# SAR Test Report

| | | |
|---|---|---|
| Product Name | ： | Tablet PC MC-C5 / MC-F5 |
| Model No. | ： | CFT-001, CFT-002 |

| | | |
|---|---|---|
| Applicant | ： | Motion Computing Incorporated |
| Address | ： | 8601 Ranch Road 2222; Building #2 Austin, Texas 78730 USA |

| | | |
|---|---|---|
| Date of Receipt | ： | 2008/12/24 |
| Issued Date | ： | 2009/03/12 |
| Report No. | ： | 08C321R-HPUSP09V01 |
| Version | ： | V1.0 |

# Test Report Certification

Issued Date: 2009/03/12
Report No.:08C321R-HPUSP09V01

QuieTek

| | | |
|---|---|---|
| Product Name | : | Tablet PC MC-C5 / MC-F5 |
| Applicant | : | Motion Computing Incorporated |
| Address | : | 8601 Ranch Road 2222; Building #2 Austin, Texas 78730 USA |
| Manufacturer | : | Pegatron Corporation |
| Model No. | : | CFT-001, CFT-002 |
| Trade Name | : | Motion Computing Incorporated |
| Transmitter Module | : | Intel / 4965AGN |
| Applicable Standard | : | FCC Oet65 Supplement C June 2001<br>IEEE Std. 1528-2003 47CFR § 2.1093 |
| Test Result | : | Max. SAR Measurement (1g)<br>2.4GHz Band (2412MHz~2462MHz): 1.081 W/kg<br>5.2GHz Band (5180MHz~5320MHz): 0.749 W/kg<br>5.8GHz Band (5500MHz~5825MHz): 0.818 W/kg |
| Application Type | | Certification |

The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of Quie Tek Corporation.

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(Engineering Adm. Assistant / Nicole Huang)

Tested By : Jung Chang
(Engineer / Jung Chang)

Approved By :
(Manager / Vincent Lin)

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# 1. General Information

## 1.1 EUT Description

| | |
|---|---|
| Product Name | Tablet PC MC-C5 / MC-F5 |
| Trade Name | Motion Computing Incorporated |
| Model No. | CFT-001, CFT-002 |
| FCC ID | Q3QIHWM4965AGN |
| TX Frequency | 2412MHz~2462MHz<br>5180MHz~5320MHz<br>5500MHz~5825MHz |
| Number of Channel | 2.4GHz Band: 11<br>5.2GHz Band: 64<br>5.8GHz Band (802.11n): 165 |
| Type of Modulation | DSSS/OFDM |
| Antenna Type | PIFA |
| Device Category | Portable |
| RF Exposure Environment | Uncontrolled |
| Transfer Rate | 802.11b: 1~11Mbps<br>802.11g: 6~54Mbps<br>802.11a: 6~54Mbps<br>802.11n(20BW): 13.5-144Mbps<br>802.11n(40BW): 27~300Mbps |

### 1.2 Test Environment

Ambient conditions in the laboratory:

Test Date: 18. Feb, 2009

| Items | Required | Actual |
|---|---|---|
| Temperature (°C) | 18-25 | 22.5 |
| Humidity (%RH) | 30-70 | 51 |

Test Date: 10. Mar, 2009

| Items | Required | Actual |
|---|---|---|
| Temperature (°C) | 18-25 | 22.2 |
| Humidity (%RH) | 30-70 | 51 |

Site Description:

Accredited by TAF
Accredited Number: 0914
Effective through: December 12, 2011

Site Name: Quietek Corporation

Site Address: No. 5, Ruei-Shu Valley, Ruei-Ping Tsuen,
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E-Mail : service@quietek.com

# 2. SAR Measurement System

## 2.1 ALSAS-10U System Description

ALSAS-10-U is fully compliant with the technical and scientific requirements of IEEE 1528, IEC 62209, CENELEC, ARIB, ACA, and the Federal Communications Commission. The system comprises of a six axes articulated robot which utilizes a dedicated controller.

ALSAS-10U uses the latest methodologies and FDTD modeling to provide a platform which is repeatable with minimum uncertainty.

### 2.1.1 Applications

Predefined measurement procedures compliant with the guidelines of CENELEC, IEEE, IEC, FCC, etc are utilized during the assessment for the device. Automatic detection for all SAR maxima are embedded within the core architecture for the system, ensuring that peak locations used for centering the zoom scan are within a 1mm resolution and a 0.05mm repeatable position. System operation range currently available up-to 6 GHz in simulated tissue.

### 2.1.2 Area Scans

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a $10mm^2$ step integral, with 1mm interpolation used to locate the peak SAR area used for zoom scan assessments.

Where the system identifies multiple SAR peaks (which are within 25% of peak value) the system will provide the user with the option of assessing each peak location individually for zoom scan averaging.

### 2.1.3 Zoom Scan (Cube Scan Averaging)

The averaging zoom scan volume utilized in the ALSAS-10U software is in the shape of a cube and the side dimension of a 1 g or 10 g mass is dependent on the density of the liquid representing the simulated tissue. A density of 1000 kg/m$^3$ is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1 g cube is 10mm, with the side length of the 10 g cube 21,5mm.

When the cube intersects with the surface of the phantom, it is oriented so that 3 vertices touch the surface of the shell or the center of a face is tangent to the surface. The face of the cube closest to the surface is modified in order to conform to the tangent surface.

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications (including FCC) utilize a physical step of 5x5x8 (8mmx8mmx5mm) providing a volume of 32mm in the X & Y axis, and 35mm in the Z axis.

### 2.1.4 ALSAS-10U Interpolation and Extrapolation Uncertainty

The overall uncertainty for the methodology and algorithms the used during the SAR calculation was evaluated using the data from IEEE 1528 based on the example f3 algorithm:

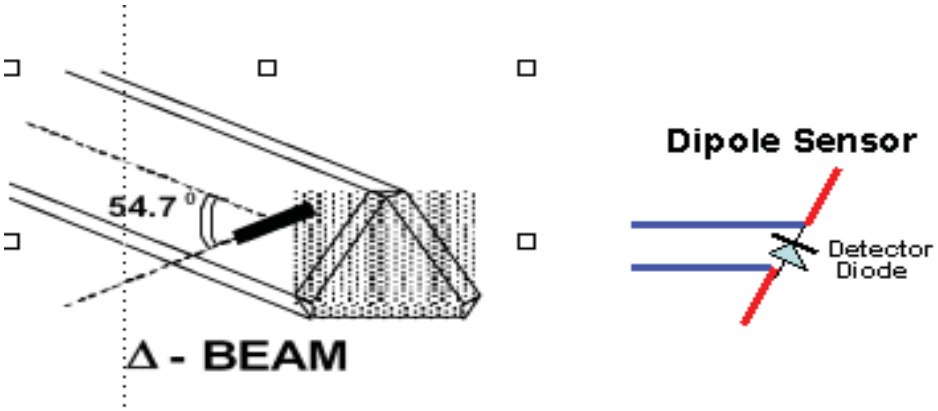
$$f_3(x,y,z) = A\frac{a^2}{\frac{a^2}{4} + x'^2 + y'^2}\cdot\left(e^{-\frac{2z}{a}} + \frac{a^2}{2(a+2z)^2}\right)$$

### 2.2 Isotropic E-Field Probe

The isotropic E-Field probe has been fully calibrated and assessed for isotropicity, and boundary effect within a controlled environment. Depending on the frequency for which the probe is calibrated the method utilized for calibration will change. A number of methods is used for calibrating probes, and these are outlined in the table below:

| Calibration Frequency | Air Calibration | Tissue Calibration |
|---|---|---|
| 2450MHz | Waveguide | Temperature |
| 5200MHz | Waveguide | Temperature |
| 5800MHz | Waveguide | Temperature |

The E-Field probe utilizes a triangular sensor arrangement as detailed in the diagram below:




SAR is assessed with a calibrated probe which moves at a default height of 5mm from the center of the diode, which is mounted to the sensor, to the phantom surface (in the Z Axis). The 5mm offset height has been selected so as to minimize any resultant boundary effect due to the probe being in close proximity to the phantom surface.

The following algorithm is an example of the function used by the system for linearization of the output from the probe when measuring complex modulation schemes.

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

### 2.2.1 Isotropic E-Field Probe Specification

| | |
|---|---|
| **Calibration in Air** | Frequency Dependent<br>Below 2GHz Calibration in air performed in a TEM Cell<br>Above 2GHz Calibration in air performed in waveguide |
| **Sensitivity** | 0.70 μV/(V/m)$^2$ to 0.85 μV/(V/m)$^2$ |
| **Dynamic Range** | 0.0005 W/kg to 100W/kg |
| **Isotropic Response** | Better than 0.2dB |
| **Diode Compression point (DCP)** | Calibration for Specific Frequency |
| **Probe Tip Radius** | < 5mm |
| **Sensor Offset** | 1.56 (+/- 0.02mm) |
| **Probe Length** | 290mm |
| **Video Bandwidth** | @ 500 Hz: 1dB<br>@1.02 KHz: 3dB |
| **Boundary Effect** | Less than 2% for distance greater than 2.4mm |
| **Spatial Resolution** | Diameter less than 5mm Compliant with Standards |

### 2.3 Boundary Detection Unit and Probe Mounting Device

ALSAS-10U incorporates a boundary detection unit with a sensitivity of 0.05mm for detecting all types of surfaces. The robust design allows for detection during probe tilt (probe normalize) exercises, and utilizes a second stage emergency stop. The signal electronics are fed directly into the robot controller for high accuracy surface detection in lateral and axial detection modes (X, Y, & Z).

The probe is mounted directly onto the Boundary Detection unit for accurate tooling and displacement calculations controlled by the robot kinematics. The probe is connect to an isolated probe interconnect where the output stage of the probe is fed directly into the amplifier stage of the Daq-Paq.

### 2.4 Daq-Paq (Analog to Digital Electronics)

ALSAS-10U incorporates a fully calibrated Daq-Paq (analog to digital conversion system) which has a 4 channel input stage, sent via a 2 stage auto-set amplifier module. The input signal is amplified accordingly so as to offer a dynamic range from 5μV to 800mV. Integration of the fields measured is carried out at board level utilizing a Co-Processor which then sends the measured fields down into the main computational module in digitized form via an RS232 communications port. Probe linearity and duty cycle compensation is carried out within the main Daq-Paq module.

| | |
|---|---|
| **ADC** | 12 Bit |
| **Amplifier Range** | 20mV to 200mV and 150mV to 800mV |
| **Field Integration** | Local Co-Processor utilizing proprietary integration algorithms |
| **Number of Input Channels** | 4 in total 3 dedicated and 1 spare |
| **Communication** | Packet data via RS232 |

### 2.5 Axis Articulated Robot


ALSAS-10U utilizes a six axis articulated robot, which is controlled using a Pentium based real-time movement controller. The movement kinematics engine utilizes proprietary (Thermo CRS) interpolation and extrapolation algorithms, which allow full freedom of movement for each of the six joints within the working envelope. Utilization of joint 6 allows for full probe rotation with a tolerance better than 0.05mm around the central axis.

| | |
|---|---|
| **Robot/Controller Manufacturer** | Thermo CRS |
| **Number of Axis** | Six independently controlled axis |
| **Positioning Repeatability** | 0.05mm |
| **Controller Type** | Single phase Pentium based C500C |
| **Robot Reach** | 710mm |
| **Communication** | RS232 and LAN compatible |

### 2.6 ALSAS Universal Workstation

ALSAS Universal workstation allows for repeatability and fast adaptability. It allows users to do calibration, testing and measurements using different types of phantoms with one set up, which significantly speeds up the measurement process.

### 2.7 Universal Device Positioner

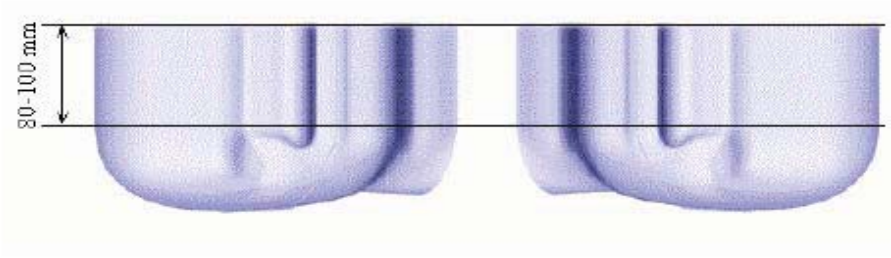
The universal device positioner allow complete freedom of movement of the EUT. Developed to hold a EUT in a free-space scenario any additional loading attributable to the material used in the construction of the positioner has been eliminated. Repeatability has been enhanced through the linear scales which form the design used to indicate positioning for any given test scenario in all major axes. A 15° tilt indicator is included for the of aid cheek to tilt movements for head SAR analysis. Overall uncertainty for measurements have been reduced due to the design of the Universal device positioner, which allows positioning of a device in as near to a free-space scenario as possible, and by providing the means for complete repeatability.

### 2.8 Phantom Types

The ALSAS-10U allows the integration of multiple phantom types. SAM Phantoms fully compliant with IEEE 1528, Universal Phantom, and Universal Flat.

### 2.8.1 APREL SAM Phantoms

The SAM phantoms developed using the IEEE SAM CAD file. They are fully compliant with the requirements for both IEEE 1528 and FCC Supplement C. Both the left and right SAM phantoms are interchangeable, transparent and include the IEEE 1528 grid with visible NF and MB lines.




### 2.8.2 APREL Laboratories Universal Phantom

The Universal Phantom is used on the ALSAS-10U as a system validation phantom. The Universal Phantom has been fully validated both experimentally from 800MHz to 6GHz and numerically using XFDTD numerical software. The shell thickness is 2mm overall, with a 4mm spacer located at the NF/MB intersection providing an overall thickness of 6mm in line with the requirements of IEEE-1528.

The design allows for fast and accurate measurements, of handsets, by allowing the conservative SAR to be evaluated at on frequency for both left and right head experiments in one measurement.

# 3. Tissue Simulating Liquid

## 3.1 The composition of the tissue simulating liquid

| INGREDIENT (% Weight) | 2450MHz Head | 2450MHz Body | 5200MHz Head | 5200MHz Body | 5800MHz Head | 5800MHz Body |
|---|---|---|---|---|---|---|
| **Water** | 46.7 | 73.2 | 67.63 | 76 | 68.29 | 75.68 |
| **Salt** | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.43 |
| **Sugar** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **HEC** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Preventol** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **DGBE** | 53.3 | 26.7 | 3.38 | 4.44 | 2.44 | 4.42 |
| **Triton X-100** | 0.00 | 0.00 | 28.99 | 19.56 | 29.27 | 19.47 |

## 3.2 Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using APREL Dielectric Probe Kit and Anritsu MS4623B Vector Network Analyzer.

| **Head Tissue Simulant Measurement** | | | | |
|---|---|---|---|---|
| Frequency [MHz] | Description | Dielectric Parameters | | Tissue Temp. [°C] |
| | | $\varepsilon_r$ | $\sigma$ [s/m] | |
| 2450MHz | Reference result<br>± 5% window | 40.1<br>38.095 to 42.105 | 1.78<br>1.691 to 1.869 | N/A |
| | 18-Feb-09 | 41.03 | 1.78 | 21.4 |

| **Body Tissue Simulant Measurement** | | | | |
|---|---|---|---|---|
| Frequency [MHz] | Description | Dielectric Parameters | | Tissue Temp. [°C] |
| | | $\varepsilon_r$ | $\sigma$ [s/m] | |
| 2450MHz | Reference result<br>± 5% window | 52.7<br>50.065 to 55.335 | 1.95<br>1.8525 to 2.0475 | N/A |
| | 18-Feb-09 | 53.62 | 1.96 | 21.4 |
| 2412 MHz | Low channel | 53.79 | 1.94 | 21.4 |
| 2437 MHz | Mid channel | 53.73 | 1.96 | 21.4 |
| 2462 MHz | High channel | 53.53 | 1.97 | 21.4 |

| Head Tissue Simulant Measurement | | | | |
|---|---|---|---|---|
| Frequency [MHz] | Description | Dielectric Parameters | | Tissue Temp. [°C] |
| | | $\varepsilon_r$ | $\sigma$ [s/m] | |
| 5200MHz | Reference result ± 5% window | 39.94<br>37.943 to 41.937 | 5.24<br>4.987 to 5.502 | N/A |
| | 18-Feb-09 | 40.14 | 5.25 | 21.4 |
| | 10-Mar-09 | 40.54 | 5.37 | 21.4 |

| Body Tissue Simulant Measurement | | | | |
|---|---|---|---|---|
| Frequency [MHz] | Description | Dielectric Parameters | | Tissue Temp. [°C] |
| | | $\varepsilon_r$ | $\sigma$ [s/m] | |
| 5200MHz | Reference result ± 5% window | 48.9<br>46.455 to 51.345 | 5.35<br>5.0825 to 5.6175 | N/A |
| | 18-Feb-09 | 49.72 | 5.46 | 21.4 |
| 5200 MHz | Low channel | 49.75 | 5.46 | 21.4 |
| 5260 MHz | Mid channel | 49.63 | 5.49 | 21.4 |
| 5320 MHz | High channel | 49.59 | 5.54 | 21.4 |

| Body Tissue Simulant Measurement | | | | |
|---|---|---|---|---|
| Frequency [MHz] | Description | Dielectric Parameters | | Tissue Temp. [°C] |
| | | $\varepsilon_r$ | $\sigma$ [s/m] | |
| 5200MHz | Reference result ± 5% window | 48.9<br>46.455 to 51.345 | 5.35<br>5.0825 to 5.6175 | N/A |
| | 10-Mar-09 | 50.03 | 5.53 | 21.4 |
| 5200 MHz | Low channel | 50.00 | 5.56 | 21.4 |
| 5260 MHz | Mid channel | 49.94 | 5.58 | 21.4 |
| 5320 MHz | High channel | 49.83 | 5.60 | 21.4 |

| Head Tissue Simulant Measurement | | | | |
|---|---|---|---|---|
| Frequency [MHz] | Description | Dielectric Parameters | | Tissue Temp. [°C] |
| | | $\varepsilon_r$ | $\sigma$ [s/m] | |
| 5800MHz | Reference result ± 5% window | 35.15<br>33.393 to 36.908 | 6.4<br>6.08 to 6.72 | N/A |
| | 18-Feb-09 | 35.66 | 6.53 | 21.4 |

| Body Tissue Simulant Measurement | | | | |
|---|---|---|---|---|
| Frequency [MHz] | Description | Dielectric Parameters | | Tissue Temp. [°C] |
| | | $\varepsilon_r$ | $\sigma$ [s/m] | |
| 5800MHz | Reference result ± 5% window | 48.2<br>45.79 to 50.61 | 6<br>5.7 to 6.3 | N/A |
| | 18-Feb-09 | 49.72 | 6.14 | 21.4 |
| 5500 MHz | Low channel | 49.81 | 6.11 | 21.4 |
| 5700 MHz | Mid channel | 49.76 | 6.13 | 21.4 |
| 5825 MHz | High channel | 49.65 | 6.15 | 21.4 |

### 3.3 Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

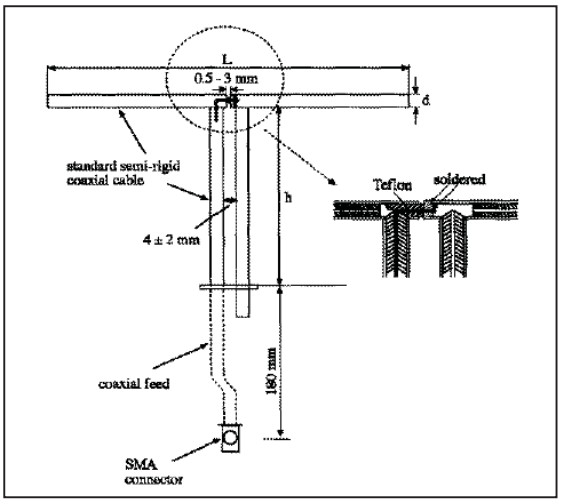
| Target Frequency | Head | | Body | |
|---|---|---|---|---|
| (MHz) | $\varepsilon_r$ | $\sigma$ (S/m) | $\varepsilon_r$ | $\sigma$ (S/m) |
| 150 | 52.3 | 0.76 | 61.9 | 0.80 |
| 300 | 45.3 | 0.87 | 58.2 | 0.92 |
| 450 | 43.5 | 0.87 | 56.7 | 0.94 |
| 835 | 41.5 | 0.90 | 55.2 | 0.97 |
| 900 | 41.5 | 0.97 | 55.0 | 1.05 |
| 915 | 41.5 | 0.98 | 55.0 | 1.06 |
| 1450 | 40.5 | 1.20 | 54.0 | 1.30 |
| 1610 | 40.3 | 1.29 | 53.8 | 1.40 |
| 1800 – 2000 | 40.0 | 1.40 | 53.3 | 1.52 |
| 2450 | 39.2 | 1.80 | 52.7 | 1.95 |
| 3000 | 38.5 | 2.40 | 52.0 | 2.73 |
| 5800 | 35.3 | 5.27 | 48.2 | 6.00 |

($\varepsilon_r$ = relative permittivity, $\sigma$ = conductivity and $\rho$ = 1000 kg/m$^3$)

# 4. SAR Measurement Procedure

## 4.1 SAR System Validation

### 4.1.1 Validation Dipoles




The dipoles used is based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of both IEEE and FCC Supplement C. the table below provides details for the mechanical and electrical specifications for the dipoles.

| Frequency | L (mm) | h (mm) | d (mm) |
|---|---|---|---|
| 2450MHz | 53.5 | 30.4 | 3.6 |
| 5200MHz | 23.1 | 14.2 | 3.6 |
| 5800MHz | 21.2 | 13.1 | 3.6 |

### 4.1.2 Validation Result

**System Performance Check at 2450MHz**

**Validation Kit: ASL-D-2450-S-2**

| Frequency [MHz] | Description | SAR [w/kg] 1g | SAR [w/kg] 10g | Tissue Temp. [°C] |
|---|---|---|---|---|
| 2450 MHz | Reference result ± 10% window | 48.07 43.263 to 52.877 | 25.65 23.085 to 28.215 | N/A |
| | 18-Feb-09 | 48.847 | 26.134 | 21.4 |
| Note: All SAR values are normalized to 1W forward power. | | | | |

| System Performance Check at 5200MHz<br><br>Validation Kit: ASL-D-5200-S-2 | | | |
|---|---|---|---|
| Frequency [MHz] | Description | SAR [w/kg] 1g | Tissue Temp. [°C] |
| 5200 MHz | Reference result ± 5% window | 58.8<br>55.86 to 61.74 | N/A |
| | 18-Feb-09 | 57.243 | 21.4 |
| | 10-Mar-09 | 60.023 | 21.4 |
| Note: All SAR values are normalized to 1W forward power. | | | |

| System Performance Check at 5800MHz<br><br>Validation Kit: ASL-D-5800-S-2 | | | |
|---|---|---|---|
| Frequency [MHz] | Description | SAR [w/kg] 1g | Tissue Temp. [°C] |
| 5800 MHz | Reference result ± 5% window | 57.9<br>55.005 to 60.795 | N/A |
| | 18-Feb-09 | 58.844 | 21.4 |
| Note: All SAR values are normalized to 1W forward power. | | | |

### 4.2 SAR Measurement Procedure

The ALSAS-10U calculates SAR using the following equation,

$$SAR = \frac{\sigma |E|^2}{\rho}$$

σ: represents the simulated tissue conductivity

ρ: represents the tissue density

The EUT is set to transmit at the required power in line with product specification, at each frequency relating to the LOW, MID, and HIGH channel settings.

Pre-scans are made on the device to establish the location for the transmitting antenna, using a large area scan in either air or tissue simulation fluid.

The EUT is placed against the Universal Phantom where the maximum area scan dimensions are larger than the physical size of the resonating antenna. When the scan size is not large enough to cover the peak SAR distribution, it is modified by either extending the area scan size in both the X and Y directions, or the device is shifted within the predefined area.

The area scan is then run to establish the peak SAR location (interpolated resolution set at $1mm^2$ )which is then used to orient the center of the zoom scan. The zoom scan is then executed and the 1g and 10g averages are derived from the zoom scan volume (interpolated resolution set at $1mm^3$ ).

## 5. SAR Exposure Limits

SAR assessments have been made in line with the requirements of IEEE-1528, FCC Supplement C, and comply with ANSI/IEEE C95.1-1992 “Uncontrolled Environments” limits. These limits apply to a location which is deemed as “Uncontrolled Environment” which can be described as a situation where the general public may be exposed to an RF source with no prior knowledge or control over their exposure.

**Limits for General Population/Uncontrolled Exposure (W/kg)**

| Type Exposure | Uncontrolled Environment Limit |
|---|---|
| Spatial Peak SAR (1g cube tissue for brain or body) | **1.60 W/kg** |
| Spatial Average SAR (whole body) | **0.08 W/kg** |
| Spatial Peak SAR (10g for hands, feet, ankles and wrist) | **4.00 W/kg** |

## 6. Test Equipment List

| Instrument | Manufacturer | Model No. | Serial No. | Last Calibration | Next Calibration |
|---|---|---|---|---|---|
| Data Acquisition Package | Aprel | ALS-DAQ-PAQ-2 | QTK-337 | Nov. 2006 | only once |
| Aprel Laboratories Probe | Aprel | ALS-E020 | 265 | May. 2008 | May. 2009 |
| Aprel Reference Dipole 2450Mhz | Aprel | ALS-D-2450-S-2 | QTK-319 | May. 2008 | May. 2010 |
| Aprel Reference Dipole 5200Mhz | Aprel | ALS-D-5200-S-2 | QTK-320 | May. 2008 | May. 2010 |
| Aprel Reference Dipole 5800Mhz | Aprel | ALS-D-5800-S-2 | QTK-321 | May. 2008 | May. 2010 |
| Boundary Detection Sensor System | Aprel | ALS-PMDPS-2 | QTK-336 | N/A | N/A |
| Dielectric Probe Kit | Aprel | ALS-PR-DIEL | QTK-296 | N/A | N/A |
| Universal Work Station | Aprel | ALS-UWS | QTK-326 | N/A | N/A |
| Device Holder 2.0 | Aprel | ALS-H-E-SET-2 | QTK-294 | N/A | N/A |
| Left Ear SAM Phantom | Aprel | ALS-P-SAM-L | QTK-292 | N/A | N/A |
| Right Ear SAM Phantom | Aprel | ALS-P-SAM-R | QTK-288 | N/A | N/A |
| Universal Phantom | Aprel | ALS-P-UP-1 | QTK-246 | N/A | N/A |
| Aprel Dipole Spacer | Aprel | ALS-DS-U | QTK-295 | N/A | N/A |
| SAR Software | Aprel | ALSAS-10 | Ver. 2.3.6 | N/A | N/A |
| CRS C500C Controller | Thermo | ALS-C500 | RCF0404433 | N/A | N/A |
| CRF F3 Robot | Thermo | ALS-F3 | RAF0412222 | N/A | N/A |
| Power Amplifier | Mini-Circuit | ZHL-42 | D051404-20 | N/A | N/A |
| Directional Coupler | Agilent | 778D-012 | 50550 | N/A | N/A |
| Universal Radio Communication Tester | Rohde & Schwarz | CMU 200 | 104846 | Mar. 2009 | Mar. 2010 |
| Radio Communication Analyzer | Anritsu | MT8820A | 6200323183 | Jul. 2008 | Jul. 2009 |
| Vector Network | Anritsu | MS4623B | 992801 | Aug. 2008 | Aug. 2009 |
| Signal Generator | Anritsu | MG3692A | 042319 | Jun. 2008 | Jun. 2009 |
| Power Meter | Anritsu | ML2487A | 6K00001447 | Apr. 2008 | Apr. 2009 |
| Wide Bandwidth Sensor | Anritsu | MA2491 | 030677 | Apr. 2008 | Apr. 2009 |

# 7. Measurement Uncertainty

## Exposure Assessment Measurement Uncertainty

| Source of Uncertainty | Tolerance Value | Probability Distribution | Divisor | $c_i$ (1-g) | $c_i$ (10-g) | Standard Uncertainty (1-g) % | Standard Uncertainty (10-g) % |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| Measurement System | | | | | | | |
| | | | | | | | |
| Probe Calibration | 3.5 | normal | 1 | 1 | 1 | 3.5 | 3.5 |
| Axial Isotropy | 3.7 | rectangular | $\sqrt{3}$ | $(1-cp)^{1/2}$ | $(1-cp)^{1/2}$ | 1.5 | 1.5 |
| Hemispherical Isotropy | 10.9 | rectangular | $\sqrt{3}$ | $\sqrt{cp}$ | $\sqrt{cp}$ | 4.4 | 4.4 |
| Boundary Effect | 1.0 | rectangular | $\sqrt{3}$ | 1 | 1 | 0.6 | 0.6 |
| Linearity | 4.7 | rectangular | $\sqrt{3}$ | 1 | 1 | 2.7 | 2.7 |
| Detection Limit | 1.0 | rectangular | $\sqrt{3}$ | 1 | 1 | 0.6 | 0.6 |
| Readout Electronics | 1.0 | normal | 1 | 1 | 1 | 1.0 | 1.0 |
| Response Time | 0.8 | rectangular | $\sqrt{3}$ | 1 | 1 | 0.5 | 0.5 |
| Integration Time | 1.7 | rectangular | $\sqrt{3}$ | 1 | 1 | 1.0 | 1.0 |
| RF Ambient Condition | 3.0 | rectangular | $\sqrt{3}$ | 1 | 1 | 1.7 | 1.7 |
| Probe Positioner Mech. | 0.4 | rectangular | $\sqrt{3}$ | 1 | 1 | 0.2 | 0.2 |
| | | | | | | | |
| Restriction | | | | | | | |
| Probe Positioning with respect to Phantom Shell | 2.9 | rectangular | $\sqrt{3}$ | 1 | 1 | 1.7 | 1.7 |
| Extrapolation and Integration | 3.7 | rectangular | $\sqrt{3}$ | 1 | 1 | 2.1 | 2.1 |
| Test Sample Positioning | 4.0 | normal | 1 | 1 | 1 | 4.0 | 4.0 |
| Device Holder Uncertainty | 2.0 | normal | 1 | 1 | 1 | 2.0 | 2.0 |
| Drift of Output Power | 4.7 | rectangular | $\sqrt{3}$ | 1 | 1 | 2.7 | 2.7 |
| | | | | | | | |
| Phantom and Setup | | | | | | | |
| Phantom Uncertainty(shape & thickness tolerance) | 3.4 | rectangular | $\sqrt{3}$ | 1 | 1 | 2.0 | 2.0 |
| Liquid Conductivity(target) | 5.0 | rectangular | $\sqrt{3}$ | 0.7 | 0.5 | 2.0 | 1.4 |
| Liquid Conductivity(meas.) | 0.1 | normal | 1 | 0.7 | 0.5 | 0.1 | 0.0 |
| Liquid Permittivity(target) | 2.0 | rectangular | $\sqrt{3}$ | 0.6 | 0.5 | 0.7 | 0.6 |
| Liquid Permittivity(meas.) | 2.6 | normal | 1 | 0.6 | 0.5 | 1.6 | 1.3 |
| Combined Uncertainty | | RSS | | | | 9.6 | 9.5 |
| Combined Uncertainty (coverage factor=2) | | Normal(k=2) | | | | 19.3 | 18.9 |

# 8. Test Results

## 8.1 SAR Test Results Summary

| SAR MEASUREMENT | | | | | | |
|---|---|---|---|---|---|---|
| Ambient Temperature (°C) : 22.5 ±2 | | | | Relative Humidity (%): 51 | | |
| Liquid Temperature (°C) : 21.4 ±2 | | | | Depth of Liquid (cm):>15 | | |
| Product: Tablet PC MC-C5 / MC-F5 | | | | | | |
| Test Mode: 802.11g- Tx1 Antenna | | | | | | |
| Test Position Body | Antenna Position | Frequency | | Conducted Power (dBm) | **SAR** 1g (W/kg) | Limit (W/kg) |
| | | Channel | MHz | | | |
| Top | Fixed | 6 | 2437 | 23.83 | 0.600 | 1.6 |
| Side | Fixed | 6 | 2437 | 23.83 | 0.098 | 1.6 |
| Back | Fixed | 6 | 2437 | 23.83 | 0.051 | 1.6 |
| Test Mode: 802.11g- Tx2 Antenna | | | | | | |
| Top | Fixed | 6 | 2437 | 23.83 | **1.081** | 1.6 |
| Side | Fixed | 6 | 2437 | 23.83 | 0.048 | 1.6 |
| Back | Fixed | 6 | 2437 | 23.83 | 0.047 | 1.6 |
| Test Mode: 802.11g- Tx2 Antenna | | | | | | |
| Top | Fixed | 1 | 2412 | 23.80 | 1.042 | 1.6 |
| Top | Fixed | 11 | 2462 | 23.48 | 1.067 | 1.6 |
| Test Mode: 802.11b- Tx2 Antenna | | | | | | |
| Top | Fixed | 6 | 2437 | 19.24 | 0.457 | 1.6 |
| Test Mode: 802.11n(20M) - Tx2 Antenna | | | | | | |
| Top | Fixed | 6 | 2437 | 26.62 | 0.297 | 1.6 |

| SAR MEASUREMENT | | | | | | |
|---|---|---|---|---|---|---|
| Ambient Temperature (°C) : 22.5 ±2 | | | | Relative Humidity (%): 51 | | |
| Liquid Temperature (°C) : 21.4 ±2 | | | | Depth of Liquid (cm):>15 | | |
| Product: Tablet PC MC-C5 / MC-F5 | | | | | | |
| Test Mode: 802.11a, 5200 MHz- Tx1 Antenna | | | | | | |
| Test Position Body | Antenna Position | Frequency | | Conducted Power (dBm) | **SAR** 1g (W/kg) | Limit (W/kg) |
| | | Channel | MHz | | | |
| Top | Fixed | 52 | 5260 | 18.61 | 0.567 | 1.6 |
| Side | Fixed | 52 | 5260 | 18.61 | 0.168 | 1.6 |
| Back | Fixed | 52 | 5260 | 18.61 | 0.117 | 1.6 |
| Test Mode: 802.11a, 5200 MHz- Tx2 Antenna | | | | | | |
| Top | Fixed | 52 | 5260 | 18.61 | 0.380 | 1.6 |
| Side | Fixed | 52 | 5260 | 18.61 | 0.288 | 1.6 |
| Back | Fixed | 52 | 5260 | 18.61 | 0.103 | 1.6 |
| Test Mode: 802.11a, 5200 MHz- Tx1 Antenna | | | | | | |
| Top | Fixed | 36 | 5180 | 16.61 | 0.688 | 1.6 |
| Top | Fixed | 48 | 5240 | 16.54 | 0.597 | 1.6 |
| Top | Fixed | 64 | 5320 | 18.41 | **0.749** | 1.6 |
| Test Mode: 802.11n(20M), 5200 MHz- Tx1 Antenna | | | | | | |
| Top | Fixed | 64 | 5320 | 20.20 | 0.523 | 1.6 |
| Test Mode: 802.11n(40M), 5200 MHz- Tx1 Antenna | | | | | | |
| Top | Fixed | 62 | 5310 | 20.90 | 0.506 | 1.6 |

| SAR MEASUREMENT | | | | | | |
|---|---|---|---|---|---|---|
| Ambient Temperature (°C) : 22.5 ±2 | | | | Relative Humidity (%): 51 | | |
| Liquid Temperature (°C) : 21.4 ±2 | | | | Depth of Liquid (cm):>15 | | |
| Product: Tablet PC MC-C5 / MC-F5 | | | | | | |
| Test Mode: 802.11a, 5800 MHz- Tx1 Antenna | | | | | | |
| Test Position Body | Antenna Position | Frequency | | Conducted Power (dBm) | **SAR** 1g (W/kg) | Limit (W/kg) |
| | | Channel | MHz | | | |
| Top | Fixed | 157 | 5785 | 19.71 | **0.818** | 1.6 |
| Side | Fixed | 157 | 5785 | 19.71 | 0.078 | 1.6 |
| Back | Fixed | 157 | 5785 | 19.71 | 0.146 | 1.6 |
| Test Mode: 802.11a, 5800 MHz- Tx2 Antenna | | | | | | |
| Top | Fixed | 157 | 5785 | 19.71 | 0.447 | 1.6 |
| Side | Fixed | 157 | 5785 | 19.71 | 0.083 | 1.6 |
| Back | Fixed | 157 | 5785 | 19.71 | 0.126 | 1.6 |
| Test Mode: 802.11a, 5800 MHz- Tx1 Antenna | | | | | | |
| Top | Fixed | 149 | 5745 | 19.61 | 0.800 | 1.6 |
| Top | Fixed | 165 | 5825 | 19.91 | 0.683 | 1.6 |
| Test Mode: 802.11n(20M), 5800 MHz- Tx1 Antenna | | | | | | |
| Top | Fixed | 157 | 5785 | 25.97 | 0.556 | 1.6 |
| Test Mode: 802.11n(40M), 5800 MHz- Tx1 Antenna | | | | | | |
| Top | Fixed | 159 | 5795 | 23.01 | 0.441 | 1.6 |

**Appendix**

**Appendix A. SAR System Validation Data**

**Appendix B. SAR measurement Data**

**Appendix C. Test Setup Photographs & EUT Photographs**

**Appendix D. Probe Calibration Data**

**Appendix E. Dipole Calibration Data**

## Appendix A. SAR System Validation Data

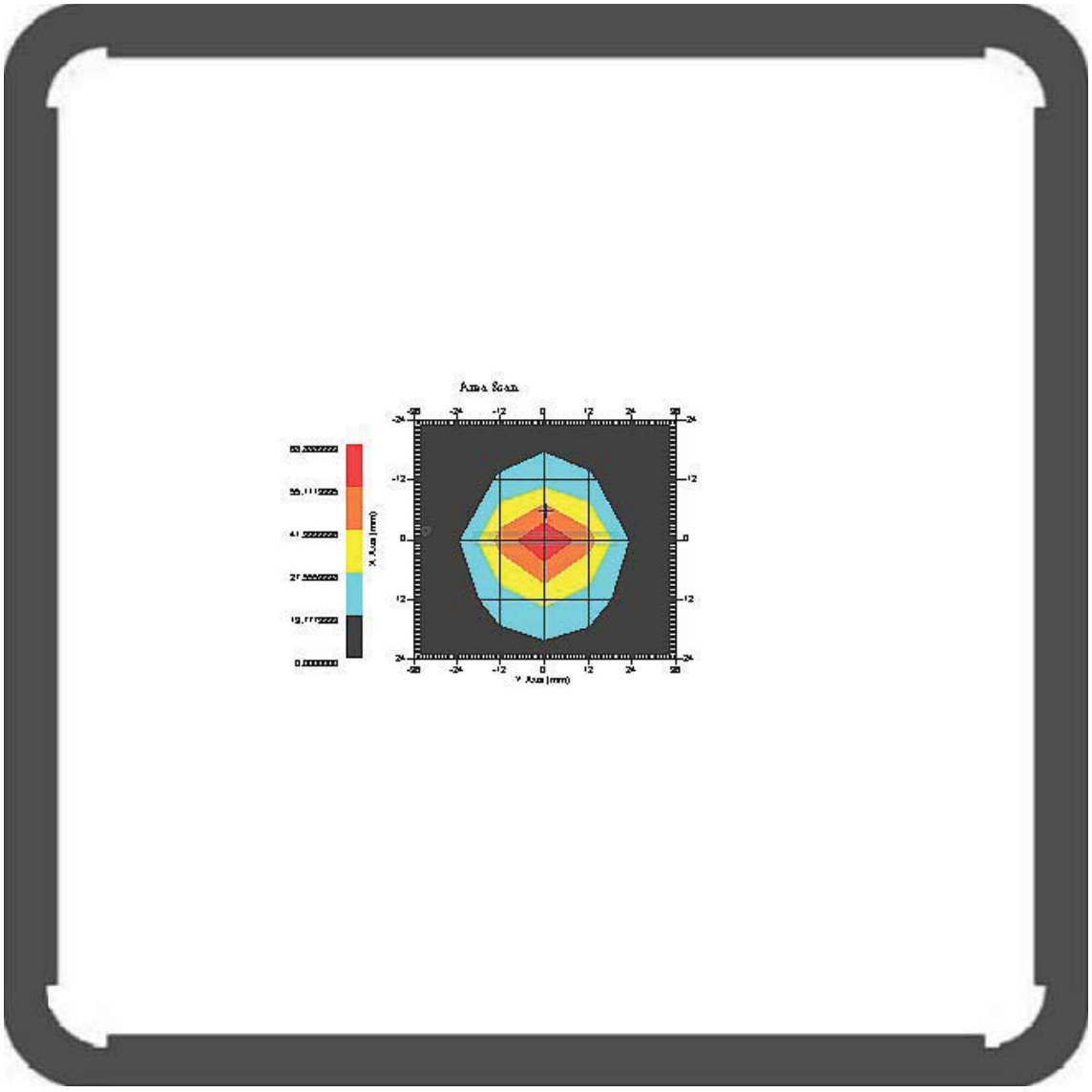
ALSAS-10U VER 2.3.6 APREL Laboratories

SAR Test Report

```
Report Date      : 18-Feb-2009
Measurement Date  : 18-Feb-2009

Product Data
Device Name      : Dipole-2450
Type            : Dipole
Frequency        : 2450.00 MHz
Max. Transmit Pwr : 1 W
Drift Time       : 0 min(s)
Length          : 51.5 mm
Width           : 3.6 mm
Depth           : 30.4 mm
Power Drift-Start : 30.644 W/kg
Power Drift-Finish: 30.143 W/kg
Power Drift (%)   : -1.634

Phantom Data
Type            : Uni-Phantom
Size (mm)        : 280 x 280 x 200
Location         : Center

Tissue Data
Type            : HEAD
Serial No.       : 325-H
Frequency        : 2450.00 MHz
Last Calib. Date : 18-Feb-2009
Temperature      : 21.40 °C
Ambient Temp.    : 22.50 °C
Humidity         : 51.00 RH%
Epsilon          : 41.03 F/m
Sigma           : 1.78 S/m
Density          : 1000.00 kg/cu. m

Probe Data
Name            : Probe 265
Model           : E020
Type            : E-Field Triangle
Serial No.       : 265
Last Calib. Date : 09-May-2008
Frequency        : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 3.67
Probe Sensitivity: 1.20  1.20  1.20   μV/(V/m)²
Compression Point: 95.00 mV
Offset          : 1.56 mm
```

Measurement Data
Scan Type : Complete
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.50 °C
Area Scan : 5x7x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm

Frequency : 2450 MHz




1 gram SAR value : 48.847 W/kg
10 gram SAR value : 26.134 W/kg
Area Scan Peak SAR : 68.895 W/kg
Zoom Scan Peak SAR : 121.098 W/kg

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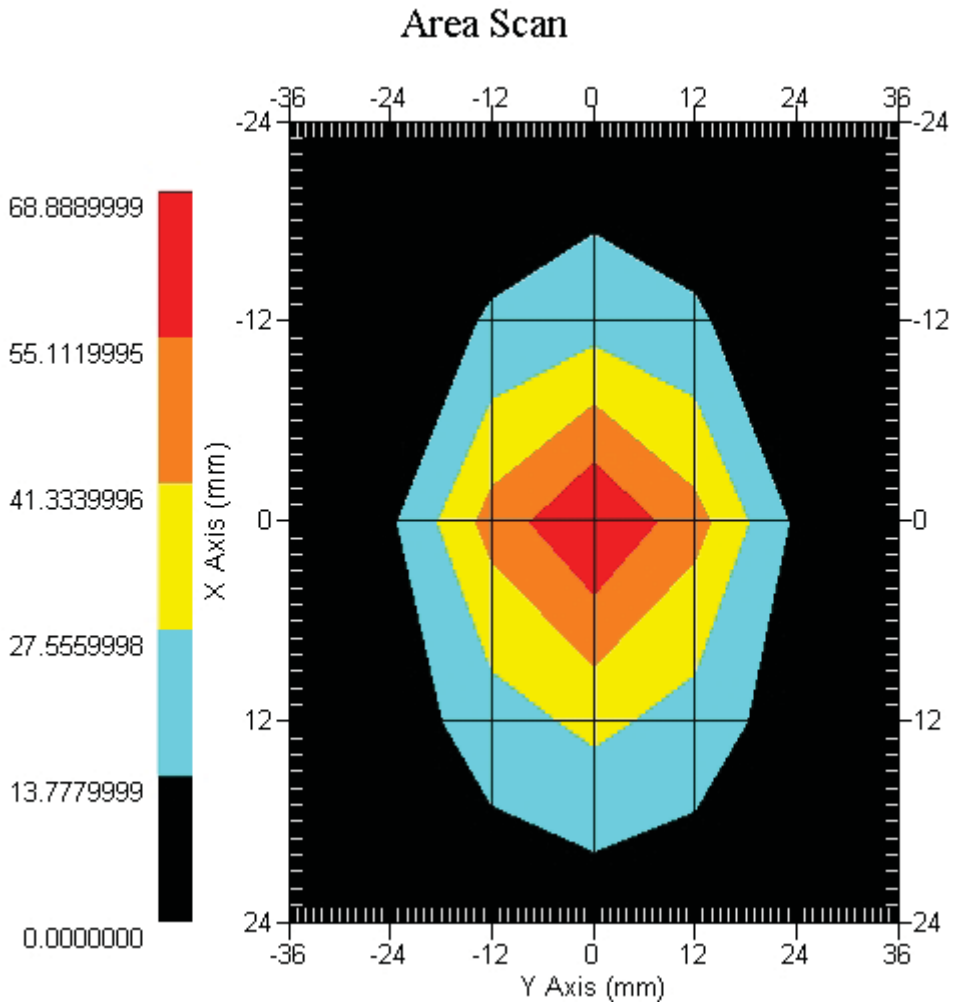
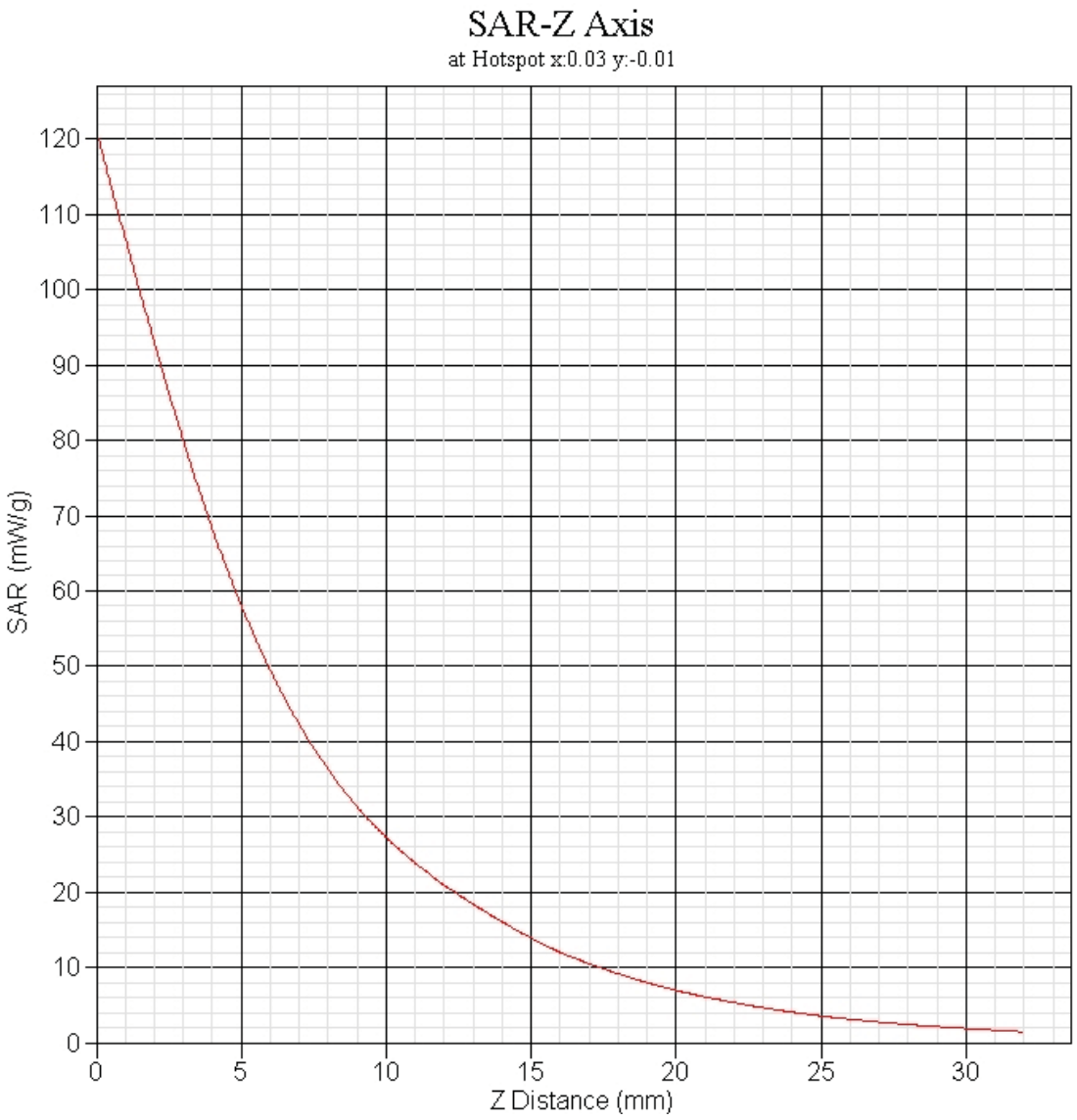



SAR-Z Axis
at Hotspot x:0.03 y:-0.01
SAR (mW/g)
120
110
100
90
80
70
60
50
40
30
20
10
0
0
5
10
15
20
25
30
Z Distance (mm)

ALSAS-10U VER 2.3.6 APREL Laboratories

SAR Test Report

Report Date : 18-Feb-2009
Measurement Date : 18-Feb-2009

Product Data
Device Name : Dipole-5200
Type : Dipole
Frequency : 5200.00 MHz
Max. Transmit Pwr : 1 W
Drift Time : 0 min(s)
Length : 23 mm
Width : 3.6 mm
Depth : 89.8 mm
Power Drift-Start : 30.542 W/kg
Power Drift-Finish: 30.178 W/kg
Power Drift (%) : -1.191

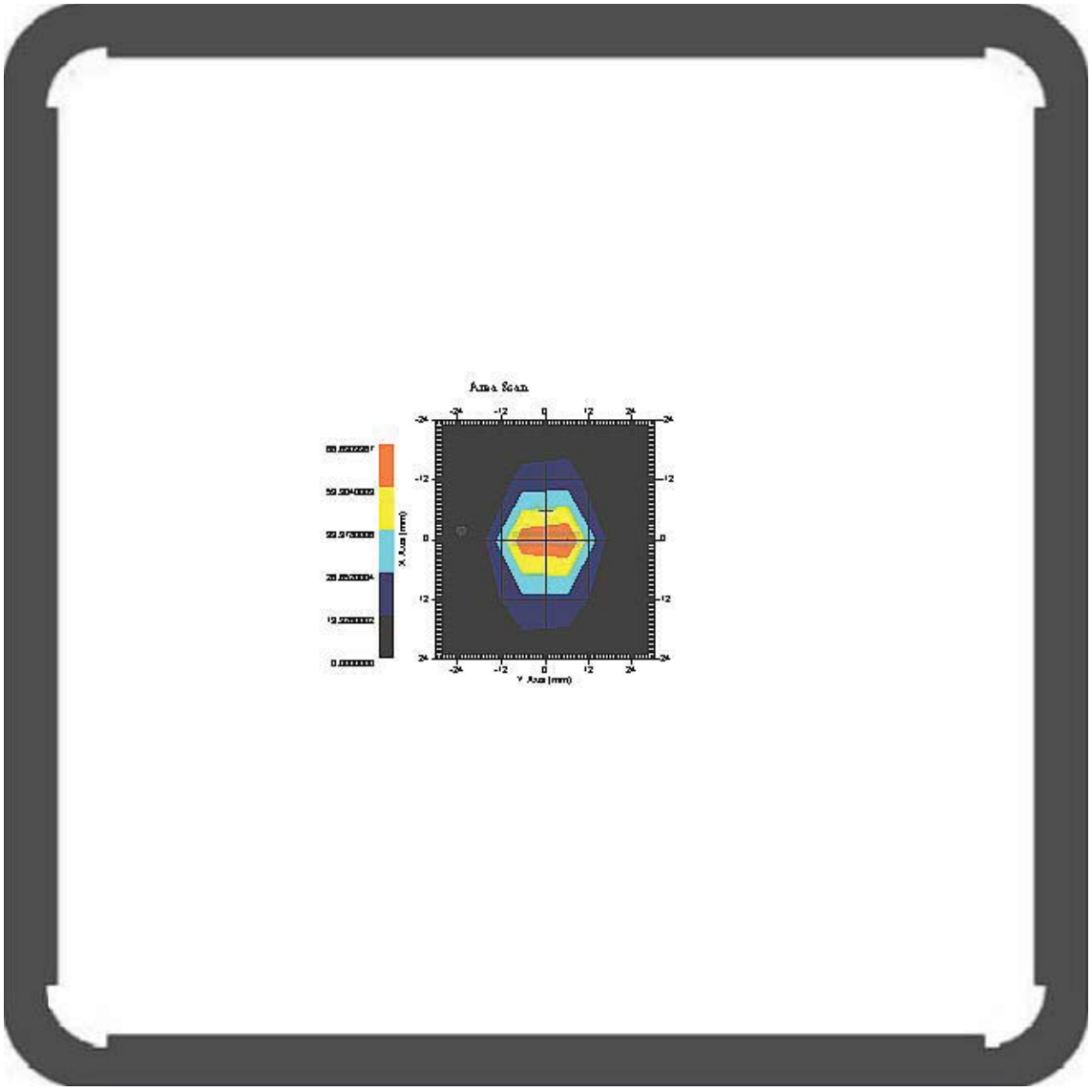
Phantom Data
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Location : Center

Tissue Data
Type : HEAD
Serial No. : 326-H
Frequency : 5200.00 MHz
Last Calib. Date : 18-Feb-2009
Temperature : 21.40 °C
Ambient Temp. : 22.40 °C
Humidity : 52.00 RH%
Epsilon : 40.14 F/m
Sigma : 5.25 S/m
Density : 1000.00 kg/cu. m

Probe Data
Name : Probe 265
Model : E020
Type : E-Field Triangle
Serial No. : 265
Last Calib. Date : 09-May-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 3.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu V/(V/m)^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

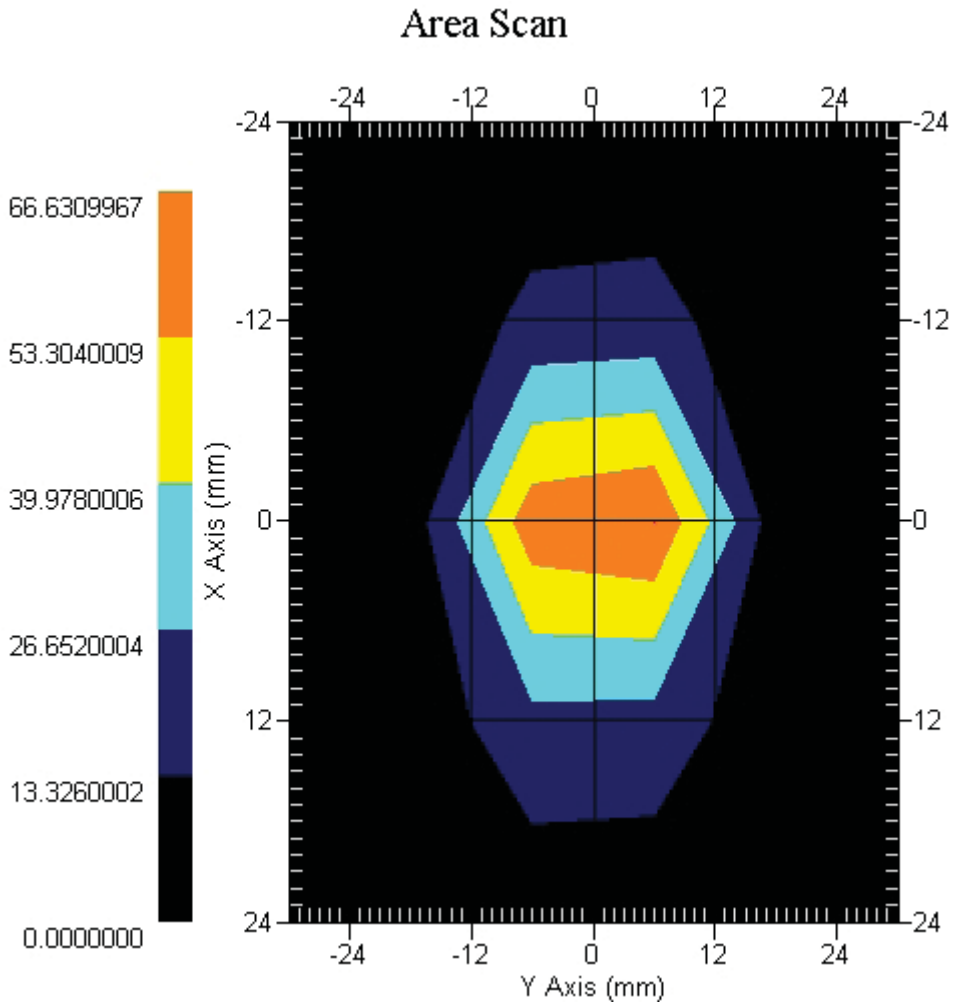
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.40 °C
Area Scan : 5x6x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm

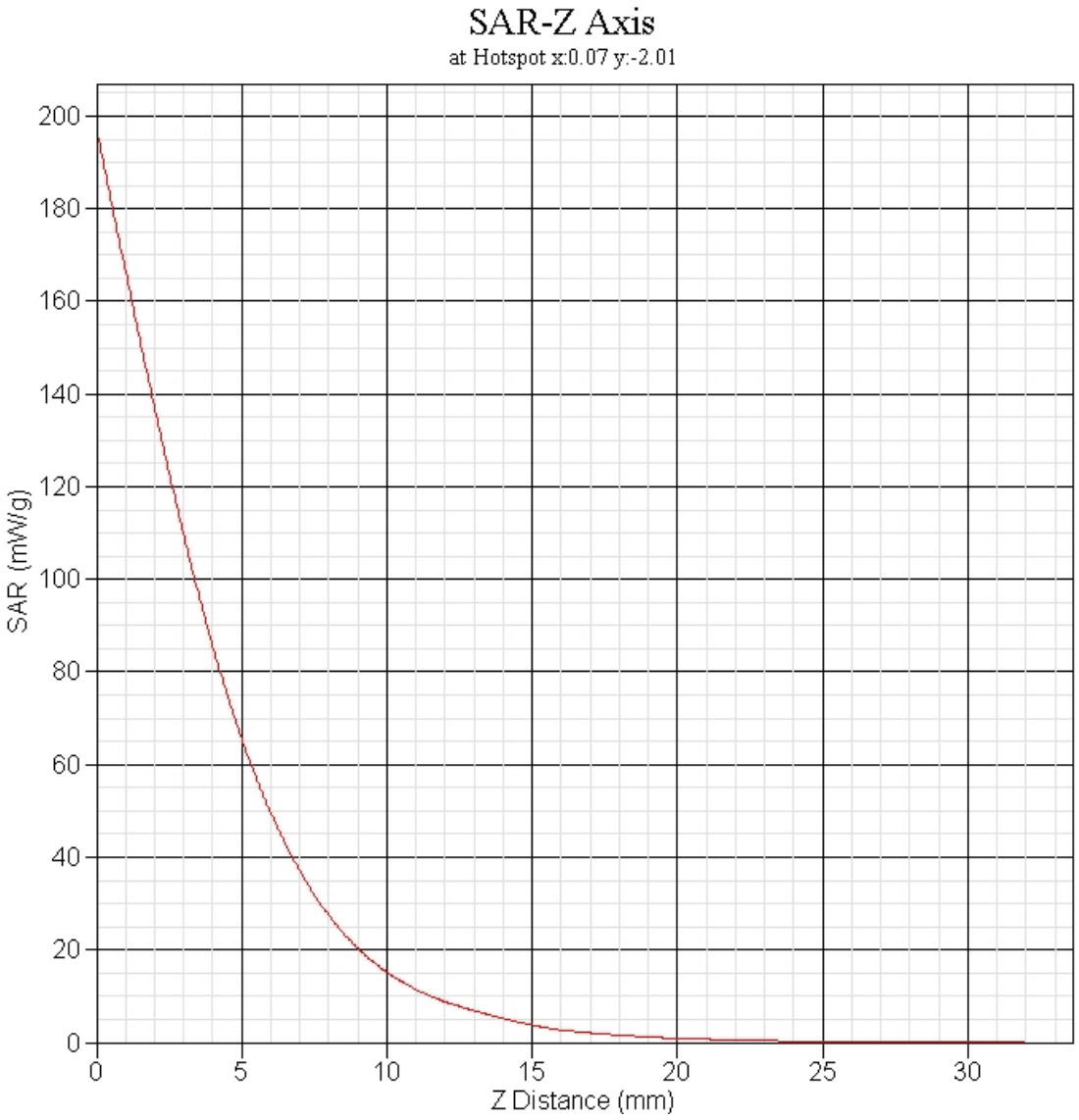
Frequency : 5200 MHz




1 gram SAR value : 57.243 W/kg
10 gram SAR value : 21.783 W/kg
Area Scan Peak SAR : 66.628 W/kg
Zoom Scan Peak SAR : 197.158 W/kg

This is previous page plot (zoom in)




SAR-Z Axis
at Hotspot x:0.07 y:-2.01
SAR (mW/g)
200
180
160
140
120
100
80
60
40
20
0
0
5
10
15
20
25
30
Z Distance (mm)

ALSAS-10U VER 2.3.6 APREL Laboratories

SAR Test Report

Report Date : 18-Feb-2009
Measurement Date : 18-Feb-2009

Product Data
Device Name : Dipole-5800
Type : Dipole
Frequency : 5800.00 MHz
Max. Transmit Pwr : 1 W
Drift Time : 0 min(s)
Length : 21.4 mm
Width : 3.6 mm
Depth : 89.8 mm
Power Drift-Start : 30.223 W/kg
Power Drift-Finish: 31.158 W/kg
Power Drift (%) : 3.093

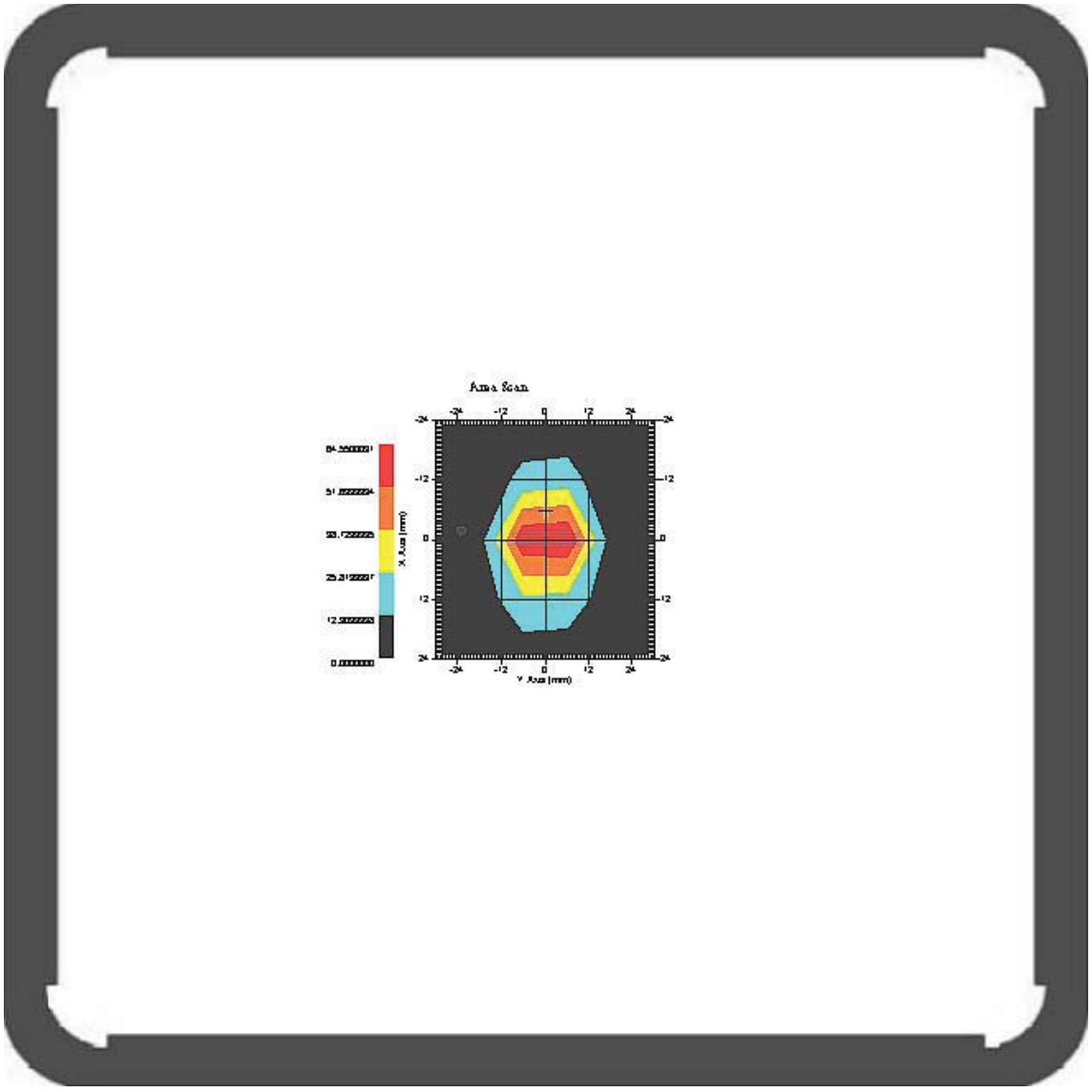
Phantom Data
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Location : Center

Tissue Data
Type : HEAD
Serial No. : 327-H
Frequency : 5800.00 MHz
Last Calib. Date : 18-Feb-2009
Temperature : 21.40 °C
Ambient Temp. : 22.50 °C
Humidity : 51.00 RH%
Epsilon : 35.66 F/m
Sigma : 6.53 S/m
Density : 1000.00 kg/cu. m

Probe Data
Name : Probe 265
Model : E020
Type : E-Field Triangle
Serial No. : 265
Last Calib. Date : 09-May-2008
Frequency : 5800.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 3.4
Probe Sensitivity: 1.20 1.20 1.20 $\mu V/(V/m)^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

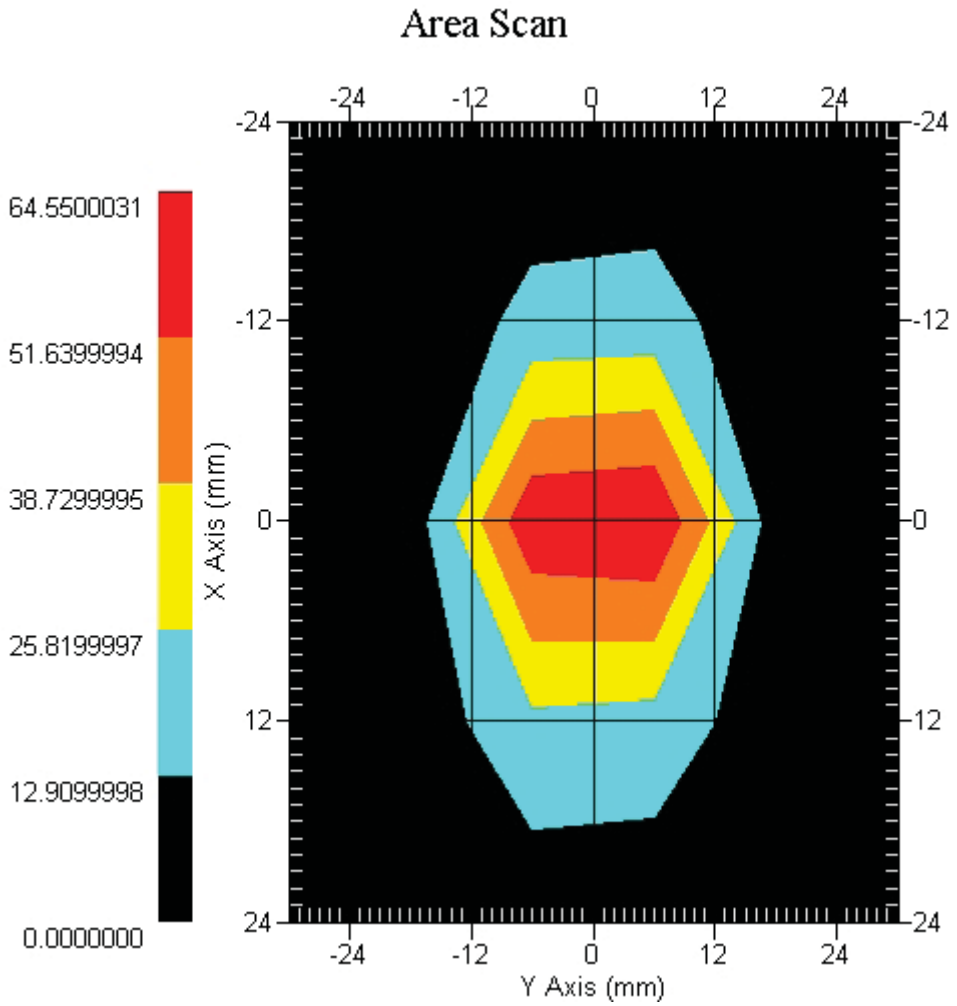
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.50 °C
Area Scan : 5x6x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm

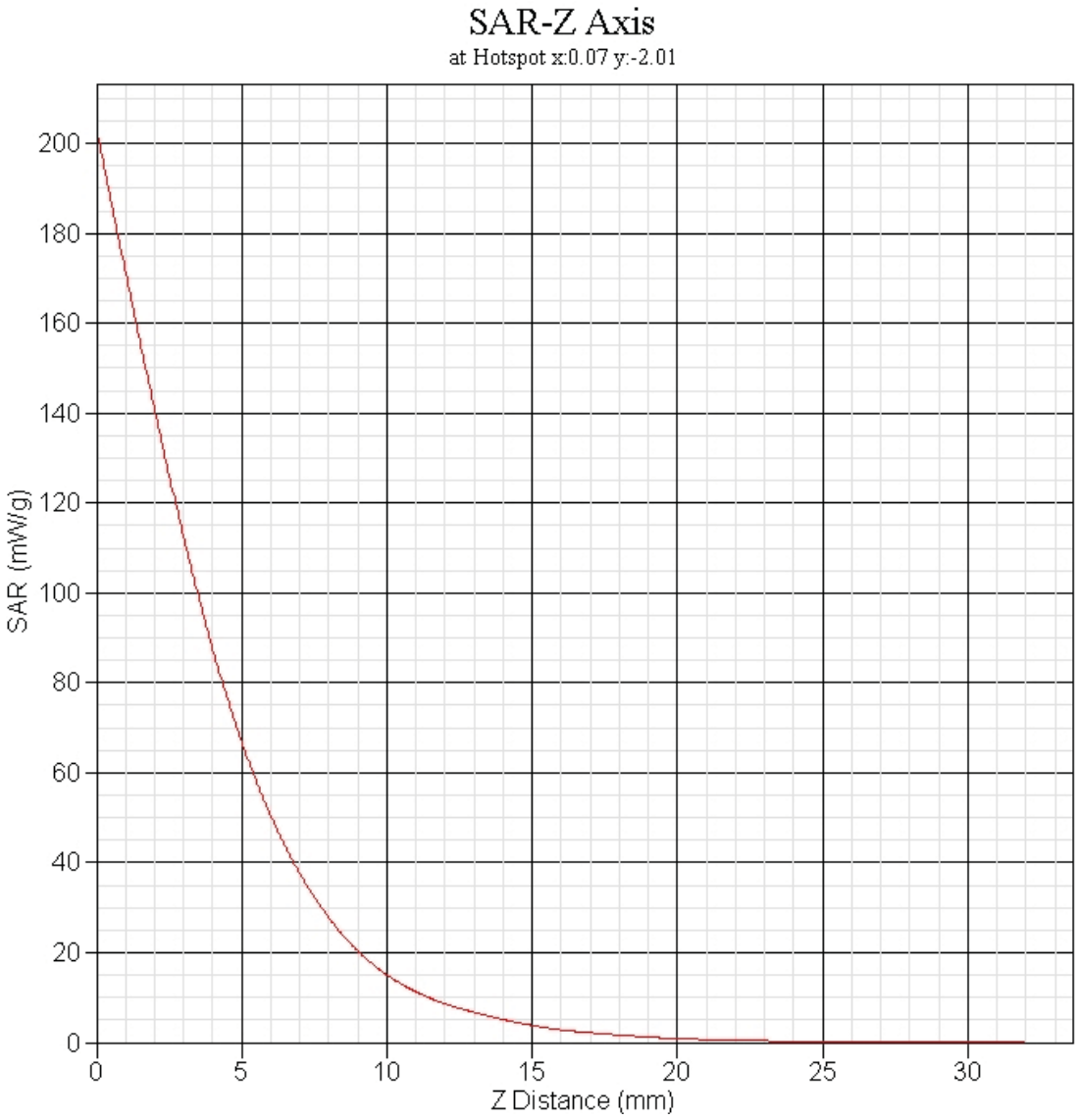
Frequency : 5800 MHz




1 gram SAR value : 58.844 W/kg
10 gram SAR value : 22.223 W/kg
Area Scan Peak SAR : 64.552 W/kg
Zoom Scan Peak SAR : 203.170 W/kg

This is previous page plot (zoom in)




SAR-Z Axis
at Hotspot x:0.07 y:-2.01
SAR (mW/g)
200
180
160
140
120
100
80
60
40
20
0
0
5
10
15
20
25
30
Z Distance (mm)

ALSAS-10U VER 2.3.6 APREL Laboratories

SAR Test Report

Report Date : 10-Mar-2009
Measurement Date : 10-Mar-2009

Product Data
Device Name : Dipole-5200
Type : Dipole
Frequency : 5200.00 MHz
Max. Transmit Pwr : 1 W
Drift Time : 0 min(s)
Length : 23 mm
Width : 3.6 mm
Depth : 89.8 mm
Power Drift-Start : 30.825 W/kg
Power Drift-Finish: 30.397 W/kg
Power Drift (%) : -1.388

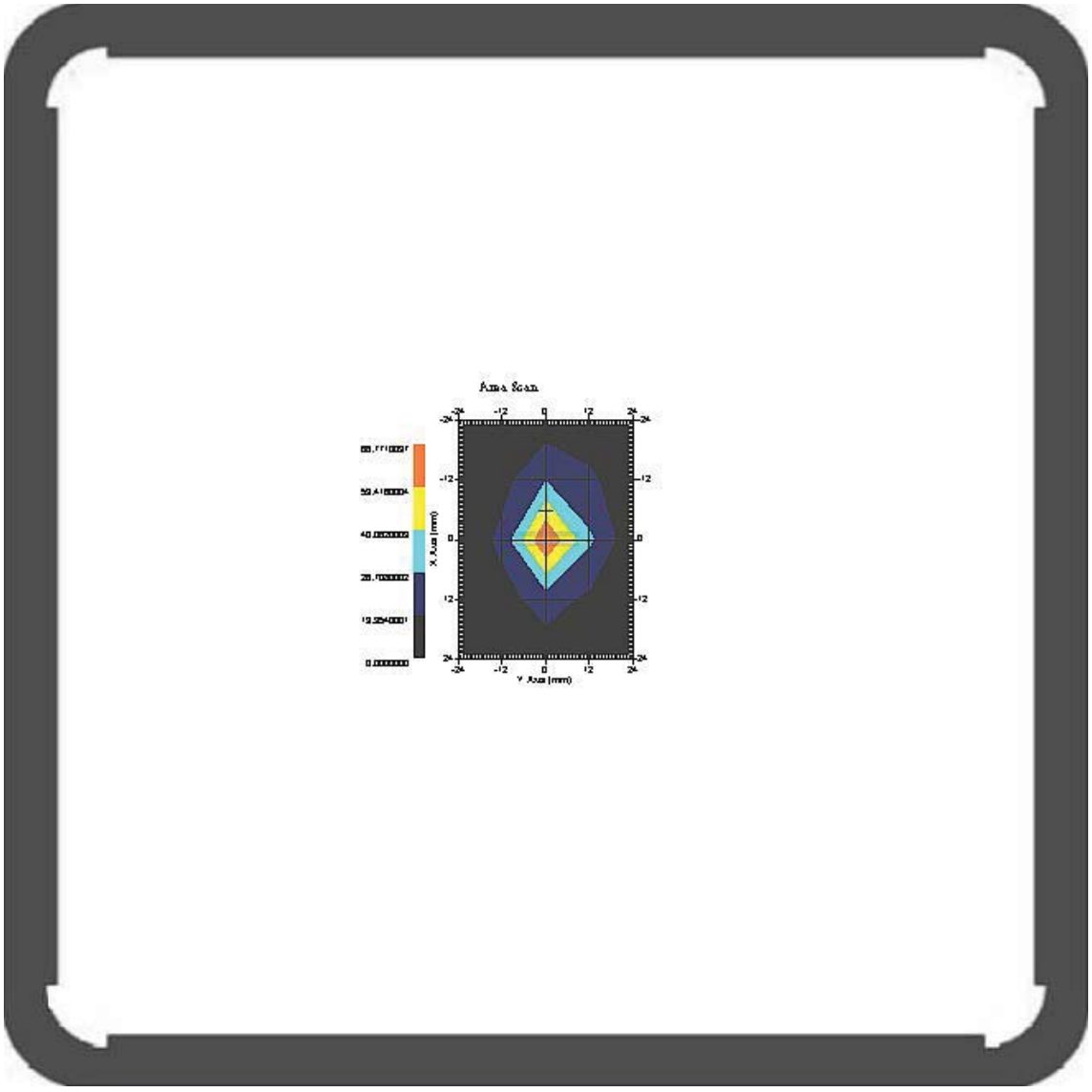
Phantom Data
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Location : Center

Tissue Data
Type : HEAD
Serial No. : 326-H
Frequency : 5200.00 MHz
Last Calib. Date : 10-Mar-2009
Temperature : 21.40 °C
Ambient Temp. : 22.20 °C
Humidity : 51.00 RH%
Epsilon : 40.54 F/m
Sigma : 5.37 S/m
Density : 1000.00 kg/cu. m

Probe Data
Name : Probe 265
Model : E020
Type : E-Field Triangle
Serial No. : 265
Last Calib. Date : 09-May-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 3.5
Probe Sensitivity: 1.20 1.20 1.20 $\mu V/(V/m)^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

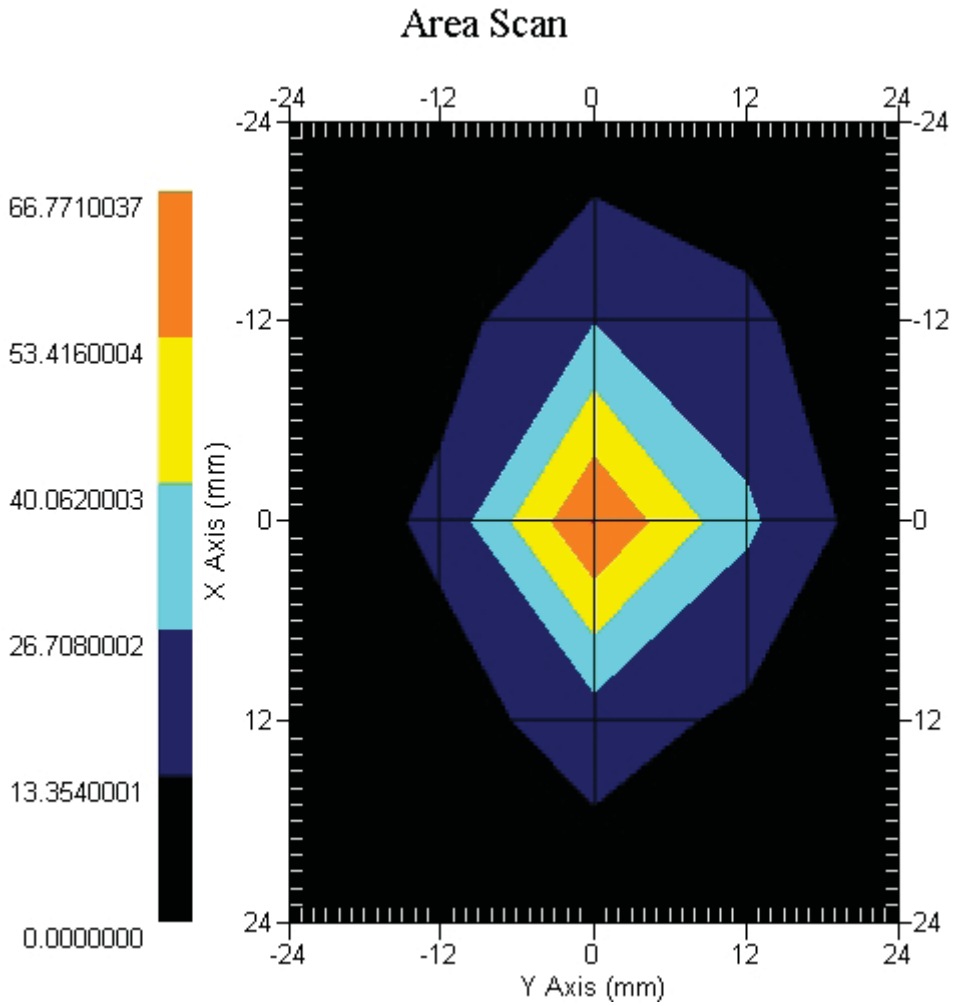
Measurement Data
Crest Factor : 1
Temperature : 21.40 °C
Ambient Temp. : 22.20 °C
Area Scan : 5x6x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm

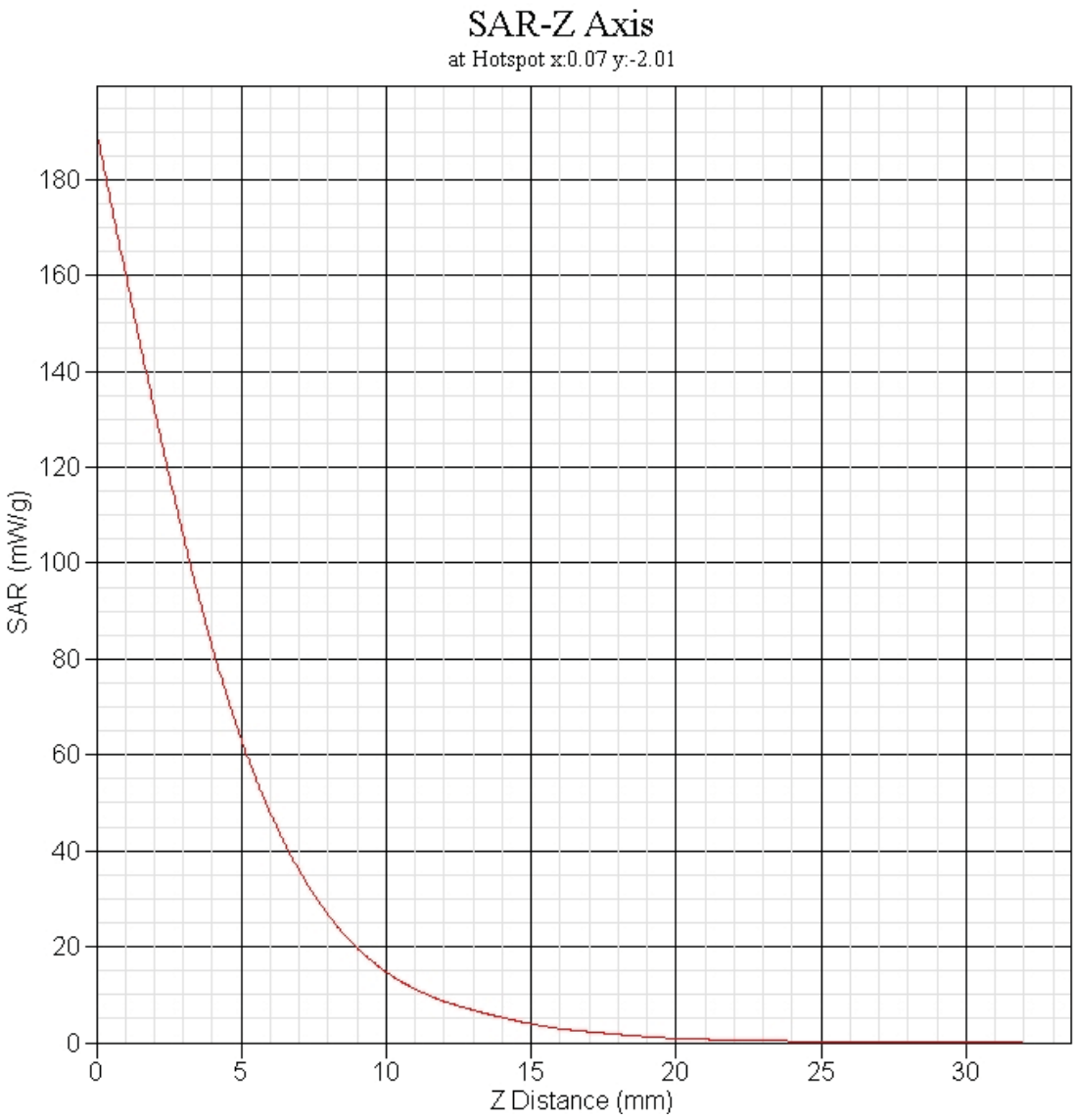
Frequency : 5200 MHz




1 gram SAR value : 60.023 W/kg
10 gram SAR value : 20.689 W/kg
Area Scan Peak SAR : 65.832 W/kg
Zoom Scan Peak SAR : 190.149 W/kg

This is previous page plot (zoom in)




SAR-Z Axis
at Hotspot x:0.07 y:-2.01
SAR (mW/g)
180
160
140
120
100
80
60
40
20
0
0
5
10
15
20
25
30
Z Distance (mm)

## Appendix B. SAR measurement Data

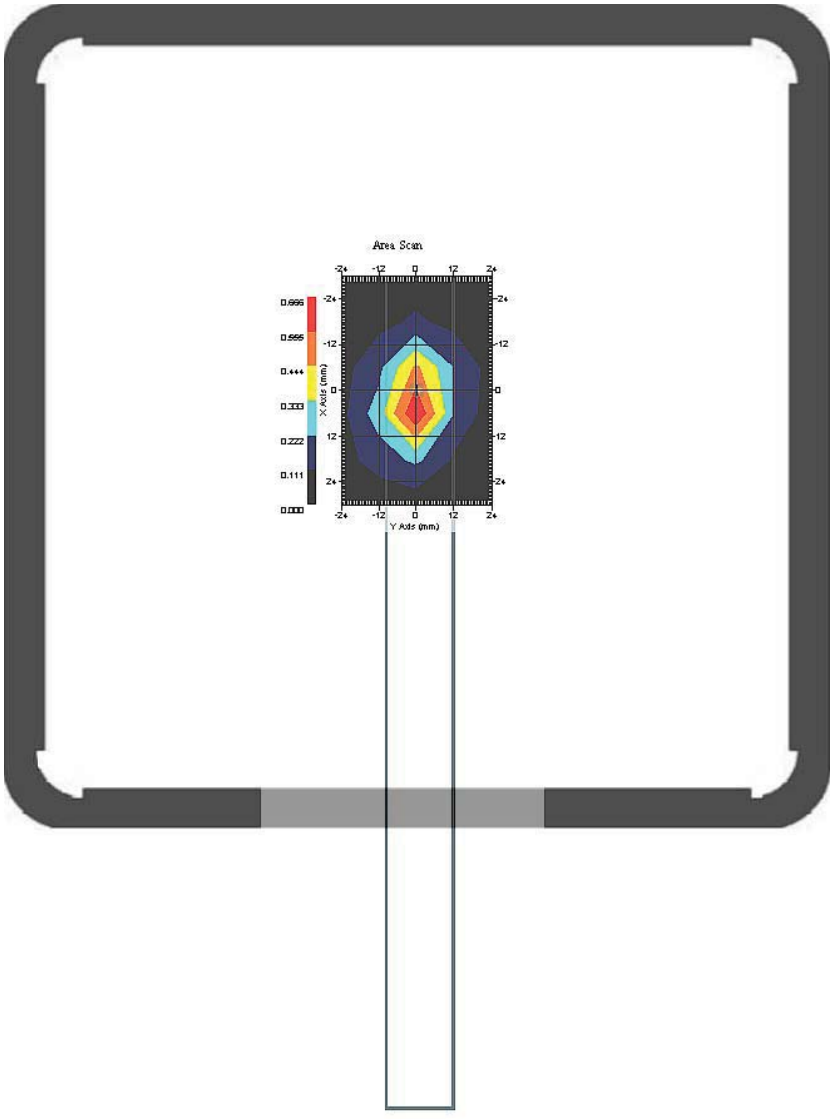
ALSAS-10U VER 2.3.6 APREL Laboratories

SAR Test Report –802.11g- Tx1 Antenna

```
Report Date      : 18-Feb-2009
Measurement Date  : 18-Feb-2009

Product Data
Device Name      : Tablet PC
Type            : Other
Model           : CFT-001
Frequency        : 2450.00 MHz
Drift Time       : 0 min(s)
Length          : 256 mm
Width           : 23 mm
Depth           : 254 mm
Antenna Type     : Internal

Phantom Data
Type           : Uni-Phantom
Size (mm)       : 280 x 280 x 200
Location        : Center

Tissue Data
Type           : BODY
Serial No.      : 325-B
Frequency       : 2450.00 MHz
Last Calib. Date : 18-Feb-2009
Temperature     : 21.40 °C
Ambient Temp.    : 22.50 °C
Humidity        : 51.00 RH%
Epsilon         : 53.62 F/m
Sigma           : 1.96 S/m
Density         : 1000.00 kg/cu. m

Probe Data
Name           : Probe 265
Model          : E020
Type           : E-Field Triangle
Serial No.      : 265
Last Calib. Date : 09-May-2008
Frequency       : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 3.55
Probe Sensitivity: 1.20  1.20  1.20   μV/(V/m)²
Compression Point: 95.00 mV
Offset         : 1.56 mm
```

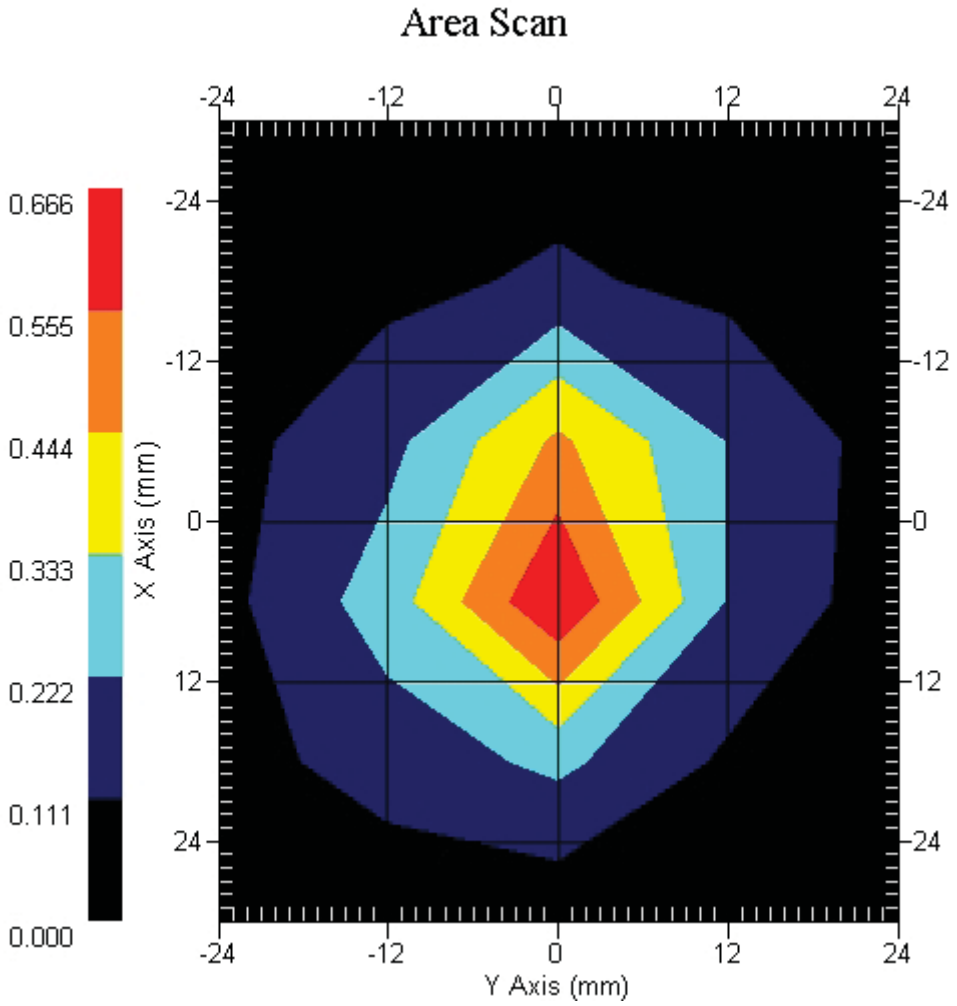
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.50 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.684 W/kg
Power Drift-Finish: 0.709 W/kg
Power Drift (%) : 3.751

DUT Position : Touch EUT Top
Channel : 6



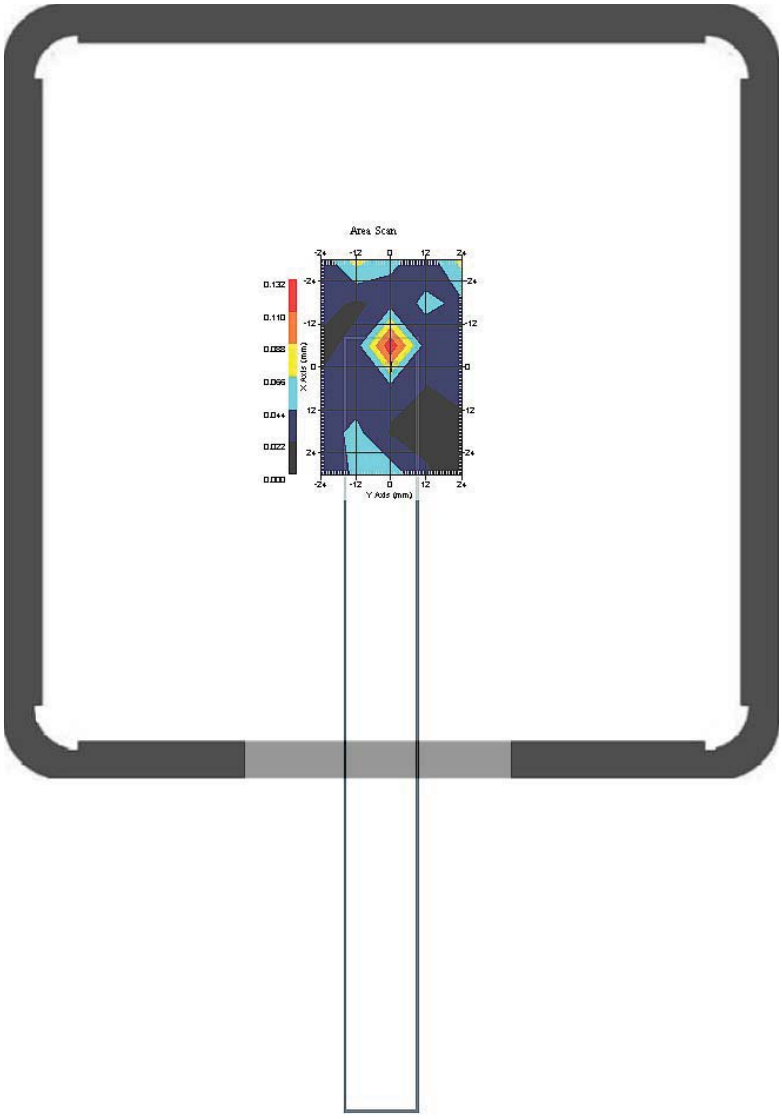

1 gram SAR value : 0.600 W/kg
10 gram SAR value : 0.281 W/kg
Area Scan Peak SAR : 0.664 W/kg
Zoom Scan Peak SAR : 1.241 W/kg

This is previous page plot (zoom in)



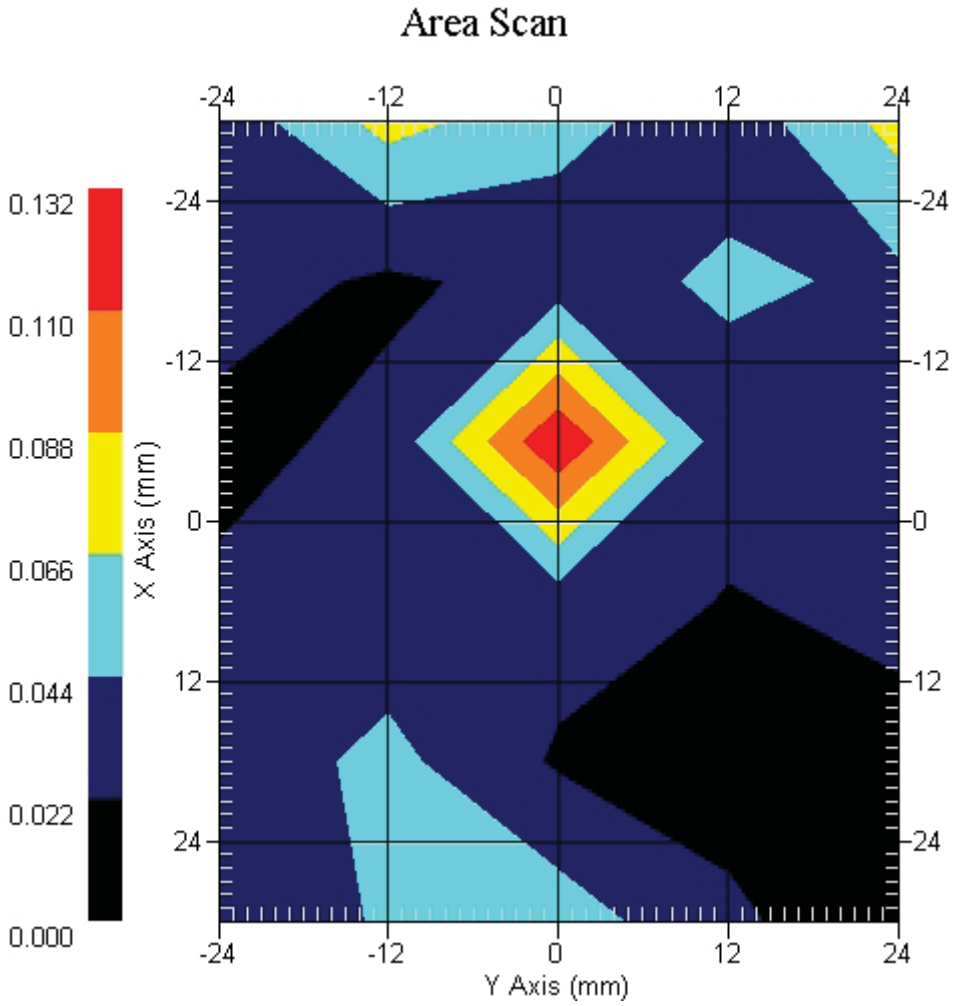
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.50 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.087 W/kg
Power Drift-Finish: 0.087 W/kg
Power Drift (%) : 0.574

DUT Position : Touch EUT Side
Channel : 6



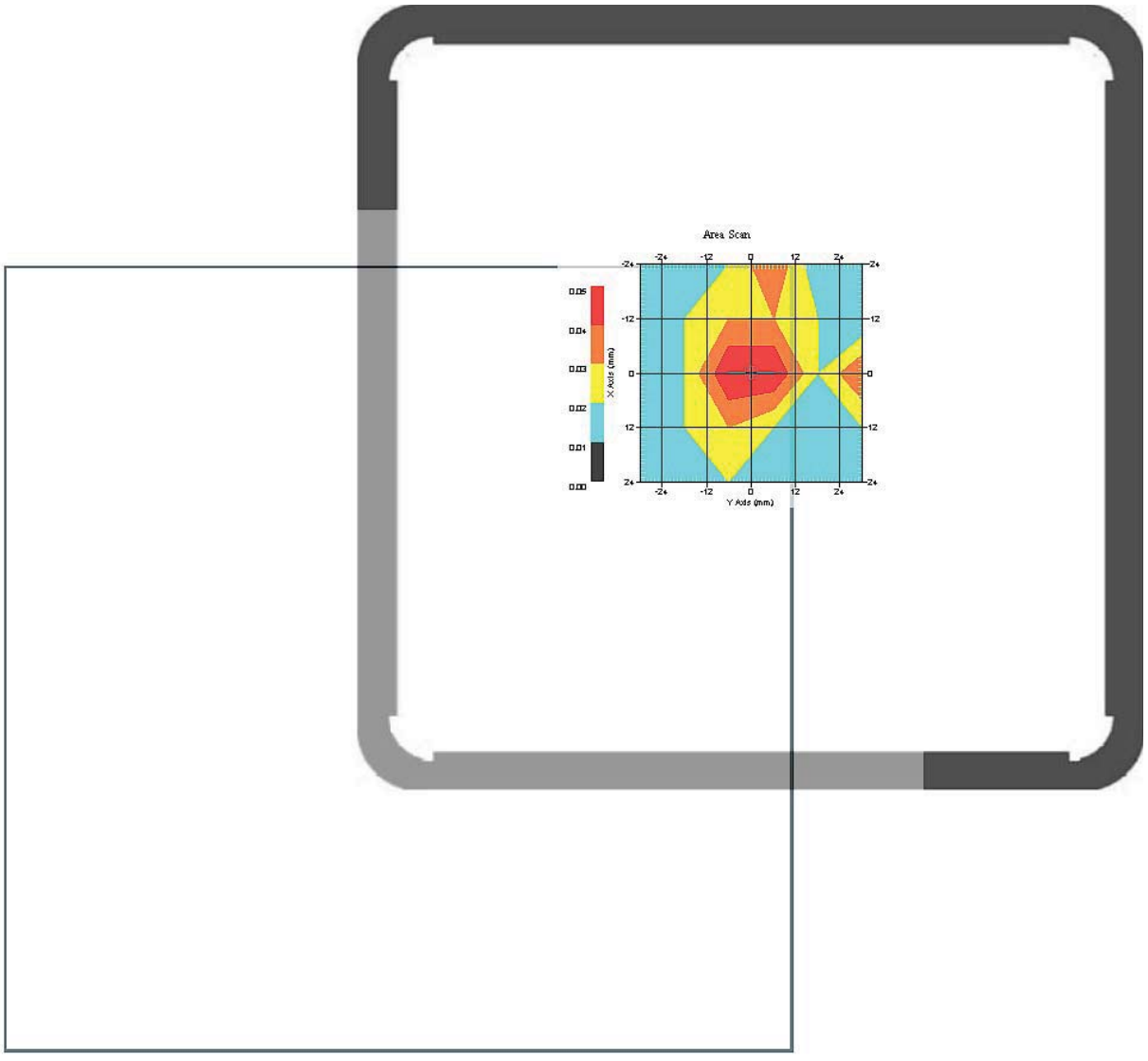

1 gram SAR value : 0.098 W/kg
10 gram SAR value : 0.077 W/kg
Area Scan Peak SAR : 0.130 W/kg
Zoom Scan Peak SAR : 0.140 W/kg

This is previous page plot (zoom in)



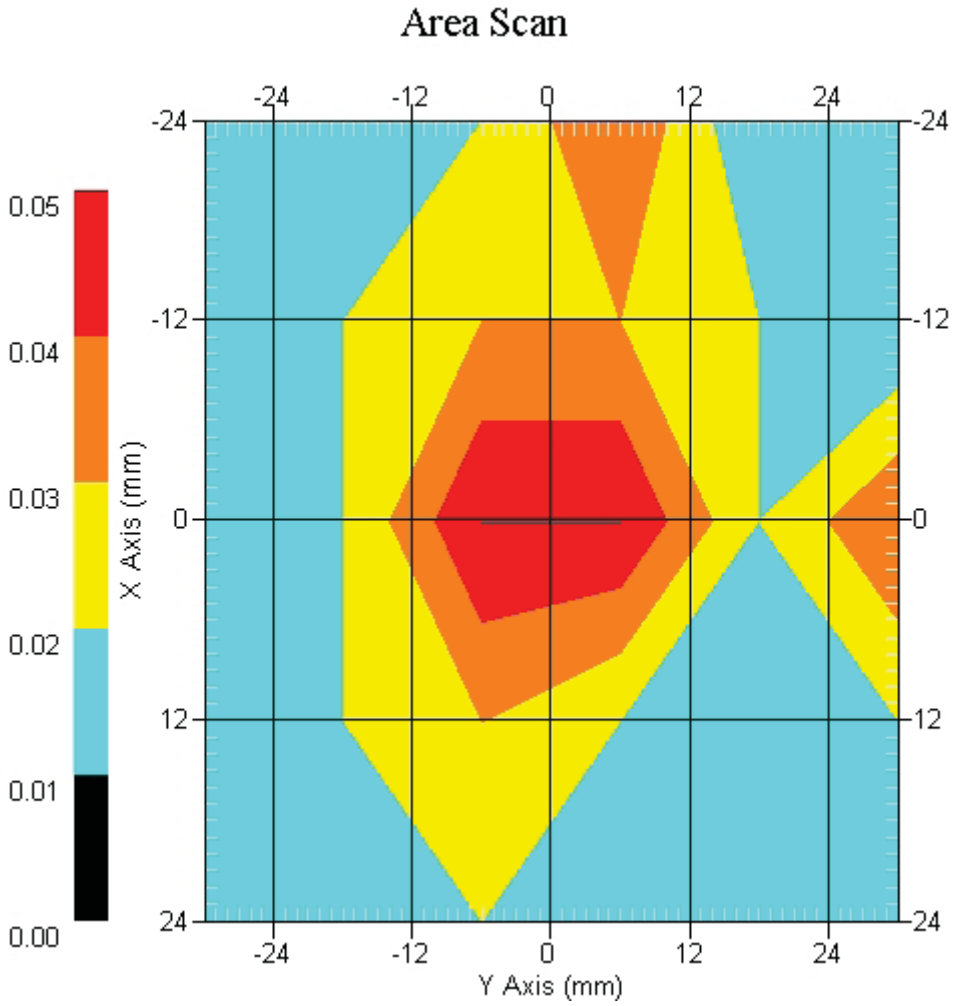
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.50 °C
Area Scan : 5x6x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.046 W/kg
Power Drift-Finish: 0.047 W/kg
Power Drift (%) : 1.785

DUT Position : Touch EUT Back
Channel : 6




1 gram SAR value : 0.051 W/kg
10 gram SAR value : 0.042 W/kg
Area Scan Peak SAR : 0.056 W/kg
Zoom Scan Peak SAR : 0.095 W/kg

This is previous page plot (zoom in)



ALSAS-10U VER 2.3.6 APREL Laboratories
SAR Test Report –802.11g- Tx2 Antenna

Report Date : 18-Feb-2009
Measurement Date : 18-Feb-2009

Product Data
Device Name : Tablet PC
Type : Other
Model : CFT-001
Frequency : 2450.00 MHz
Drift Time : 0 min(s)
Length : 256 mm
Width : 23 mm
Depth : 254 mm
Antenna Type : Internal

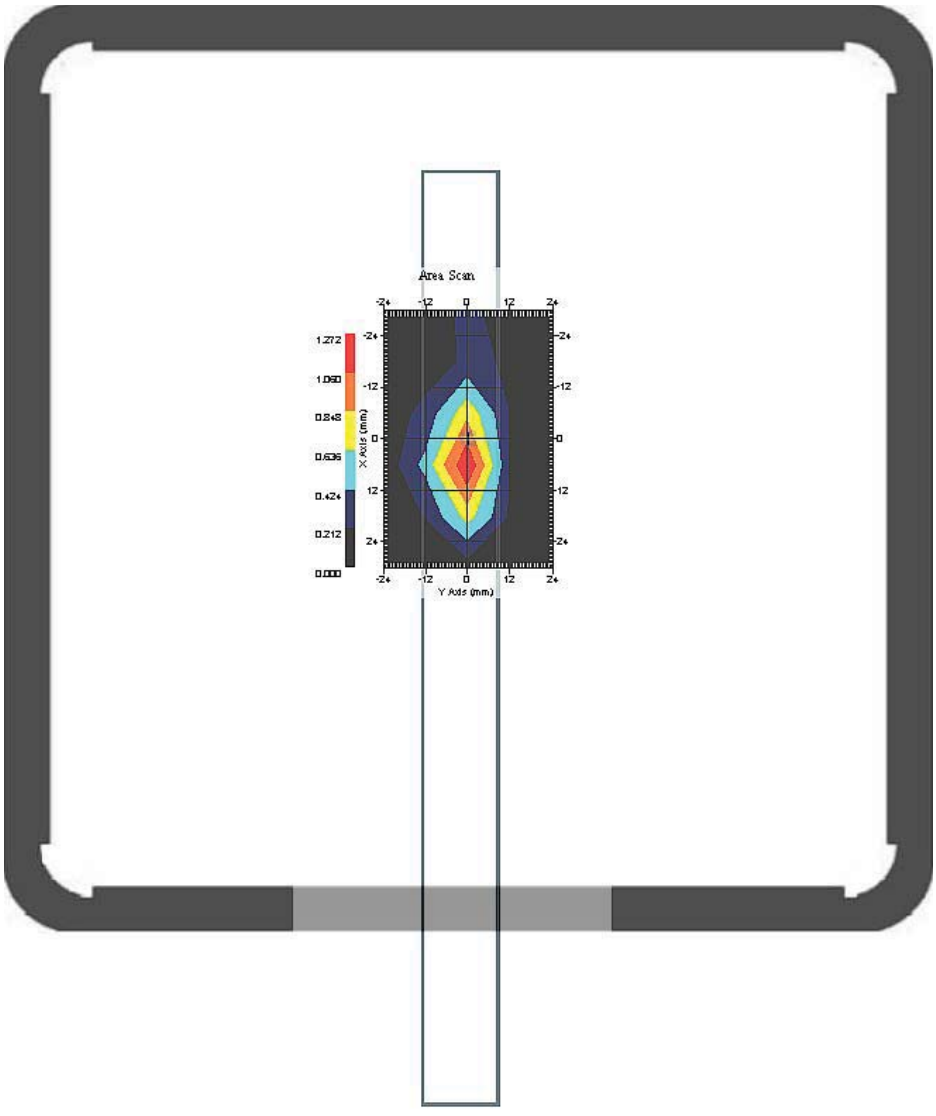
Phantom Data
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Location : Center

Tissue Data
Type : BODY
Serial No. : 325-B
Frequency : 2450.00 MHz
Last Calib. Date : 18-Feb-2009
Temperature : 21.40 °C
Ambient Temp. : 22.50 °C
Humidity : 51.00 RH%
Epsilon : 53.62 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data
Name : Probe 265
Model : E020
Type : E-Field Triangle
Serial No. : 265
Last Calib. Date : 09-May-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 3.55
Probe Sensitivity: 1.20 1.20 1.20 $\mu V/(V/m)^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

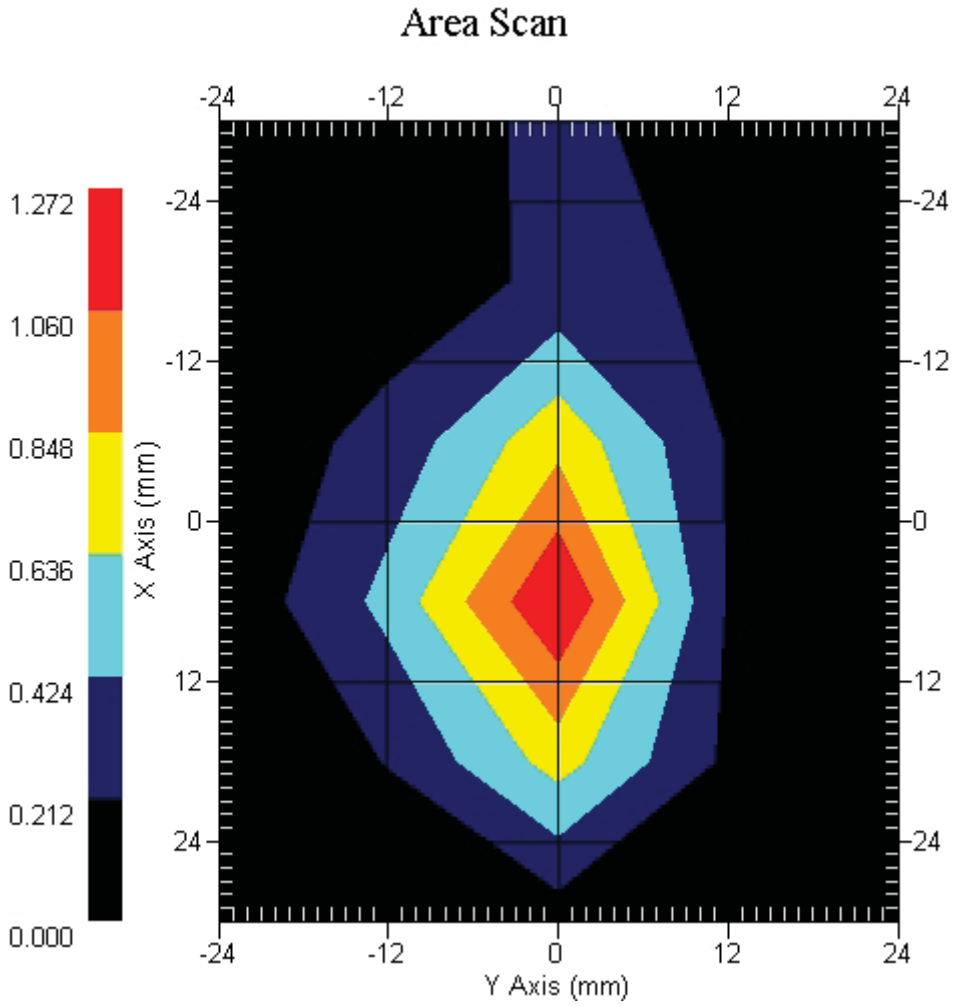
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.50 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 1.246 W/kg
Power Drift-Finish: 1.252 W/kg
Power Drift (%) : 0.500

DUT Position : Touch EUT Top
Channel : 6



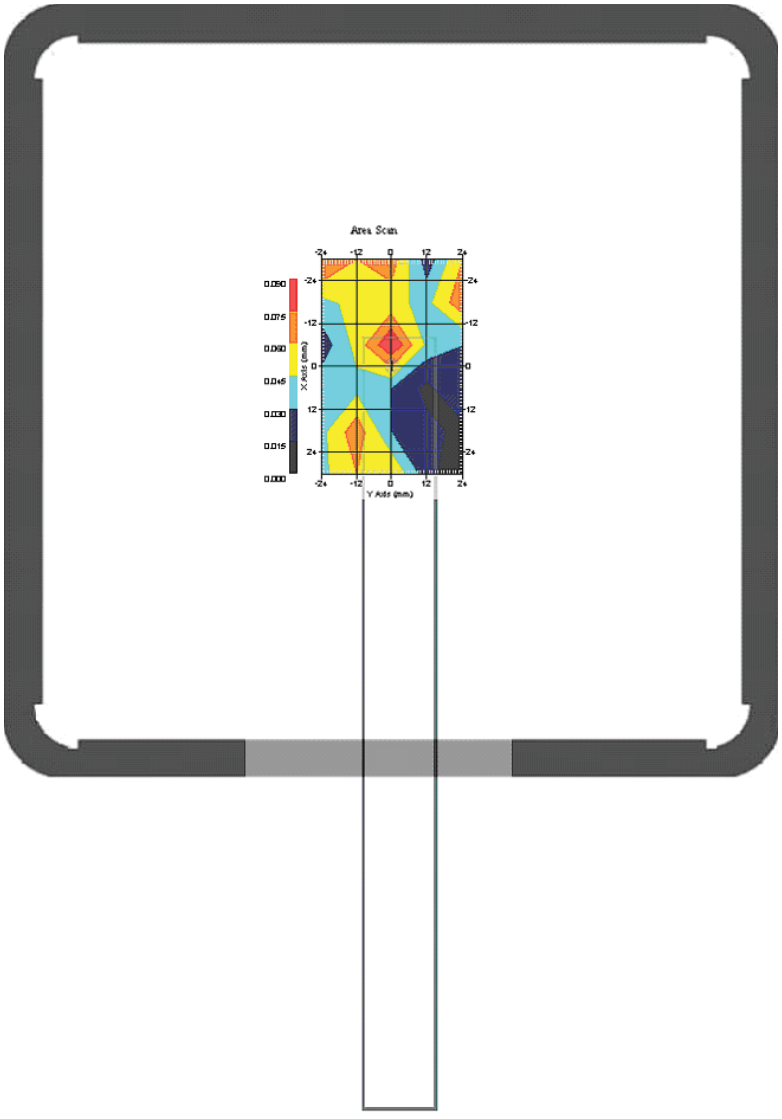

1 gram SAR value : 1.081 W/kg
10 gram SAR value : 0.484 W/kg
Area Scan Peak SAR : 1.270 W/kg
Zoom Scan Peak SAR : 2.282 W/kg

This is previous page plot (zoom in)



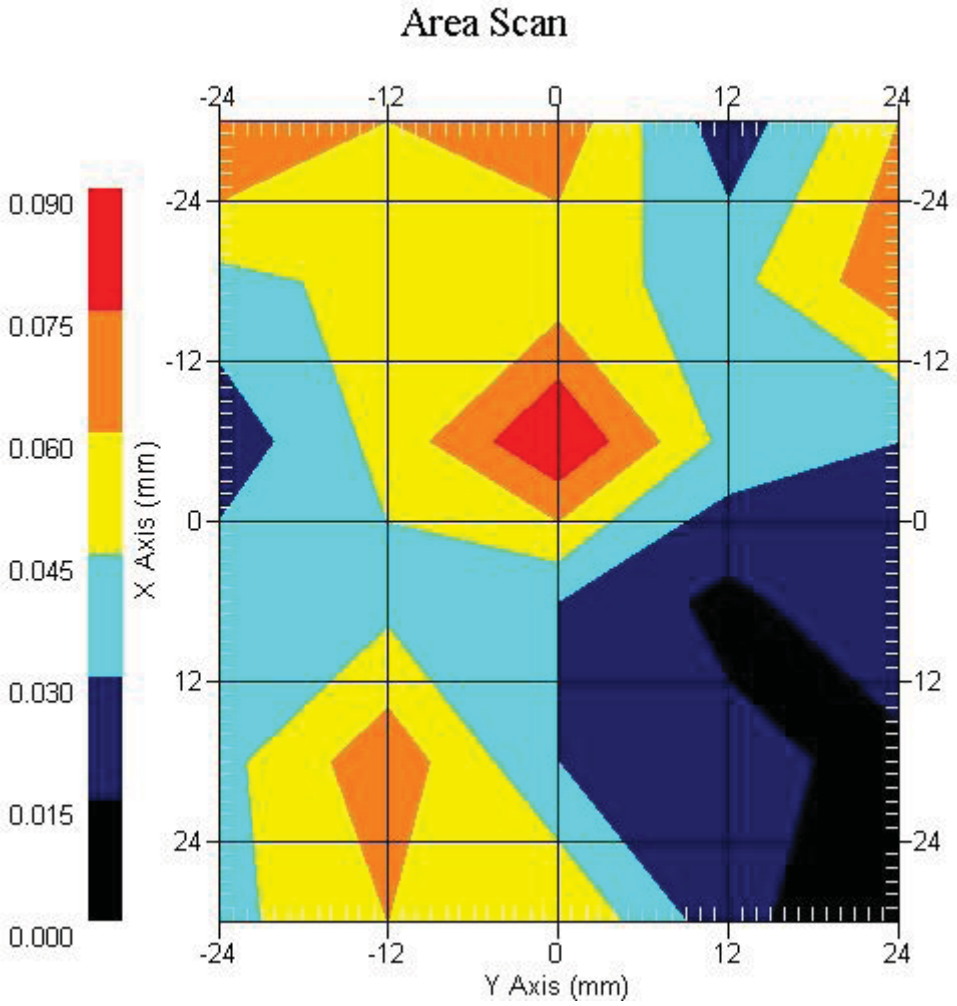
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.50 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.096 W/kg
Power Drift-Finish: 0.099 W/kg
Power Drift (%) : 3.125

DUT Position : Touch EUT Side
Channel : 6



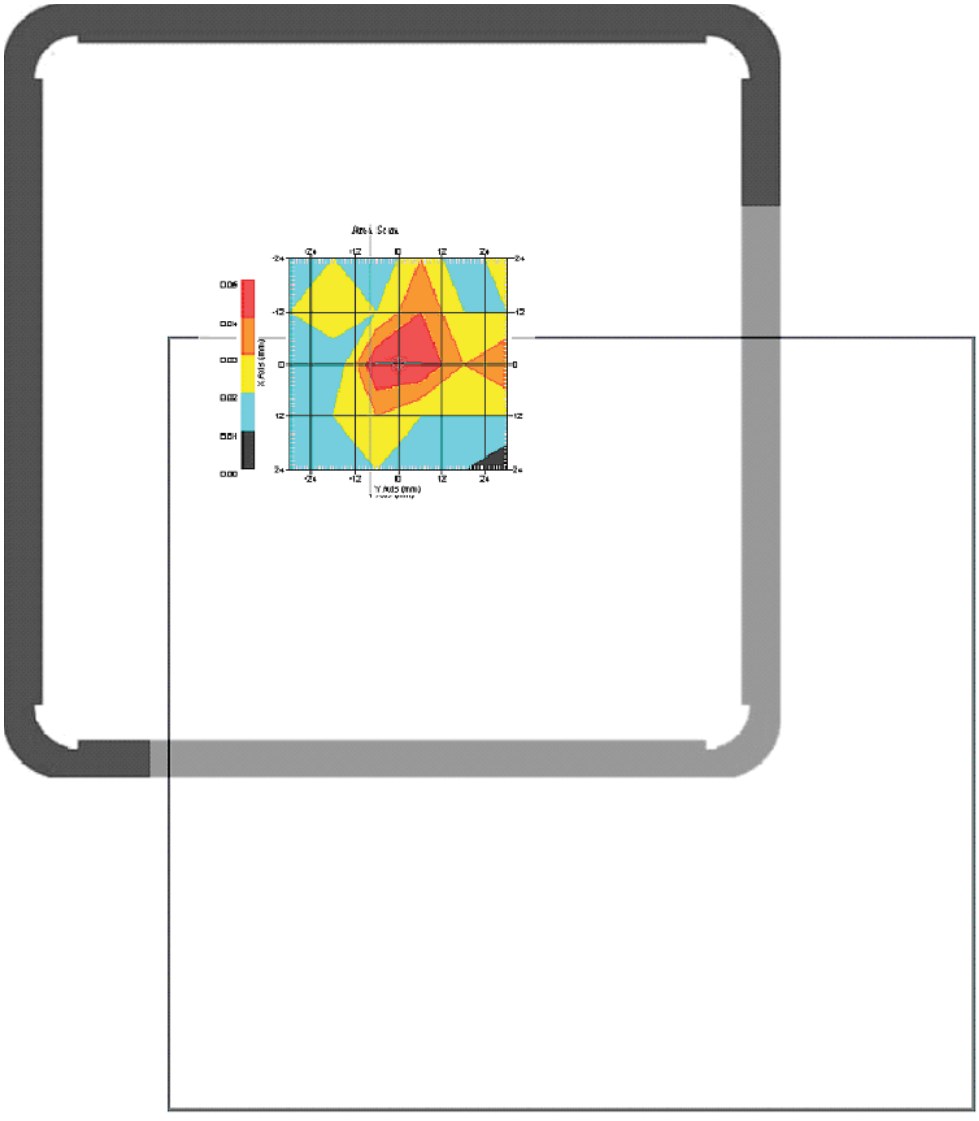

1 gram SAR value : 0.048 W/kg
10 gram SAR value : 0.032 W/kg
Area Scan Peak SAR : 0.090 W/kg
Zoom Scan Peak SAR : 0.060 W/kg

This is previous page plot (zoom in)



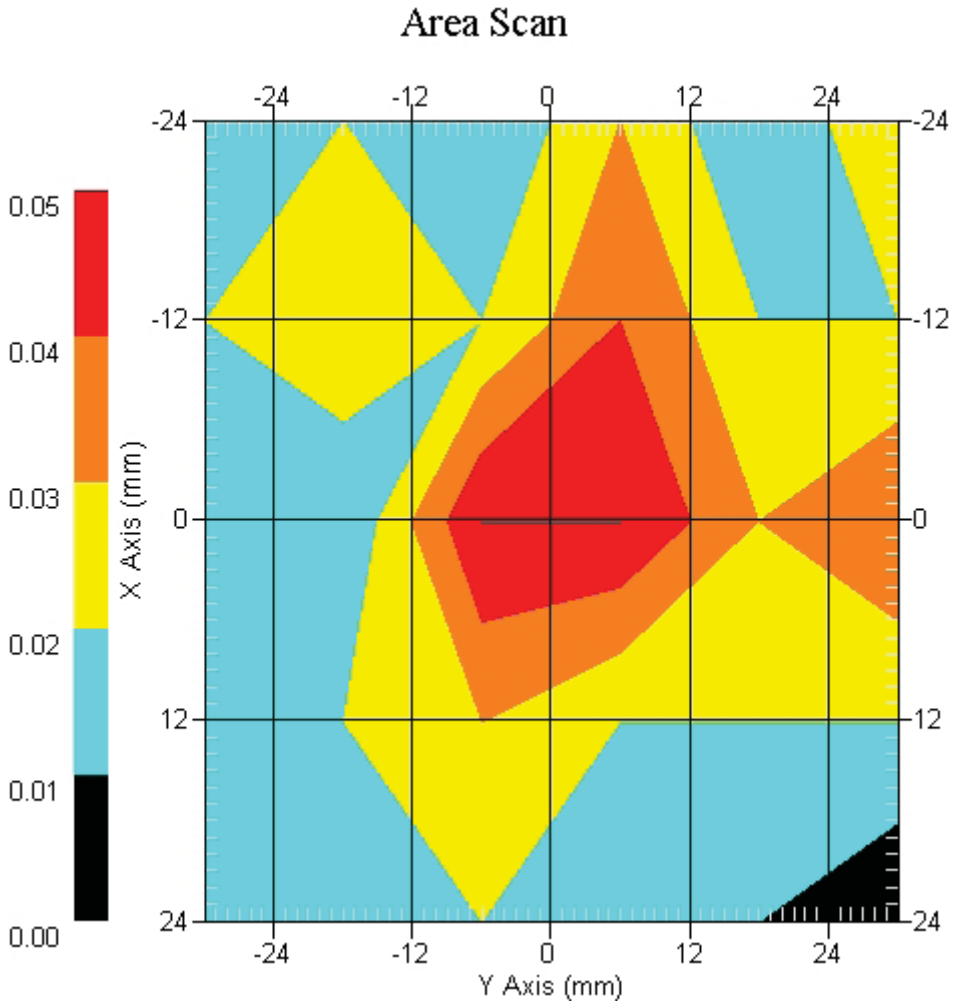
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.50 °C
Area Scan : 5x6x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.064 W/kg
Power Drift-Finish: 0.064 W/kg
Power Drift (%) : 0.383

DUT Position : Touch EUT Back
Channel : 6



1 gram SAR value : 0.047 W/kg
10 gram SAR value : 0.042 W/kg
Area Scan Peak SAR : 0.050 W/kg
Zoom Scan Peak SAR : 0.070 W/kg

This is previous page plot (zoom in)



ALSAS-10U VER 2.3.6 APREL Laboratories
SAR Test Report –802.11g- Tx2 Antenna

Report Date : 18-Feb-2009
Measurement Date : 18-Feb-2009

Product Data
Device Name : Tablet PC
Type : Other
Model : CFT-001
Frequency : 2450.00 MHz
Drift Time : 0 min(s)
Length : 256 mm
Width : 23 mm
Depth : 254 mm
Antenna Type : Internal

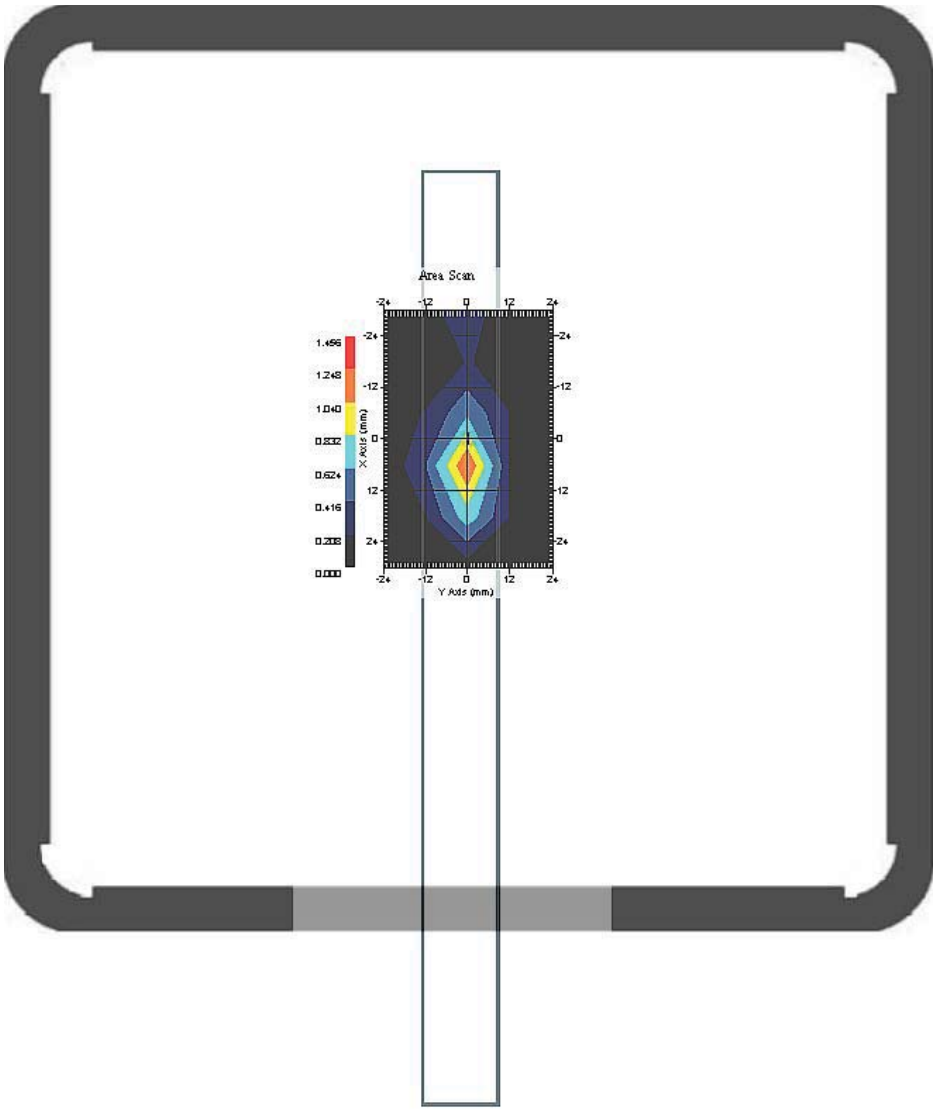
Phantom Data
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Location : Center

Tissue Data
Type : BODY
Serial No. : 325-B
Frequency : 2450.00 MHz
Last Calib. Date : 18-Feb-2009
Temperature : 21.40 °C
Ambient Temp. : 22.50 °C
Humidity : 51.00 RH%
Epsilon : 53.62 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data
Name : Probe 265
Model : E020
Type : E-Field Triangle
Serial No. : 265
Last Calib. Date : 09-May-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 3.55
Probe Sensitivity: 1.20 1.20 1.20 $\mu V/(V/m)^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

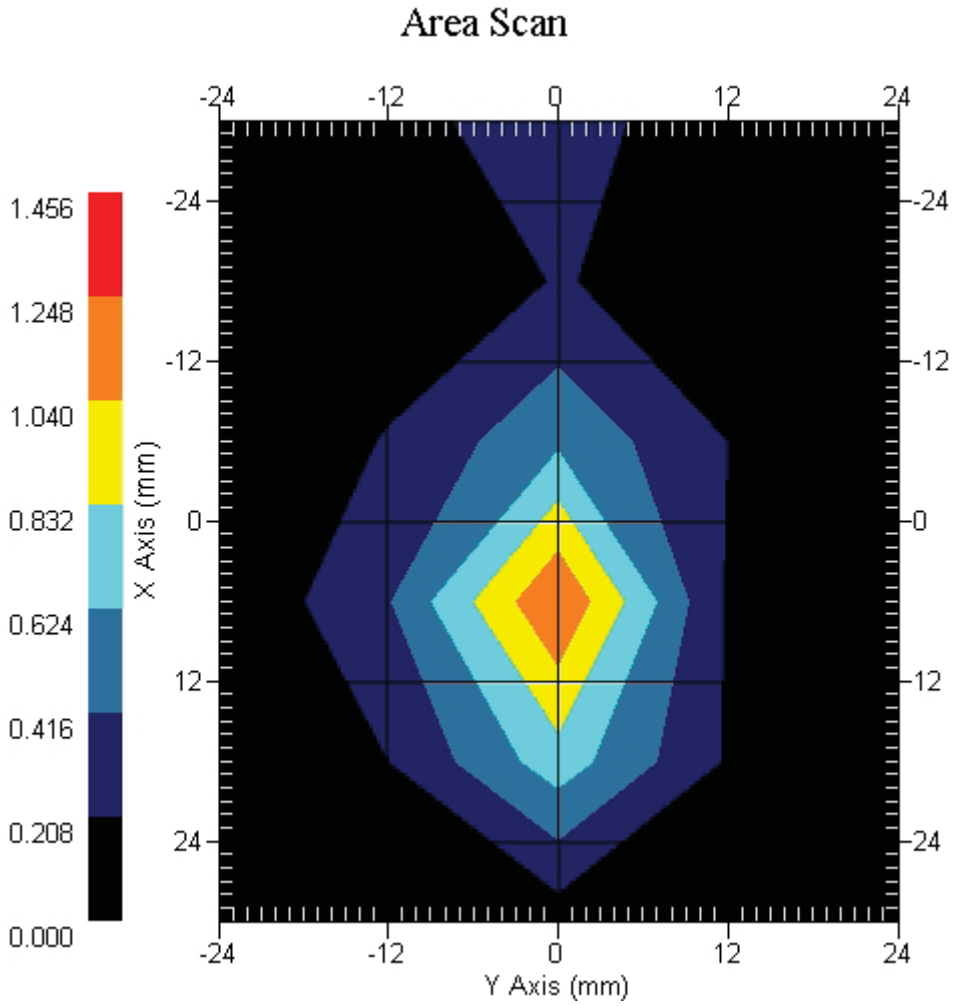
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.50 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 1.115 W/kg
Power Drift-Finish: 1.124 W/kg
Power Drift (%) : 0.812

DUT Position : Touch EUT Top
Channel : 1



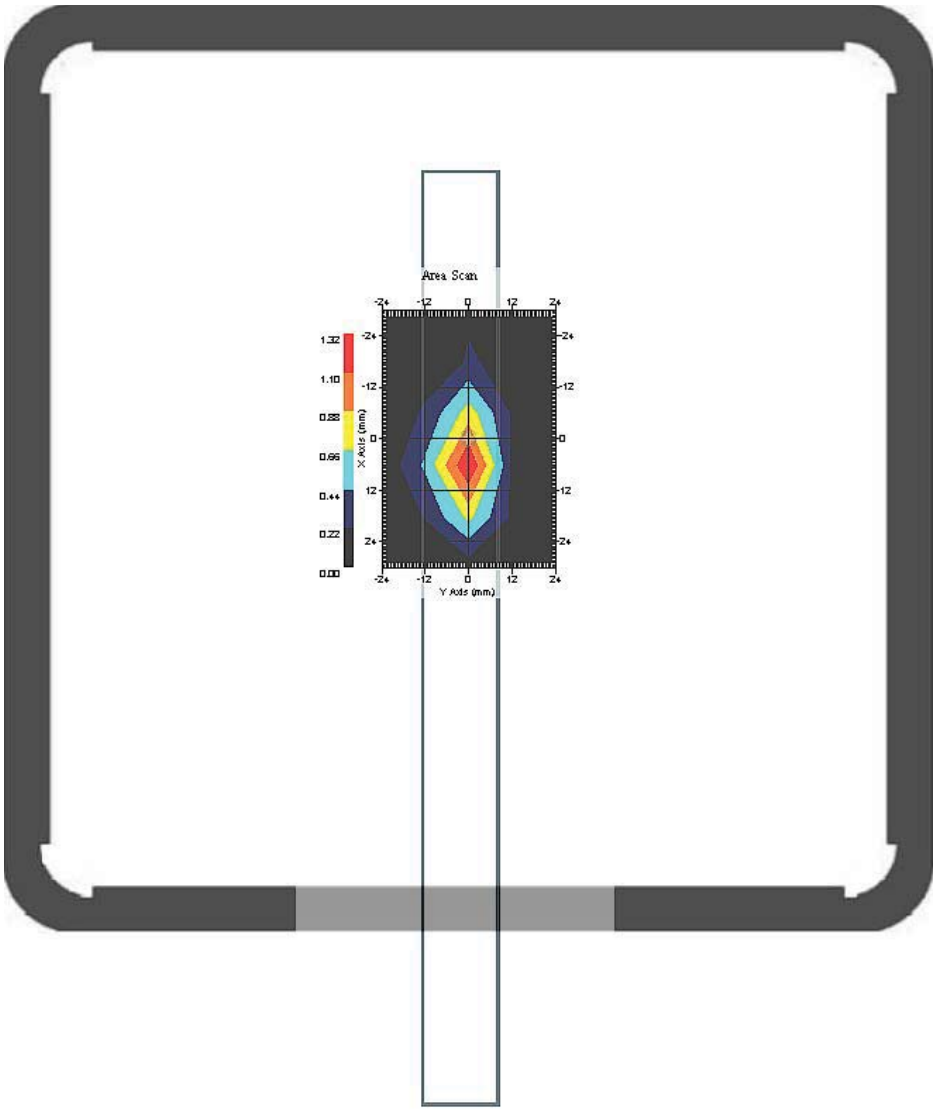

1 gram SAR value : 1.042 W/kg
10 gram SAR value : 0.459 W/kg
Area Scan Peak SAR : 1.249 W/kg
Zoom Scan Peak SAR : 2.261 W/kg

This is previous page plot (zoom in)



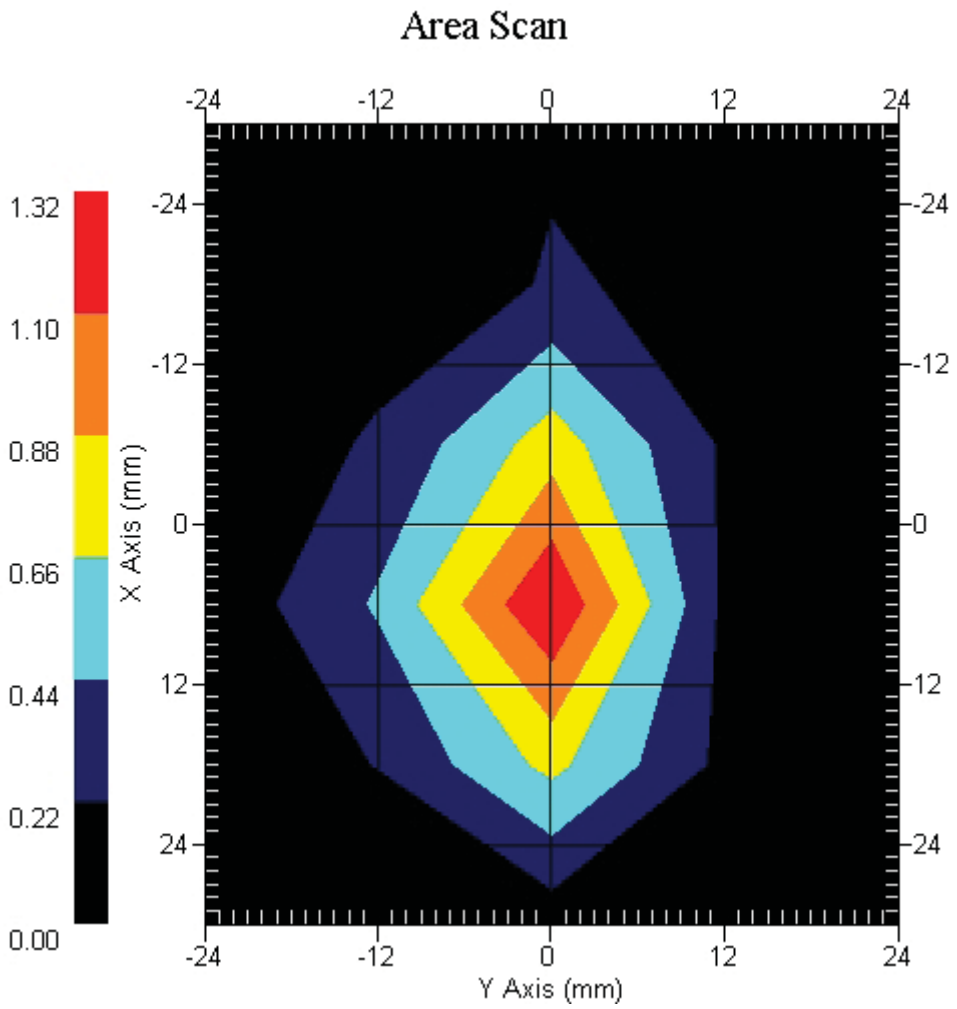
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.50 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 1.285 W/kg
Power Drift-Finish: 1.230 W/kg
Power Drift (%) : -4.266

DUT Position : Touch EUT Top
Channel : 11




1 gram SAR value : 1.067 W/kg
10 gram SAR value : 0.465 W/kg
Area Scan Peak SAR : 1.317 W/kg
Zoom Scan Peak SAR : 2.322 W/kg

This is previous page plot (zoom in)



ALSAS-10U VER 2.3.6 APREL Laboratories
SAR Test Report –802.11b- Tx2 Antenna

Report Date : 18-Feb-2009
Measurement Date : 18-Feb-2009

Product Data
Device Name : Tablet PC
Type : Other
Model : CFF001
Frequency : 2450.00 MHz
Drift Time : 0 min(s)
Length : 256 mm
Width : 26 mm
Depth : 254 mm
Antenna Type : Internal

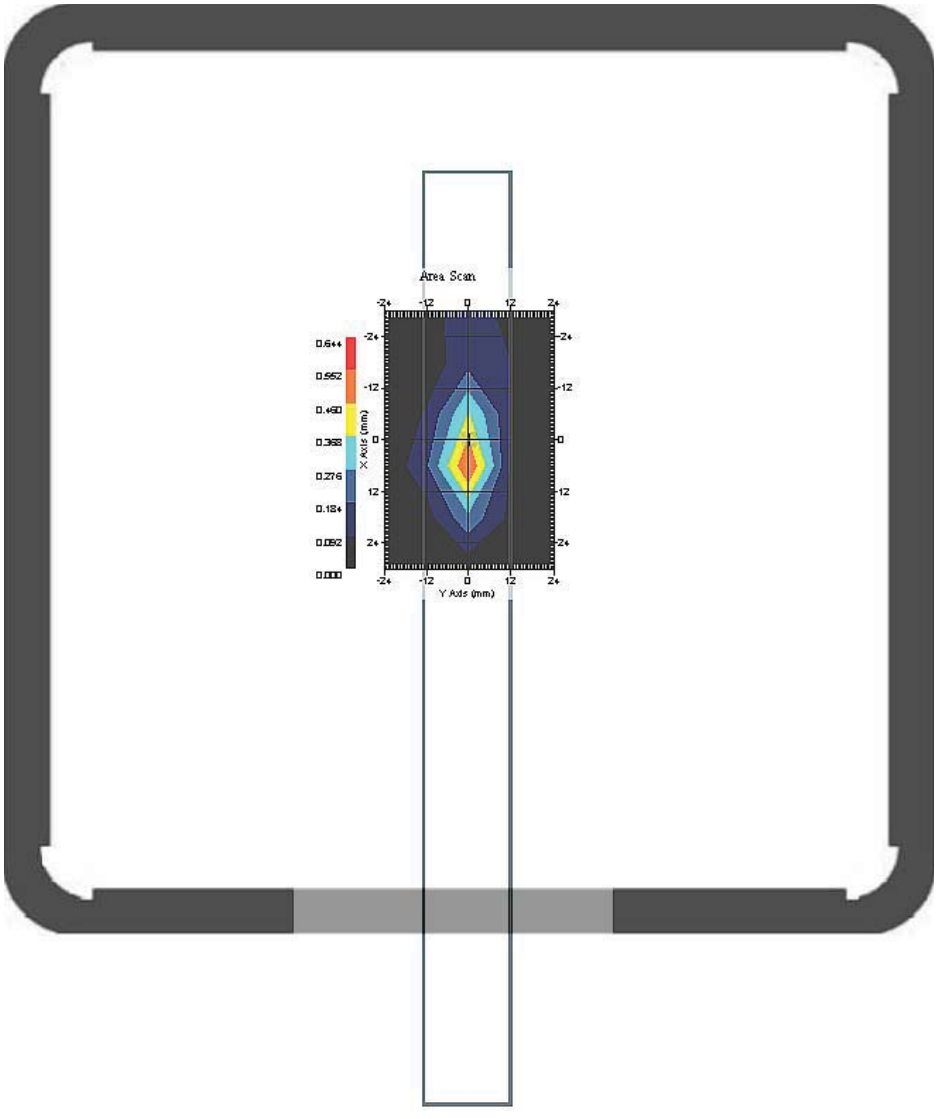
Phantom Data
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Location : Center

Tissue Data
Type : BODY
Serial No. : 325-B
Frequency : 2450.00 MHz
Last Calib. Date : 18-Feb-2009
Temperature : 21.40 °C
Ambient Temp. : 22.50 °C
Humidity : 51.00 RH%
Epsilon : 53.62 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data
Name : Probe 265
Model : E020
Type : E-Field Triangle
Serial No. : 265
Last Calib. Date : 09-May-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 3.55
Probe Sensitivity: 1.20 1.20 1.20 $\mu V/(V/m)^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

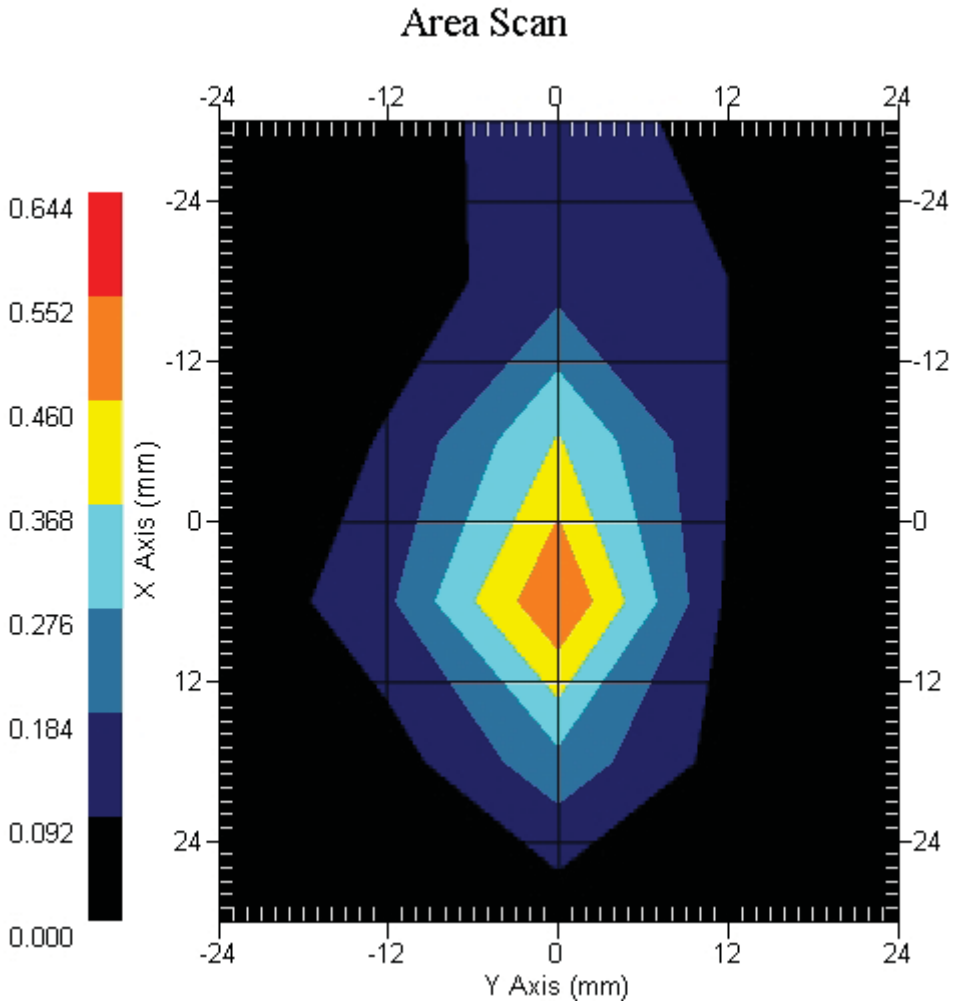
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.50 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.607 W/kg
Power Drift-Finish: 0.618 W/kg
Power Drift (%) : 1.863

DUT Position : Touch EUT Top
Channel : 6




1 gram SAR value : 0.457 W/kg
10 gram SAR value : 0.207 W/kg
Area Scan Peak SAR : 0.554 W/kg
Zoom Scan Peak SAR : 0.850 W/kg

This is previous page plot (zoom in)



ALSAS-10U VER 2.3.6 APREL Laboratories
SAR Test Report –802.11n(20M) - Tx2 Antenna

Report Date : 18-Feb-2009
Measurement Date : 18-Feb-2009

Product Data
Device Name : Tablet PC
Type : Other
Model : CFT-001
Frequency : 2450.00 MHz
Drift Time : 0 min(s)
Length : 256 mm
Width : 23 mm
Depth : 254 mm
Antenna Type : Internal

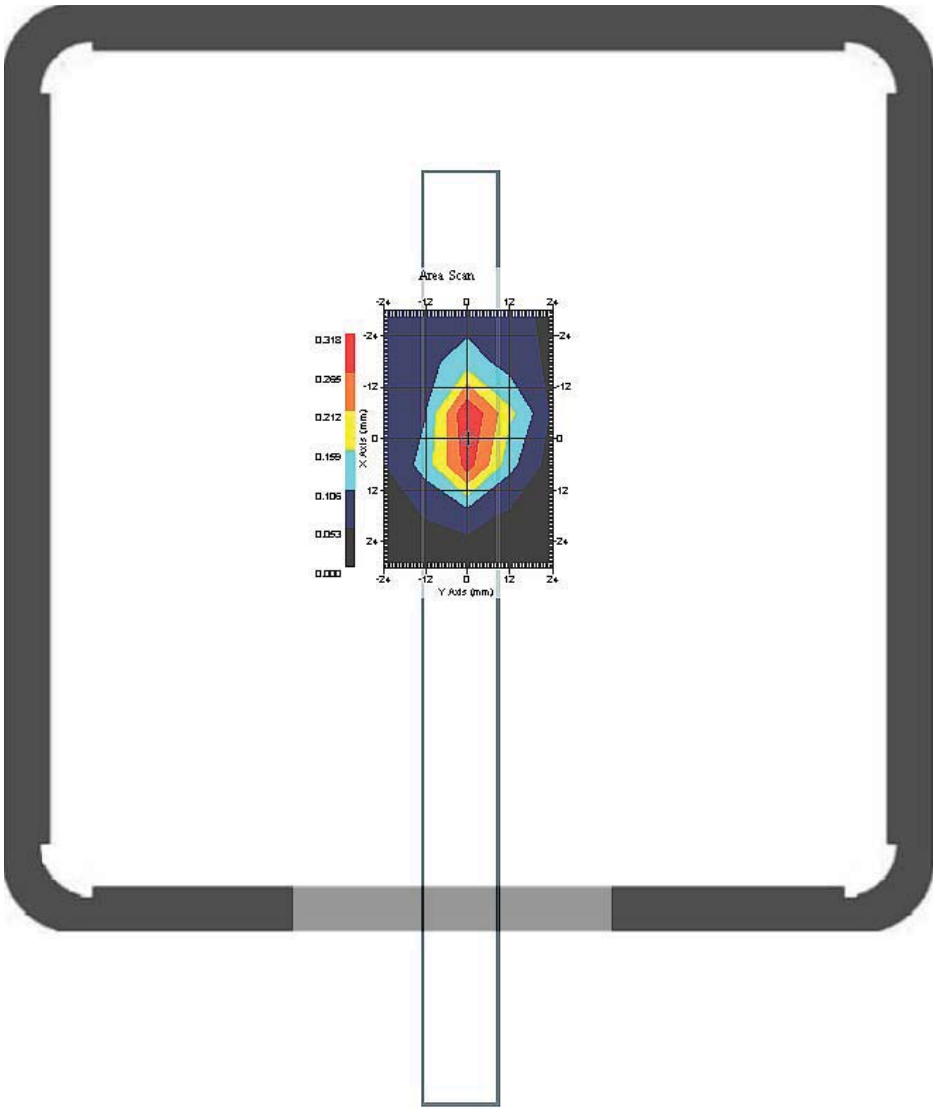
Phantom Data
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Location : Center

Tissue Data
Type : BODY
Serial No. : 325-B
Frequency : 2450.00 MHz
Last Calib. Date : 18-Feb-2009
Temperature : 21.40 °C
Ambient Temp. : 22.50 °C
Humidity : 51.00 RH%
Epsilon : 53.62 F/m
Sigma : 1.96 S/m
Density : 1000.00 kg/cu. m

Probe Data
Name : Probe 265
Model : E020
Type : E-Field Triangle
Serial No. : 265
Last Calib. Date : 09-May-2008
Frequency : 2450.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 3.55
Probe Sensitivity: 1.20 1.20 1.20 $\mu V/(V/m)^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

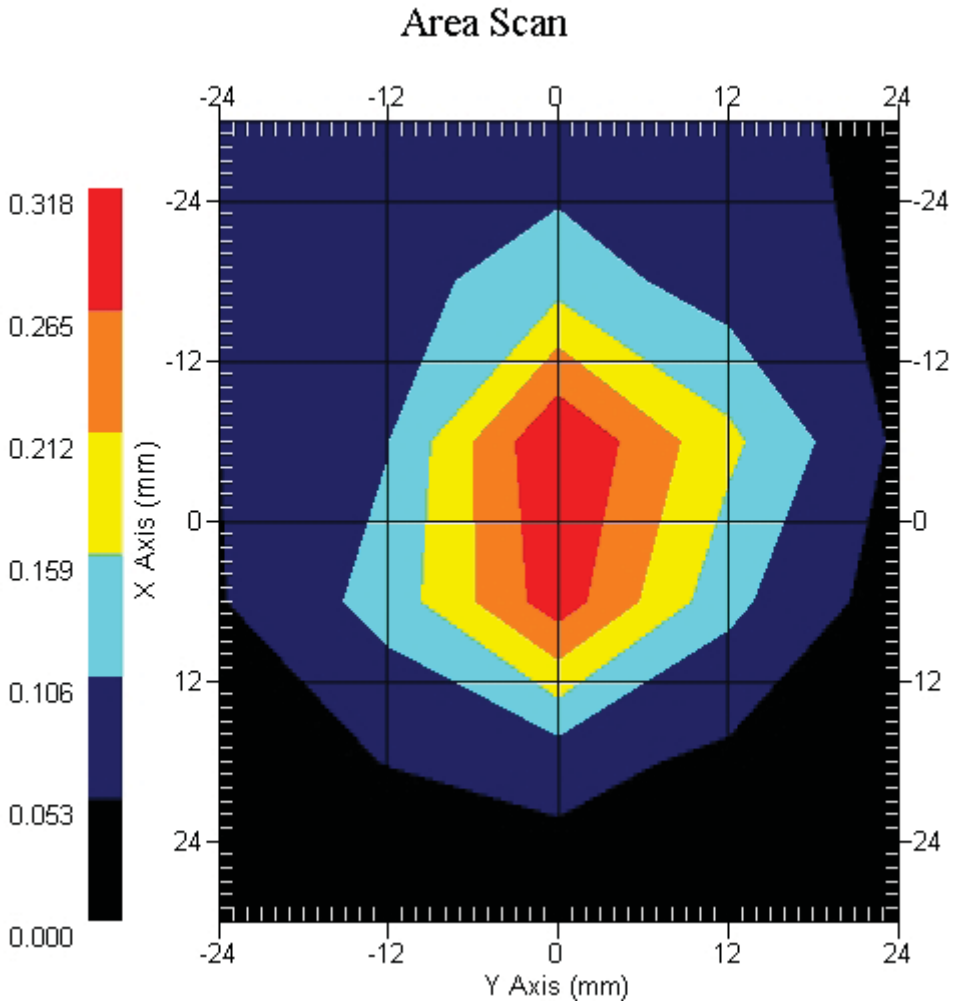
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.50 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.383 W/kg
Power Drift-Finish: 0.375 W/kg
Power Drift (%) : -1.975

DUT Position : Touch EUT Top
Channel : 6

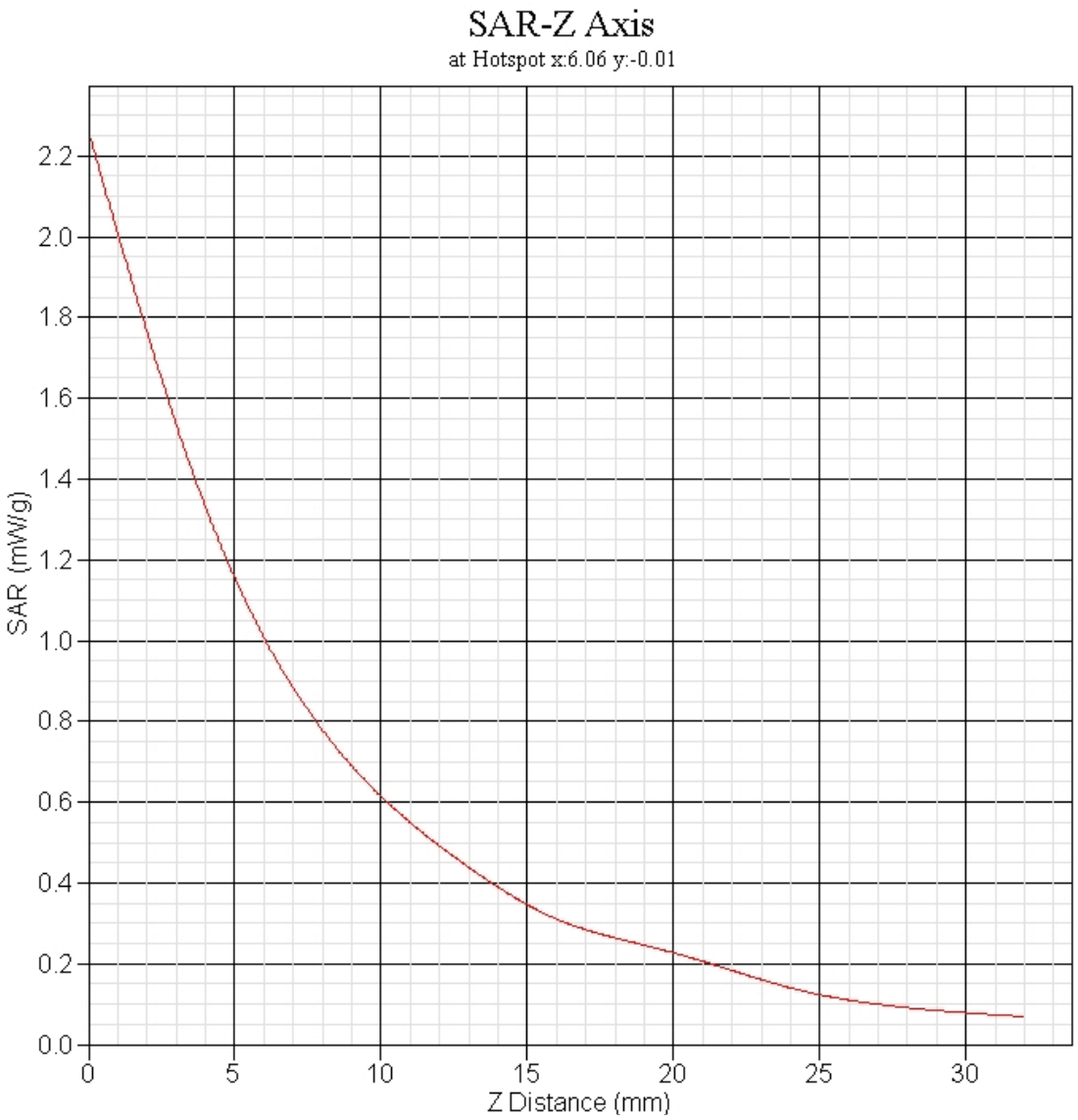



1 gram SAR value : 0.297 W/kg
10 gram SAR value : 0.153 W/kg
Area Scan Peak SAR : 0.317 W/kg
Zoom Scan Peak SAR : 0.580 W/kg

This is previous page plot (zoom in)



**802.11g- Tx2 Antenna, EUT Top Z-Axis plot**
**Channel: 6**



**SAR measurement Data**

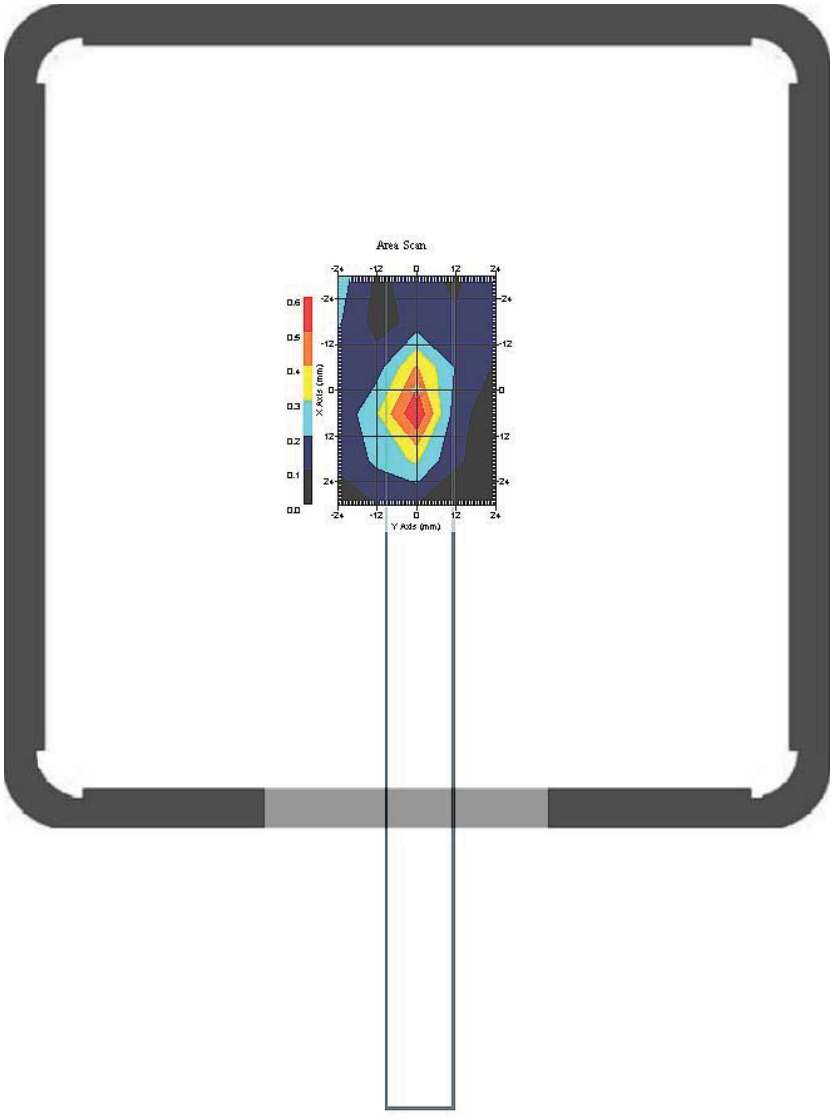
ALSAS-10U VER 2.3.6 APREL Laboratories

SAR Test Report –802.11a, 5200 MHz- Tx1 Antenna

```
Report Date      : 18-Feb-2009
Measurement Date  : 18-Feb-2009

Product Data
Device Name      : Tablet PC
Type            : Other
Model           : CFT-001
Frequency        : 5200.00 MHz
Drift Time       : 0 min(s)
Length          : 256 mm
Width           : 23 mm
Depth           : 254 mm
Antenna Type     : Internal

Phantom Data
Type           : Uni-Phantom
Size (mm)       : 280 x 280 x 200
Location        : Center

Tissue Data
Type           : BODY
Serial No.      : 326-B
Frequency       : 5200.00 MHz
Last Calib. Date : 18-Feb-2009
Temperature     : 21.40 °C
Ambient Temp.    : 22.40 °C
Humidity        : 52.00 RH%
Epsilon         : 49.72 F/m
Sigma           : 5.46 S/m
Density         : 1000.00 kg/cu. m

Probe Data
Name           : Probe 265
Model          : E020
Type           : E-Field Triangle
Serial No.      : 265
Last Calib. Date : 09-May-2008
Frequency       : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.3
Probe Sensitivity: 1.20  1.20  1.20   μV/(V/m)²
Compression Point: 95.00 mV
Offset         : 1.56 mm
```

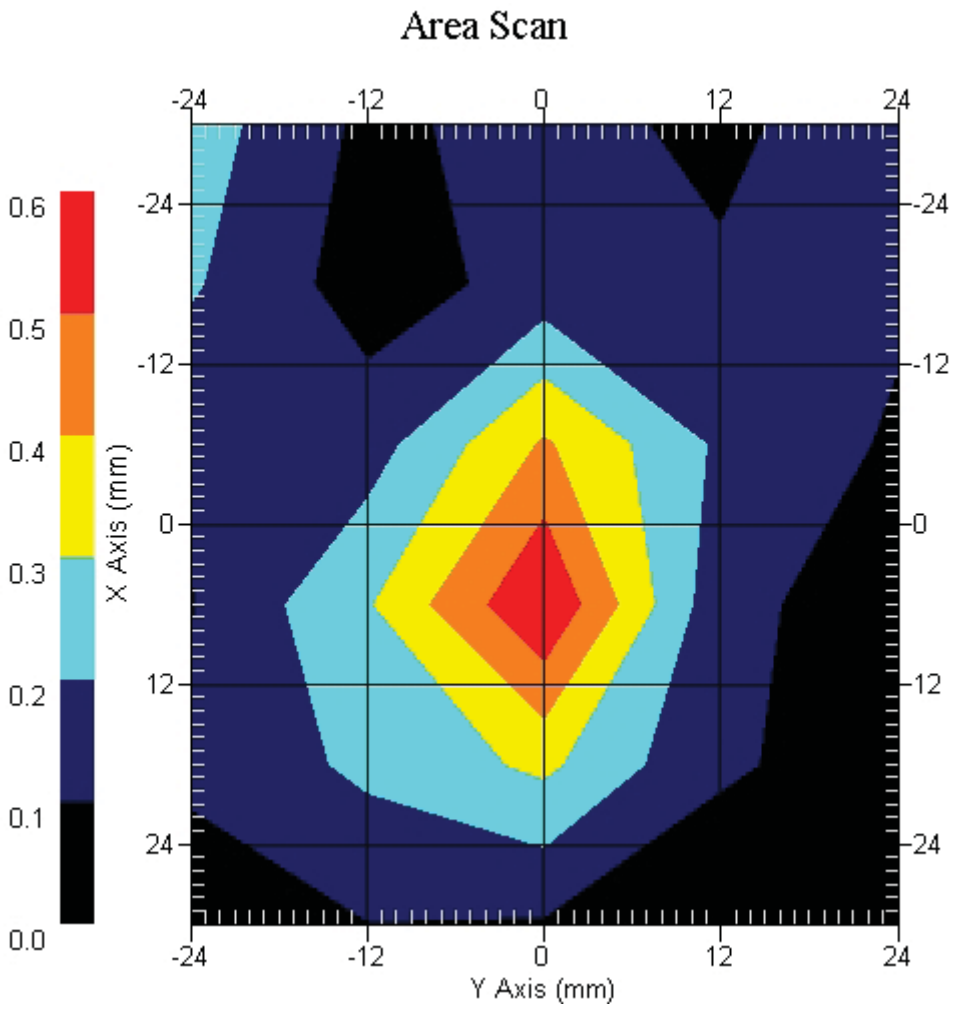
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.40 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.756 W/kg
Power Drift-Finish: 0.758 W/kg
Power Drift (%) : 0.264

DUT Position : Touch EUT Top
Channel : 52



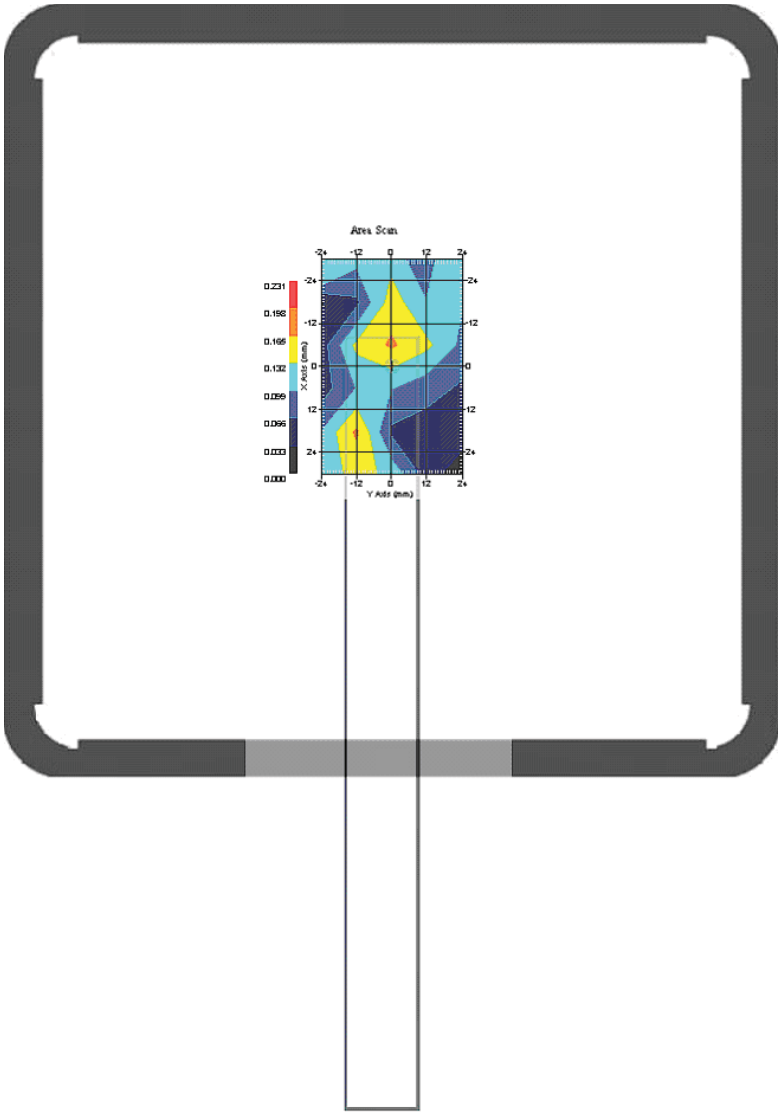

1 gram SAR value : 0.567 W/kg
10 gram SAR value : 0.224 W/kg
Area Scan Peak SAR : 0.599 W/kg
Zoom Scan Peak SAR : 1.591 W/kg

This is previous page plot (zoom in)



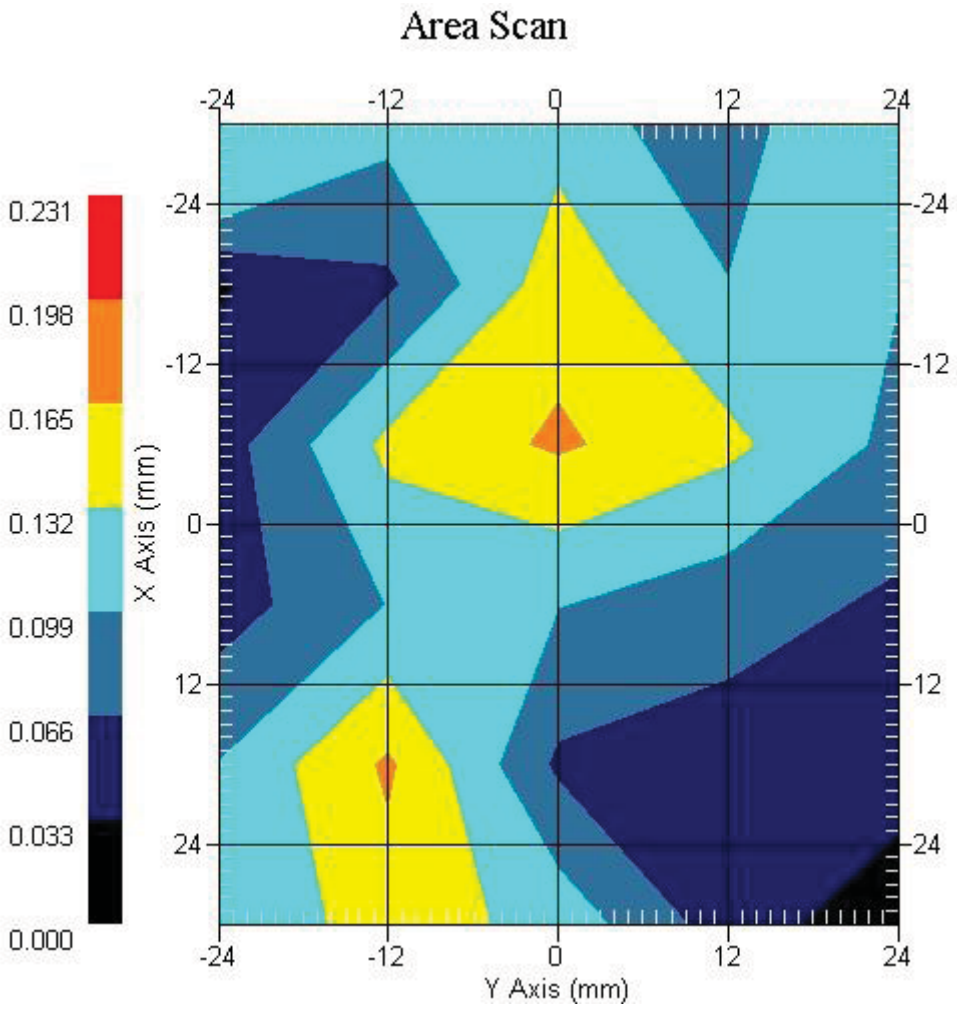
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.40 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.190 W/kg
Power Drift-Finish: 0.194 W/kg
Power Drift (%) : 2.375

DUT Position : Touch EUT Side
Channel : 52



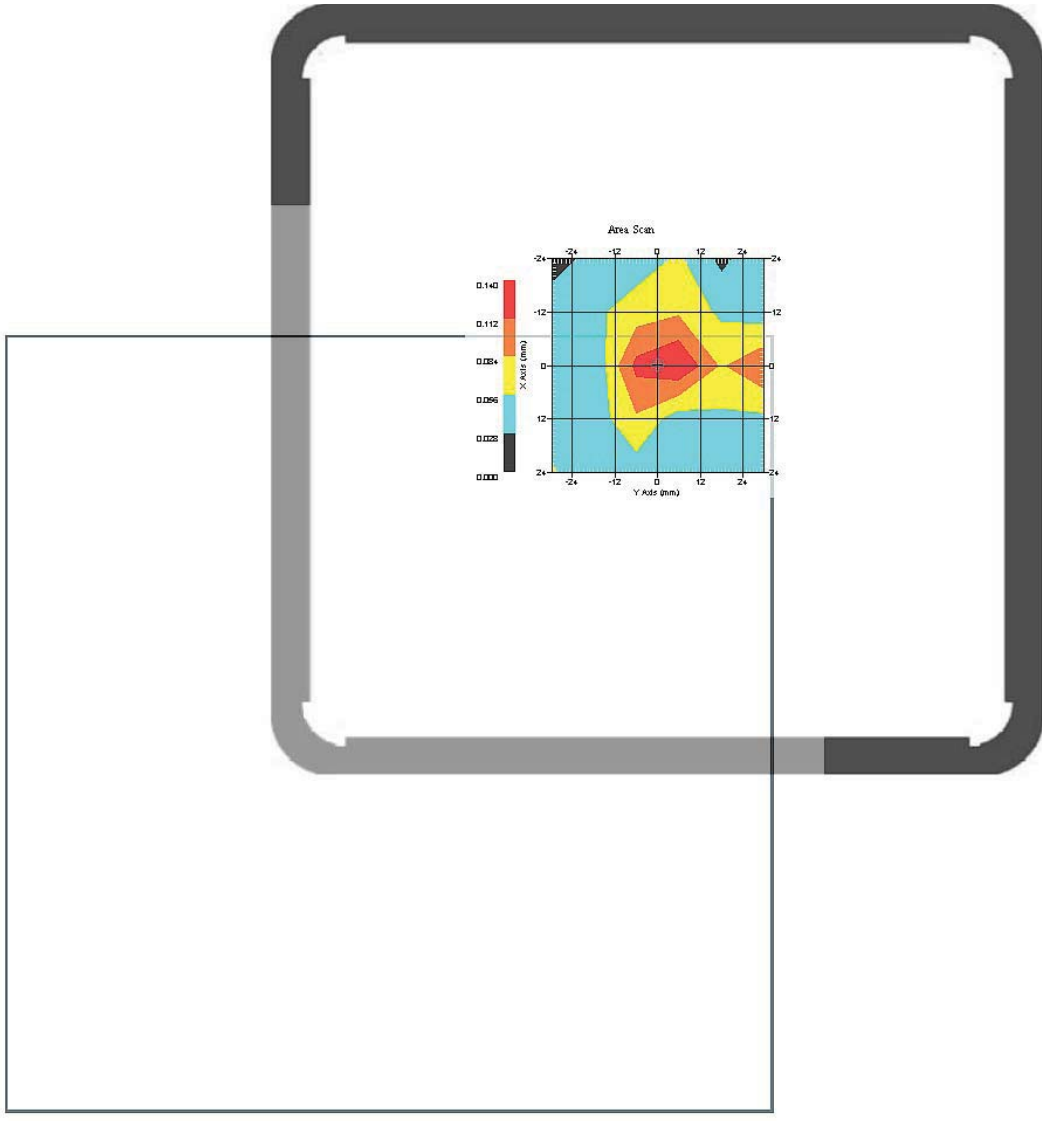

1 gram SAR value : 0.168 W/kg
10 gram SAR value : 0.149 W/kg
Area Scan Peak SAR : 0.200 W/kg
Zoom Scan Peak SAR : 0.270 W/kg

This is previous page plot (zoom in)



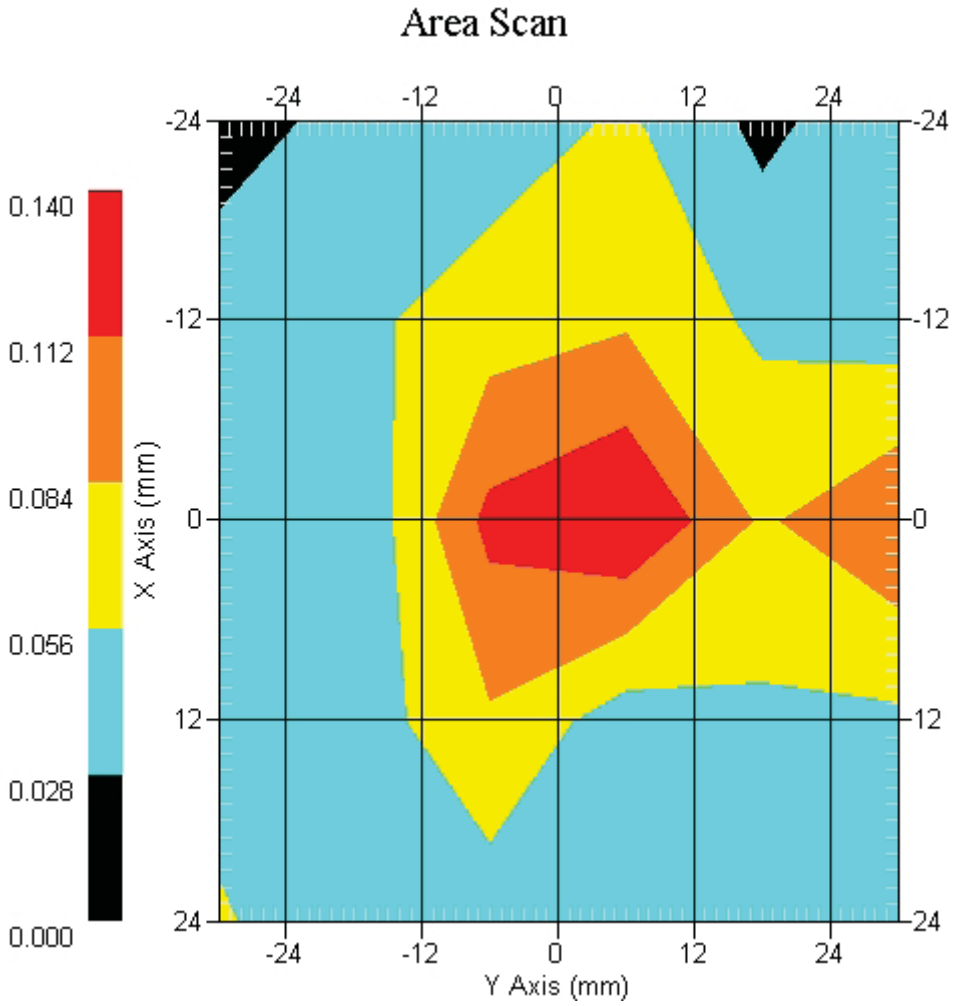
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.40 °C
Area Scan : 5x6x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.123 W/kg
Power Drift-Finish: 0.129 W/kg
Power Drift (%) : 4.595

DUT Position : Touch EUT Back
Channel : 52




1 gram SAR value : 0.117 W/kg
10 gram SAR value : 0.067 W/kg
Area Scan Peak SAR : 0.140 W/kg
Zoom Scan Peak SAR : 0.190 W/kg

This is previous page plot (zoom in)



ALSAS-10U VER 2.3.6 APREL Laboratories
SAR Test Report –802.11a, 5200 MHz- Tx2 Antenna

Report Date : 18-Feb-2009
Measurement Date : 18-Feb-2009

Product Data
Device Name : Tablet PC
Type : Other
Model : CFT-001
Frequency : 5200.00 MHz
Drift Time : 0 min(s)
Length : 256 mm
Width : 23 mm
Depth : 254 mm
Antenna Type : Internal

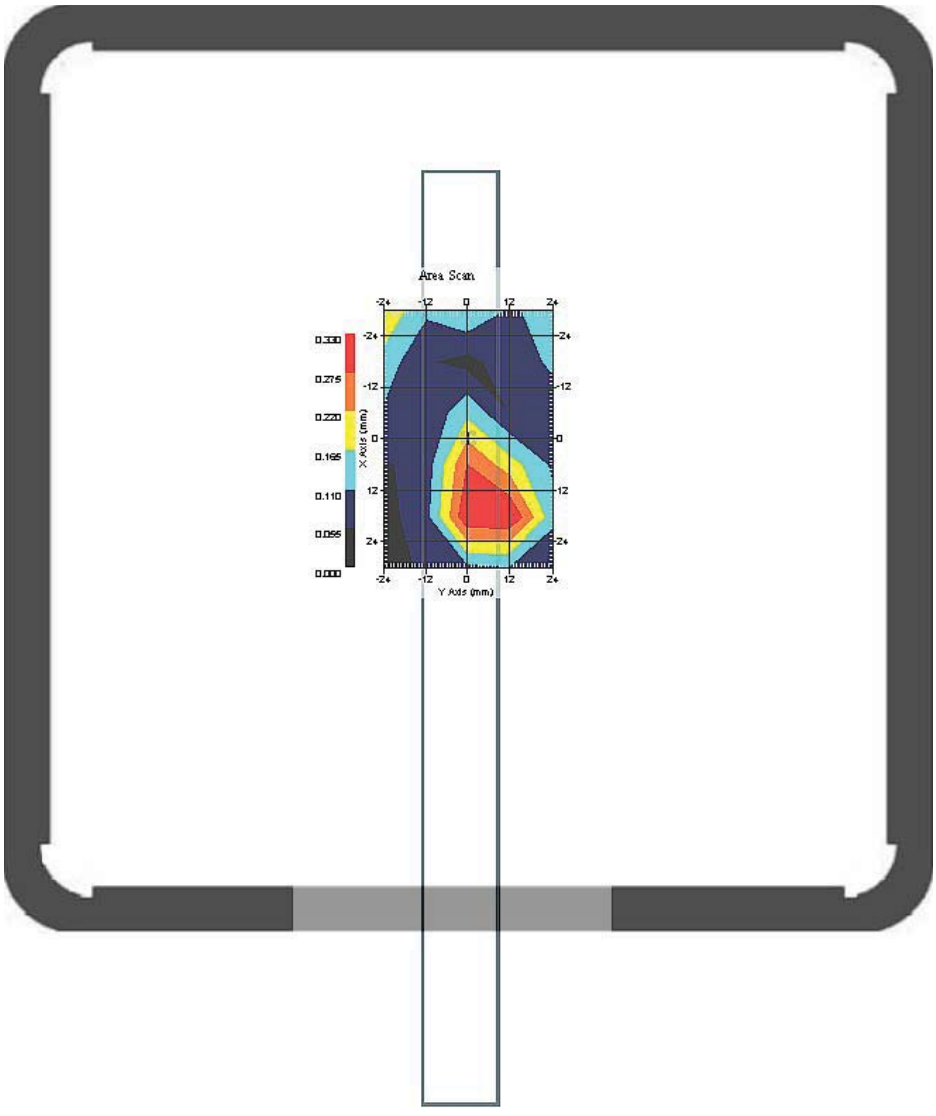
Phantom Data
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Location : Center

Tissue Data
Type : BODY
Serial No. : 326-B
Frequency : 5200.00 MHz
Last Calib. Date : 18-Feb-2009
Temperature : 21.40 °C
Ambient Temp. : 22.40 °C
Humidity : 52.00 RH%
Epsilon : 49.72 F/m
Sigma : 5.46 S/m
Density : 1000.00 kg/cu. m

Probe Data
Name : Probe 265
Model : E020
Type : E-Field Triangle
Serial No. : 265
Last Calib. Date : 09-May-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.3
Probe Sensitivity: 1.20 1.20 1.20 $\mu V/(V/m)^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

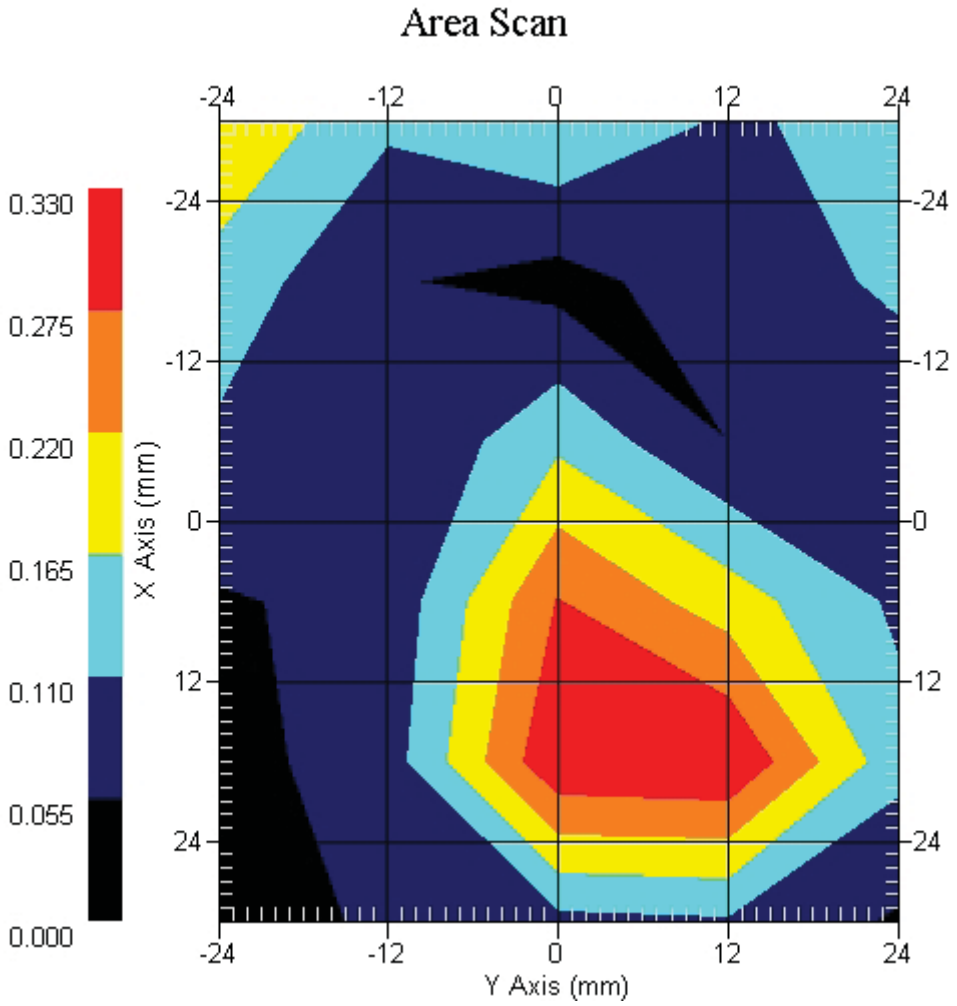
Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.40 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.257 W/kg
Power Drift-Finish: 0.269 W/kg
Power Drift (%) : 4.669

DUT Position : Touch EUT Top
Channel : 52



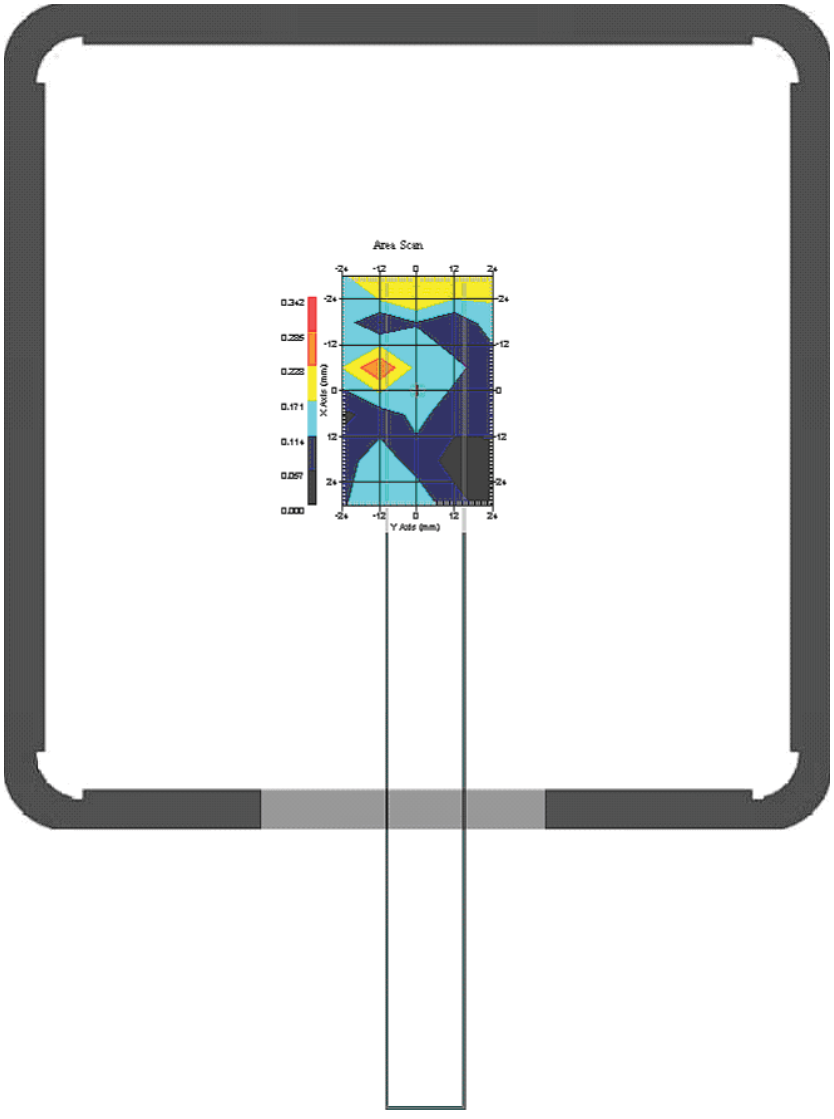

1 gram SAR value : 0.380 W/kg
10 gram SAR value : 0.170 W/kg
Area Scan Peak SAR : 0.329 W/kg
Zoom Scan Peak SAR : 1.030 W/kg

This is previous page plot (zoom in)



Measurement Data
Crest Factor : 1
Tissue Temp. : 21.30 °C
Ambient Temp. : 22.20 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.201 W/kg
Power Drift-Finish: 0.202 W/kg
Power Drift (%) : -0.407

DUT Position : Touch EUT Side
Channel : 52




1 gram SAR value : 0.288 W/kg
10 gram SAR value : 0.248 W/kg
Area Scan Peak SAR : 0.310 W/kg
Zoom Scan Peak SAR : 0.360 W/kg

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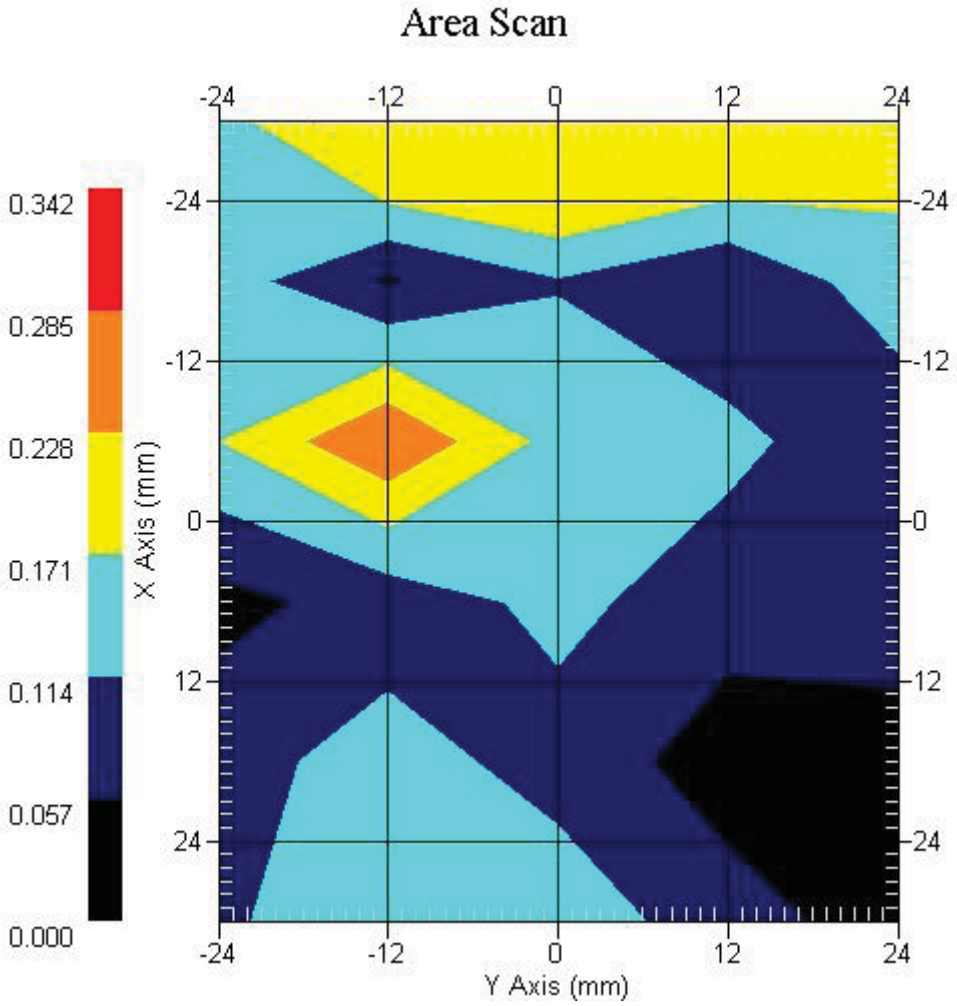
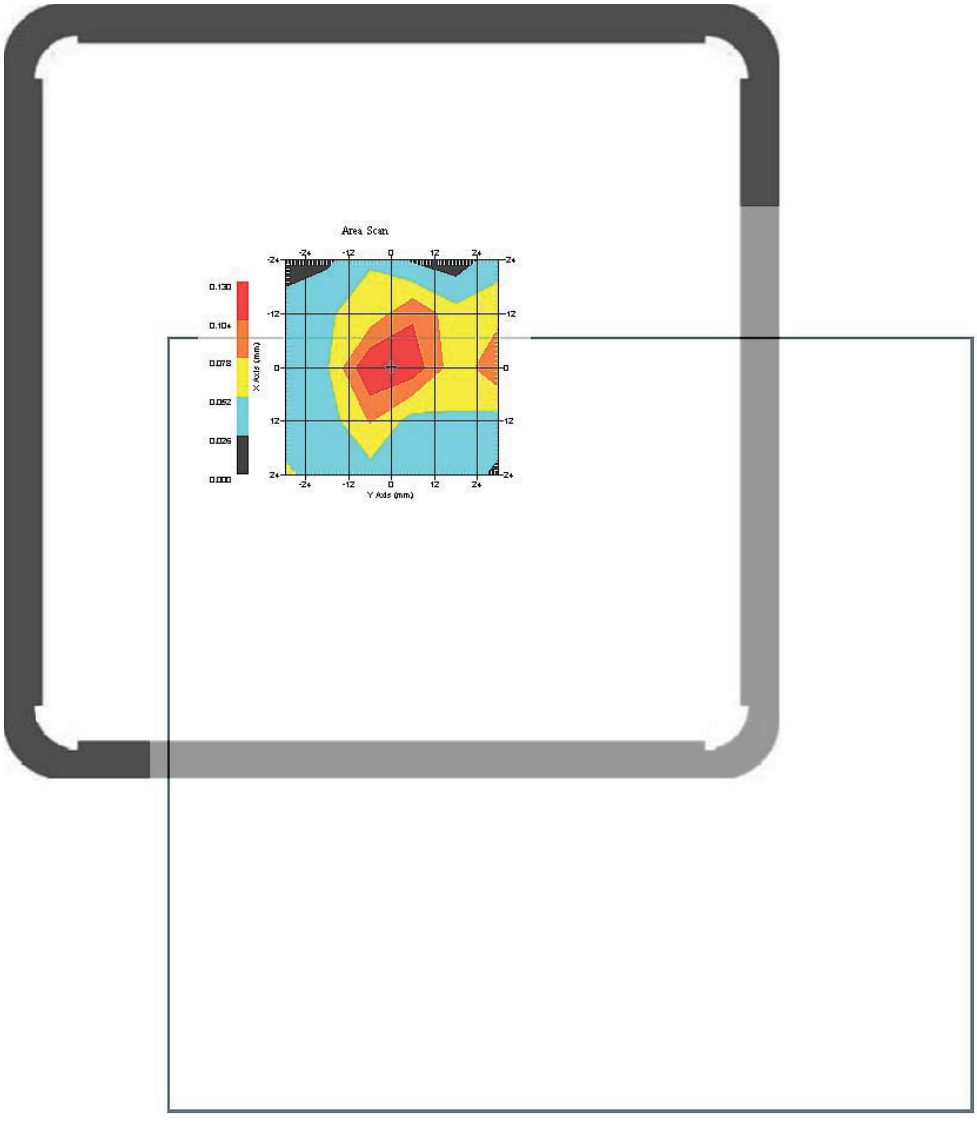


Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.40 °C
Area Scan : 5x6x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.215 W/kg
Power Drift-Finish: 0.211 W/kg
Power Drift (%) : -1.860

DUT Position : Touch EUT Back
Channel : 52




1 gram SAR value : 0.103 W/kg
10 gram SAR value : 0.059 W/kg
Area Scan Peak SAR : 0.130 W/kg
Zoom Scan Peak SAR : 0.180 W/kg

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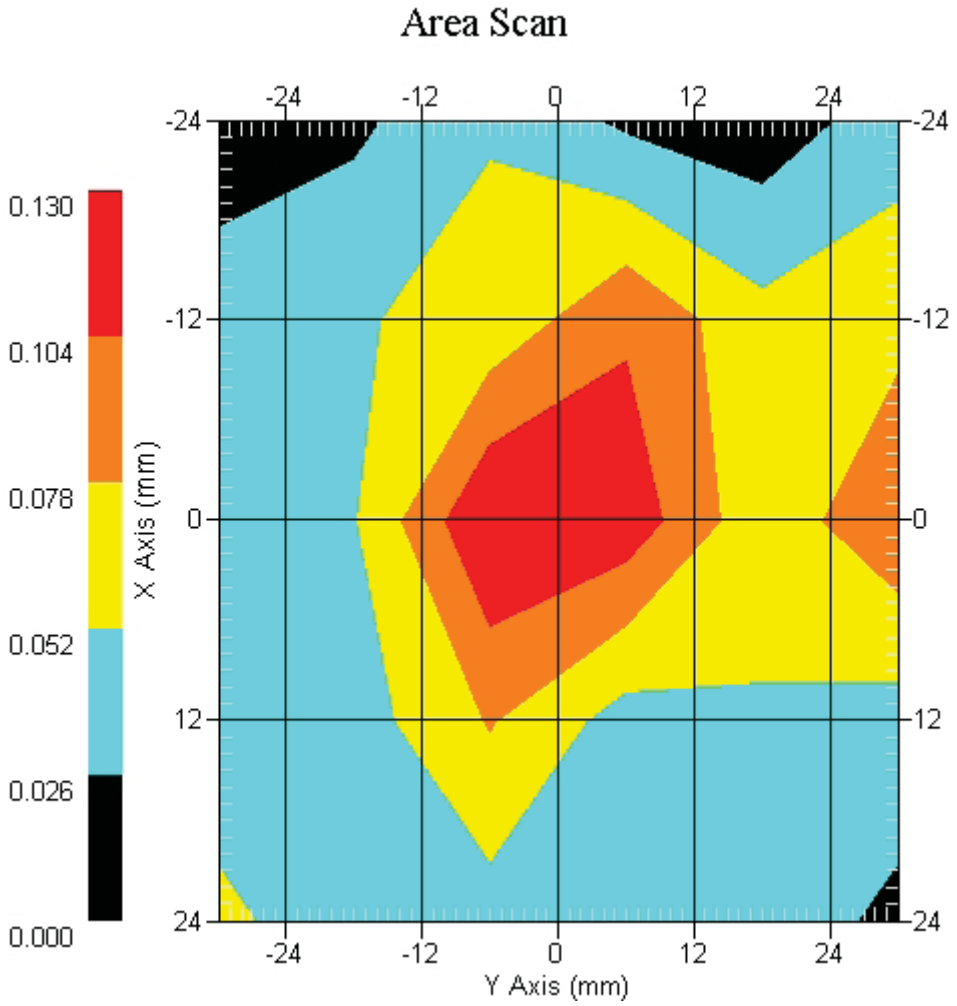


ALSAS-10U VER 2.3.6 APREL Laboratories
SAR Test Report –802.11a, 5200 MHz- Tx1 Antenna

Report Date : 18-Feb-2009
Measurement Date : 18-Feb-2009

Product Data
Device Name : Tablet PC
Type : Other
Model : CFT-001
Frequency : 5200.00 MHz
Drift Time : 0 min(s)
Length : 256 mm
Width : 23 mm
Depth : 254 mm
Antenna Type : Internal

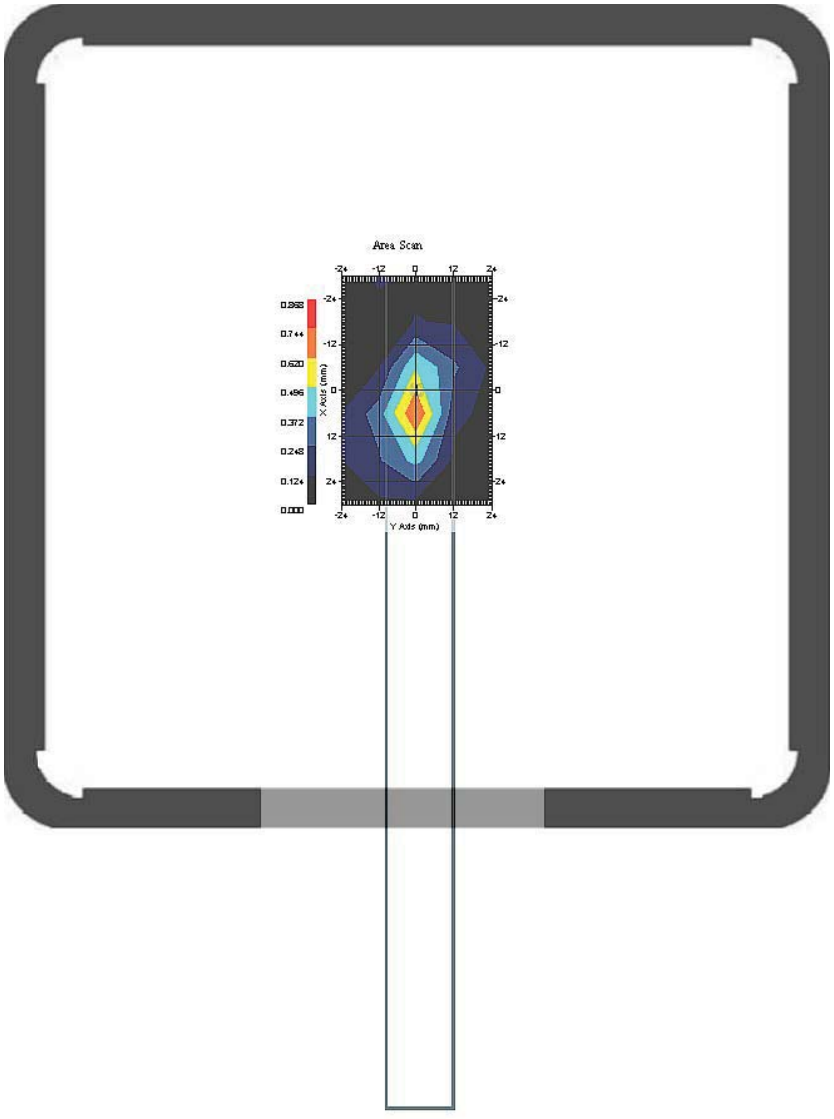
Phantom Data
Type : Uni-Phantom
Size (mm) : 280 x 280 x 200
Location : Center

Tissue Data
Type : BODY
Serial No. : 326-B
Frequency : 5200.00 MHz
Last Calib. Date : 18-Feb-2009
Temperature : 21.40 °C
Ambient Temp. : 22.40 °C
Humidity : 52.00 RH%
Epsilon : 49.72 F/m
Sigma : 5.46 S/m
Density : 1000.00 kg/cu. m

Probe Data
Name : Probe 265
Model : E020
Type : E-Field Triangle
Serial No. : 265
Last Calib. Date : 09-May-2008
Frequency : 5200.00 MHz
Duty Cycle Factor: 1
Conversion Factor: 4.3
Probe Sensitivity: 1.20 1.20 1.20 $\mu V/(V/m)^2$
Compression Point: 95.00 mV
Offset : 1.56 mm

Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.40 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.770 W/kg
Power Drift-Finish: 0.742 W/kg
Power Drift (%) : -3.613

DUT Position : Touch EUT Top
Channel : 36




1 gram SAR value : 0.688 W/kg
10 gram SAR value : 0.285 W/kg
Area Scan Peak SAR : 0.745 W/kg
Zoom Scan Peak SAR : 1.801 W/kg

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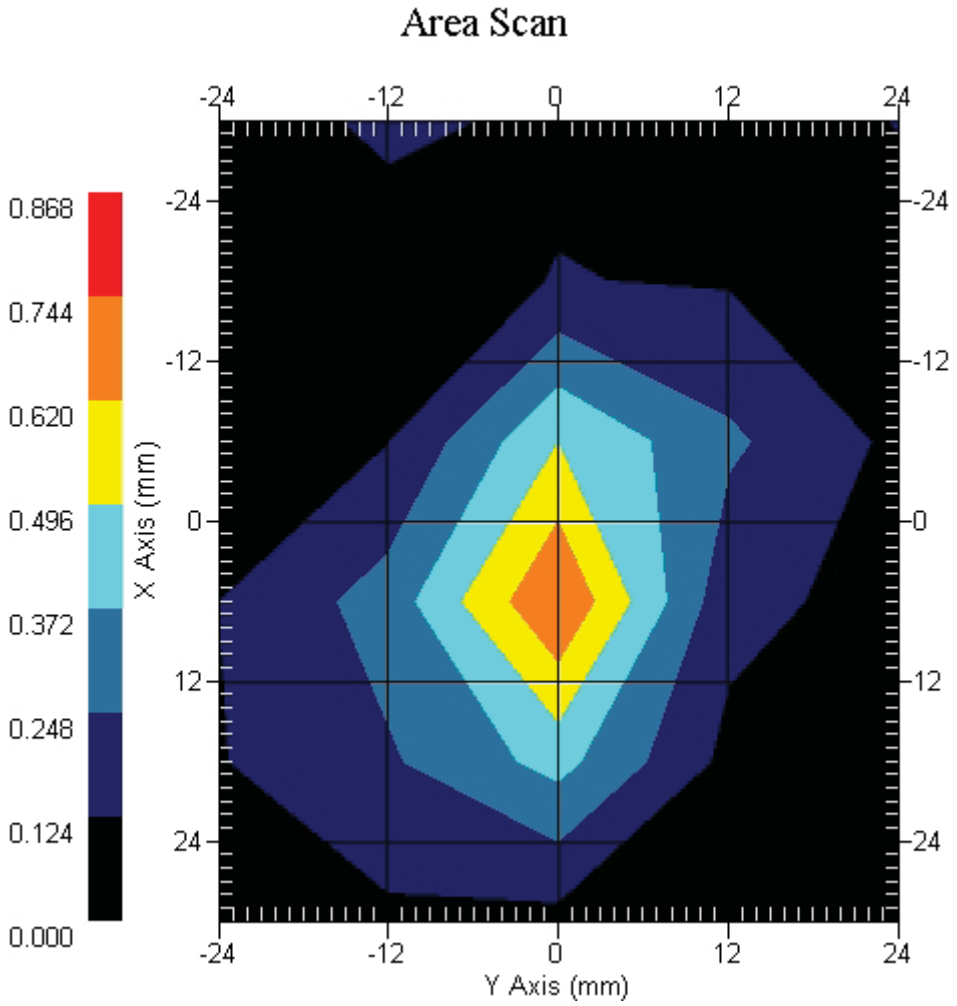
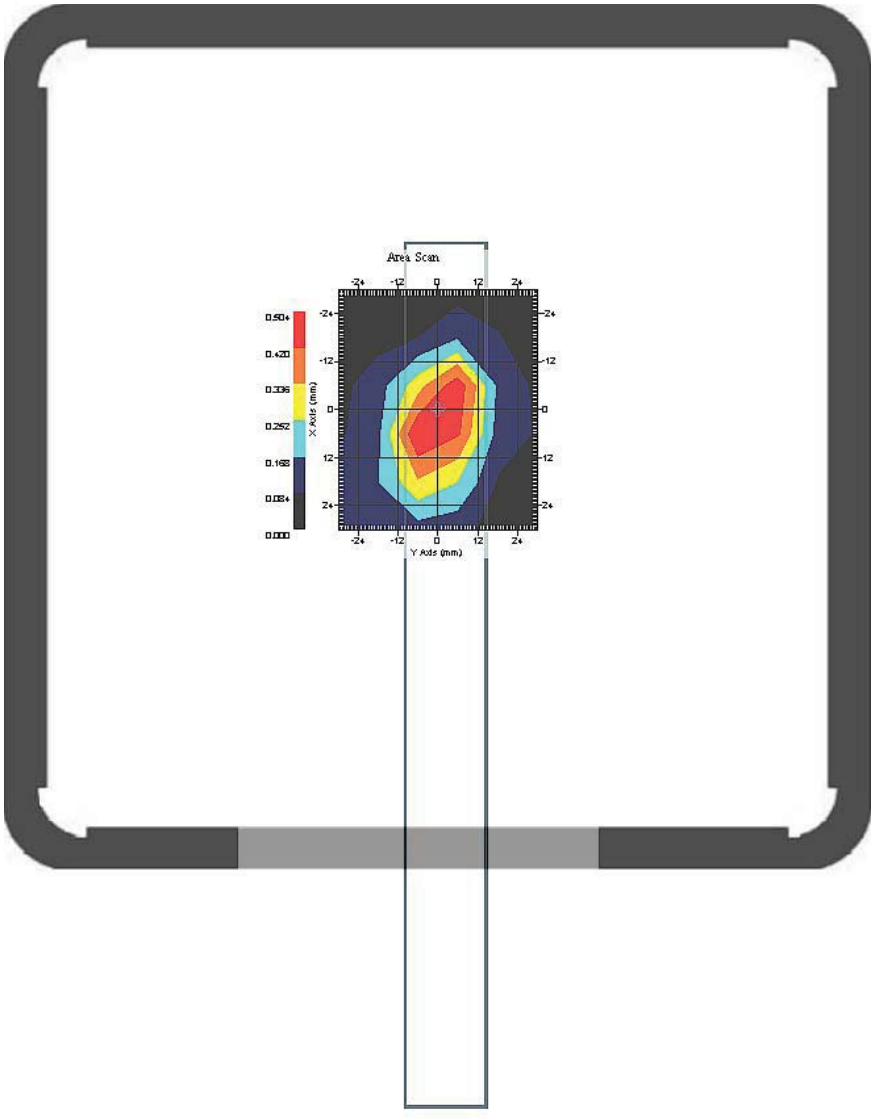


Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.20 °C
Area Scan : 6x6x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.652 W/kg
Power Drift-Finish: 0.653 W/kg
Power Drift (%) : 0.226

DUT Position : Touch EUT Top
Channel : 5240




1 gram SAR value : 0.597 W/kg
10 gram SAR value : 0.226 W/kg
Area Scan Peak SAR : 0.502 W/kg
Zoom Scan Peak SAR : 1.551 W/kg

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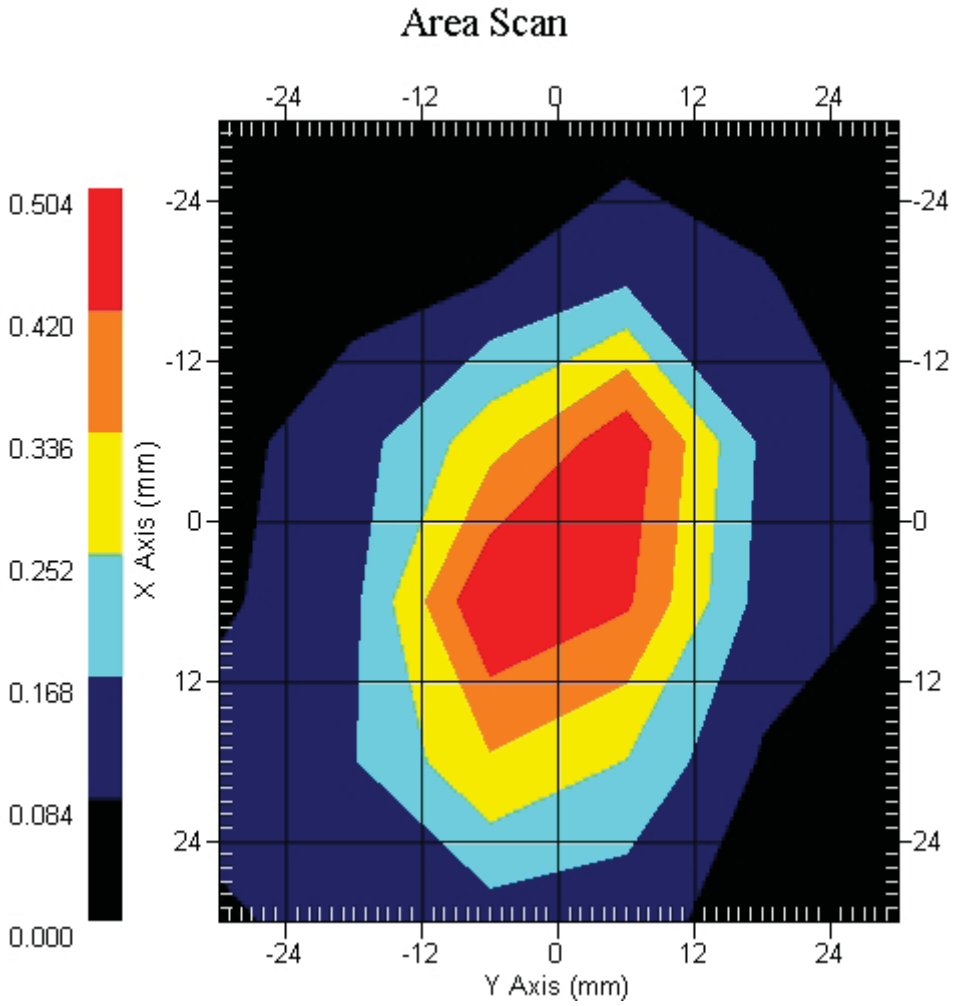
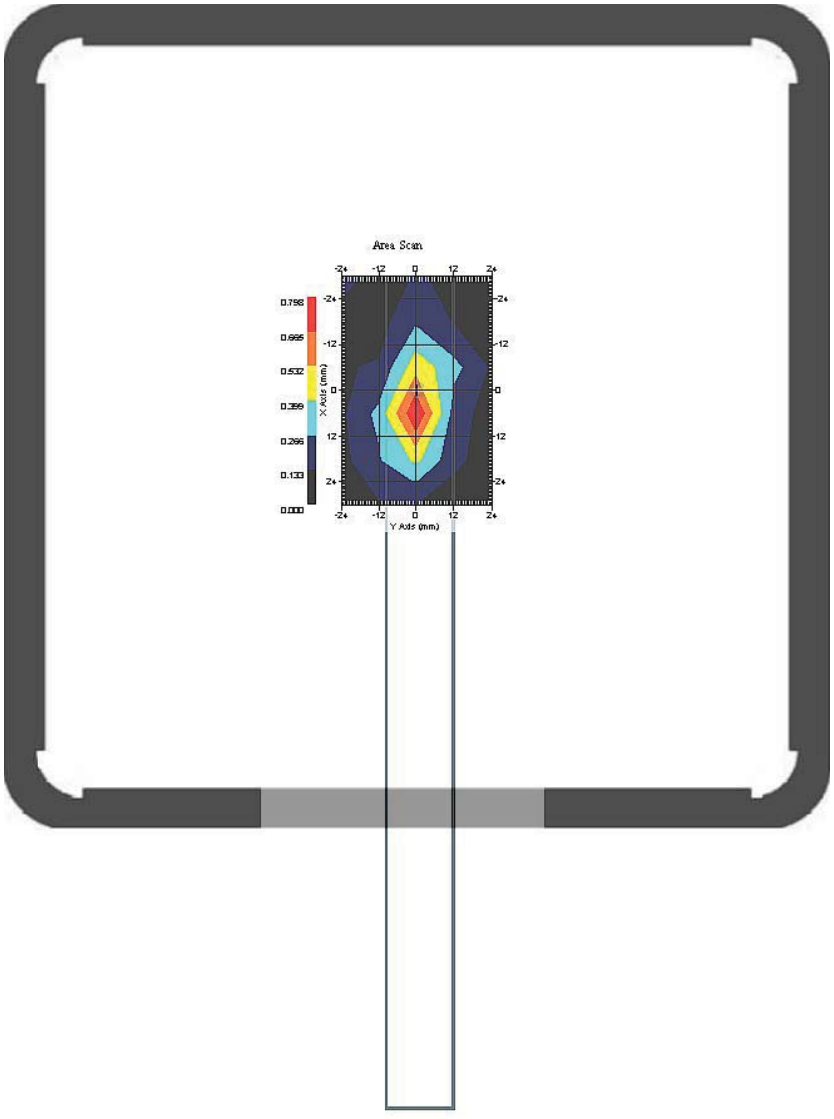


Measurement Data
Crest Factor : 1
Tissue Temp. : 21.40 °C
Ambient Temp. : 22.40 °C
Area Scan : 6x5x1 : Measurement x=12mm, y=12mm, z=4mm
Zoom Scan : 7x7x7 : Measurement x=5mm, y=5mm, z=5mm
Power Drift-Start : 0.806 W/kg
Power Drift-Finish: 0.779 W/kg
Power Drift (%) : -3.412

DUT Position : Touch EUT Top
Channel : 64




1 gram SAR value : 0.749 W/kg
10 gram SAR value : 0.310 W/kg
Area Scan Peak SAR : 0.797 W/kg
Zoom Scan Peak SAR : 1.991 W/kg

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