

Mini-TScan



LITTLE BIG LAB

Little in size,
BIG in performance



Mini-TScan is a fast and ultra-accurate planar near-field scanner with the latest motor drive and encoder technologies. It is designed to meet the need to measure small directive antennas at high millimeter wave frequencies with speed and accuracy. Rapid acceleration of the linear motors for stepped and continuous mode operation optimizes the performance and cost of the scanner. Excellent manufacturing precision combined with direct readout high resolution linear encoders and careful alignment ensure unrivaled mechanical positioning accuracy and planarity.

SOLUTION FOR

- Phased Array Antenna Testing
- High Gain Antenna Testing
- Near-field Focused Antenna Testing
- Array Illumination Assessment
- Array Element Failure Analysis

Main features

Technology

- Near-field/Planar
- Optional:
 - Near-field/Spherical
 - Near-field/Cylindrical

Measurement capabilities

- Gain
- Beamwidth
- Sidelobe levels
- Radiation pattern in any polarizations- (linear)
- Multi beam antenna measurement and calibration
- Directivity
- Cross-polar discrimination
- 3D radiation (limited coverage)
- Antenna efficiency
- Beam pointing properties

Frequency bands

- 1 GHz to 110 GHz

Max. weight of DUT

DUT is stationary, therefore the maximum weight of the DUT is limited by the foundation, antenna mount including any DUT alignment features, and building infrastructure.

Typical dynamic range

- 80 dB, depending on the frequency and antenna gain

Available movements

- X – travel: up to 1.0 m
- Y – travel: up to 1.0 m
- Z – travel: up to 0.25 m
- Polarization: 360°

Note:

- To include cylindrical and spherical near-field measurement capabilities in a planar facility, one can choose to install the DUT on an azimuth positioner (cylindrical) or a roll-over-azimuth positioner (cylindrical and spherical).
- Longer travel ranges are available based on special order.

System configurations

Software

Measurement control, data acquisition and post processing

- MiDAS
- 959 Spectrum (North America only)**

Advanced post processing

- MV-Echo
- Insight

Equipment

- Z-roll probe mount
- RF absorbers for scanner****
- AL-4164 positioner controller**
- Instrumentation rack
- Uninterruptible power supply
- Planar scanner with optional linear motor drive system and optional direct encoder
- Rotary joint for roll axis**
- RF cables**
- DUT positioner
- System for DUT transportation into chamber
- RF Tx head
- RF Rx head
- Port switch
- Switch controller
- Active antenna beam control
- RF system upconverters/downconverters above 20 GHz
- Vector network analyzer

Add-ons

- DUT stand
- Shielded anechoic chamber****
- DUT positioner axes for upgrade to cylindrical or spherical NF**
- Cylindrical and spherical software transform**
- Portable absorber walls****
- StarLine linear probe array
- Y axis inclination mechanism

Accessories

- Data acquisition and analysis workstation
- High speed channel switching (OFR9800)**
- Reference antennas: wideband horns, standard gain horns etc***
- Near-field OEWG***
- Near-field broadband dual polarized probes with interchangeable aperture***
- Real time controller**

Services

- Installation
- Training
- Warranty
- MV-Cor™ correction table service*
- Post-warranty service plans*****
- Periodic alignment

■ Included □ Optional ○ Required

* See MV-Cor brochure for more information

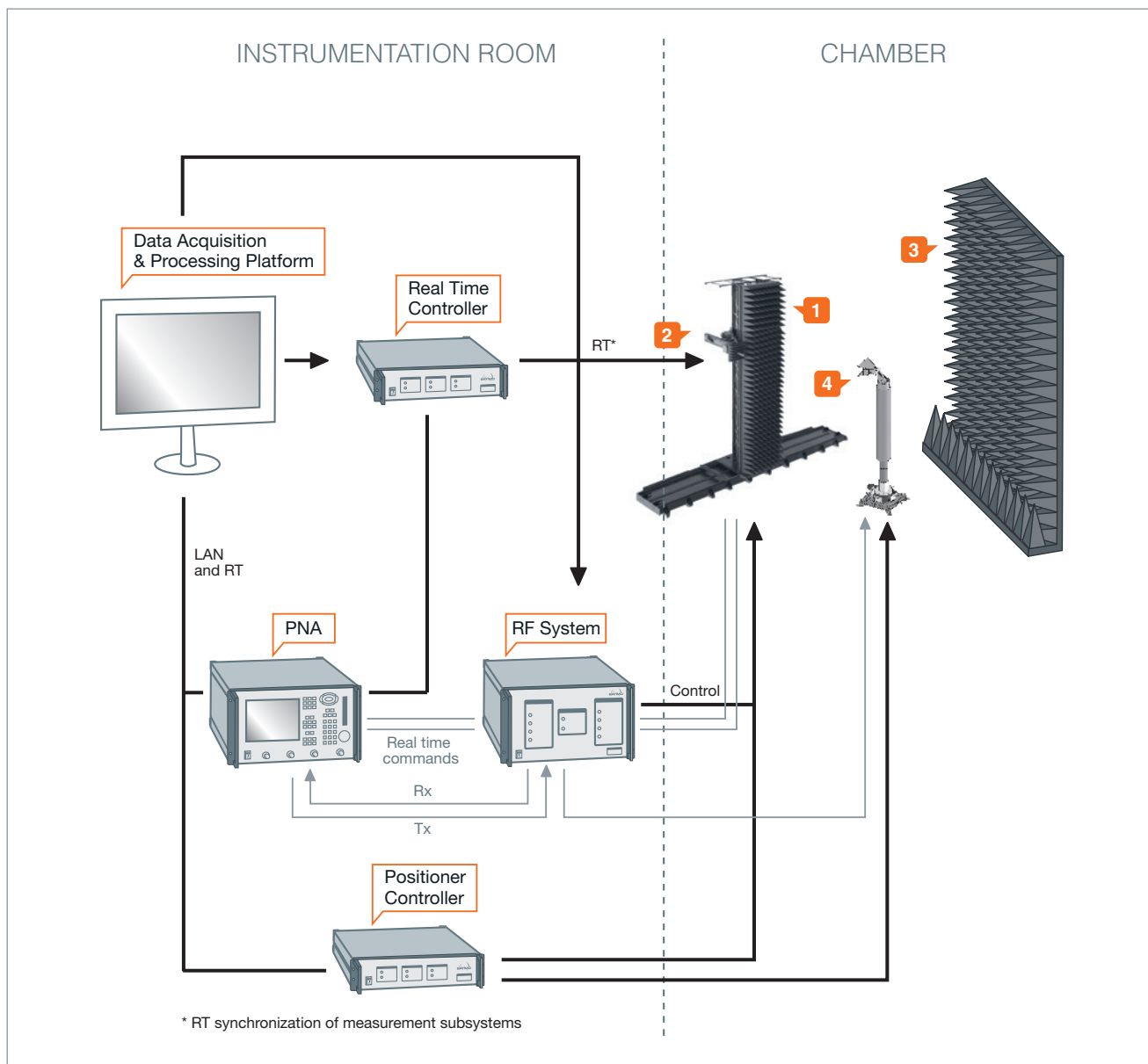
** See the ORBIT/FR product catalogs for more information

*** See the MVG antenna catalog for more information

**** See MVG-EMC Systems catalogs for more information

***** See Orbit/FR service brochure for more information

System overview



Measurements can be performed in both continuous wave and pulsed mode. In the case of phased array antenna measurement, the system utilizes the real time controllers to control and synchronize the measurement system with the device under test.



Standard system components



1 Planar scanner

The scanner, AL-495XX series is composed of an X axis linear slide and a moving tower for the Y axis. The slide is constructed of modular sections.

These modules are fixed to the scanner foundation and levelled as one integral track.

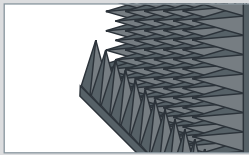
- T – shape rail with an encoder system
- Linear motors (optional)
- High linear motor power
- No backlash



2 Measurement probes


- Open-ended waveguides or Dual-polarized open-ended waveguides

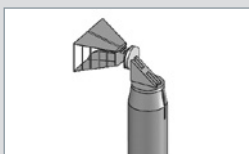
 [MVG antenna catalog](#)



3 Absorbers and anechoic chambers


- A selection of standard, adapted and specialty absorbers
- Anechoic chambers with integrated design, production, installation and testing services

 [AEMI absorber catalog](#)



4 DUT positioning equipment

- A complete range of rotary positioners and model towers are available with air cushion (optional)

 [ORBIT/FR positioning equipment catalog](#)

Mechanical characteristics

Parameter	X-axis	Y-axis	Z-axis	Roll axis
Effective Scan range	1.0 m	1.0 m	0.25 m	360°
Scan speed (\geq)	250 mm/s	250 mm/s	25 mm/s	9°/s
Accuracy	0.075 mm	0.075 mm	0.025 mm	0.04°
Resolution	0.001 mm	0.001 mm	0.001 mm	0.001°
Repeatability (RMS)	0.025 mm	0.025 mm	0.02 mm	0.01°
Planarity (RMS)				< 0.100 mm

Electromagnetic performances

PLACE	FREQUENCY (GHZ)				COMMENTS
	5,85	18	26,5	40	
ZVA Out	0	0	0	0	
Cable loss to TX AMP	-5	-10	-12	-15	6.5m length
TX Amplifier Output (dBm)	15	10	3	3	Amplifier 1dB CP=3 dBm@18-40GHz Gain 1-18 20dB, 18-40 30dB
Cable loss to Feed	-1	-1	-2	-3	
Feed to DUT path	-19	-19	-19	-19	DUT Gain 25dB, Probe gain 6dB
Cable loss DUT To RX Amp	-1	-1	-2	-3	
RX AMP Gain	20	20	30	30	Amplifier 1dB CP=3dBm@18-40GHz Gain 1-18 20dB, 18-40 30dB
Amplifier output	14	11	3	3	Amplifier 1dB CP=3dBm
Cable Loss RX AMP to ZVA	-6	-12	-15	-19	8 m length
Additional losses	-5	-5	-5	-5	
Receive Signal at ZVA	3	-6	-17	-21	
ZVA Noise Floor	-100	-100	-100	-100	@ 1KHz BW
Calculated Dynamic Range	103	94	83	79	



Contact your local sales representative for more information

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