Miratlas part of TeQuantS, ESA project for Quantum Communications under Thales Alenia Space management with the support of CNES.

Thales Alenia Space, the joint venture between Thales (67%) and Leonardo (33%), has chosen Miratlas to perform atmospheric characterization for a contract with the European Space Agency (ESA).

The TeQuantS project Aims at developing quantum space-to-Earth communications technologies. This contract, part of ESA's ARTES 4.0 Core Competitiveness programme element, is supported by French space agency CNES (Centre National d'Etudes Spatiales) and Austrian space agency ALR.

The TeQuantS project intends to develop quantum technologies for cybersecurity applications and future quantum information networks. These technologies will enable Thales Alenia Space and its partners to build satellites and optical ground stations by the end of 2026. TeQuantS will thus help to demonstrate the performance of long-distance quantum satellite links.

Satellites are today viewed as the best bet for long-distance quantum communications, as ground-based fiber-optic links directly transmitting quantum information are limited to a range of about 150 kilometers.

The main cybersecurity challenge is to generate secure cryptographic keys using the quantum properties of light and distribute them to users anywhere in the world. This capability is a response to the threat of quantum computers potentially able to crack cryptographic keys now in daily use.

The key challenge for quantum information networks is to enable future quantum computers and sensors to talk to each other and fulfill their promised exponential gains in performance.

QKD depends on photons entanglement, Miratlas' Sky Monitor© can perform a complete characterization of the atmosphere through which the photons will travel and define the best path between the satellite and the earth station therefore ensuring the best performance of future quantum information networks.

Javier Benedicto, Acting Director of Telecommunications and Integrated Applications at ESA, said: “Supporting European autonomy, leadership and responsibility in today’s digital world is becoming increasingly important. We are proud to be working with the consortium led by Thales Alenia Space to ensure that European citizens will continue to benefit from space-based secure connectivity in everyday life on Earth.”

"Miratlas is very proud to be part of this important ESA project, supported by CNES to propose solutions to both main space system designers, Thales Alenia Space and Airbus Defence and Space." says Miratlas CTO, Frédéric JABET, "It is a demonstration of the relevance of Miratlas' solution in the ecosystem of quantum communications".

About the TeQuantS consortium members & expertise
THALES ALENIA SPACE : Quantum systems
AIRBUS DEFENCE & SPACE: Quantum systems
MIRATLAS: Atmospheric channel metrology
ALPAO: Adaptive optics
AUREA Technology: Quantum equipment and components
BERTIN Technologies: Optomechanical systems
OGS Technologies: Optical ground stations
QTLabs: Quantum key distribution
SIGMAWORKS: Quantum channel synchronization
LIP6– Sorbonne University: Quantum systems
INPHYNI– Côte d’Azur University/CNRS: Quantum systems

About Miratlas:
Founded in 2018 by Jean-Edouard Communal and Frédéric Jabet , Miratlas is a deep-tech company which designs, manufactures and sells the Sky Monitor, providing continuous, real-time, atmospheric characterization of all the parameters impacting light transmission including cloud cover and turbulence.
Miratlas is enabling the new chapter of laser satellites communication (Fibre in the Sky), by facilitating Direct to Earth Free Space Optical Communications and the extension of the high-capacity terrestrial networks to space.

Project Contact
Frederic JABET

Co-founder & CTO
fjabet@miratlas.com

Customer Contact
Wandel DA ROCHA

Sales Director
wandeldarocha@miratlas.com