选型指南

Antenna Test Solution Selection: On-Wafer, CATR, UAV Field and RCS

Antenna test solution comparison: on-wafer antennas 8GHz–110GHz (expandable to 500GHz), microwave/millimeter-wave RCS 1GHz–40GHz (expandable to 750GHz), UAV field testing with a 50~1000m radius.

On-Wafer and Integrated Antennas



We use cookies to run the site and analyse traffic (via Google Analytics). Accept all analytics cookies, or continue with essential only. Cookie Policy
Essential only
Accept all

parameters.

The system follows a generalized, modular design built around a **high-performance vector network analyzer**, with frequency-extension modules, a high-precision turntable, an on-wafer antenna feed platform and a microwave shielded box.

Measurable parameters include radiation pattern, sidelobe level, gain, axial ratio and VSWR — suitable for miniature antennas with unconventional feed forms such as on-wafer, integrated and packaged antennas.

Selection point: these antennas are extremely small, and the coupling efficiency of a conventional shielded box with standard antennas is insufficient, so a dedicated feed platform is required — the biggest cost difference between on-wafer solutions and ordinary antenna testing.

Compact Range and Near-Field Testing

The antenna test solution catalog includes a **compact-range antenna test system** and a **near-field antenna test solution**.

The compact range brings far-field conditions into a limited space: it suits sites too constrained to meet far-field distance, and measurements that must be done indoors or in an anechoic chamber. Near-field testing scans the amplitude and phase distribution and transforms it to the far field, ideal for pattern measurements requiring high accuracy and resolution.

Selection rule: choose the compact range when space is limited; choose near-field scanning when accurate patterns matter (especially sidelobes and axial ratio).

We use cookies to run the site and analyse traffic (via Google Analytics). Accept all analytics cookies, or continue with essential only. Cookie Policy

Microwave/Millimeter-Wave RCS and Stealth Performance



Microwave/millimeter-wave RCS testing is primarily used for **stealth performance testing and evaluation**, with capabilities for accurate RCS measurement and evaluation, strong-scattering distribution imaging and diagnosis of targets, imaging analysis of local scattering characteristics, and evaluation of stealth coating repairs.

The system is built around a vector network analyzer or dedicated test equipment; with external antennas, calibration kits and motion devices it covers radar scattering measurements in the **1GHz–40GHz** band, and **with optional frequency-extension equipment, coverage up to 750GHz in the millimeter-wave/terahertz range**.

The system features a high degree of automation, flexible configuration, fast measurement, high accuracy and a complete set of parameters.

Outdoor UAV Antenna Testing

The outdoor UAV antenna test solution consists of a **mobile unit and a ground-station unit**.

The mobile unit includes the UAV platform and the receiving test payload; the ground station includes the main control computer, ground RTK and remote controller. The UAV carries the receiving test equipment along a planned flight trajectory around the antenna under test, stores the collected antenna data together with the UAV position state, and transmits it to the measurement-analysis software to derive the antenna performance

We use cookies to run the site and analyse traffic (via Google Analytics). Accept all analytics cookies, or continue with essential only. Cookie Policy

Two key figures: a **large measurement radius of 50~1000m**, and **high positioning accuracy — flight dynamic control precision of ±0.2m**.

The value of this solution is that large antennas (base-station antennas, radar antennas) cannot be moved into a chamber; the UAV can fly around the antenna at different azimuths to collect data.

Phased-Array Antenna Environmental Testing



The phased-array antenna environmental test system is mainly used for **temperature (high, ambient, low) and vibration** environmental testing of multiple phased-array antenna models, calibrating environmental adaptability from parameters measured under each condition, with batch testing of multiple units.

The design concept is built on “**core test equipment + host computer + test application development**”. The related antenna environmental-effects multi-parameter test solution can build a temperature environment of **-40°C to 100°C** and humidity up to **98%**.

Selection point: environmental testing is a production-line step, not a lab step — what matters are test takt time, batch consistency and chamber utilization. The published architecture of “core test equipment + host computer + test application development” exists precisely to lower hardware upgrade costs when capacity expands.

FAQ

We use cookies to run the site and analyse traffic (via Google Analytics). Accept all analytics cookies, or continue with essential only. Cookie Policy

A On-wafer antenna testing covers 8GHz–110GHz, expandable to 500GHz. It is built around a high-performance vector network analyzer with frequency-extension modules, a high-precision turntable, an on-wafer feed platform and a microwave shielded box, measuring pattern, sidelobe level, gain, axial ratio and VSWR.

Q How high in frequency can microwave/millimeter-wave RCS testing go?

A The base configuration covers 1GHz–40GHz radar scattering measurements; with optional frequency-extension equipment, coverage extends to 750GHz in the millimeter-wave/terahertz range. The system serves stealth testing and evaluation, supporting accurate RCS measurement, scattering-distribution imaging and stealth-coating repair evaluation.

Q What if a large antenna cannot be moved into a chamber?

A Use the outdoor UAV antenna test solution. The UAV carries the receiving payload along a planned trajectory around the antenna; the ground station includes the main control computer, RTK and remote controller. Test radius is 50~1000m with flight dynamic control precision of ±0.2m.

Q What does phased-array antenna environmental testing cover?

A Temperature (high, ambient, low) and vibration environmental testing of phased-array antennas, calibrating environmental adaptability from measured parameters, with batch testing of multiple units. The related solution builds -40°C to 100°C temperature and up to 98% humidity environments.

This guide is based on the official product pages and solution descriptions /solutions/tech/sys-col-258/. Parameters are quoted verbatim, without secondary processing.

We provide pre-sales selection consulting, on-site solution planning, technical support, operator training and after-sales calibration services. Phone / WeChat / WhatsApp: **+86-15626514602** Email: **sales@jxby.tech** Service hours 08:00–22:00.
Address: Room 412, Building 1, Phase 1, Dongjiu Innovation Technology Park, No. 76 Bulan Road, Xialilang Community, Nanwan Street, Longgang District, Shenzhen, Guangdong, China

We use cookies to run the site and analyse traffic (via Google Analytics). Accept all analytics cookies, or continue with essential only. Cookie Policy

Related reading

- Antenna Test Solution Selection: On-Wafer, CATR, UAV Field and RCS
- Antenna Test Solution Selection: On-Wafer, CATR, UAV Field and RCS
- Antenna Test Solution Selection: On-Wafer, CATR, UAV Field and RCS
- Antenna Test Solution Selection: On-Wafer, CATR, UAV Field and RCS
- Antenna Test Solution Selection: On-Wafer, CATR, UAV Field and RCS

Related Instruments & Equipment



VNA400 2-Port USB-Powered Vector Network Analyzer, 40 MHz to 40 GHz

View details →



RFS44 4-Port SP4T Absorptive Solid-State RF Switch, 100 kHz to 44 GHz

View details →



BB60C Real-Time Spectrum Analyzer & RF Recorder, 9 kHz to 6 GHz

We use cookies to run the site and analyse traffic (via Google Analytics). Accept all analytics cookies, or continue with essential only. Cookie Policy

JXBY 金玺博远

System Admin

Founded in 2020, JXBY is a specialist supplier across five business lines — its own JXBY brand plus electronic communication instruments and equipment, security and confidentiality equipment, professional drones and accessori…

Site Navigation

Home

Product Mall

Company Mall

Custom & Integration

Service & Support

Contact JXBY

Product Categories

JXBY

Instrumentation & Equipment

Security & Confidentiality Equipment

Professional Drones & Accessories

Robots & Accessories

Contact Us

Room 412, Building 1, Phase 1, Dongjiu Innovation Technology Park, No. 76 Bulan Road, Xialilang Community, Nanwan Street, Longgang District, Shenzhen, Guangdong, China

+86 156 2651 4602 • Mr. Li

sales@jxby.tech

WeChat / WhatsApp +86 156 2651 4602

Alibaba.com

© 2026 Shenzhen JXBY Technology Co., Ltd. Privacy Policy Terms of Service Warranty & Returns Cookie Policy Sitemap

粤ICP备2026172875号-1

v76c688bcb0aeae45

We use cookies to run the site and analyse traffic (via Google Analytics). Accept all analytics cookies, or continue with essential only. Cookie Policy