# + ComoSAR



ComoSAR Twin configuration

## TECHNOLOGY

- Specific Absorption Rate (SAR) measurement

## SOLUTION FOR

- Mobile equipment device development
- Mobile equipment device testing
- Mobile equipment device certification
- Any equipment radiating close to the body

**MVG** provides a complete line of SAR equipment to ensure compliance with certification standards as well as flexibility in terms of set-up and use. The ComoSAR systems are available in four configurations: with one, two, three or four phantom tables. The ComoSAR standard benches are complete turn-key systems which include a set of equipment and accessories to cover all customer requirements.

## MAIN FEATURES

### Measurement capabilities

- Head and body SAR measurement
- Enhanced HAC testing capabilities available with additional ComoHAC kit

### Frequency bands

- 150 MHz to 7.5 GHz

## SYSTEM CONFIGURATIONS

### Software

- OpenSAR V5 (under license) NEW

### Equipment

- SAM or Elliptic phantoms
- Probe holder with security sensor
- Video positioning system
- Handset positioning system
- Multimeter with scan card
- Application-specific phantoms available under request
- Vector Network Analyzer (for liquid characterization) ○
- Radio Comunication Tester (RCT) to emulate a network connection ○
- Signal generator and power amplifier (for system validation & check) ○
- RF cables, VNA calibration kit, adapters and directional coupler ○

### Accessories

- Control PC with USB-GPIB adaptor
- 19" rack equipment
- Broadband and narrow-band body and head Tissue Simulating Liquids (TSL) kits (30 liters) from 150 MHz to 7500 MHz
- System validation & check dipoles from 150 MHz to 7500 MHz
- Communication Antenna
- Probe shielded cable
- 3 GHz E-field probe
- 6 GHz E-field probe
- Laptop positioning system
- Additional robot stop button kit

### Add-ons

- Liquid measurement kit (LimeSAR)
- HAC evaluation kit (ComoHAC)

### Document

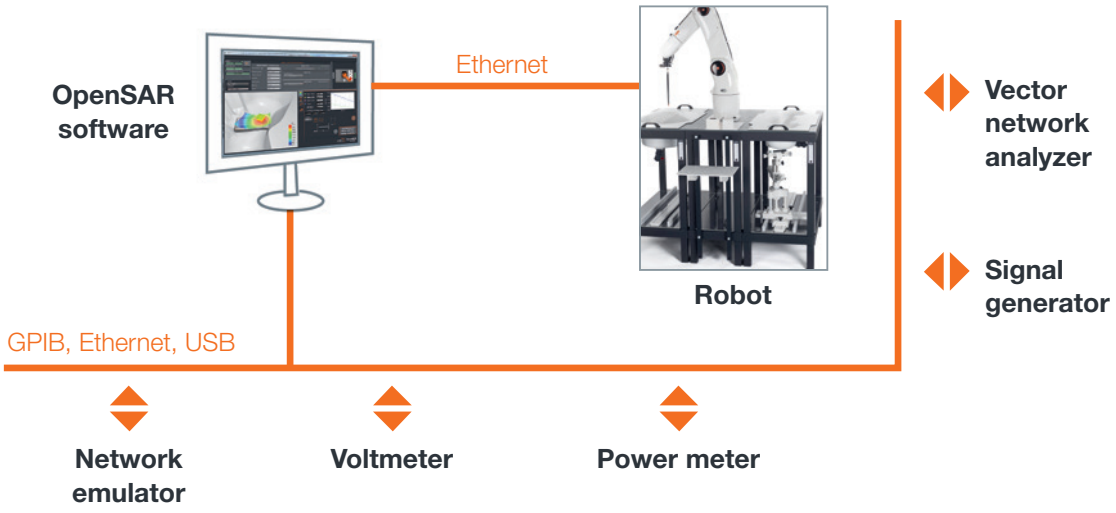
- Acceptance report
- Calibration reports
- Cumulated uncertainty reports
- User manual

### Services

- SAR probe calibration
- Installation
- Training
- 1 year warranty
- Probe calibration for additional frequencies
- Extended warranty

○ Required

# System overview




## Compliancy

ComoSAR bench has been developed to perform SAR measurements for the certification of device in full compliance with international standards.

It is available with a range of additional equipment and accessories to cover all needs with regard to these standards.

## Flexible set-up

Set-up could be long, and is often the most time-consuming phase of the measurement; this is particularly true during R&D tests. In order to optimize the time of the overall measurement process, we offer full turn-key systems in four configurations: with 1, 2, 3 or 4 tables.

Our tables are compatible with any of our phantoms or kits (HAC) and have been designed to stabilize mechanical performance over a long time period.

Our OpenSAR software already integrates drivers for the most commonly used RF equipment:

**List of available drivers***

| RadioCom Tester | Signal Generator | Power Meter | Vector Network Analyzer |
|---|---|---|---|
| Rohde & Schwarz<br>CMU 200(1), CMW 500(1) | Rohde & Schwarz<br>SMB, SML, SMT, SMIQ,<br>SMP, SMR, CMU200 | Rohde & Schwarz<br>NRVD, NRVS,<br>NRP-Z2x1, NRPxxS | Rohde & Schwarz<br>ZVA, ZVB, ZVL,<br>ZVM, ZVR, ZNL |
| Anritsu<br>MT8820, MT8821C, MT8000 | Keysight<br>E82x7C, E44xx ESG series | Keysight<br>E4416A, N191x, U2000 series,<br>U205x/6x | Anritsu<br>MS462xx, MS461xx,<br>MS202xA, MS203xB |
| Keysight<br>5515C | AnaPico<br>APSIN6010 | Anritsu<br>ML243xxA series, MA241xxA | Kesight<br>P5000A series, E507xB, E5063A,<br>N991/2/3xA |
| Willtek<br>4200, 4400, 3100 | | Keithley<br>3500 | HP<br>8510, 8357, 8753x |
| | | NI<br>USB-5680 | CMT R140, R60<br>and R140B |

* Additional drivers can be added upon request.
(1) including audio capabilities

## Reduce measurement time

MVG has implemented several SW features to enhance the measurement speed:

- Controlling the radio tester allows for the measurement of the 3 channels simultaneously through an inter-channel handover (reducing measurement time by 20%).
- Adaptive path algorithm reduces the number of points measured during the area scan (divides measurement time up to 5).
- 3D truncation algorithm quickens the zoom scan process (divide measurement up to 5).

As a result, the combination of these algorithms brings measurement time for one channel down to 1 minute and for 3 channels down to 2 minutes for one handset in a given position.

## LimeSAR: an efficient solution to assess liquid properties

LimeSAR is a liquid measurement add-on. It enables the liquid properties to be checked and potential deviation over time to be considered for SAR calculations.
LimeSAR is directly operated from our OpenSAR software allowing easier routine management. It can also be installed on a separate computer in a liquid dedicated lab.

## Reduce measurement uncertainties

All components of the ComoSAR system have been designed to facilitate the exact positioning of probes, phantoms and Devices Under Test (DUT):

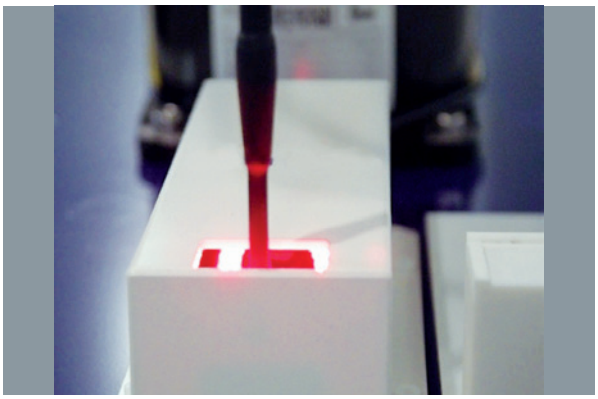
- A Video Positioning System (VPS) ensures the probes' position at ± 0.1mm. The VPS is fixed on the table plate and calibrated during installation.
- The handset positioning system includes two rails with a precision < 1°.
- Moving from the tilt to the cheek position is possible in 1 slide.
- The probes are made of high permittivity material to minimize E-field disturbance. Hence, it is possible to perform measurements without any amplification or embedded battery.

**ComoSAR**

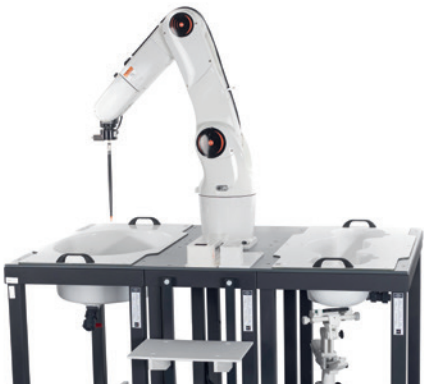
**Mechanical**

| | SINGLE | TWIN | TRIO | QUAD |
|---|---|---|---|---|
| **Dimensions (L, W, H)** | 1.00 x 0.62 x 2.00 m | 1.00 x 1.44 x 2.00 m | 2.74 x 2.74 x 2.00 m | 2.74 x 2.74 x 2.00 m |
| **Estimated room size*** | 3.00 x 3.00 x 2.50 m | 3.00 x 3.50 x 2.50 m | 4.00 x 4.00 x 3.00 m | 4.00 x 4.00 x 3.00 m |

* RF instrumentation not included in the estimate



Video positioning system



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