QUADSAT

QS SkyRange

Your Mobile, Configurable Test Range for Efficient Antenna Characterization

QS SkyRange provides a flexible UAV-based solution for efficient in situ antenna characterization and optimization.

Unlike traditional fixed test ranges and facilities, QS SkyRange provides laboratory-grade measurements where and when they are needed. Its onsite testing mitigates installation and calibration challenges by considering real-world operational conditions, ensuring optimal antenna performance. The solution is fully configurable to match specific antenna types and test objectives, leveraging Quadsat's RF payload range and intuitive software planning tools.

QS SkyRange helps organizations gather comprehensive data on radiation performance to reduce deployment risks, optimize installations, and maintain high-performance connectivity where and when it matters most.

Key Features

- ✓ Efficient in situ characterization of satellite and radar antenna
- ✓ Compact, mobile solution for testing anywhere in the world
- ✓ Matches different AUT sizes and frequencies
- ✓ Customized measurement plans and automated execution
- ✓ Full compliance testing & reporting.

Why QS SkyRange?

Application examples and benefits

Test and verify antennas across their lifecycle
Track performance over time - from R&D to periodic checks after deployment.

Calibrate and diagnose misalignments
Optimize sub-reflector and feed alignment in installed antennas for maximum gain.

Compare antenna models & technologies
Make data-driven performance decisions.

Conduct comprehensive SAT
Ensure a comprehensive Site Acceptance Test - avoid performance disputes down the line.

Verify radome impact
Assess signal attenuation, pattern distortion, and performance degradation caused by the radome.

Test uplink performance
Validate transmission quality to ensure signal integrity and optimal link performance.

Ensure Compliance
Facilitate regulatory approval and antenna registration efficiently.

QS SkyRange - Technical Specifications

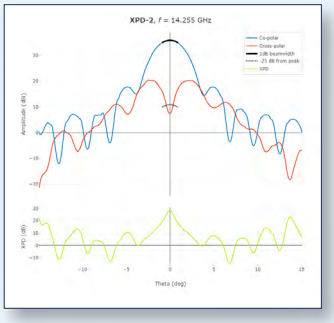
Antenna Measurements	
Radiation pattern cuts	Principal cuts and diagonal cuts
Radiation pattern Rasters	3D measurement by performing rasters and star patterns, with heat-map visualization
Cross-polar discrimination	Measure the antenna XPD and/or axial ratio
Antenna Gain	Obtain antenna gain through substitution method using reference gain antenna
G/T	Measure the antenna G/T at customizable elevation angles
EIRP	Measure the system EIRP and linearity
Beam peak location	Determines antenna pointing accuracy
Radial measurements	Evaluation of environmental reflections

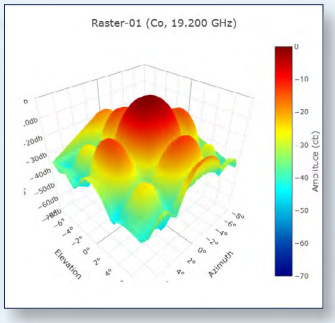
Measurements for Electrically Steerable Antennas	
Beam states	Measure multiple beam states
G/T & EIRP	Measure as a function of the antenna pointing angle
RX/TX alignment	Confirm simultaneous alignment of TX and RX beams

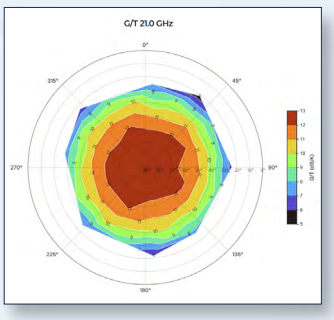
Compliance Testing Procedures
GovSat VES - Validation of Earth Stations
Viasat MTR - Mandatory Test Requirements
Eutelsat ESVA - Earth Station Validation Assistance
WGS - Wideband Global SATCOM
SOMAP - Satellite Operator's Minimum Antenna Testing Requirements

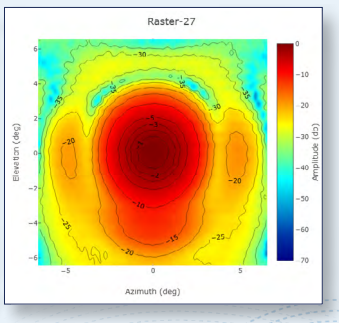
Technical Features	
Antenna types	Parabolic gateways, user terminals, phased array and radar antennas
Frequencies and bands	2-31 GHz S, C, X, Ku, K and Ka band
Payload configurations	QS 2-12 GHz (CP) - DL or DL & UL QS 6-24 GHz (LP) - DL or DL & UL QS 17-31 GHz (CP) - DL or DL & UL
Measurement Planning	Stationary Points, Cuts, Raster Patterns and star patterns
Measurement axis setup	Alignment with the beam pointing and polarization axis
Measurement execution	Automated execution, pause, repeat, monitor
Measurement data analysis	Contours, masks, gain calculation, sidelobe level extraction, pointing error
Measurement output	Raw data files, plots, QS Cloud
Frequency settings	Fixed and sweep
User interface operating system	Windows / Linux
Antenna interface	OpenAMIP, Rest API

Accuracy	
Probe position uncertainty	2 cm RMS
Probe position keeping error	Within ±5 cm @ 5m/s wind, ±10 cm@ 15m/s wind
Probe pointing error	0.3°
Pattern measurement equivalent error signal (EES)	50 dB
Absolute accuracy after calibration	0.5 dB









High-Precision Antenna Measurements

Quadsat vs. ESA ESTEC