

Honeywell

QEYSSat (Quantum Encryption and Science Satellite)

Canada · founded 2017 · asc-
csa.gc.ca/eng/satellites/qeyssat.asp

1

PRODUCTS

5

SERVICES

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as of 20 August 2026



QEYSSat (Quantum Encryption and Science Satellite)

The Quantum EncrYption and Science Satellite (QEYSSat) is a technology demonstration mission led by the Canadian Space Agency (CSA) to validate quantum key distribution (QKD) in a space environment. The satellite will establish a secure quantum optical link between a ground station and a microsatellite in low Earth orbit, transmitting individual photons to generate encryption keys that are physically impossible to intercept without detection. This approach overcomes the 200-kilometre range limitation of ground-based quantum networks, enabling future continental and global secure quantum communications. Honeywell — through its Cambridge, Ontario facility, formerly known as COM DEV Canada — was awarded a \$30 million contract by the CSA to design, build, test, launch, and commission both the QEYSSat microsatellite and its primary quantum ground station. COM DEV had been a world leader in space hardware manufacturing for decades before its acquisition by Honeywell in 2016, bringing deep expertise in space-qualified optical and microwave hardware to the QEYSSat program. The science program is led by the Institute for Quantum Computing (IQC) at the University of Waterloo, which provides the quantum photon source for the ground station and leads QKD protocol development. The mission is planned for launch no earlier than 2026, with a nominal one-year mission duration. QEYSSat is expected to lay the groundwork for a Canada-wide quantum-secure network and contribute to the global quantum internet. The satellite carries two payloads: a quantum receiver/transmitter for exchanging quantum-encoded photons via free-space optical links, and an optical communications payload. The mission uses advanced acquisition, pointing, and tracking (APT) systems and single-photon detection techn

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SERVICES

Services

QEYSSat Building and Testing Honeywell will build and test the QEYSSat satellite and the primary quantum ground station to ensure their functionality and reliability.	QEYSSat Design and Implementation Honeywell is responsible for the design and implementation phases of the QEYSSat mission, including building, testing, delivering, launching, and commissioning the satellite and ground station.
QEYSSat Launch and Commissioning Honeywell will manage the launch of QEYSSat and the primary quantum ground station, and then commission them for operational use.	QEYSSat Scientific Support The Institute for Quantum Computing (IQC) provides scientific support for the QEYSSat mission, including QKD application and demonstration development, and quantum source development for the ground st

QEYSSat Training

Honeywell provides training for QEYSSat and the primary quantum ground station, ensuring personnel are proficient in operating the systems.

Product catalogue



QEYSSAT (QUANTUM ENCRYPTION AND SCIENCE SATELLITE)

Optical Quantum Ground Station (OQGS)

Primary quantum ground station for the QEYSSat mission, built by Honeywell and commissioned at CSA headquarters in Saint-Hubert, Quebec, providing the optical uplink for quantum ke

Type	Optical Quantum Ground Station (OQGS)
Link direction	Uplink (ground to satellite)
Photon source technologies	Weak coherent pulse (WCP), entangled photon source (EPS)
Optical band	Free-space optical (laser link)
APT system	Acquisition, Pointing, and Tracking for satellite tracking
Adaptive optics	Atmospheric compensation
Primary location	CSA headquarters, Saint-Hubert, Quebec

price on request

Contact QEYSSat (Quantum Encryption and Science Satellite)

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