO of Terra Quantum. What began as SBIR research has now evolved into a platform that can support the evaluation of quantum-secure communications in real mission environments. “This milestone highlights the importance of preparing critical communications infrastructure for the coming post-quantum security landscape.”

“Post-quantum cryptography is rapidly moving from theory and standardization into operational deployment,” said Florian Neukart, CTO of Terra Quantum. “With this platform, we enable defense organizations to model and evaluate quantum-safe communications architectures under realistic DDIL constraints. The ability to test cryptographic protocols, key exchange mechanisms, and network behavior in contested environments is essential for building resilient communications systems.”

As governments and defense organizations prepare for the cybersecurity implications of quantum computing, post-quantum secure communications are becoming a strategic defense priority. Platforms capable of validating cryptographic technologies under realistic operational constraints are essential for transitioning post-quantum security from standards to deployment.

With this delivery, Terra Quantum continues to advance quantum-secure infrastructure for mission-critical communications systems.



About Terra Quantum

Terra Quantum Group is a leading quantum technology company based in Germany and Switzerland. It provides “Quantum as a Service (QaaS)” in three core areas, the first one being “Quantum Algorithms as a Service”. Here, customers are provided access to an extensive library of algorithms, such as hybrid quantum optimization and hybrid quantum neural networks, which can be used for solving complex logistics problems or pattern recognition, among other things. Terra Quantum also develops new quantum algorithms for its customers or adapts existing algorithms to their specific needs. Secondly, through “Quantum Computing as a Service”, Terra Quantum offers its customers access to its proprietary high-performance simulated quantum processing units (QPU), the quantum ecosystem’s physical QPUs, while also developing native QPUs. The third division is “Quantum Security as a Service,” through which Terra Quantum offers its unique solutions for secure quantum and post quantum communications worldwide. Visit us on [LinkedIn](#) and our [webpage](#).

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