Use Cases

Operating Segments

Company

Contact

Applications
Airborne Data Transfer

Highly Efficient Data Transmission
The aircraft uses its QEST satellite antenna to transmit all data directly to a satellite in space. This satellite immediately relays the data to a ground station that is connected to the internet.

Likewise, information from the internet—such as real-time flight data or entertainment content—is transmitted via the ground station to the satellite and from there back to the aircraft's QEST antenna.

The result is a stable, high-speed, and global internet connection between the aircraft and the ground—regardless of location, route, or weather conditions.

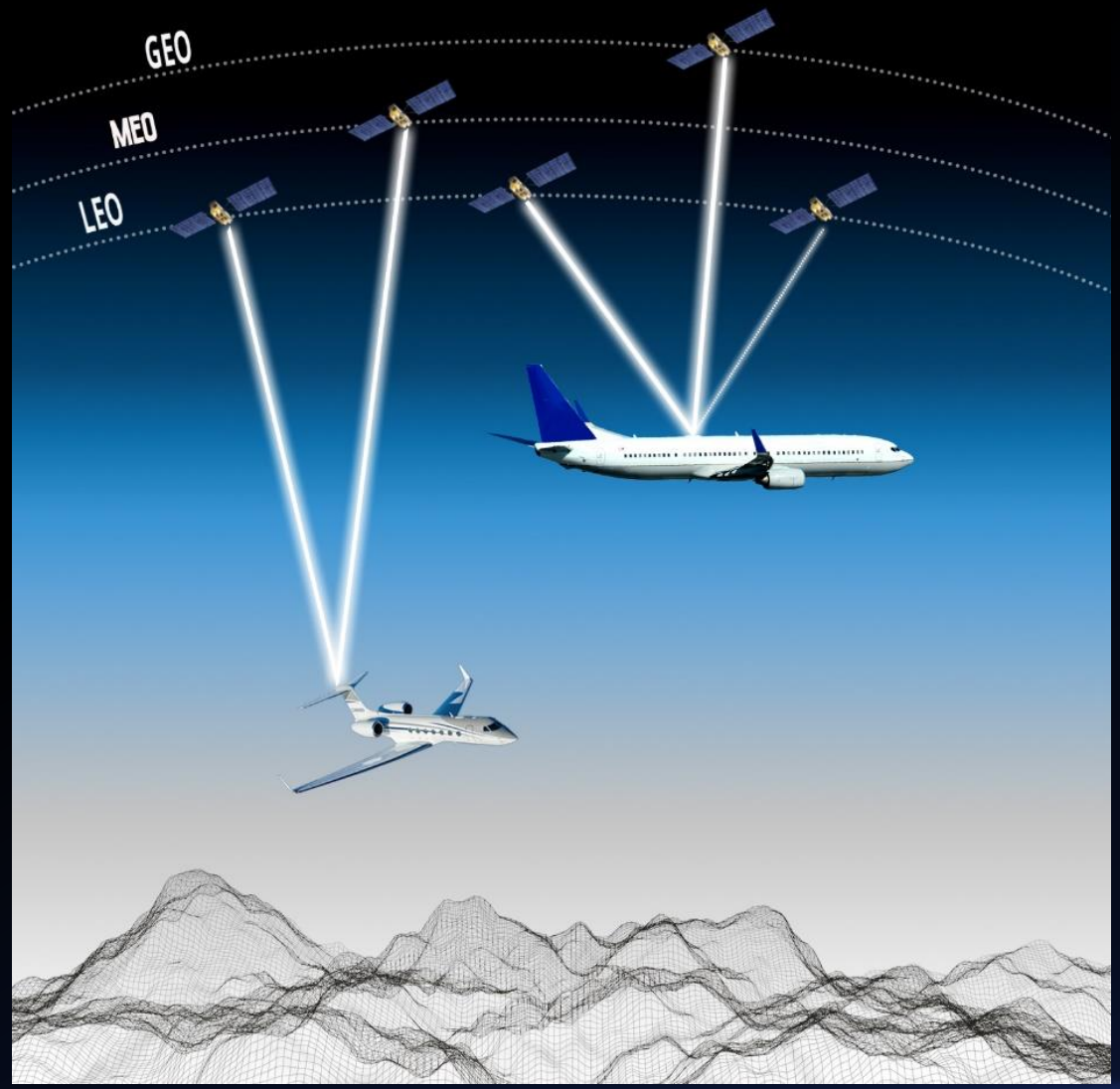
Solutions
LEO / MEO / GEO Network

Global Connectivity in Aviation

Modern aircraft systems rely on satellite communication to ensure secure and efficient data transmission during flight. Depending on the application, different satellite networks are utilized.

Hybrid Communication Solutions

QEST antenna systems enable seamless use of both GEO and LEO networks, ensuring reliable connectivity in every flight phase and across all regions.



Applications
Antenna Installation

Flexible Installation – Seamless Connectivity Anywhere with QEST

Whether mounted on the fuselage of large commercial aircraft or elegantly integrated into the tail fin of exclusive business jets – QEST satellite antennas offer maximum installation flexibility and ensure consistently reliable data connectivity.
Enjoy outstanding connectivity, exceptional aesthetics, and top-tier performance across all aircraft classes.

Experience a customized solution that meets your exact expectations—delivering optimal performance above the clouds.

Products

3-axis Ku-Band Antenna System

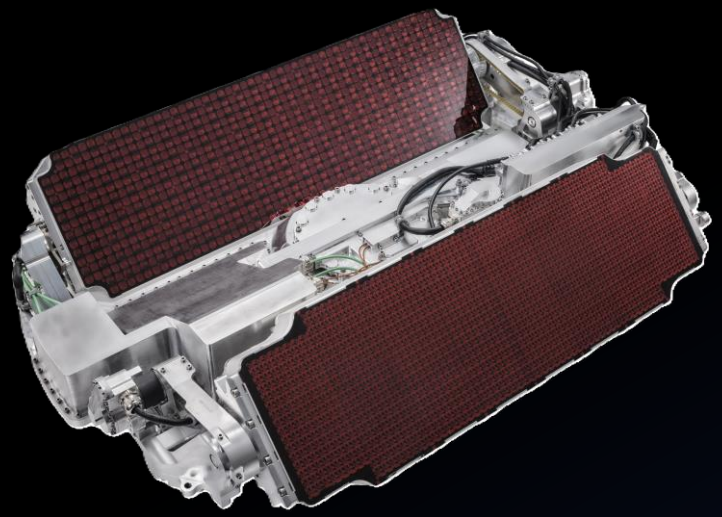
Ku-Band 3-axes GEO Satellite Antenna System

Characteristic:
The first true 3 axes antenna system on the market.

Customer benefits:
Maximization of transmit and receive data throughput for equatorial flight scenarios.

Parameter	Specification
Frequency	TX: 13.75 GHz to 14.50 GHz
	Rx: 10.70 GHz to 12.75 GHz
G/T	12.6 dB/K min.
EIRP	42 dBW typ.
Polarization	H/V
Weight	max. 42.86 kg [94.5 lbs]
Size	Ø: 916.2 mm [36.07 in] / H: 250.44 mm [9.86 in]
Power	typ. 27 W - max. 140 W

Ka-Band Dual Panel Antenna System



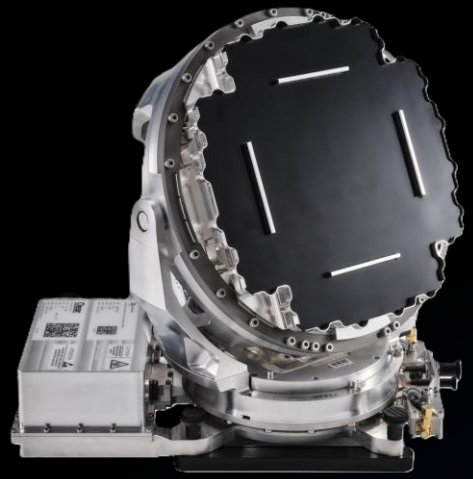
Ka-Band Dual Panel Satellite Antenna System

Characteristic:
LEO/GEO capable with highest possible performance due to dual panel technology with integrated BUC/BDC.

Customer benefits:
highest performance in SAA system class.

Parameter	Specification
Frequency	Tx: 27.5 GHz - 30 GHz
	Rx: 17.7 GHz - 20.2 GHz
G/T	18.0 dB/K max. > 20° elevation
	> 14.0 dB/K min.
EIRP	47.5 dBW max @ MOP
Polarization	Circular switchable
Weight	max. 57 kg [125 lbs]
Size	Ø: 911 mm [35.9 in] / H: 221 mm [8.7 in]
Power	230 W typ. - 280 W max.

Ku-Band compact Antenna System



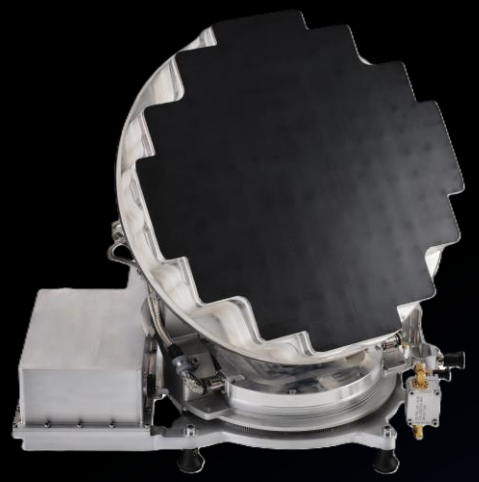
Ku-Band compact Antenna System

Characteristic:
Advanced compact antenna system configuration, with integrated BUC/BDC.

Customer benefits:
Simple installation and integration. highly reliable satcom system for mid to large Business or Military Aircraft.

Parameter	Specification
Frequency	TX: 13.75 GHz to 14.50 GHz
	Rx: 10.70 GHz to 12.70 GHz
G/T	10.5 dB/K min. @ 10.7 GHz ground level
EIRP	>42 dBW max @MOP
Polarization	H/V
Weight	max. 12 kg [26.5 lbs]
Size	H: 337 mm [13.3 in] / L: 369 mm [14.5 in]
	W: 295 mm [11.6 in]
Power	typ. 120 W - max. 200 W

Ka-Band compact Antenna System



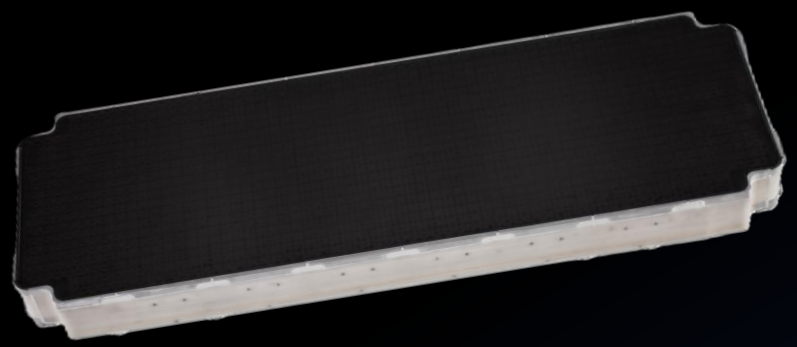
Ka-Band compact Antenna System

Characteristic:
Advanced compact antenna system configuration, with integrated BUC/BDC.

Customer benefits:
Simple installation and integration. Highly reliable satcom system for mid to large Business or Military Aircraft.

Parameter	Specification
Frequency	TX: 27.50 GHz to 30.00 GHz
	Rx: 17.70 GHz to 20.20 GHz
G/T	min. 11.0 dB/K @17.7 GHz flight level
	min. 12.4 dB/K @20.2 GHz flight level
EIRP	> 44.3dBW @27.5GHz, > 45.5dBW @30.0 GHz @MOP
Polarization	LHCP/RHCP
Weight	max. 12.5 kg [27.5 lbs]
Size	H: 336.4 mm [13.2 in] / L: 368.7 mm [14.5 in] / W: 289.0 mm [11.4 in]
Power	typ. 100 W - max. 160 W

Ka / X-Band Aperture



Ka / X-Band Aperture

Characteristic:
Designed for Ka / X-Band satellite communication.

Customer benefits:
Modular Ka / X-Band solution for standalone or Ka + X combined mobile antenna system platform

Parameter	Specification
Frequency	TX: 29.00 GHz to 31.00 GHz
	Rx: 19.20 GHz to 21.20 GHz
G/T	14 dB/K
EIRP SD	33 dBW/40kHz typ.
Polarizations	LHCP/RHCP
Weight	max. 14.8 kg [32.6 lbs]
Size	H: 202 mm [7.9 in] / L: 625.00 mm [24.6 in] / W: 55.20 mm [2.2 in]

Ka-Band QEPA-M

Ka-Band QEPA-M

Characteristic:
Multi-orbit with Lightspeed throughputs of 1300 Mbps receive / 240 Mbps transmit.
Customer benefits:
Very low power consumption, no active cooling required, high reliability and minimum operational cost. Full duplex operation for maximum data rates in receive and transmit.

Parameter	**Specification**
Frequency	TX: 27.50 GHz to 30.00 GHz
	Rx: 17.70 GHz to 20.20 GHz
G/T	> 17.5 dB/K @ 19.7 GHz @ flight level
EIRP	> 51 dBW @ 29.5 GHz
Polarization	Circular switchable
Weight	< 66kg [<145 lbs] incl. radome and baseplate
Size	L: 157 cm [62 in] / W: 62 cm [24.5 in] / H: 6.5 cm [2.5 in]
Power	typ. 215 W - max. 470 W

Ka-Band QEPA-S

Ka-Band QEPA-S

Characteristic:
Lightspeed throughputs: 1000 Mbps receive / 190 Mbps transmit.
Customer benefits:
Very low power consumption, no active cooling required, high reliability and minimum operational cost. Full duplex operation for maximum data rates in receive and transmit. Supports multi network and multi orbit operation.

Parameter	Specification
Frequency	TX: 27.50 GHz to 30.00 GHz
	Rx: 17.70 GHz to 20.20 GHz
G/T	> 15 dB/K @ 19.7 GHz @ flight level
EIRP	> 46 dBW @ 29.5 GHz
Polarization	Circular switchable
Weight	< 45kg [<99 lbs] incl. radome and baseplate
Size	L: 131 cm [51.5 in] / W: 50.5 cm [20 in] / H: 6.5 cm [2.5 in]
Power	typ. 150 W - max. 250 W

Ka-Band QEPA-B

Ka-Band QEPA-B

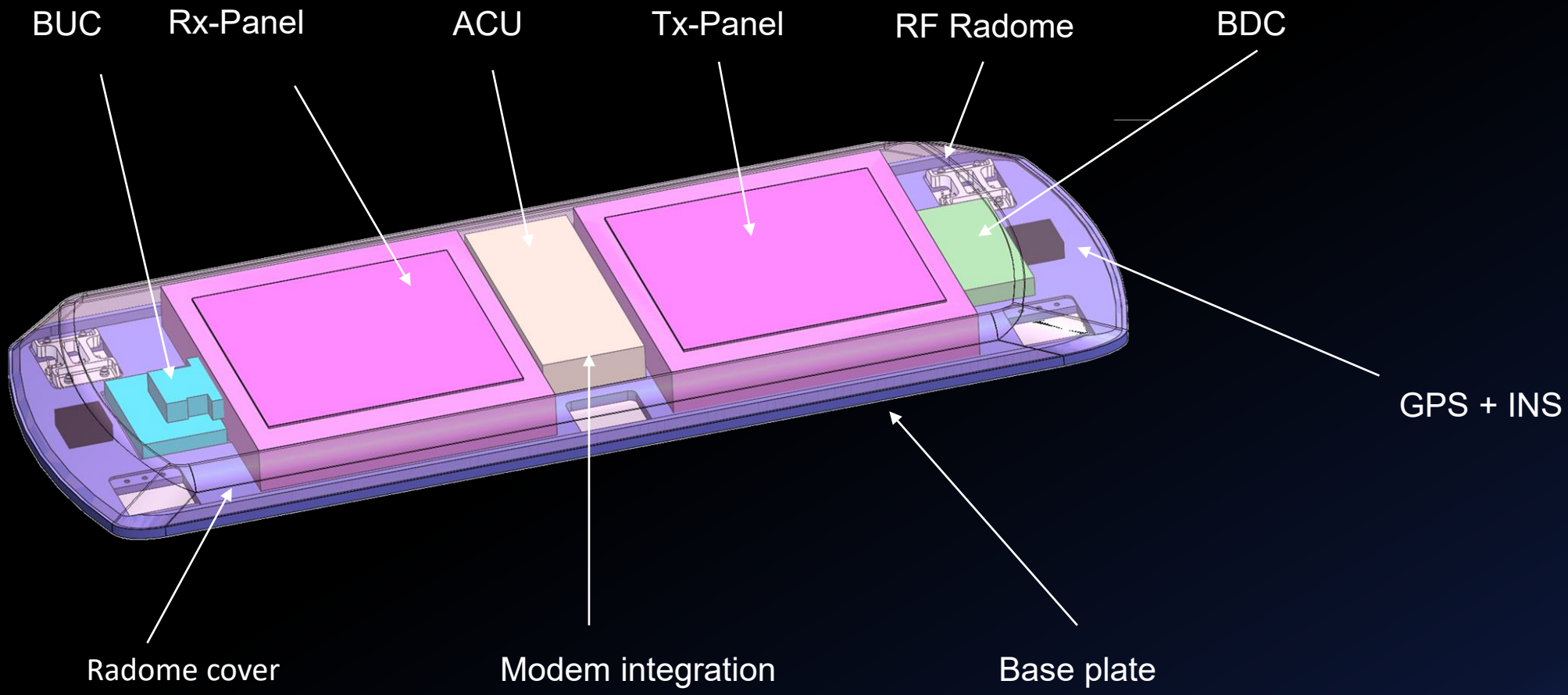
Characteristic:
Optimum size and cost vs. performance ratio.
Customer benefits:
Very low power consumption, no active cooling required, high reliability and minimum operational cost. Full duplex operation for maximum data rates in receive and transmit. Supports multi network operation.

Parameter	**Specification**
Frequency	TX: 27.50 GHz to 30.00 GHz
	Rx: 17.70 GHz to 20.20 GHz
G/T	> 11.5 dB/K @ 19.7 GHz @ flight level
EIRP	> 44 dBW @ 29.5 GHz
Polarization	Circular fixed
Weight	< 20kg [<44 lbs] incl. radome and baseplate
Size	L: 86 cm [34 in] / W: 30.5 cm [12 in] / H: 5.6 cm [2.2 in]
Power	typ. 120 W - max. 185 W

QEST Ka-QEPA Antenna System

- Maximum data rate support in receive and transmit for Ka-Band LEO + GEO networks
- Full duplex operation for maximum data rates in receive and transmit
- Very low power consumption, no active cooling required, high reliability and minimum operational cost
- Lightspeed throughputs: > 1300 Mbps receive / 240 Mbps transmit
- Supports multi network and multi orbit operation
- Easy installation

QEST QEPA Antenna System Architecture



Ku-QEPA: Key performance

Antenna Type:	Electronically scanned Phased-Array (passive)
Dimensions (approx.):	14”x 14” x 4” approx.
Frequency Band:	10.7GHz to 12.7GHz (Rx) 13.75GHz to 14.5GHz (Tx)
Signal Polarization:	circular
Operational Range:	Azimuth: 0° - 360° Elevation: 20° - 90°
G/T @ boresight :	> 11 dB/K(*) (@ 12.2GHz)
G/T @ 60° scan:	> 7.5 dB/K(*) (@ 12.2GHz)
Inst. bandwidth:	> 250 MHz (1dB peak-to-peak)
Min EIRP:	> 42 dBW (typical**) @ boresight

(*): G/T preliminary and not fully optimized due to the missing design cycles for the radome integration

(**): adjustable without impact on aperture area

Company

QEST – One Stop Shop

Concept development

- Innovation
- Customer requirement
- Trend scouting
- Market research

Series development

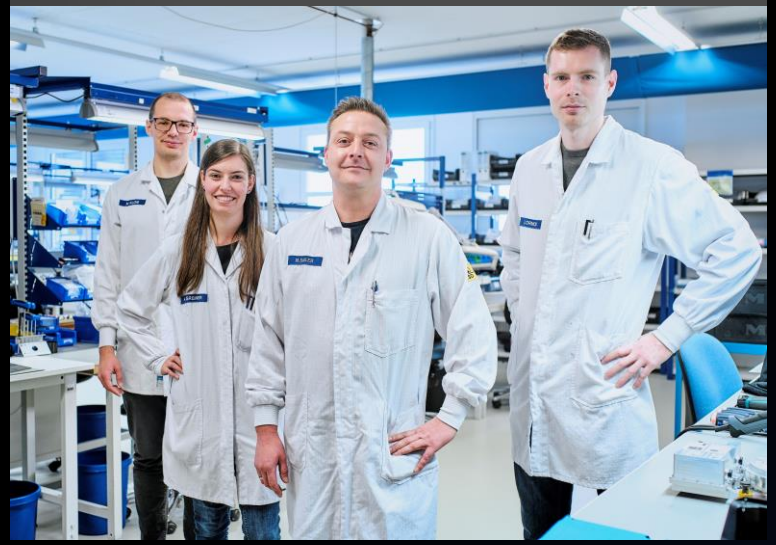
- Patents
- Development
- Prototype construction
- Equipment engineering

Industrialization

- Supply-chain management
- Manufacture
- Test and validation

Research | **Development** | **Production**

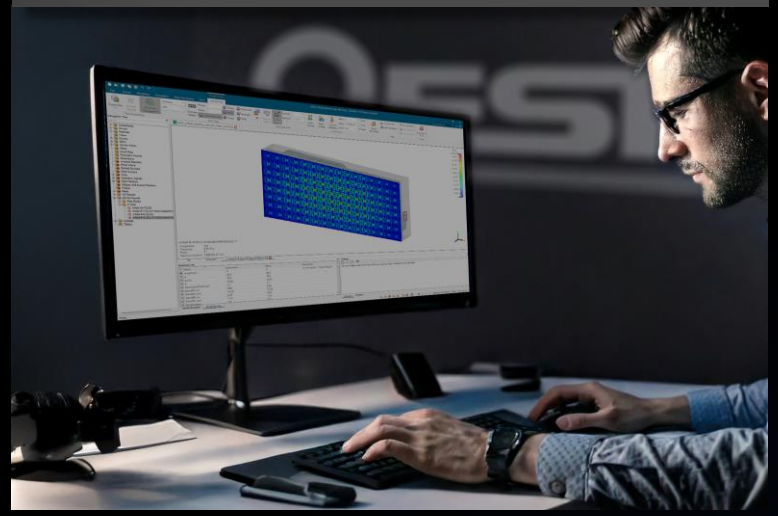
COMPANY



QEST Quantenelektronische Systeme GmbH

- QEST Quantenelektronische Systeme GmbH develops, manufactures and markets innovative antenna systems and components with a special focus on broadband satellite antennas.
- Reliable connectivity: Ensures stable and fast internet connections via satellite.
- Customized solutions: We offer customized antenna systems that meet the specific requirements of our customers.
- Innovative technology: We develop advanced antenna technologies to ensure high performance and efficiency.
- Certified quality: Ensuring the highest standards through rigorous quality control and certification.
- Expertise: Benefit from the experience and know-how of an established antenna technology company.

Engineering



QEST Development History
QEST was founded as a university start-up specializing in quantum electronics and has since evolved into a leading provider of advanced antenna systems for the aviation industry. With decades of experience, technological expertise, and strong global partnerships, the company has played a defining role in the advancement of in-flight broadband communication.

Next-Generation Phased Array Antenna Technology
With its Q-EPA (QEST Electroactive Phased Array) technology, QEST is setting new standards in electronically steered antenna systems. These antennas combine a compact design, high performance, and energy efficiency with full compatibility across LEO, MEO, and GEO satellite constellations.

Strong Patent Position
QEST holds a broad portfolio of strategic patents covering key technologies such as superconducting quantum antennas and advanced flat-panel phased arrays. This intellectual property secures QEST's technological leadership and reinforces its strong market position.

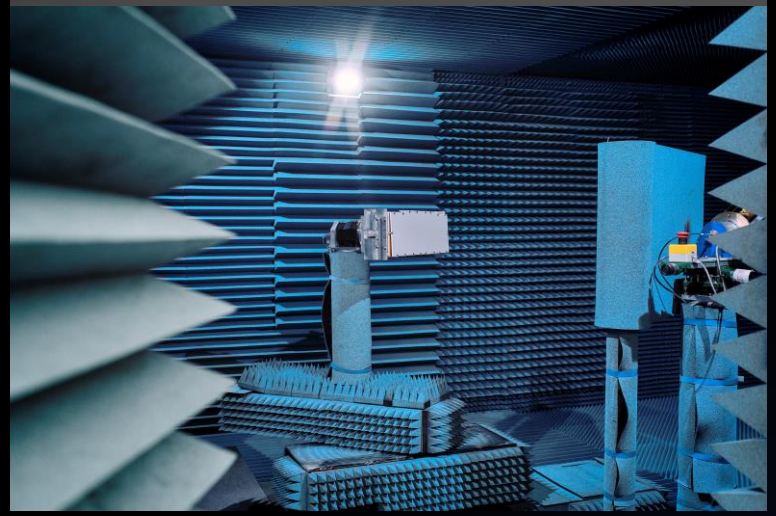
Production

Longstanding Experience Meets Unparalleled Precision
For over 20 years, QEST has been producing highly specialized satellite antenna systems for the aviation industry. Our unique manufacturing methods ensure unparalleled precision, enabling reliable satellite connections even under the most demanding flight conditions.

Specialized Production Expertise Guarantees Quality
Our certified in-house production processes deliver innovative antenna solutions tailored precisely to your requirements. Extensive expertise in RF technology and precision mechanics positions us as the leading specialist for reliable, lightweight, and high-performance antenna systems.

Proven Reliability for the Aviation Industry
Through rigorous quality controls and extensive practical testing, our products meet the highest aviation-specific standards for safety and reliability. QEST stands for durable antenna systems, combining top quality with minimal maintenance requirements.

Quality & Testing



Precision through State-of-the-Art Testing
At QEST, our antennas undergo the most rigorous testing under real-world conditions. Using cutting-edge measurement technology, we ensure maximum reliability and outstanding performance.

Quality That Sets the Standard
Our test laboratories simulate the most demanding operational environments to push every antenna to its limits. This guarantees that QEST antennas consistently deliver top-tier quality-even in the harshest conditions.

Certified Reliability through Comprehensive Inspection
Extensive quality controls ensure that only antennas with verified performance leave our facility in Holzgerlingen. Trust QEST—where precision and quality are measurable.

Sales & Technical Support

Personalized Customer Support
Each customer is assigned a dedicated and experienced Key Account Manager who serves as a single point of contact for all sales and technical matters.
Individualized support ensures fast, straightforward communication and tailor-made solutions.

Rapid Response Times & Optimal Availability
Our Technical Support Team responds to every support request within 30 minutes.
The support team is available Monday through Friday from 8:00 AM to 10:00 PM (CET), ensuring prompt and effective assistance whenever needed.

Digital Analysis & Internal Ticket Management
Our established internal ticket system efficiently documents and tracks all support cases.
Through graphical analysis of log data and intelligent linking with previous support cases, we deliver targeted solutions and continuously optimize customer systems.

DRÄXLMAIER
The parent company

QEST as a subsidiary of the DRÄXLMAIER Group
The financial strength of the DRÄXLMAIER Group: With more than 70,000 employees at over 60 locations in more than 20 countries, the DRÄXLMAIER Group achieved a turnover of 5.6 billion euros in 2023.

Benefits for QEST and customers: As part of the DRÄXLMAIER Group, QEST benefits from its extensive manufacturing capabilities and global presence, ensuring efficient production and reliable supply chains.

DRÄXLMAIER
High end production

Precision and Innovation in Electronics Manufacturing
Our state-of-the-art facilities in Braunau, Hunedoara, and Timisoara set new standards in fully integrated, automated electronics production – ensuring maximum efficiency, quality, and manufacturing capacity.

Automated High-Tech Production
Leveraging cutting-edge manufacturing technologies, we deliver electronic components with utmost precision and scalability to meet the demands of leading customers worldwide.

Comprehensive System Expertise for Premium Solutions
With DRÄXLMAIER's unique system expertise, we integrate electrical, electronic, and mechanical components into intelligent, high-quality complete solutions.

Contact

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