Measurement Services

In-house Facilities and Expertise



MEASUREMENT CAPABILITIES: • Antenna • OTA • SAR • HAC





Be on time: benefit from our fast measurement services!

MVG offers pre-compliance and certification measurement services for wireless devices, stand-alone antennas, and integrated antennas in four measurement facilities in the USA, France and Italy. In addition to advanced post-processing services, our measurement facilities offer the following measurement capabilities:

ANTENNA

Gain directivity, beamwidth, cross polar discrimination, sidelobe levels, 3D radiation pattern, radiation pattern, globalstar registration and certification measurements in any polarization (linear or circular), antenna efficiency, either in transmit or receive mode, advanced post-processing.

SAR

Specific Absorption Rate, Local peak and Average SAR (10 g and 1 g) in W/Kg, E-Field (V/m) measurement, Body simulating tissue dielectric evaluation (Permittivity, Conductivity)

ΟΤΑ

Total Radiated Power (TRP), Total Isotropic Sensitivity (TIS), Effective Isotropic Radiated Power (EIRP), Effective Isotropic Sensitivity (EIS), GPS sensitivity (TIS, UHIS, PIGS, ICD).

HAC

M ratings (microphone mode) and T ratings (telecoil mode) with Hearing Aid Compatibility devices



For antenna measurements, all of our systems are able to perform measurements in record speed, using our patented multi-probe technology (MV-Scan[™]). Faster measurements enable not only increased throughput, but real-time performance feedback and design tuning. It is not unusual for customers to measure over 30 antennas per day for full 3D, volumetric pattern measurements!

Benefit from full on-site support

We offer more than traditional "black box" measurement services.

- If required, our clients are welcome to support the measurement session in order to perform on-site troubleshooting and fine tuning of the antenna.
- Whether present on site or not, our Test Engineer can help with diagnostic performance evaluation and further post-processing possibilities.
- We measure antennas from all over the world. Our on-site administrative manager will be happy to assist you with the shipment and travel plan.

I Get more from the results

Profit from our expertise in antenna, wireless devices measurements and in the measurement systems we develop. Our Test Engineer will let you know immediately if any particular measurement configuration or post processing would be appropriate. Please consult the section: «Select the results you need» for additional information on our post-processing capabilities.



Example of back propagation post processing with SatMap to quickly identify the source of a defect

Choose the right equipment

A choice of measurement systems are available according to measurement specifications and the size of the device that needs to be measured. Further information on the equipment used in each of these facilities is detailed on the measurement services section of our website.

		CEDVICE		EDEQUENCY	MEACUDEMENT	ACCREDITATIONS			/ CERTIFICATIONS		
	EQUIPMENT	OFFICE	MAX. DUT SIZE ¹	RANGE	CAPABILITY	CTIA ³	A2LA/ NIST⁴	COFRAC ¹¹	l	ISO 9001	
Any kind of antenna or Over The Air (OTA)	SG 64	- At-	179 cm / 70.47 in	0.4 to 6 GHz	- Gain - Directivity - Beamwidth - Cross polar discrimination - Sidelobe levels - Front to back ratio - 1D, 2D and 3D radiation patterns - Radiation pattern in any	~	~			~	
	SG 64	lanta, USA - Paris, France	179 cm / 70.47 in	0.4 to 18 GHz		•	NA			V	
	SG 24	- Brest, France	134 cm / 52.75 in	0.4 to 6 GHz	- Antenna efficiency - TRP, TIS, EIRP and EIS - AAS	•	NA			V	
	StarLab	- Δt-	45 cm / 17.71 in	0.65 to 18 GHz	- Gain - Directivity - Beamwidth		NA			~	
Linear or BTS antennas	StarLab BTS	lanta, USA - Paris, France - Rome, Italy	400 cm / 157.48 in²	0.65 to 6 GHz	 Cross polar discrimination Sidelobe levels 3D radiation pattern Radiation pattern in any polarization (linear or circular) Antenna efficiency TRP, TIS, EIRP and EIS AAS 	NA	NA			V	
						IEEE ⁵	FCC ⁶	IEC ⁷	EN ⁸	OTHER ¹⁰	IS0 9001
SAR	ComoSAR	- Brest, France	100 cm / 39.37 in	400 MHz to 6 GHz	 SAR measurement Enhanced HAC testing capabilities available with additional COMOHAC kit 	V	~	~	~	V	~
HAC						ANSI C63-19 FC		9	ISO 9001		
	ComoHAC	- Brest, France	40 cm / 15.75 in	Audio: 300 Hz to 3 kHz RF: 600 MHz to 6 GHz			~		V		~

Available equipment worldwide

✓ Facility/ Measurements are certified

(1) Max. DUT size depends on design and frequency range. Please consult us for more details.

- Maximum DUT length (maximum DUT width: 45 cm)
 CTIA certified measurement for GSM, CDMA and WCDMA Over The Air (OTA) Total Radiated Power (TRP) and Total Isotropic Sensitivity (TIS) measurements.
 A2LA Certification 2246.02 and 2246.01 for calibration and electrical. The scope of accreditation
- is location-dependent and does not include the entire scope of SATIMO activities. The actual scope of accreditation is available on A2LA's website. NIST traceable gain calibration is available.

Measurements are comparable and appropriate for pre-testing stages

- (5) IEEE 1528, IEEE C95.1, IEEE C95.3
- (6)FCC KDB447498
- IEC 62209-1 and IEC 62209-2
- (8) EN 50360, 62209-1, 50383, 50384, 50385, 62232 FCC KDB285076 (9)
- (10) ANATEL Res303, Industry Canada RSS 102 Issue 5, ACMA (Australian Standard), CNIRP GUIDELINES (1998)

(11) ISO 17025 : COFRAC accreditation n°2-1993 https://tools.cofrac.fr/annexes/sect2/2-1993.pdf

Antenna measurement: the advantages of our SG and StarLab systems

Our systems can perform cylindrical or spherical measurements, based on our probe array technology. For passive (cable-fed) measurements, post-processing options include back projection and holography, allowing the determination of the field values at the aperture, or on a particular plane or radius. As opposed to traditional single probe mechanical scanning, our technology is based on electronic scanning of an array of probes. This technology is faster, reduces mechanical movements, simplifies mounting, reduces setup time, and improves accuracy and repeatability.

Faster measurement means faster service and higher throughput

	TYPICAL MEASUREMENT TIME		
Mobile phone/OTA	TIS Measurement*	Less than 5 min	1
179 cm diameter antenna	3D pattern at 6 GHz**	Less than 3 min	
18 cm diameter antenna	3D pattern at 18 GHz**	± 1 min	
Mobile phone/SAR	1 position/ 1 frequency/ 1 channel	± 1 min 30 s	



Single Azimuth rotation required for full 3D measurement

Typical TIS based on Rx level, 1 channel. 30 deg sampling, 1 time each probe with a SG 64. Measurement time depends on protocol. CTIA comparable measurements. For 11 frequencies, no oversampling, no averaging with a SG 64

Select the results you need

The exported data is available in both ASCII (CSV form) and freeware 3D viewer formats, by default. An automated HTML report containing summary plots allows for a quick overview of the measurement results via a web browser. Specific report content or formats are available when required (such as CTIA certification report) or upon request.



3D view of omnidirectional positioning antenna



ComoSAR measurement System



3D view of SAR measurement for a handset

ANTENNA MEASUREMENT				
STANDARD DATA	ASCII data	Plots		
Antenna efficiency [dB or %] versus frequency	v	V		
Antenna gain and antenna peak gain [dBi] versus frequency and as a function of 3D pattern angle	4	4		
Principal plane far-field radiation patterns for multiple frequencies as a function of angle	~	~		
1D, 2D and 3D radiation patterns	v	V		
Additional special cuts	v	v		
ADVANCED POST-PROCESSING	ASCII data	Plots		
Linear, slant or circular polarizations	v	v		
Cross-pol discrimination	v	V		
Beamwidth	v	V		
Front to back ratio	v	V		
Sidelobe levels	v	V		
Active CW measurement	v	V		
Diversity measurement	v	V		
Diversity correlation	v	V		
Beamforming	v	V		
Cylindrical back propagation/ Holography	v	\checkmark		
Phase center identification	v	V		
S11	 ✓ 	 ✓ 		

OTA MEASUREMENT

f 00 to 101	1441 PT2 D1-		ID IST SHARES
tor 26 to 46'.	. WI-FI ² . BIL	letooth or i	NB-IOI Drotocol

STANDARD DATA	ASCII data	Plots
Effective isotropic radiated power	v	V
Effective isotropic radiated sensitivity	v	V
Upper hemisphere partial radiated power	 ✓ 	V
Upper hemisphere partial isotropic sensitivity	v	V
Near-horizon partial radiated power	v	v
Near-horizon partial isotropic sensitivity	v	V
Intermediate channel	v	v
SAR MEASUREMENT		
STANDARD DATA	ASCII data	3D View
SAR mapping	 	V
ADVANCED POST-PROCESSING	ASCII data	3D View

	Aboli dutu	
Local SAR value [W/kg]	~	~
Average SAR value over 1 g and 10 g	~	~
HAC MEASUREMENT	г	

STANDARD DATA	ASCII data	2D Plots
Magnetic signal strength axial and radial calculation	~	~
Signal quality calculation	 ✓ 	~
Frequency response curved data	~	V
Max. electric and magnetic values	~	<i>v</i>

(1) GSM, CDMA, CDMA2000, CDMA 1xRTT, CDMA 1xEVDO, GPRS, GPS, A-GPS, GNSS, A-GNSS, EDGE, WCDMA, HSDPA, HSPA, HSPA+, HSUPA, TD-SCDMA, TD-HSDPA, LTE TDD/FDD/Cat-M1

(2) Wi-Fi 802.11 a/b/g/n/ac

(3) The list of compatible protocols is evolving on an on-going basis. Please contact us for updated information.

4 steps to keep it short

- Fill out the short form on our website by selecting your interest on «Measurement Services» http://www.mvg-world.com/contact-us or contact one of our offices listed on the right-hand side.
- 2 You will receive a financial proposal stipulating the measurement duration, the closest possible date, time and location.
- On email notification will be sent to confirm reception of the equipment and delivery time of the results.
- 4 A shipping notification is sent as soon as the equipment is shipped back along with a digital record of the measurement results.

YOUR DEVICE AND INFORMATION ARE SECURE WITH US!

Items are stored in a dedicated, secured area, and classified by customer and company name.





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Certification 2246.02 and 2246.01 for dipole calibration and electrical: The scope of accreditation is location-dependent and does not include the entire scope of Satimo activities. The actual scope of accreditation is available on A2LA's website.







For further information please visit: www.mvg-world.com/services salesteam@mvg-world.com

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