

Q-CTRL to Show World's First Airworthiness-Qualified Quantum Navigation GPS-Backup at Farnborough International Airshow

Ironstone Opal's accelerated development to safety-of-flight qualification signifies that quantum navigation is ready for commercial aviation and UAV deployment

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/EINPresswire.com/ -- Q-CTRL, the global leader in quantum infrastructure software, today announced that it will be the only dedicated quantum technology company to bring quantum navigation solutions to the Farnborough International Airshow.



Q-CTRL's Ironstone Opal quantum navigation system for UAVs.

Q-CTRL is the first company to validate and commercialize quantum navigation publicly, following successful field validation in air, land, and maritime trials. [Ironstone Opal](#) was named one of TIME's Best Inventions of 2025 and is also the first quantum navigation system to achieve safety-of-flight qualification under the stringent RTCA DO-160 airworthiness standard. First publicly revealed in April 2025, this milestone underscores the company's accelerated pace in delivering commercial quantum technologies to the global market compliant with aviation industry standards.

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Following an ongoing set of challenging air trials, we're proud to bring a commercial quantum-navigation backup to GPS that is ready for deployment and safety-of-flight qualified to DO-160 standards.”

Michael J. Biercuk, CEO and Founder of Q-CTRL

The demand for robust GPS backups is intensifying. Persistent electronic warfare and the proliferation of GPS jamming, as seen in Ukraine and the Persian Gulf, have

made operational readiness for GPS denial a requirement. But the reality faced in active combat zones has extended into the civilian realm, where the commercial aviation sector experiences

over 1,500 daily flights disrupted by GPS interference. This has prompted a joint mandate from the IATA and EASA declaring GPS interference a significant challenge to aviation safety, and has led major pilot organizations to call on manufacturers and regulators to adopt robust GPS backups.

Quantum navigation does not rely on external satellite signals and cannot be jammed or spoofed, making it a critical component of a resilient GPS backup system. Aerospace industry leaders attending the Farnborough International Airshow can visit the Q-CTRL exhibit to discover Q-CTRL's passive and small-form-factor quantum navigation systems for both crewed and uncrewed platforms:

- * Demonstrated drift-free positioning: Ironstone Opal delivers bounded positioning through magnetic map matching technology, powered by Q-CTRL's proprietary quantum sensors.

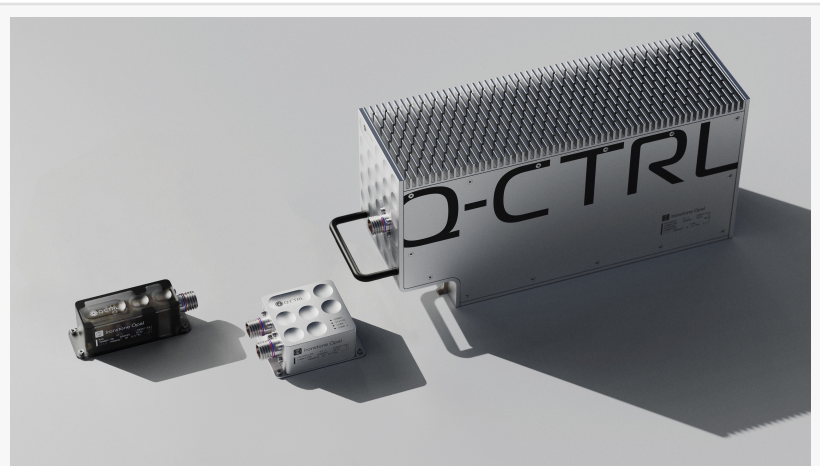
- * Commercial aviation readiness:

Ironstone Opal is validated in flight to achieve the industry's required navigation performance (RNP 0.3) standard by maintaining a positioning accuracy better than 0.3 nautical miles through 95% of a flight, surpassing performance requirements for critical phases of commercial flight. The system is also ITAR-free for global deployment.

- * Cross-platform deployment: Multiple compact form factors are available, including our new <1kg UAV variant, with sensors mountable in the vehicle body or on the wing of NATO class II+surveillance UAVs,

- * Trusted capability: Discover Q-CTRL's engagements with major [commercial aircraft manufacturers](#), [defense primes](#), and defense-sector collaborators, including the U.S. Department of War.

"Just over a year ago we transformed quantum technology from a lab curiosity into a real solution to one of the aviation sector's most pressing problems - GPS denial," said Q-CTRL CEO and Founder Michael J. Biercuk. "Now, following an ongoing set of challenging air trials across crewed airplanes, helicopters, and drones, we're proud to bring to Farnborough a commercial quantum-navigation backup to GPS that is ready for deployment and safety-of-flight qualified to



Q-CTRL's Ironstone Opal quantum magnetic navigation system for crewed aviation.



Q-CTRL's Ironstone Opal unmanned aerial vehicle (UAV) magnetic navigation system.

DO-160 standards. With the economic impact of widespread GPS denial estimated to cost £1 billion per day for the UK, the timing couldn't be better for the aviation sector to have access to this critical technology."

Visit Q-CTRL at booth #720 in Hall 0 at the Farnborough International Airshow to see a live demonstration of Ironstone Opal and to preview its new UAV-compatible system.

About Q-CTRL

Q-CTRL is the pioneer in AI-powered infrastructure software for quantum technology, offering a hardware-agnostic software platform that makes quantum machines thousands of times more powerful. This opens many parallel market verticals in computing, sensing, and health, making Q-CTRL a truly ubiquitous quantum company based on a single unique technology. It is the first company to achieve quantum advantage in both quantum computing and quantum sensing for navigation.

The company's marquee product is an unjammable, unspoofable, undetectable quantum navigation system that works when GPS is unavailable, is 100 times better than the best alternative, and is being deployed on commercial aircraft with Airbus, in defense with Lockheed Martin, and on drones.

The company's breakthroughs have been featured in The New York Times, The Wall Street Journal, and Forbes, and led to Q-CTRL's selection as one of the TIME100 ten most influential new-frontiers companies for 2026. Founded in 2017 by Professor Michael J. Biercuk, Q-CTRL operates globally from offices in Sydney, Los Angeles, San Francisco, Huntsville, Berlin, and Oxford.

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