

SG 3000

A Multi-Probe System Ideal for Full Scale Vehicle Antenna Measurement



SG 3000 systems are dedicated to full-scale vehicle antenna measurements and OTA testing. The system configuration can be adapted to meet specific needs and to fit your installation: different arch sizes can be designed, and its structure can be fixed (F) or mobile (M) allowing it to be either permanently installed or moved into an existing anechoic chamber. The rotation of the DUT is controlled by a high precision positioning system enabling discrete and/or continuous on-the-fly measurements.



- Full scale vehicle antenna measurement
- OTA capable
- Fixed or mobile configuration

SOLUTION FOR

- Vehicle testing

Main features

Technology

- Near-field / Spherical

Measurement capabilities

- Gain
- Directivity
- Beamwidth
- Cross polar discrimination
- Sidelobe levels
- 1D, 2D and 3D radiation patterns
- Radiation pattern in any polarization (linear or circular)
- Antenna efficiency
- Antenna diversity
- Key fob testing robot for remote keyless entry

Frequency bands

- 70 MHz to 10 GHz
- 200 MHz to 10 GHz

Max. size of DUT

- 2.4 m x 6 m (W x L)

Max. weight of DUT

- 3500 kg

Typical dynamic range

- 70 dB typique

System configurations

Software

Measurement control, data acquisition and post processing

- MVG WaveStudio

Near-field/far-field transform

- MV-Sphere

OTA measurement suite

- MVG WaveStudio

Advanced post processing

- SatSim
- Insight

Equipment

- N-PAC
- Motion controller
- Mixer unit
- Amplification unit
- Turntable positioner with loading and unloading capability
- Primary synthesizer
- Auxiliary synthesizer

Add-ons

- Laser for precise vehicle positioning
- RF absorbers
- Rail for remote key fob testing
- Mini-compact range for anti-collision radar testing
- Shielded anechoic chamber

Accessories

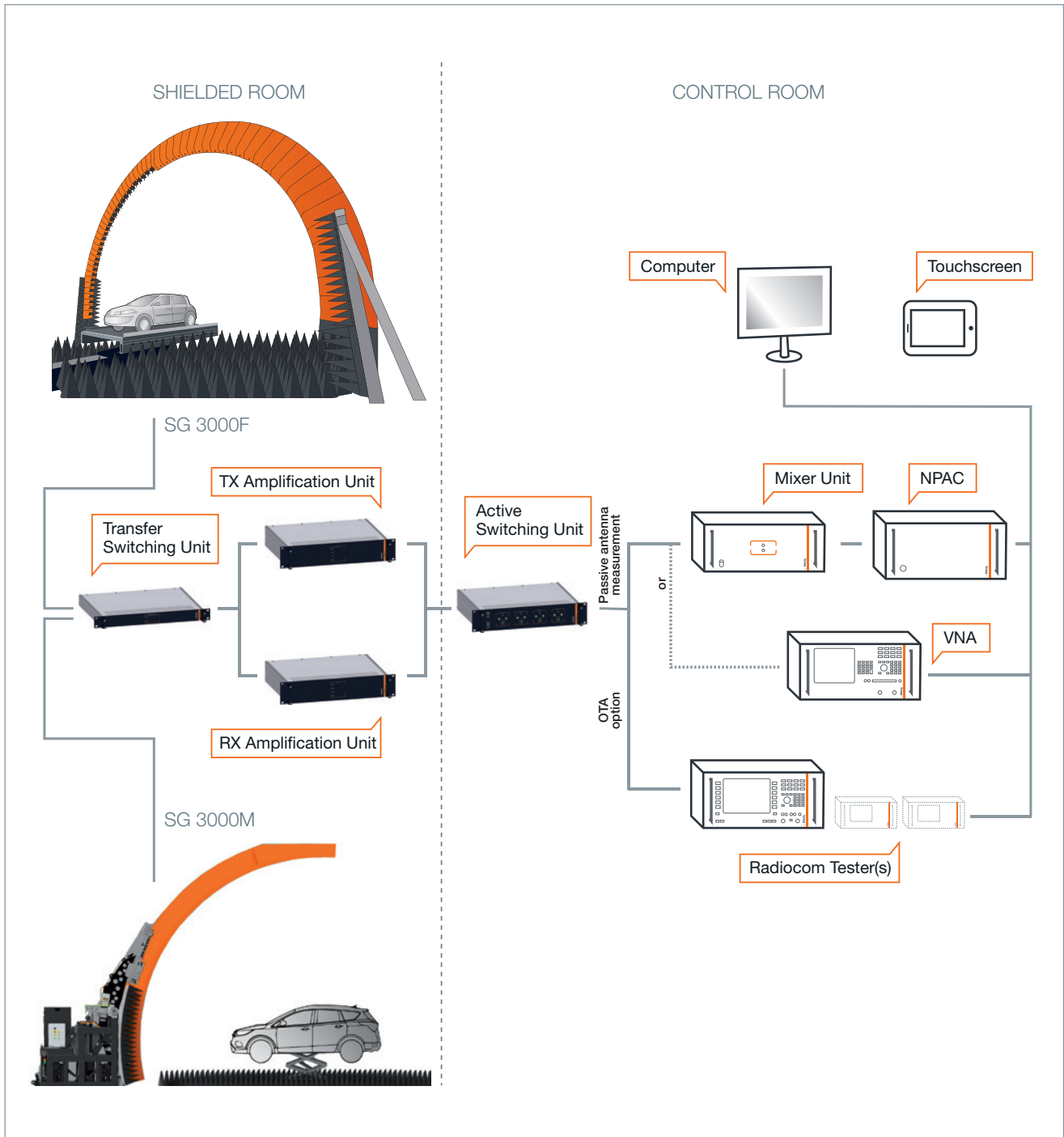
- PC
- Reference antennas (monopoles and monocones)
- Ground plane for reference antennas
- Instrument rack
- Positioning laser pointer

Services

- Installation and calibration
- Warranty
- Training
- Project management
- Post warranty service plans

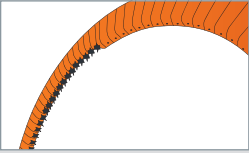
■ Included □ Optional ○ Required

System overview



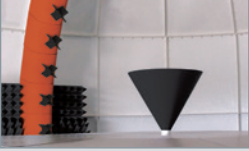
An SG 3000 system is used for the measurement of antennas placed anywhere on a vehicle. It uses Analog RF Signal Generators to emit EM waves from the probe array to the Antenna Under Test or vice versa. It uses the N-PAC as an RF receiver for antenna measurements. The N-PAC also drives the electronic scanning of the probe array. The Amplification Unit has RF amplifiers for each of the RX and TX channels. For OTA measurements, the tests are performed through the radio communication tester. The amplification units amplify the signal on transmission/reception channels to achieve optimum dynamic range. The Transfer Switching Unit is used to switch between the emission and reception modes of the DUT.

SG 3000F - Standard system components



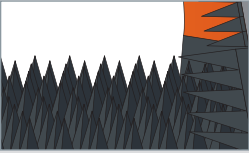
1 Arch

- A combination of 2 arrays of probes (DP 70-450, DP 400-6000)
- Different arch sizes available



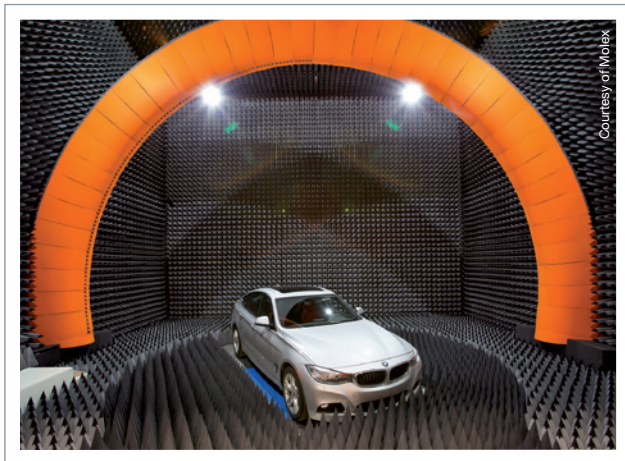
2 Antennas

- A selection of reference antennas (monocones or monopoles) with ground planes



3 Absorbers & Environment

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



The turntable for the SG 3000 series is specifically designed for automotive testing. Thanks to a high precision positioning system (controller and turntable), continuous on-the-fly measurements can be performed. This allows for the measurement of directivity, gain and efficiency for approximately 15 frequencies in 3 minutes (the time required to perform a full turn).

Measurement specifications

Measurement time for 15 frequencies	3 min
Typical dynamic range	70 dB

PEAK GAIN ACCURACY

0.07 GHz – 0.4 GHz	± 2.9 dB
0.4 GHz – 0.8 GHz	± 1.3 dB
0.8 GHz – 6.0 GHz	± 1.0 dB

Mechanical & RF equipment characteristics

Angular coverage	110°
Probe array diameter	12 m
Necessary shielded anechoic chamber size	18 x 16 x 12 m
Frequency range	0.07 - 6 GHz
DUT max. weight	3500 kg

ANGLE BETWEEN PROBES

0.07 – 0.4 GHz	3.2°
0.4 – 6 GHz	1°


NUMBER OF PROBES

0.07 GHz – 0.4 GHz	32 + 1 ref. channel
0.4 GHz – 6 GHz	101/111 + 1 ref. channel
Frequency range optional extension	6 to 10 GHz

Mechanical characteristics: positioner

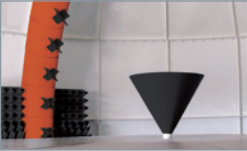
Size	2.9 m (W) X 5 m (L)
Vehicle length	From 3 m to 6 m
Vehicle width	From 1.5 m to 2.4 m
Max. vehicle weight	3 500 kg
Rotation accuracy	1°
Lift axis	650 mm
Slide axis	2.5 m

SG 3000M - Standard system components



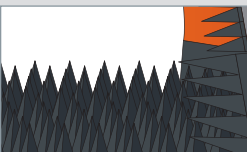
1 Arch

- DP 400-6000 probes
- Different arch sizes available
- Mobile system



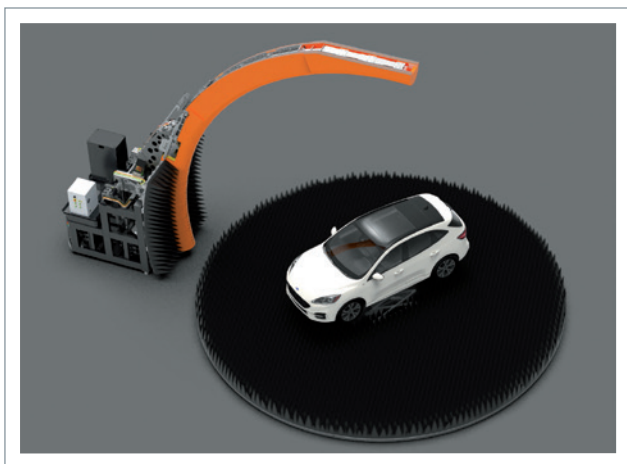
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SG 3000M has been built to be easily installed in an existing anechoic chamber. Its MV-Scan multi-probe technology and embedded oversampling ensure accurate and efficient antenna measurement and OTA testing. Its wide frequency band coverage ranging from 200 MHz to 10 GHz enables it to support all protocols necessary for the development of automotive connectivity.

Measurement specifications

Measurement time for 15 frequencies	3 min
Typical dynamic range	50 dB

PEAK GAIN ACCURACY

0.4 GHz – 0.8 GHz	± 1.3 dB
0.8 GHz – 6.0 GHz	± 1.0 dB

Mechanical & RF equipment characteristics

Angular coverage	103°
Probe array diameter	12 m
Angle between probes	1°
Necessary shielded en:	
Minimum anechoic chamber size	10 x 12 x 12 m
Frequency range	0.4 - 6 GHz

NUMBER OF PROBES

0.4 – 6 GHz	103 + 1 ref. channel
Frequency range optional extension	0.2 to 0.4 - 6 to 10 GHz

Mechanical characteristics: positioner*

Diameter	6 m
Max Vehicle length	5.1 m
Max vehicle width	2.3 m
Max. vehicle weight	3500 kg
Plate rotation	0° to 360°
Lift axis	Up to 1.5 m
Slide axis	Up to 0.9 m
Controller coding resolution	0.1°

*The SG 3000M is designed according to the size of the existing positioner.



Contact your local sales representative for more information
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