

+ STARLAB

The Scalable, Trusted
Platform for What's Next
in Antenna Testing



StarLab | HORIZON

StarLab is a compact near-field multi-probe antenna measurement system, designed for laboratories and production environments where space is limited. It enables precise characterization of antennas and wireless devices, covering both passive antenna measurements and over-the-air (OTA) testing. Its turn-key design combines portability with the accuracy of a laboratory-grade tool, delivering reliable results on key parameters such as gain, directivity, efficiency, radiation patterns, TRP, TIS, EIRP, and EIS.

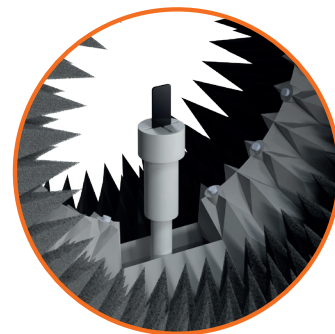
Building on this foundation, StarLab is available in multiple configurations to address a wide range of testing requirements. From essential product validation to advanced research and defense-grade applications, each version offers the same trusted compactness, speed, and reliability while scaling to meet specific needs.

- + Covers testing needs from basic validation to defense-grade R&D
- + Offers modular software bundles tailored to your workflow
- + Supports flexible, scalable configurations to grow with your needs

Choose the right system for your requirements—and move faster with confidence.

+ Telecommunications

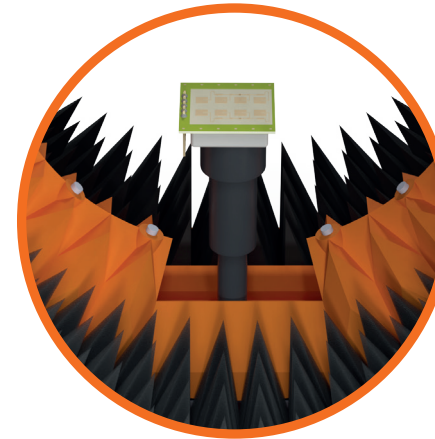
Enabling Seamless Connectivity



StarLab enables telecom developers to streamline antenna testing across the full wireless spectrum. From validating OTA module behavior in smartphones, IoT devices, and BTS equipment to optimizing performance for FR3 and future 6G designs, the system simplifies complex troubleshooting tasks. Its wide frequency support allows engineers to address legacy protocols alongside emerging standards—ensuring compliance and accelerating innovation.

+ Aerospace & Defense

Driving Innovation Superiority



StarLab provides aerospace and defense organizations with accurate and reliable antenna testing up to 50 GHz. Its compact and portable design makes it an ideal complement to large anechoic chambers, freeing their capacity by handling detailed investigations at the sub-module level or in space-constrained labs. Beyond hardware performance, StarLab offers open API and developer mode access, enabling users to implement and validate proprietary test protocols and adapt workflows to unique mission requirements. Combined with a powerful post-processing software suite, it delivers advanced diagnostic and optimization tools to refine performance, validate mission-critical systems, and accelerate innovation—maintaining technological superiority.

+ Academia & Research

Cost-effective Solutions for Education

For universities and research centers, StarLab provides an accessible, versatile platform for antenna studies. It covers a broad frequency range to support diverse research needs, while staying cost-effective for academic budgets. Whether for teaching fundamentals or enabling advanced investigations, StarLab empowers researchers and students alike with reliable, future-ready measurement capabilities.



Hardware specification

MAIN FEATURES

Technology

- Near-field/Spherical
- Near-field/Cylindrical

Measurement capabilities

- Gain
- Directivity
- Beamwidth
- Cross polar discrimination
- Sidelobe levels
- 3D radiation pattern
- Radiation pattern in any polarization (linear or circular)
- Antenna efficiency
- TRP, TIS, EIRP and EIS

SYSTEM CONFIGURATIONS

Equipment

- Arch with probe array, AUT positioner
- Control unit
- Power and control unit
- Tx and Rx amplification units
- Instrumentation rack
- Uninterruptible power supply
- Vector network analyzer

Add-ons

- Shielded anechoic chamber (OTA testing)
- Linearpositioner for linear array antenna measurements (cylindrical mode)

OTA Equipment

- Radio communication tester
- Active switching unit
- Transfer switching unit

Max size of DUT

- 45 max diameter
- Up to 400 cm L x 45 cm W - for cylindrical set-up (only on Pro and Pro+)

Max. weight of DUT (centered load)

- 10 kg on polystyrene mast
- 50 kg on ultra-rigid mast
- 80 kg for cylindrical mode

Accessories

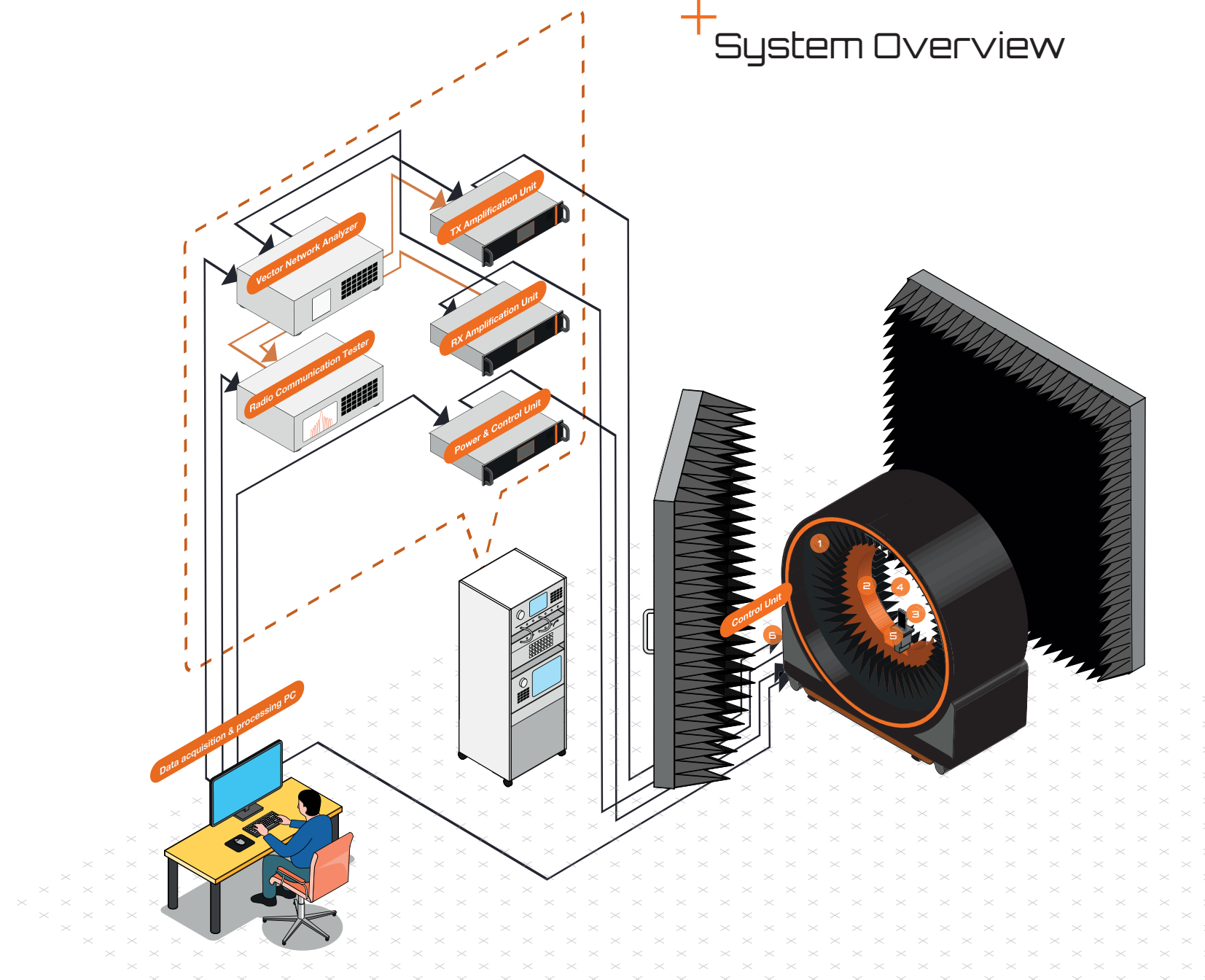
- Reference horns
- PC
- Ultra-rigid mast
- Laptop support interface
- Hand and head phantom
- Reference antennas

Services

- Installation
- Training
- Warranty
- Post warranty service plans

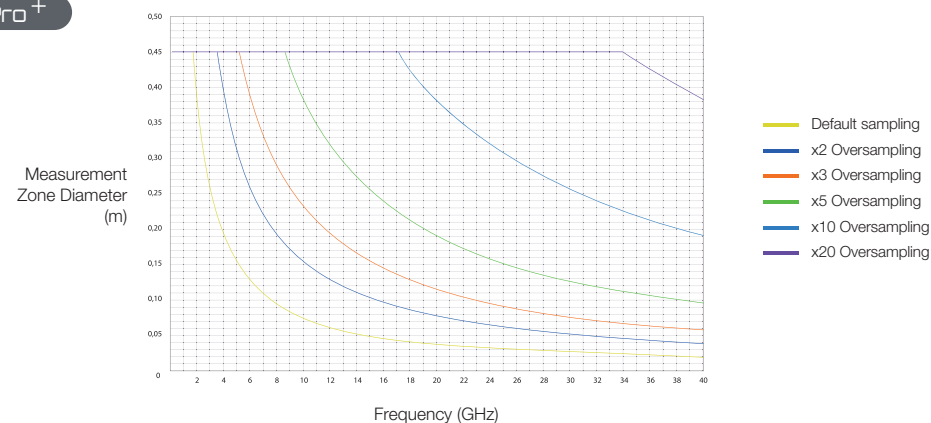
■ Included □ Optional ○ Required

System Overview

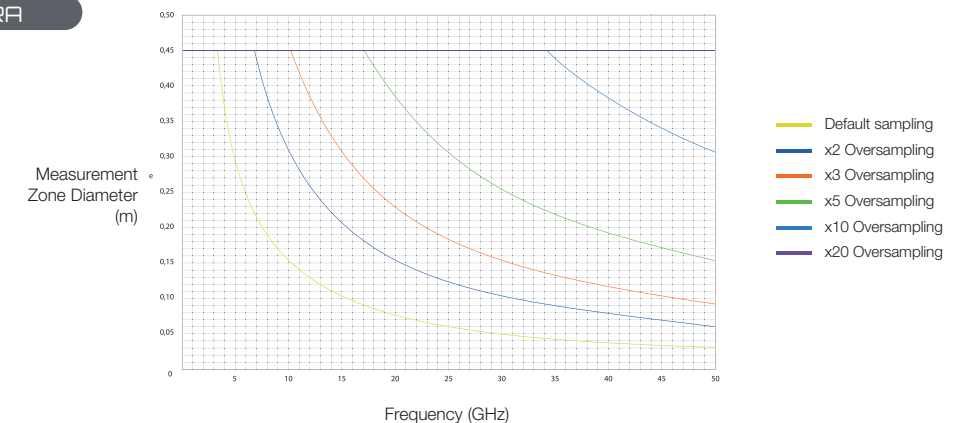


Measurement Zone Capabilities | DUT size vs. frequency comparison

StarLab Core to Pro⁺

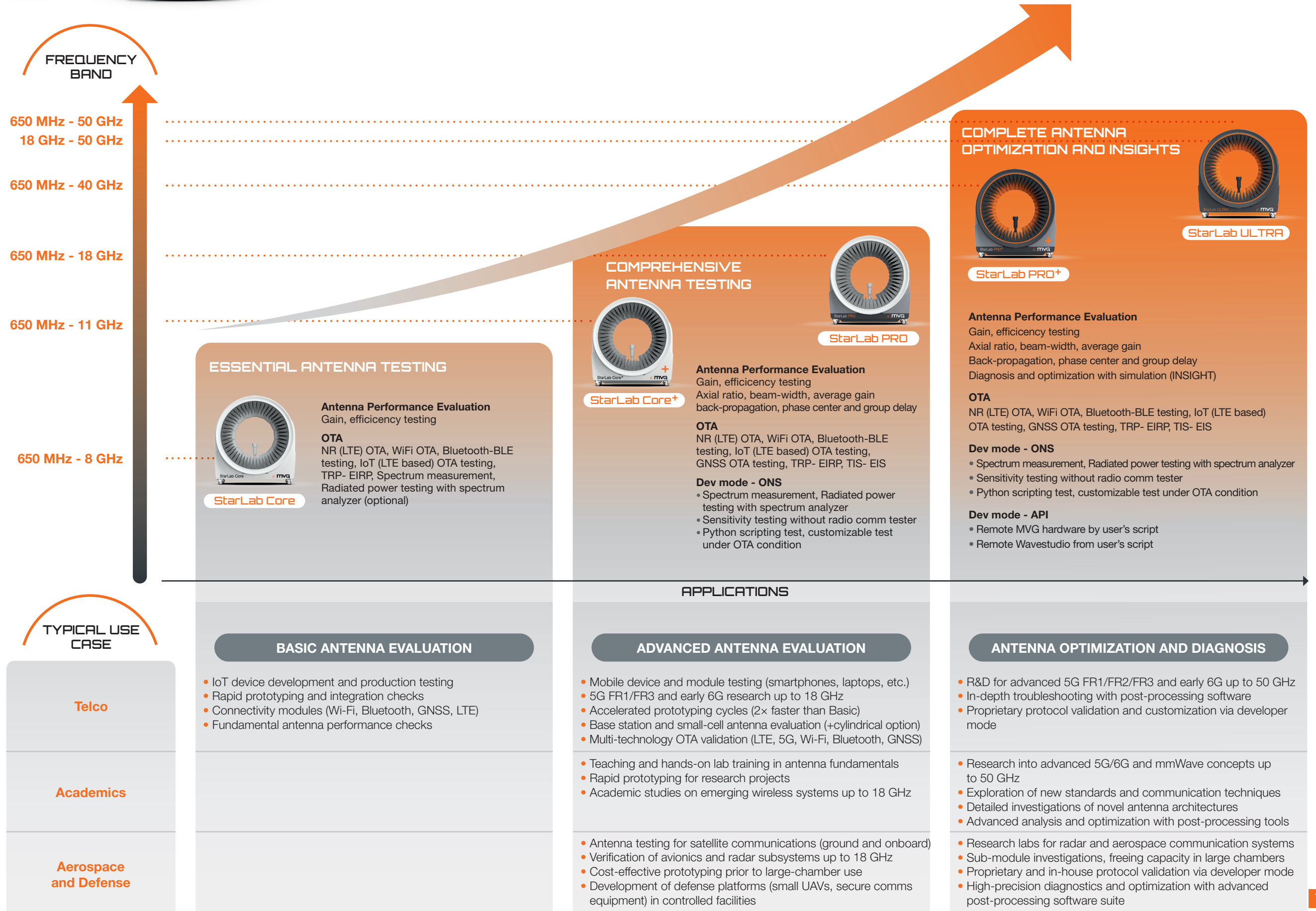


StarLab ULTRA





+ 5 products for multiple applications



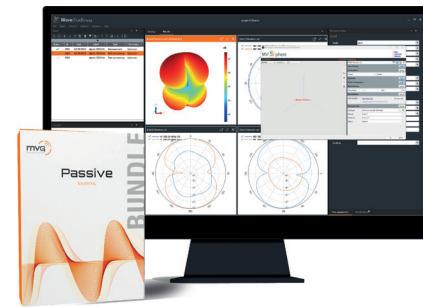
+ Software Bundles

A modular suite designed to address the specific requirements of passive, OTA Mobile Cellular, IoT, and cylindrical testing.

PASSIVE MEASUREMENTS

Passive Essential

The essential package for passive antenna measurements. It includes basic data acquisition with WaveStudio Passive and fundamental computation with MV-Sphere Basic.



Passive Advanced

An enhanced version of Passive Core with expanded computation and analysis tools. It includes MV-Sphere Advanced for improved spherical Near-Field to Far-Field (NF-to-FF) transformation, plus advanced features:

+ Computation tools:

- **MV-Holography** computes the field on a planar surface (planar back-propagation) from FF or SWC data
- **MV-Iterative** extrapolates a spherical field measurement in the truncated region (area in which data is not measured) to estimate the field over the full spherical measurement grid.
- **MV-Phase** determines the phase center of an antenna using 3D FF data
- **MV-Translate & Rotate** allows the Spherical FF data to be translated and rotated within the coordinate system

+ Analysis tool

- **Antenna Analyzer** is advanced analysis tool to extract most of antenna factors & radiation patterns from WaveStudio Far-field

OTA MEASUREMENTS



OTA Mobile Cellular Essential

The essential package for cellular testing, covering all legacy 2G-4G standards, including TDSCDMA, LTE Unlicensed and License Assisted Access LAA. It includes a legacy Radio Com Tester driver.

OTA Mobile Cellular Advanced

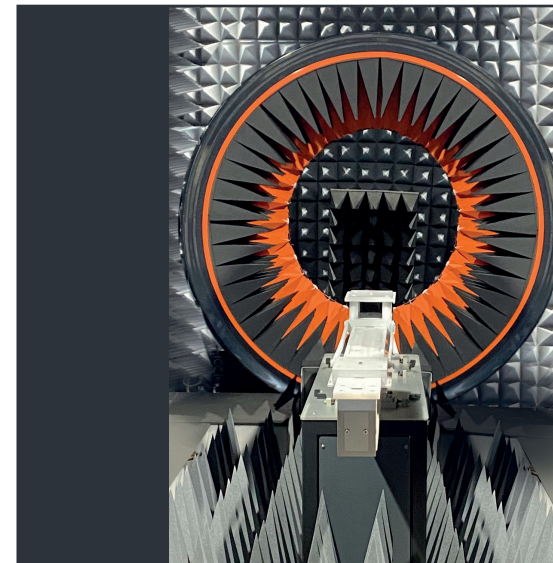
An advanced version of Mobile Cellular Essential with full 5G support. It adds NR Standalone (SA) and NR Non-Standalone (NSA) modes (LTE/NR anchored) and includes an advanced Radio Com Tester (single-box/one-box type) driver.

OTA IoT Essential

The essential package for IoT connectivity testing, covering all legacy WLAN and Bluetooth standards. It supports 802.11 a/b/g/n/ac/ax, Bluetooth, BLE (including test mode, advertising channels, and signaling), and includes a legacy Radio Com Tester driver.

OTA IoT Advanced

An extended version of IoT Core with additional capabilities. It introduces support for the latest WLAN 802.11 be standard, Standalone GNSS (GPS, etc.), and an advanced Radio Com Tester (single-box/one-box type) driver.



Cylindrical Mode

An add-on bundle that unlocks StarLab's cylindrical scanning capability, enabling passive antenna measurements and precise 3D characterization of long linear arrays—up to 4 meters in length.

By overcoming the 45 cm DUT size limitation of spherical mode, Cylindrical Mode transforms StarLab's compact circular design into a powerful asset for evaluating large, linear antennas. A dedicated rail setup supports the DUT during measurement, enabling smooth and accurate cylindrical scanning.

This expansion, available with StarLab Core+, Pro, and Pro+, enhances StarLab's versatility for advanced passive measurements — without compromising accuracy and with minimal impact on system footprint.

<DEVELOPER/> MODE

Developer-Mode give you full control over system operations with both OTA Non-signaling (ONS) and API integration. Enables custom scripting and automation for advanced test scenarios.



ONS (OTA Non-Signaling)





Direct hardware control for custom OTA test scenarios via Python scripting in WaveStudio. Enables automated measurements of uplink/downlink signals.

Software and Hardware API Remote Control

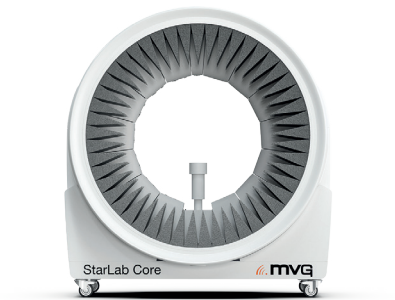
Supports external scripting for automation and custom application integration for the control over MVG systems (Arch API) and software (Remote WaveStudio API).

+ Hardware/Software Matrix

		
	StarLab Core	StarLab Core+
	Affordable OTA Testing Made Easy	All in One OTA and Passive Testing
	650 MHz - 8 GHz	650 MHz - 11 GHz
	Half arch of single probe array 8 low frequency probes	Full arch of single probe array 15 low frequency probes
 PASSIVE	Essential	✓
	Advanced	✗
 CYLINDRICAL	Cylindrical	✗
		✓
 OTA Mobile Cellular	Essential	✓
	Advanced	✗
 OTA IoT	Essential	○
	Advanced	✗
 <Developer/> Mode Developer Mode gives full system control with OTA Non-signaling and API integration, enabling custom scripting and automation.	API	✗
	OTA NS DL	○
	OTA ONS DL	✗

			
StarLab PRO	StarLab PRO+	StarLab ULTRA Wideband	StarLab ULTRA Passive
Versatile platform for R&D	Test Power without Compromise	The Ultimate Test System	The Ultimate Test System for Defense
650 MHz - 18 GHz	650 MHz - 40 GHz	650 MHz - 50 GHz	18 GHz - 50 GHz
Full arch of 29 interleaved probes 15 low frequency (650 MHz - 11 GHz) 14 high frequency (11 GHz - 18 GHz)	15 low frequency (650 MHz - 11 GHz) 14 high frequency (11 GHz - 40 GHz)	Full arch (half-half) of 29 probes 7 low frequency (650 MHz - 11 GHz) & 7 high frequency (11 GHz-18 GHz) 15 UHF probes (18 GHz- 50 GHz)	Full arch of 29 probes All 29 UHF probes (18 GHz - 50 GHz) aligned on full arch
✓	✓	✓	✓
✓	✓	✓	✓
○	○	✗	✗
○	○	✓	✗
○	○	✓	✗
○	○	○	✗
○	○	○	✗
✓	✓	✓	✓
✓	✓	✓	✓
○	○	○	○

✓ Included
 ○ Optional
 ✗ Unavailable



System Specification

Measurement Time (10 frequencies)	
AUT size 15 cm - 2.4 GHz	3 min
AUT size 15 cm - 7.2 GHz	10 min
AUT size 45 cm - 2.4 GHz	10 min
Typical dynamic range	50 - 60 dB

Radiation Pattern Accuracy

		10 dBi AUT	20 dBi AUT	30 dBi AUT
Peak gain accuracy	0.65 - 1 GHz	<± 2.0 dB	-	-
	1 - 8 GHz	<± 1.0 dB	<± 0.9 dB	-
-10 dB sidelobe accuracy	0.65 - 1 GHz	<± 2.1 dB	-	-
	1 - 8 GHz	<± 1.1 dB	<± 0.9 dB	-
-20 dB sidelobe accuracy	0.65 - 1 GHz	<± 5.0 dB	-	-
	1 - 8 GHz	<± 2.9 dB	<± 1.1 dB	-
-30 dB sidelobe accuracy	0.65 - 1 GHz	-	-	-
	1 - 8 GHz	-	<± 3.0 dB	-
Peak gain repeatability	<± 0.5 dB			
Probe network	0.65 - 8 GHz	8 probes (half-arch)		

Mechanical Characteristics

External dimensions of StarLab	1.9 x 1.1 x 2.0 m (L x W x H)
Probe array internal diameter	0.9 m
Optional anechoic chamber size	2.4 x 2.4 x 2.4 m
Angle between probes in the same frequency band	22.50°

DUT MAX. WEIGHT

Polystyrene mast	10 kg
Ultra rigid mast	50 kg
Linear antenna	Not available



System Specification

Measurement Time (10 frequencies)	
AUT size 15 cm - 2.4 GHz	1 min
AUT size 15 cm - 11 GHz	8 min
AUT size 45 cm - 2.4 GHz	5 min
Typical dynamic range	60 - 70 dB

Radiation Pattern Accuracy

		10 dBi AUT	20 dBi AUT	30 dBi AUT
Peak gain accuracy	0.65 - 1 GHz	<± 1.5 dB	-	-
	1 - 10 GHz	<± 0.8 dB	<± 0.7 dB	-
-10 dB sidelobe accuracy	0.65 - 1 GHz	<± 1.6 dB	-	-
	1 - 10 GHz	<± 0.9 dB	<± 0.6 dB	-
-20 dB sidelobe accuracy	0.65 - 1 GHz	<± 4.5 dB	-	-
	1 - 10 GHz	<± 2.7 dB	<± 0.9 dB	-
-30 dB sidelobe accuracy	0.65 - 1 GHz	-	-	-
	1 - 10 GHz	-	<± 2.7 dB	-
Peak gain repeatability	<± 0.3 dB			
Probe network	0.65 - 11 GHz	15 probes		

Mechanical Characteristics

External dimensions of StarLab	1.9 x 1.1 x 2.0 m (L x W x H)
Probe array internal diameter	0.9 m
Optional anechoic chamber size	2.4 x 2.4 x 2.4 m
Angle between probes in the same frequency band	22.50°

DUT MAX. WEIGHT

Polystyrene Mast	10 kg
Ultra rigid mast	50 kg



System Specification

Measurement Time (10 frequencies)	
AUT size 15 cm - 2.4 GHz	1 min
AUT size 15 cm - 18 GHz	18 min
AUT size 45 cm - 2.4 GHz	5 min
Typical dynamic range	60-70 dB

Radiation Pattern Accuracy

		10 dBi AUT	20 dBi AUT	30 dBi AUT
Peak gain accuracy	0.65 - 1 GHz	<± 1.5 dB	-	-
	1 - 18 GHz	<± 0.8 dB	<± 0.7 dB	<± 0.6 dB
-10 dB sidelobe accuracy	0.65 - 1 GHz	<± 1.6 dB	-	-
	1 - 18 GHz	<± 0.9 dB	<± 0.6 dB	<± 0.4 dB
-20 dB sidelobe accuracy	0.65 - 1 GHz	<± 4.5 dB	-	-
	1 - 18 GHz	<± 2.7 dB	<± 0.9 dB	<± 0.6 dB
-30 dB sidelobe accuracy	0.65 - 1 GHz	-	-	-
	1 - 18 GHz	-	<± 2.7 dB	<± 1.0 dB
Peak gain repeatability	<± 0.3 dB			
Probe network	0.65 - 11 GHz	15 Probes		
	11 - 18 GHz	14 Probes		

Mechanical Characteristics

External dimensions of StarLab	1.9 x 1.1 x 2.0 m (L x W x H)
Probe array internal diameter	0.9 m
Optional anechoic chamber size	2.4 x 2.4 x 2.4 m
Angle between probes in the same frequency band	22.50°

DUT MAX. WEIGHT

Polystyrene mast	10 kg
Ultra rigid mast	50 kg

Linear Antenna Measurement Characteristics

Geometry	Cylindrical	
Standard rail length	6 m	9 m
Linear array antenna max. length	2.5 m	4 m
Linear array antenna max.weight	80 kg	



System Specification

Measurement Time (10 frequencies)	
AUT size 15 cm - 2.4 GHz	1 min
AUT size 15 cm - 40 GHz	45 min
AUT size 45 cm - 2.4 GHz	5 min
Typical dynamic range	60 - 70 dB

Radiation Pattern Accuracy

		10 dBi AUT	20 dBi AUT	30 dBi AUT
Peak gain accuracy	0.65 - 1 GHz	<± 1.5 dB	-	-
	1 - 11 GHz	<± 0.8 dB	<± 0.7 dB	-
	11 - 40 GHz	<± 0.9 dB	<± 0.7 dB	<± 0.6 dB
-10 dB sidelobe accuracy	0.65 - 1 GHz	<± 1.6 dB	-	-
	1 - 11 GHz	<± 0.9 dB	-	-
	11 - 40 GHz	<± 1.0 dB	<± 0.6 dB	<± 0.4 dB
-20 dB sidelobe accuracy	0.65 - 1 GHz	<± 4.5 dB	-	-
	1 - 11 GHz	<± 2.7 dB	<± 0.9 dB	-
	11 - 40 GHz	<± 3.2 dB	<± 1.0 dB	<± 0.6 dB
-30 dB sidelobe accuracy	0.65 - 1 GHz	-	-	-
	1 - 11 GHz	-	<± 2.7 dB	-
	11 - 40 GHz	-	<± 3.2 dB	<± 1.0 dB
Peak gain repeatability	<± 0.3 dB			
Probe network	0.65 - 11 GHz	14 Probes		
	11 - 40 GHz	15 Probes		

Mechanical Characteristics

External dimensions of StarLab	1.9 x 1.1 x 2.0 m (L x W x H)
Probe array internal diameter	0.9 m
Optional anechoic chamber size	2.4 x 2.4 x 2.4 m
Angle between probes in the same frequency band	22.50°

DUT MAX. WEIGHT

Polystyrene mast	10 kg
Ultra rigid mast	50 kg

Linear Antenna Measurement Characteristics

Geometry	Cylindrical	
Standard rail length	6 m	9 m
Linear array antenna max. length	2.5 m	4 m
Linear array antenna max.weight	80 kg	



System Specification

Measurement Time (10 frequencies)*	
AUT size 15 cm - 2.4 GHz	1.5 min
AUT size 15 cm - 50 GHz	1.5 h
AUT size 45 cm - 2.4 GHz	8 min
Typical dynamic range	50 - 70 dB

Radiation Pattern Accuracy

		10 dBi AUT	20 dBi AUT	30 dBi AUT
Peak gain accuracy	0.65 - 1 GHz	$\leq \pm 1.5$ dB	-	-
	1 - 18 GHz	$\leq \pm 0.9$ dB	$\leq \pm 0.7$ dB	-
	18 - 50 GHz	$\leq \pm 0.9$ dB	$\leq \pm 0.7$ dB	$\leq \pm 0.6$ dB
-10 dB sidelobe accuracy	0.65 - 1 GHz	$\leq \pm 1.6$ dB	-	-
	1 - 18 GHz	$\leq \pm 0.9$ dB	$\leq \pm 0.6$ dB	-
	18 - 50 GHz	$\leq \pm 0.9$ dB	$\leq \pm 0.6$ dB	$\leq \pm 0.4$ dB
-20 dB sidelobe accuracy	0.65 - 1 GHz	$\leq \pm 4.5$ dB	-	-
	1 - 18 GHz	$\leq \pm 2.7$ dB	$\leq \pm 0.9$ dB	-
	18 - 50 GHz	$\leq \pm 2.9$ dB	$\leq \pm 1.0$ dB	$\leq \pm 0.6$ dB
-30 dB sidelobe accuracy	0.65 - 1 GHz	-	-	-
	1 - 18 GHz	-	$\leq \pm 3.2$ dB	$\leq \pm 1.0$ dB
	18 - 50 GHz	-	$\leq \pm 2.9$ dB	$\leq \pm 1.0$ dB
Peak gain repeatability	$\leq \pm 0.3$ dB			
Probe network	0.65 - 11 GHz	7 probes		
	11 - 18 GHz	7 probes		
	18 - 50 GHz	15 probes		

Mechanical Characteristics

External dimensions of StarLab	1.9 x 1.1 x 2.0 m (L x W x H)
Probe array internal diameter	0.9 m
Optional anechoic chamber size	2.4 x 2.4 x 2.4 m
Angle between probes in the same frequency band	22.50°

DUT MAX. WEIGHT

Polystyrene mast	10 kg
Ultra rigid mast	50 kg

*Measurement time can vary by VNA model & IFBW setup



System Specification

Measurement Time (10 frequencies)*	
AUT size 15 cm -18 GHz	4 min
AUT size 15 cm - 50 GHz	1.5 h
AUT size 45 cm - 18 GHz	40 min
Typical dynamic range	50 dB

Radiation Pattern Accuracy

		10 dBi AUT	20 dBi AUT	30 dBi AUT
Peak gain accuracy	18 - 50 GHz	<± 0.9 dB	<± 0.7 dB	<± 0.6 dB
-10 dB sidelobe accuracy	18 - 50 GHz	<± 0.9 dB	<± 0.6 dB	<± 0.4 dB
-20 dB sidelobe accuracy	18 - 50 GHz	<± 2.9 dB	<± 1.0 dB	<± 0.6 dB
-30 dB sidelobe accuracy	18 - 50 GHz	-	<± 2.9 dB	<± 1.0 dB
Peak gain repeatability	<± 0.3 dB			
Probe network	18 - 50 GHz	29 probes		

Mechanical Characteristics

External dimensions of StarLab	1.9 x 1.1 x 2.0 m (L x W x H)
Probe array internal diameter	0.9 m
Optional anechoic chamber size	2.4 x 2.4 x 2.4 m
Angle between probes in the same frequency band	11.25°

DUT MAX. WEIGHT

Polystyrene mast	10 kg
Ultra rigid mast	50 kg

*Measurement time can vary by VNA model & IFBW setup

Testing Connectivity for a Wireless World

The Microwave Vision Group offers cutting-edge technologies for the visualization of electromagnetic waves. With advanced test solutions for antenna characterization, radar signature evaluation and electromagnetic measurements, we support company R&D teams in their drive to innovate and boost product development.



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