

## SAR-TS Specific Absorption Rate Test Systems

### The TDK SAR System

TDK's Specific absorption rate (SAR) Measurement System is designed to measure electromagnetic fields and calculated SAR over a customer-specified frequency range. All tests are conducted in a shielded test room.

### SAR Measurements

SAR testing deals with the thermal effects of human exposure to RF electromagnetic fields. The SAR is a value that corresponds to the relative amount of RF energy absorbed by the user of a device in close proximity to the body. The purpose of testing is to verify that the RF energy emitted by a device is within permissible limits for public exposure as defined by test standards.

### System Components

The TDK SAR Measurement System is comprised of the following subsystems:

**Measurement System** The measurement system is an easy to use, flexible package optimized for dosimetric evaluation of radio products. The package includes Data Acquisition Electronics and system control computer.

**Probes and Measurement Accessories** Several types of broadband probes and support accessories are offered based on test requirements. These can include probes to measure fields inside fluids simulating body tissue to test radiated emissions from mobile radio equipment, and probes to measure current distribution on radio products in free space.

**Position Controller and Positioning Robot** The automated robot positions the probe inside the tissue-simulating liquid over a precisely defined volume. The robot is controlled by a multiprocessor positioning device.

**System Verification and Support** The validation system enables test engineers to perform a battery of tests to verify the system operates within its specifications to ensure the accuracy of the complete measurement system, components, and software.



**SAR System Components – robot with probe, twin phantom and integrated table, validation instrumentation in mini-rack, dipole antenna, and EUT mounting device.**



**System Controller with Application Software, robot controller.**

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**SAR Accessories** A twin phantom Specific Anthropomorphic Mannequin houses the tissue-simulating fluid and is adapted in shape and size to represent the flattened ear of a mobile phone user. It enables the evaluation of left and right hand phone usage. Additional accessories are provided to implement an effective SAR system.

## System Controller with Application Software

The SAR system is controlled by a high-end computer; system software consists of robot control, field measurements with variable output selections, field scans for SAR applications, visualization, pre-defined compliance testing for 1g and 10g SAR measurements, system validation, and various acquisition modes.



**One SAR Test Setup – Using digital radiocommunications tester in system console to establish and maintain a communication link during testing. The mobile radio antenna and mobile phone are located below the tissue-simulating fluid in the twin phantom.**

## Ordering Information

**Each SAR System is designed to your specific needs. Please contact our technical sales team with your requirements:**

### TDK RF Solutions Inc.

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## SAR Test Standards

The TDK SAR test system covers European, Asian, and North American standards that deal with SAR testing:

ENV 50166-2	Human Exposure to Electromagnetic Fields 10 kHz to 300 GHz
FCC OET Bulletin 65 (Ed. 97-01) Supplement C	Federal Communication Commission Office of Engineering & Technology; Evaluating Compliance with FCC Guidelines for Human Exposure to RF Electromagnetic Fields
FCC 96-326	Guidelines for Evaluating the Environmental Effects of RF Radiation
ANSI/IEEE C95.1-1999	IEEE Standard for Safety Levels with Respect to Human Exposure to RF Electromagnetic Fields 3 kHz to 300 GHz
ETSI TR 134 925	Universal Mobile Telecommunication System (UMTS); SAR requirements and regulations in different regions
IEEE Std-1528-200X (Draft)	Recommended Practices for Determining the Spatial-Peak SAR in the Human Body Due to Wireless Communication Devices: Experimental Techniques
prEN 50361:200 (Draft)	Human Exposure to Electromagnetic Fields High-Frequency 300 MHz to 3 GHz
ES59005	Considerations for the Evaluation of human exposure to Electromagnetic Fields from Mobile Telecommunication Equipment in the Frequency Range 30 MHz to 6 GHz.

To learn more about TDK's wide range of innovative test products, solutions and services visit [www.tdkrfsolutions.com](http://www.tdkrfsolutions.com)