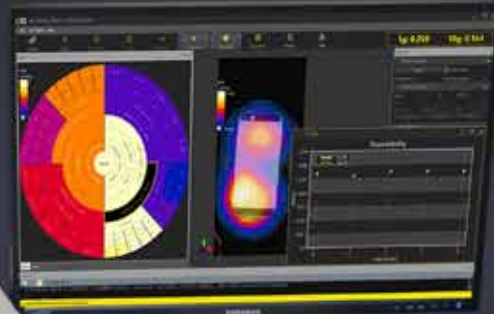


SAR Measurement with Novel Vector Array Technology

# cSAR3D

Advanced, Precise,  
Efficient, Robust,  
User-Friendly



## What is cSAR3D?

cSAR3D is the most advanced vector array system for fast, high-precision SAR measurements of wireless devices. Measurement acquisition is less than 1s. Its novel algorithms provide accurate 3D reconstruction that is accurate for any source. The phantom geometry and material parameters are fully compatible with international standards. The tissue-equivalent medium is homogeneous,

time stable and maintenance free. An integrated expert system, which includes an automated report generator, guides the user through the full certification process. The system works seamlessly with DASY52 and cDASY6 systems. cSAR3D Quad is ideal for testing larger devices such as tablets and laptops. Validation sources to meet regulatory requirements are available.

**s p e a g**

# cSAR3D SAR Measurement with Novel Vector Array Technology

## Applications

The cSAR3D system is a vector array SAR measurement system that provides all field components within the volume of the body or head phantoms with advanced 3D reconstruction algorithms. High absolute measurement accuracy is achieved with excellent sensor isotropy and broad dynamic range.

Measurements are very fast, and automation and our base station simulator interface make it very easy to perform full compliance evaluation of all channels, frequency bands, operating modes, and usage conditions of the wireless device.

Head, Flat and Quad phantoms are available in any desired configuration. Phantoms are filled with either head or body tissue-equivalent medium that are within a tight  $\pm 10\%$  tolerance of the targets specified in all national guidelines and international standards (FCC, IEC 62209-1, IEEE 1528-2013, and other national regulations) over a 300 MHz – 6 GHz frequency range (extended to 300 MHz with added uncertainty). A system typically consists of Left and Right Head phantoms for talk mode testing and a Flat phantom for body-worn assessment.

The cSAR3D Quad system is ideal for the measurement of large devices. The measurement area of 562 x 386 mm is designed for devices such as laptops and tablet computers.

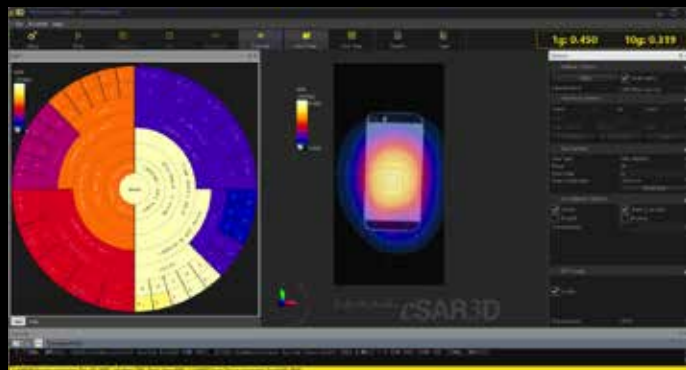
Cameras are integrated into the cSAR3D hardware so that the wireless device location is referenced to the SAR distribution. Several sources for system check and validation are available covering the 300 MHz – 6 GHz frequency range.

## Special Features

- Automated control: cSAR3D has a built-in user interface for automatic connection and control of wireless devices through the base station simulator. All base station simulators are supported. It also includes a scripting interface to save device settings and automatically run series of tests.
- Flexible report generator: Create documents with tabular and graphical outputs in different formats (Word, Excel, PDF, HTML). Data can be extracted for statistical evaluation.
- Automated device positioner: Optional robotic system and phantom table to position the wireless device on all phantoms. The same positioning system is used by DASY6, allowing easy extension to the combined cSAR3D and DASY6 system.
- Portability: cSAR3D is lightweight and portable and can easily be installed in testing environments that comply with all standards and regulatory requirements.

## Calibration

Each cSAR3D phantom is calibrated in our ISO/IEC 17025 accredited calibration facilities. Every sensor is calibrated over a broad frequency range and dynamic range. The robust calibration method allows precise SAR measurement for any modulation and any frequency.



cSAR3D interface offers a complete SAR overview for all operating modes of the wireless device, plus 3D field distributions.



cSAR3D Quad is ideal for measurement of large devices such as laptops and pico base stations.

## Specifications

Item	Specification
active measurement area	Flat / Head: 120 mm x 240 mm Quad: 386 mm x 562 mm
frequency range	300 MHz – 6 GHz extended
acquisition time	< 1 s
phantom geometry	IEC 62209 / IEEE 1528 compliant
phantom shell	permittivity < 5 loss tangent < 0.05 IEC 62209 / IEEE 1528 compliant
tissue simulating material	Head Simulating Medium Body Simulating Medium within $\pm 10\%$ of targets for 500 MHz to 6 GHz
dynamic range (CW)	> 100 W/kg
probe isotropy	< $\pm 0.2$ dB
3D reconstruction resolution	< 1 mm
repeatability	< 0.1 dB
weight (per unit)	Flat: 24 kg Head: 17 kg Quad: 250 kg

For further information and technical specifications, visit [www.speag.com](http://www.speag.com)

**s p e a g**

Schmid & Partner Engineering AG  
Zeughausstrasse 43, CH-8004 Zurich, Switzerland  
Phone: +41-44-245-9700  
info@speag.com

[WWW.SPEAG.COM](http://WWW.SPEAG.COM)

SPEAG is a  
member of

