SAR Test Report

Product Name ： Portable Data Collection Terminal

Model No. ： MM3

Applicant ： M3 Mobile Co., Ltd

Address ： DongWon B/D, 725-30, Yeoksam-dong, Gangnam-gu, Seoul, 135-080, Korea

Date of Receipt ： 2009/07/30

Issued Date ： 2009/08/13

Report No. ： 098075R-HPUSP09V01

Report Version ： V1.0

Test Report Certification

Issued Date: 2009/08/13
Report No.:098075R-HPUSP09V01

Product Name	:	Portable Data Collection Terminal
Applicant	:	M3 Mobile Co., Ltd
Address	:	DongWon B/D, 725-30, Yeoksam-dong, Gangnam-gu, Seoul, 135-080, Korea
Manufacturer	:	M3 Mobile Co., Ltd
Model No.	:	MM3
Trade Name	:	Hand Held Terminal
WLAN Model No.	:	SDC-MCF10AG
Applicable Standard	:	FCC Oet65 Supplement C June 2001 IEEE Std. 1528-2003 47CFR § 2.1093
Test Result	:	Max. SAR Measurement (1g) 802.11a, 5200 MHz: **0.095** W/kg 802.11a, 5500 MHz: **0.071** W/kg 802.11a, 5800 MHz: **0.126** 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.

Documented By : Anny Chou
(Adm.Assistant / Anny Chou)

Tested By : Jung Chang
(Engineer / Jung Chang)

Approved By :
(Manager / Vincent Lin)

TABLE OF CONTENTS

1. General Information

1.1 EUT Description

Product Name	Portable Data Collection Terminal
Trade Name	Hand Held Terminal
Model No.	MM3
FCC ID	U7X-MM3
WLAN Model No.	SDC-MCF10AG
TX Frequency	5180MHz~5240MHz 5260MHz~5320MHz 5500MHz~5700MHz 5745MHz~5805MHz
Number of Channel	802.11a: 19
Type of Modulation	DSSS/OFDM
Antenna Type	PIFA
Device Category	Portable
RF Exposure Environment	Uncontrolled
Transfer Rate	802.11a: 54Mbps

1.2 Test Environment

Ambient conditions in the laboratory:(2009/08/05)

Items	Required	Actual
Temperature (°C)	18-25	22.5
Humidity (%RH)	30-70	50

Ambient conditions in the laboratory: (2009/08/06)

Items	Required	Actual
Temperature (°C)	18-25	22.7
Humidity (%RH)	30-70	52

Ambient conditions in the laboratory: (2009/08/11)

Items	Required	Actual
Temperature (°C)	18-25	23.1
Humidity (%RH)	30-70	54

Site Description:

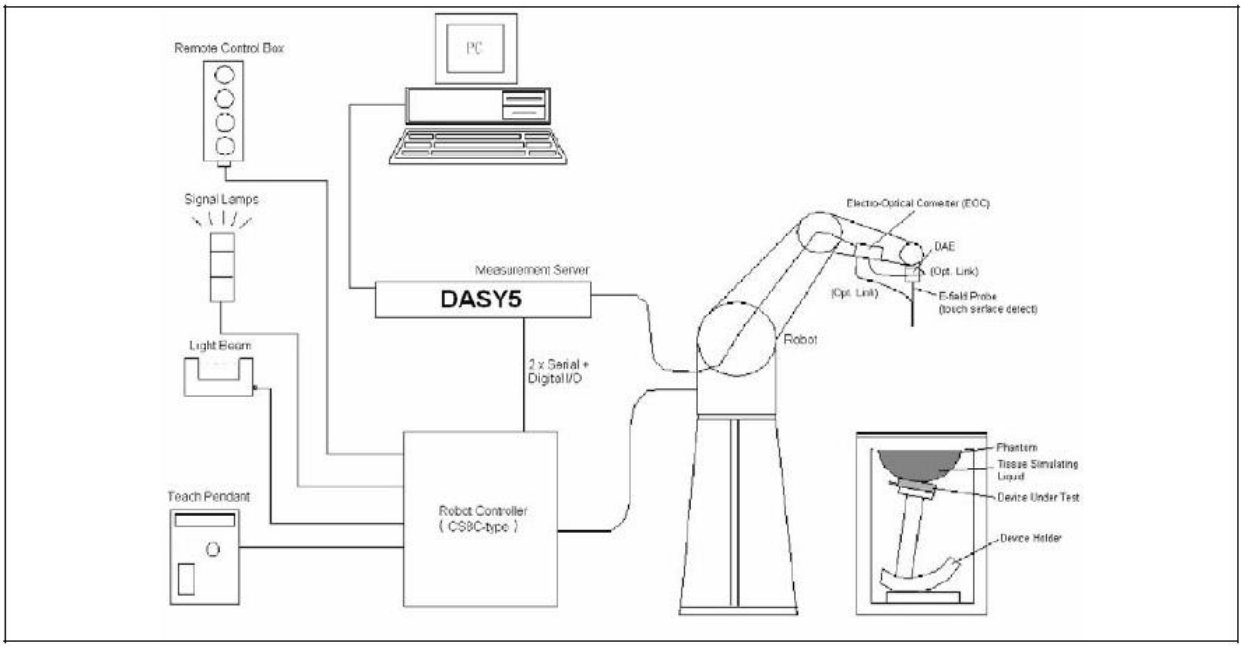
Accredited by TAF
Accredited Number: 0914
Effective through: December 12, 2008

Site Name: Quietek Corporation

Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
Lin-Kou Shiang, Taipei,
Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

2. SAR Measurement System

2.1 DASY5 System Description



The DASY5 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

2.1.1 Applications

Predefined procedures and evaluations for automated compliance testing with all worldwide standards, e.g., IEEE 1528, OET 65, IEC 62209-1, IEC 62209-2, EN 50360, EN 50383 and others.

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.

When an Area Scan has measured all reachable points, it computes the field maxima found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE 1528-2003, EN 50361 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan).

2.1.3 Zoom Scan (Cube Scan Averaging)

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of 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.

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 5x5x7 (8mmx8mmx5mm) providing a volume of 32mm in the X & Y axis, and 30mm in the Z axis.

2.1.4 Uncertainty of Inter-/Extrapolation and Averaging

In order to evaluate the uncertainty of the interpolation, extrapolation and averaged SAR calculation algorithms of the Postprocessor, DASY5 allows the generation of measurement grids which are artificially predefined by analytically based test functions. Therefore, the grids of area scans and zoom scans can be filled with uncertainty test data, according to the SAR benchmark functions of IEEE 1528.The three analytical functions shown in equations as below are used to describe the possible range of the expected SAR distributions for the tested handsets. The field gradients are covered by the spatially flat

distribution f1, the spatially steep distribution f3 and f2 accounts for H-field cancellation on the phantom/tissue surface.

$$f_1(x,y,z) = Ae^{-\frac{z}{2a}}\cos^2\left(\frac{\pi}{2}\frac{\sqrt{x'^2+y'^2}}{5a}\right)$$

$$f_2(x,y,z) = Ae^{-\frac{z}{a}}\frac{a^2}{a^2+x'^2}\left(3-e^{-\frac{2z}{a}}\right)\cos^2\left(\frac{\pi}{2}\frac{y'}{3a}\right)$$

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

2.2 DASY5 E-Field Probe

The SAR measurement is conducted with the dosimetric probe manufactured by SPEAG. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.

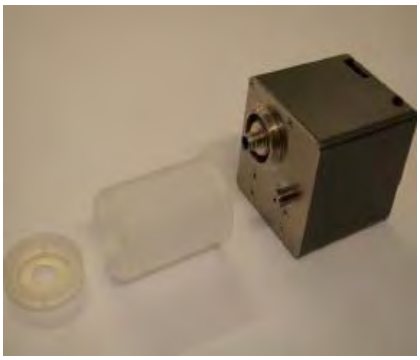
SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528, EN 62209-1, IEC 62209, etc.) under ISO 17025. The calibration data are in Appendix D**.**

2.2.1 Isotropic E-Field Probe Specification

Model	Ex3DV4	
Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	

2.3 Boundary Detection Unit and Probe Mounting Device

The DASY probes use a precise connector and an additional holder for the probe, consisting of a plastic tube and a flexible silicon ring to center the probe. The connector at the DAE is flexibly mounted and held in the default position with magnets and springs. Two switching systems in the connector mount detect frontal and lateral probe collisions and trigger the necessary software response.

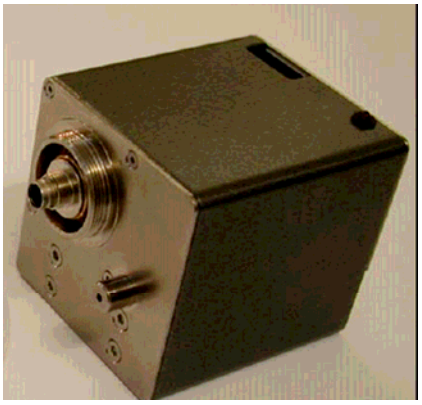


2.4 DATA Acquisition Electronics (DAE) and Measurement Server

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit.

Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE4 is 200M Ohm; the inputs are symmetrical and floating. Common mode rejection is above 80dB.



The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz intel ULV Celeron, 128MB chipdisk and 128MB RAM. The necessary circuits for communication with the DAE electronics box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.

2.5 Robot

The DASY5 system uses the high precision robots TX90 XL type out of the newer series from Stäubli SA (France). For the 6-axis controller DASY5 system, the CS8C robot controller version from Stäubli is used.
The XL robot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)
- 6-axis controller

2.6 Light Beam Unit

The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.
The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

2.7 Device Holder

The DASY5 device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR).

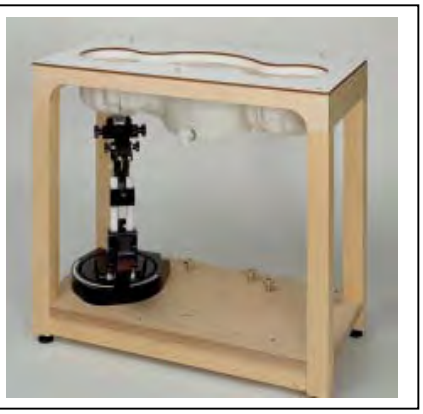
Thus the device needs no repositioning when changing the angles.

The DASY5 device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity εr =3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

2.8 SAM Twin Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas:

- Left head
- Right head
- Flat phantom



The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

3. Tissue Simulating Liquid

3.1 The composition of the tissue simulating liquid

INGREDIENT (% Weight)	5200MHz Head	5200MHz Body	5800MHz Head	5800MHz Body
Water	67.63	76	68.29	75.68
Salt	0.00	0.00	0.00	0.43
Sugar	0.00	0.00	0.00	0.00
HEC	0.00	0.00	0.00	0.00
Preventol	0.00	0.00	0.00	0.00
DGBE	3.38	4.44	2.44	4.42
Triton X-100	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]
		ε_r	σ [s/m]	
5200MHz	Reference result ± 5% window	36 34.2 to 37.8	4.66 4.427 to 4.893	N/A
	05-Aug-09	36.13	4.71	21.7
5180 MHz	05-Aug-09	36.21	4.67	21.7
5260 MHz	05-Aug-09	35.88	4.70	21.7
5320 MHz	05-Aug-09	35.69	4.72	21.7

Body Tissue Simulant Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
5200MHz	Reference result ± 5% window	49 46.55 to 51.45	5.3 5.035 to 5.566	N/A
	05-Aug-09	50.02	5.31	21.7
5180 MHz	05-Aug-09	50.11	5.29	21.7
5260 MHz	05-Aug-09	49.75	5.44	21.7
5320 MHz	05-Aug-09	49.69	5.47	21.7

Head Tissue Simulant Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
5500MHz	Reference result ± 5% window	35.6 33.82 to 37.38	4.96 4.712 to 5.208	N/A
	06-Aug-09	36.43	4.91	22.6
5600 MHz	06-Aug-09	35.84	4.97	22.6

Body Tissue Simulant Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
5500MHz	Reference result ± 5% window	48.9 46.455 to 51.345	5.35 5.0825 to 5.6175	N/A
	06-Aug-09	49.20	5.79	22.6
5600 MHz	06-Aug-09	48.94	5.94	22.6

Head Tissue Simulant Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
5800MHz	Reference result ± 5% window	35.3 33.535 to 37.065	5.27 5.0065 to 5.5335	N/A
	11-Aug-09	35.34	5.36	22.1
5700 MHz	11-Aug-09	36.33	5.29	22.1
5745 MHz	11-Aug-09	35.86	5.33	22.1
5805 MHz	11-Aug-09	35.28	5.36	22.1

Body Tissue Simulant Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
5800MHz	Reference result ± 5% window	48.2 45.79 to 50.61	6 5.7 to 6.3	N/A
	11-Aug-09	48.46	6.28	22.1
5700 MHz	11-Aug-09	48.65	6.12	22.1
5745 MHz	11-Aug-09	48.57	6.19	22.1
5805 MHz	11-Aug-09	48.49	6.29	22.1

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.

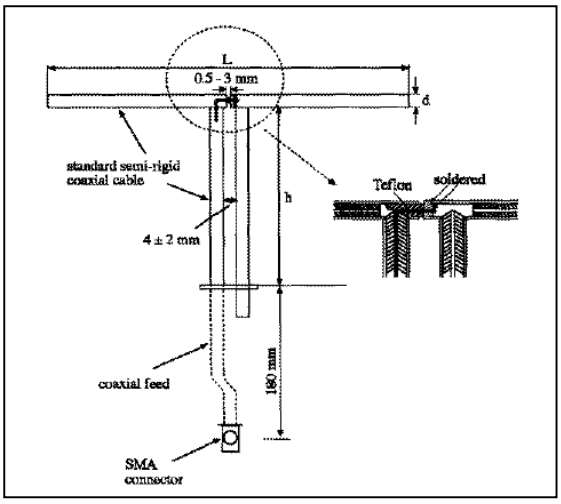
Target Frequency	Head		Body	
(MHz)	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7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

(ε_r = relative permittivity, σ = conductivity and ρ = 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)
5200MHz~5800MHz	20.6	45.4	3.6

4.1.2 Validation Result

Head System Performance Check at 5200MHz				
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
5200 MHz	Reference result ± 10% window	77.2 69.48 to 84.92	21.7 19.53 to 23.87	N/A
	05-Aug-09	83.2	20.48	21.7
Note: All SAR values are normalized to 1W forward power.				

Body System Performance Check at 5200MHz				
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
5200 MHz	Reference result ± 10% window	70.0 63 to 77	19.4 17.46 to 21.34	N/A
	05-Aug-09	74.4	21.12	21.7
Note: All SAR values are normalized to 1W forward power.				

Head System Performance Check at 5500MHz				
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
5500 MHz	Reference result ± 10% window	82.3 74.07 to 90.53	23.0 20.7 to 25.3	N/A
	06-Aug-09	84.4	23.72	22.6
Note: All SAR values are normalized to 1W forward power.				

Body System Performance Check at 5500MHz				
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
5500 MHz	Reference result ± 10% window	76.6 68.94 to 84.26	21.1 18.99 to 23.21	N/A
	06-Aug-09	74.4	20.68	22.6
Note: All SAR values are normalized to 1W forward power.				

Head System Performance Check at 5800MHz				
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
5800 MHz	Reference result ± 10% window	75.9 68.31 to 83.95	21.1 18.99 to 23.21	N/A
	11-Aug-09	80.4	22.16	22.1
Note: All SAR values are normalized to 1W forward power.				

Body System Performance Check at 5800MHz				
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
5800 MHz	Reference result ± 10% window	68.2 61.38 to 75.02	18.7 16.83 to 20.57	N/A
	11-Aug-09	68	18.88	22.1
Note: All SAR values are normalized to 1W forward power.				

4.2 Arrangement Assessment Setup

4.2.1 Test Positions of Device Relative to Head

This specifies exactly two test positions for the handset against the head phantom, the “cheek” position and the “tilted” position. The handset should be tested in both positions on the left and right sides of the SAM phantom. If the handset construction is such that it cannot be positioned using the handset positioning procedures described in 4.2.2.1 and 4.2.2.2 to represent normal use conditions (e.g., asymmetric handset), alternative alignment procedures should be considered with details provided in the test report.

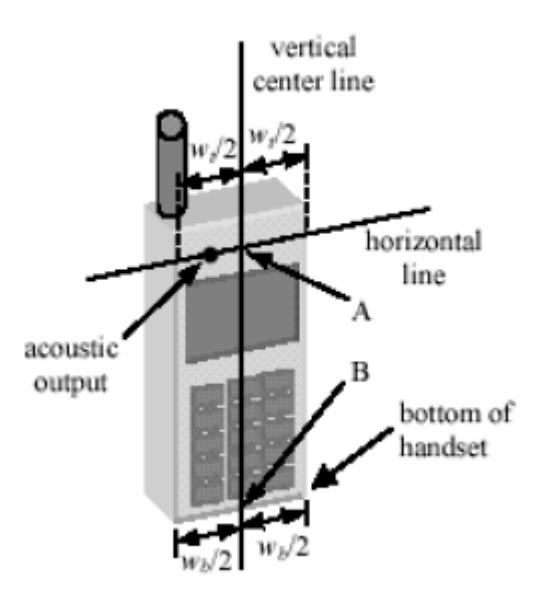


Figure 4.1a Fixed Case

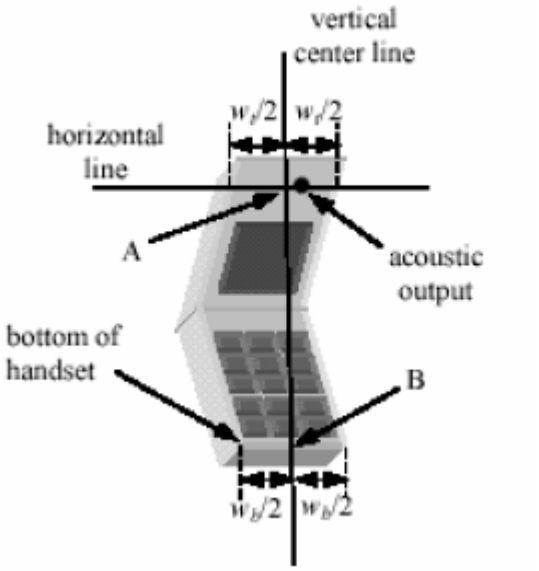


Figure4.1b Clam Shell

4.2.1.1 Definition of the “Cheek” Position

The “cheek” position is defined as follows:

a. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece, open the cover. (If the handset can also be used with the cover closed both configurations must be tested.)

b. Define two imaginary lines on the handset: the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset: the midpoint of the width *wt* of the handset at the level of the acoustic output (point A on Figures 4.1a and 4.1b), and the midpoint of the width *wb* of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 4.1a). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output. However, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the

handset (see Figure 4.1b), especially for clamshell handsets, handsets with flip pieces, and other irregularly-shaped handsets.

c. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 4.2), such that the plane defined by the vertical center line and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.

d. Translate the handset towards the phantom along the line passing through RE and LE until the handset touches the pinna.

e. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to MB-NF including the line MB (called the reference plane).

f. Rotate the handset around the vertical centerline until the handset (horizontal line) is symmetrical with respect to the line NF.

g. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE and maintaining the handset contact with the pinna, rotate the handset about the line NF until any point on the handset is in contact with a phantom point below the pinna (cheek). See Figure 4.2 the physical angles of rotation should be noted.

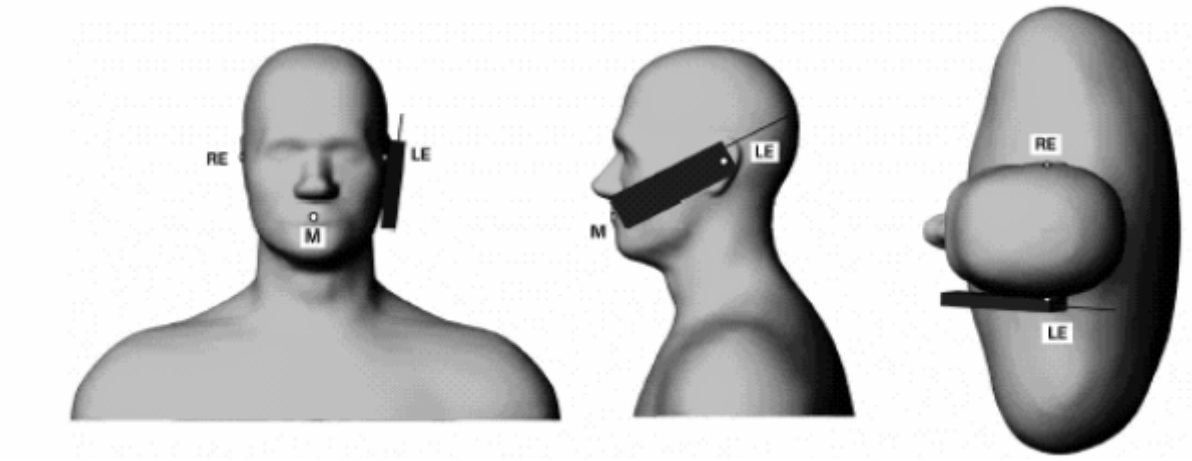


Figure 4.2 – Phone position 1, “cheek” or “touch” position.

4.2.1.2 Definition of the “Tilted” Position

The “tilted” position is defined as follows:

a. Repeat steps (a) – (g) of 4.2.1.1 to place the device in the “cheek position.”

b. While maintaining the orientation of the handset move the handset away from the pinna along the line passing through RE and LE in order to enable a rotation of the handset by

15 degrees.

c. Rotate the handset around the horizontal line by 15 degrees.

d. While maintaining the orientation of the handset, move the handset towards the phantom on a line passing through RE and LE until any part of the handset touches the ear. The tilted position is obtained when the contact is on the pinna. If the contact is at any location other than the pinna (e.g., the antenna with the back of the phantom head), the angle of the handset should be reduced. In this case, the tilted position is obtained if any part of the handset is in contact with the pinna as well as a second part of the handset is contact with the phantom (e.g., the antenna with the back of the head).

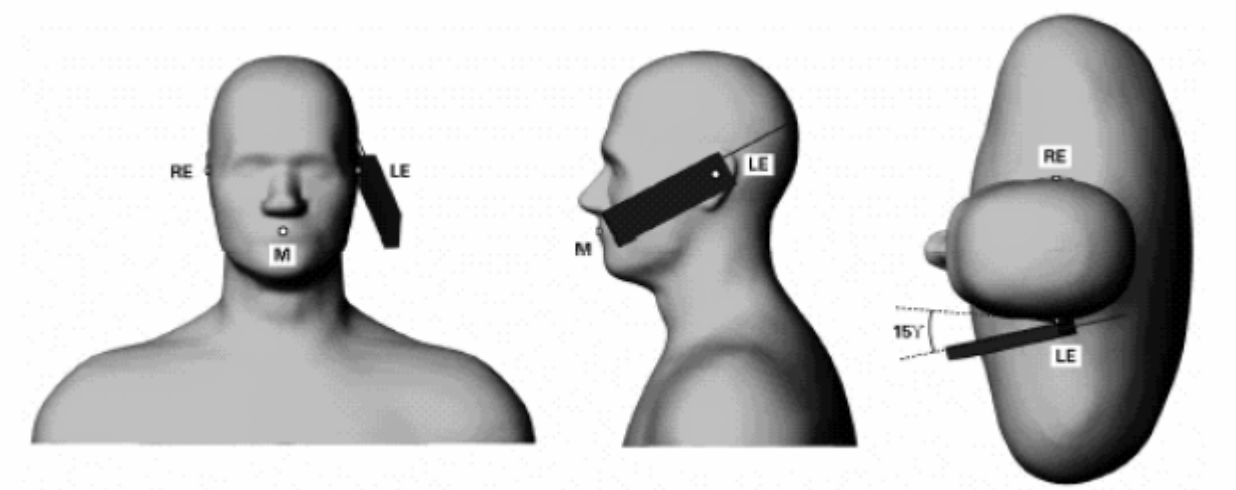


Figure 4.3 – Phone position 2, “tilted” position.

4.2.2 Test Positions for body-worn

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. A separation distance of 1.5 cm between the back of the device and a flat phantom is recommended for testing body-worn SAR compliance under such circumstances. Other separation distance may be use, but not exceed 2.5 cm.

4.3 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 $1mm^3$).

4.3.1 SAR Measurement Procedure

1. The device was put into operation by using a call tester. Communication between the device and the call tester was established by air link.
2. The device output power was set to maximum power level for all tests; a fully charged battery was use for every test sequence.

In all operating band in measurements were performed on lowest, middle and highest channels.

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
Stäubli Robot TX60L	Stäubli	TX60L	F09/5BL1A1/A 06	May. 2009	only once
Controller	Speag	CS8c	N/A	May. 2009	only once
Speag Reference Dipole 5GHz	Speag	D5GHzV2	1041	May. 2009	May. 2011
SAM Twin Phantom	Speag	QD000 P40 CA	Tp 1515	N/A	N/A
Device Holder	Speag	N/A	N/A	N/A	N/A
Data Acquisition Electronic	Speag	DAE4	1204	Apr. 2009	Apr. 2010
E-Field Probe	Speag	EX3DV4	3602	May. 2009	May. 2010
SAR Software	Speag	DASY5	V5.0 Build 125	N/A	N/A
Aprel Dipole Spaccer	Aprel	ALS-DS-U	QTK-295	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	R&S	CMU 200	104846	May. 2009	May. 2010
Vector Network	Anritsu	MS4623B	992801	Aug. 2009	Aug. 2010
Signal Generator	Anritsu	MG3692A	042319	Jun. 2009	Jun. 2010
Power Meter	Anritsu	ML2487A	6K00001447	Apr. 2009	Apr. 2010
Wide Bandwidth Sensor	Anritsu	MA2491	030677	Apr. 2009	Apr. 2010

7. Measurement Uncertainty

Uncertainty								
Error Description	Uncertainty value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±5.9%	N	1	1	1	±5.9%	±5.9%	∞
Axial Isotropy	±4.7%	R	$\sqrt{3}$	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	$\sqrt{3}$	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	$\sqrt{3}$	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	$\sqrt{3}$	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	$\sqrt{3}$	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	$\sqrt{3}$	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	$\sqrt{3}$	0.64	0.43	±1.8%	±1.2%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid Permittivity (target)	±5.0%	R	$\sqrt{3}$	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined Std. Uncertainty						±10.9%	±10.7%	387
Expanded STD Uncertainty						**±21.9%**	**±21.4%**	

8. Test Results

8.1 SAR Test Results Summary

SAR MEASUREMENT						
Ambient Temperature (°C) : 22.5 ±2				Relative Humidity (%): 50		
Liquid Temperature (°C) : 21.7 ±2				Depth of Liquid (cm):>15		
Product: Portable Data Collection Terminal						
Test Mode: 802.11a, 5200 MHz-Aux						
Test Position Body	Antenna Position	Frequency		Conducted Power (dBm)	**SAR** 1g (W/kg)	Limit (W/kg)
		Channel	MHz			
Left-Cheek	Fixed	36	5180	10.07	0.079	1.6
Left-Cheek	Fixed	48	5240	10.64	0.064	1.6
Left-Cheek	Fixed	52	5260	11.42	0.027	1.6
Left-Cheek	Fixed	64	5320	9.71	0.017	1.6
Left-Tilted	Fixed	36	5180	10.07	0.014	1.6
Left-Tilted	Fixed	48	5240	10.64	0.018	1.6
Left-Tilted	Fixed	52	5260	11.42	0.026	1.6
Left-Tilted	Fixed	64	5320	9.71	0.025	1.6
Right-Cheek	Fixed	36	5180	10.07	0.037	1.6
Right-Cheek	Fixed	48	5240	10.64	0.016	1.6
Right-Cheek	Fixed	52	5260	11.42	0.026	1.6
Right-Cheek	Fixed	64	5320	9.71	0.042	1.6
Right-Tilted	Fixed	36	5180	10.07	0.027	1.6
Right-Tilted	Fixed	48	5240	10.64	0.018	1.6
Right-Tilted	Fixed	52	5260	11.42	0.039	1.6
Right-Tilted	Fixed	64	5320	9.71	0.079	1.6
Body-worn	Fixed	36	5180	10.07	**0.095**	1.6
Body-worn	Fixed	48	5240	10.64	0.091	1.6
Body-worn	Fixed	52	5260	11.42	0.044	1.6
Body-worn	Fixed	64	5320	9.71	0.043	1.6

Test Mode: 802.11a, 5200 MHz-Main						
Test Position Body	Antenna Position	Frequency		Conducted Power (dBm)	**SAR** 1g (W/kg)	Limit (W/kg)
		Channel	MHz			
Right-Cheek	Fixed	36	5180	7.37	0.00785	1.6
Body-worn	Fixed	36	5180	7.37	0.015	1.6

SAR MEASUREMENT						
Ambient Temperature (°C) : 23.1 ±2				Relative Humidity (%): 50		
Liquid Temperature (°C) : 22.6 ±2				Depth of Liquid (cm):>15		
Product: Portable Data Collection Terminal						
Test Mode: 802.11a, 5500 MHz-Aux						
Test Position Body	Antenna Position	Frequency		Conducted Power (dBm)	**SAR** 1g (W/kg)	Limit (W/kg)
		Channel	MHz			
Left-Cheek	Fixed	100	5500	10.96	0.032	1.6
Left-Cheek	Fixed	120	5600	11.69	0.025	1.6
Left-Tilted	Fixed	100	5500	10.96	0.024	1.6
Left-Tilted	Fixed	120	5600	11.69	0.032	1.6
Right-Cheek	Fixed	100	5500	10.96	0.035	1.6
Right-Cheek	Fixed	120	5600	11.69	0.031	1.6
Right-Tilted	Fixed	100	5500	10.96	0.046	1.6
Right-Tilted	Fixed	120	5600	11.69	0.068	1.6
Body-worn	Fixed	100	5500	10.96	0.070	1.6
Body-worn	Fixed	120	5600	11.69	**0.071**	1.6

SAR MEASUREMENT						
Ambient Temperature (°C) : 22.7 ±2				Relative Humidity (%): 52		
Liquid Temperature (°C) : 22.1 ±2				Depth of Liquid (cm):>15		
Product: Portable Data Collection Terminal						
Test Mode: 802.11a, 5800 MHz-Aux						
Test Position Body	Antenna Position	Frequency		Conducted Power (dBm)	**SAR** 1g (W/kg)	Limit (W/kg)
		Channel	MHz			
Left-Cheek	Fixed	140	5700	9.88	0.043	1.6
Left-Cheek	Fixed	149	5745	17.42	0.058	1.6
Left-Cheek	Fixed	157	5785	17.17	0.042	1.6
Left-Cheek	Fixed	161	5805	16.90	0.044	1.6
Left-Tilted	Fixed	140	5700	9.88	0.042	1.6
Left-Tilted	Fixed	149	5745	17.42	0.021	1.6
Left-Tilted	Fixed	157	5785	17.17	0.025	1.6
Left-Tilted	Fixed	161	5805	16.90	0.027	1.6
Right-Cheek	Fixed	140	5700	9.88	0.028	1.6
Right-Cheek	Fixed	149	5745	17.42	0.034	1.6
Right-Cheek	Fixed	157	5785	17.17	0.020	1.6
Right-Cheek	Fixed	161	5805	16.90	0.028	1.6
Right-Tilted	Fixed	140	5700	9.88	**0.126**	1.6
Right-Tilted	Fixed	149	5745	17.42	0.100	1.6
Right-Tilted	Fixed	157	5785	17.17	0.081	1.6
Right-Tilted	Fixed	161	5805	16.90	0.042	1.6
Body-worn	Fixed	140	5700	9.88	0.091	1.6
Body-worn	Fixed	149	5745	17.42	0.062	1.6
Body-worn	Fixed	157	5785	17.17	0.109	1.6
Body-worn	Fixed	161	5805	16.90	0.107	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

Test Laboratory: Quietek

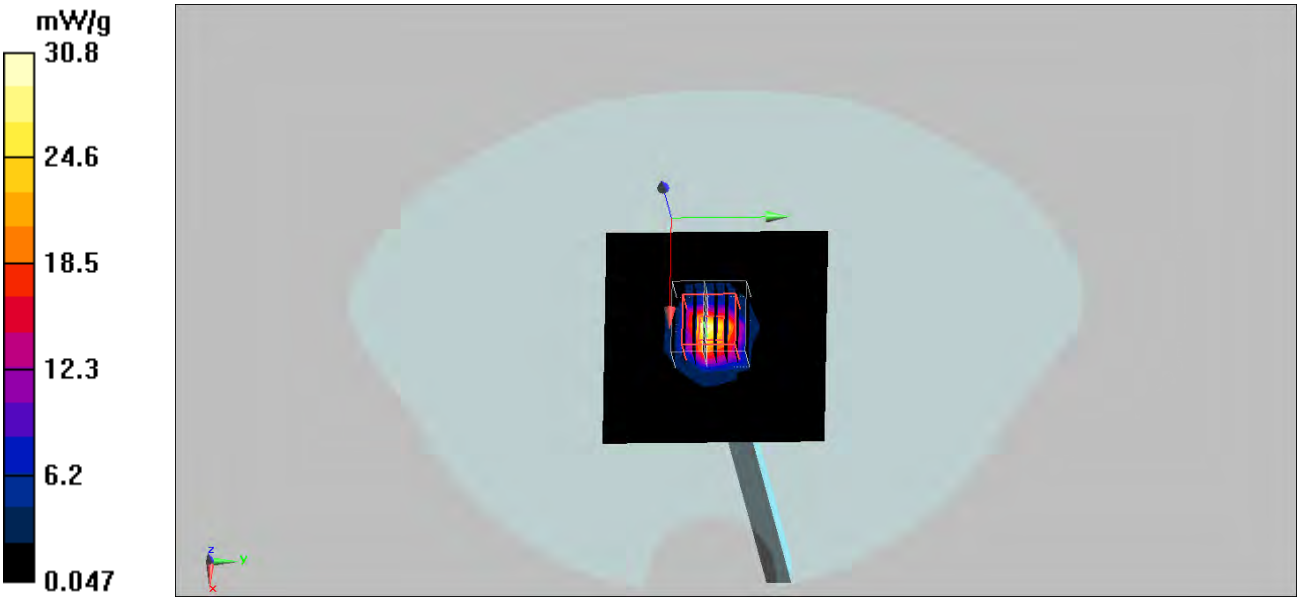
Date/Time: 8/5/2009

SystemPerformanceCheck-5200 Head
DUT:Dipole 5GHz; Type: D5GHzV2; Serial: QTK-1041
Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 4.71 mho/m; ε_r = 36.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.79, 4.79, 4.79); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

d=10mm, Pin=250mW/Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 30.8 mW/g

d=10mm, Pin=250mW/Zoom Scan (8x8x8), dist=2mm (8x8x5)/Cube 0:
Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 101.5 V/m; Power Drift = 0.168 dB
Peak SAR (extrapolated) = 78.9 W/kg
SAR(1 g) = 20.8 mW/g; SAR(10 g) = 5.12 mW/g
Maximum value of SAR (measured) = 39.5 mW/g



Test Laboratory: Quietek

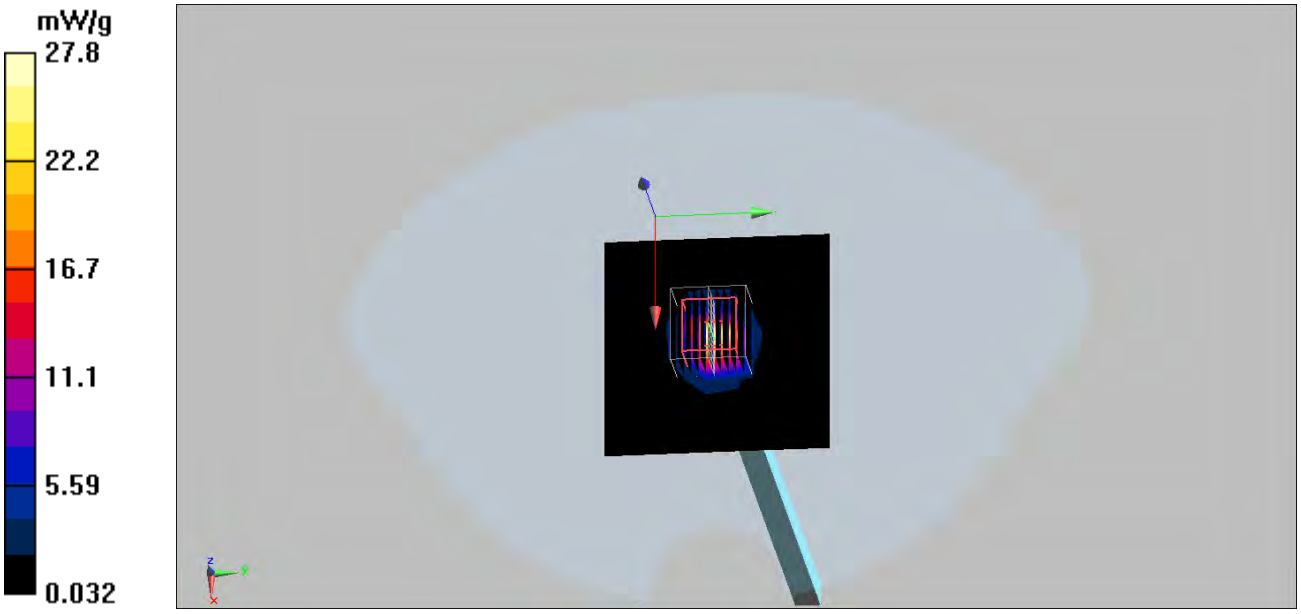
Date/Time: 8/5/2009

SystemPerformanceCheck-5200 Body
DUT:Dipole 5GHz; Type: D5GHzV2; Serial: QTK-1041
Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.31 mho/m; ε_r = 50; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.43, 4.43, 4.43); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM; Serial
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

d=10mm, Pin=250mW, f=5200 MHz/Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 27.8 mW/g

d=10mm, Pin=250mW/Zoom Scan (8x8x8), dist=2mm (8x8x5)/Cube 0:
Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 91.4 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 72.8 W/kg
SAR(1 g) = 18.6 mW/g; SAR(10 g) = 5.28 mW/g
Maximum value of SAR (measured) = 39.1 mW/g



Test Laboratory: Quietek

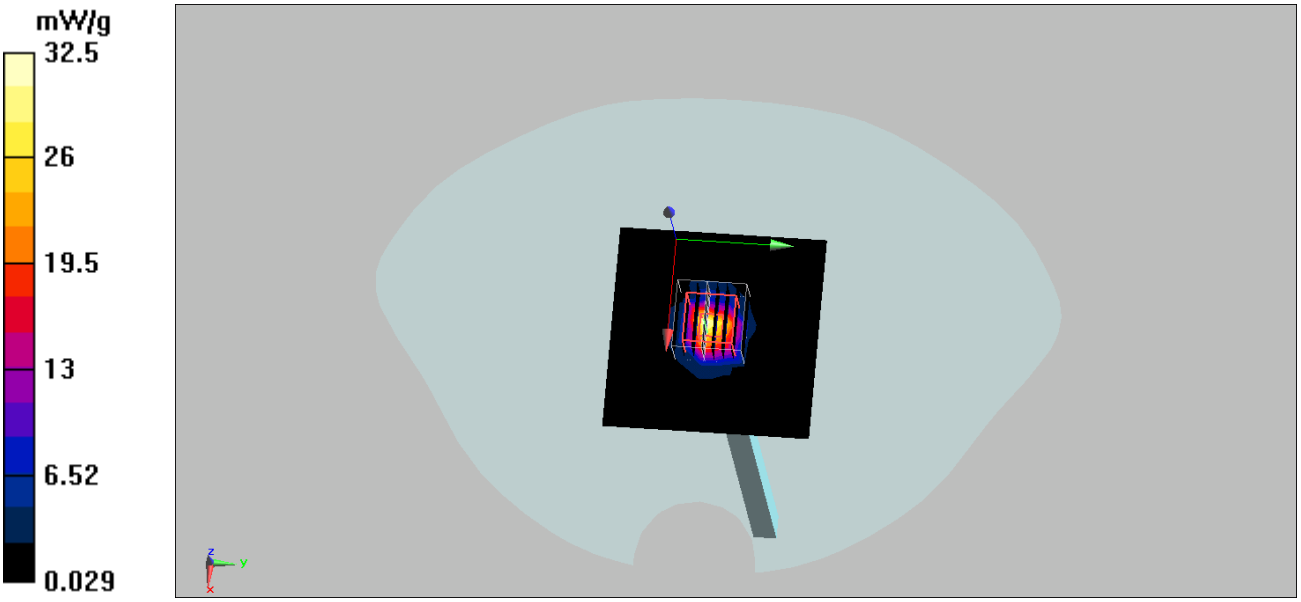
Date/Time: 8/6/2009

SystemPerformanceCheck-5500 Head
DUT:Dipole 5GHz; Type: D5GHzV2; Serial: QTK-1041
Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 4.91 mho/m; ε_r = 36.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.44, 4.44, 4.44); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM; Serial
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

d=10mm, Pin=250mW/Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 32.5 mW/g

d=10mm, Pin=250mW/Zoom Scan (8x8x8), dist=2mm (8x8x5)/Cube 0:
Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 103.8 V/m; Power Drift = -0.061 dB
Peak SAR (extrapolated) = 87.3 W/kg
SAR(1 g) = 21.1 mW/g; SAR(10 g) = 5.93 mW/g
Maximum value of SAR (measured) = 41.2 mW



Test Laboratory: Quietek

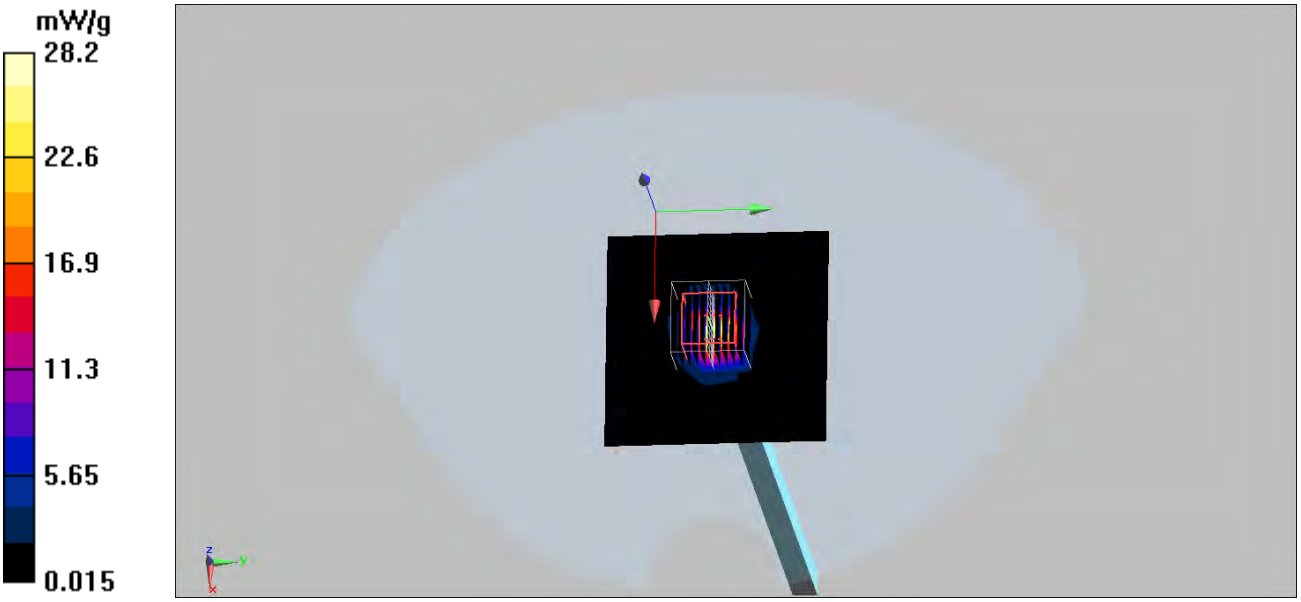
Date/Time: 8/6/2009

SystemPerformanceCheck-5500 Body
DUT:Dipole 5GHz; Type: D5GHzV2; Serial: QTK-1041
Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.79 mho/m; ε_r = 49.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.08, 4.08, 4.08); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

d=10mm, Pin=250mW /Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 28.2 mW/g

d=10mm, Pin=250mW/Zoom Scan (8x8x8), dist=2mm (8x8x5)/Cube 0:
Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 88.6 V/m; Power Drift = 0.108 dB
Peak SAR (extrapolated) = 75 W/kg
SAR(1 g) = 18.6 mW/g; SAR(10 g) = 5.17 mW/g
Maximum value of SAR (measured) = 39.7 mW/g



Test Laboratory: Quietek

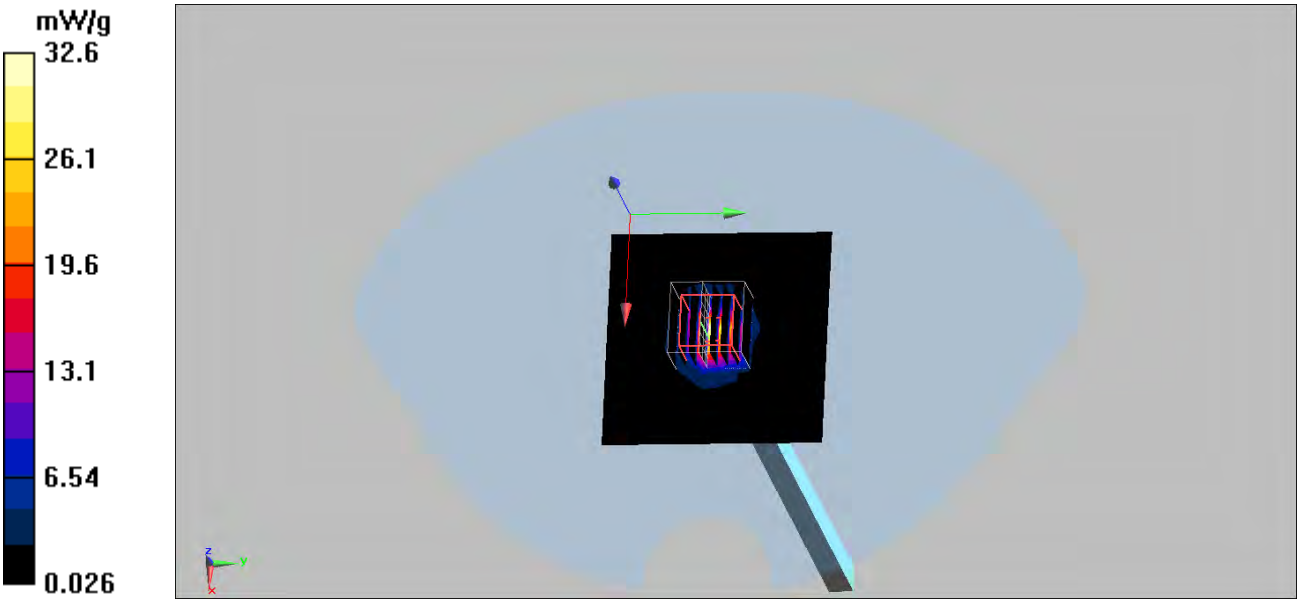
Date/Time: 8/11/2009

SystemPerformanceCheck-5800 Head
DUT:Dipole 5GHz; Type: D5GHzV2; Serial: QTK-1041
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 5.36 mho/m; ε_r = 35.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.21, 4.21, 4.21); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM; Serial
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

d=10mm, Pin=250mW/Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 32.6 mW/g

d=10mm, Pin=250mW/Zoom Scan (8x8x8), dist=2mm (8x8x5)/Cube 0:
Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 99.4 V/m; Power Drift = 0.183 dB
Peak SAR (extrapolated) = 91.8 W/kg
SAR(1 g) = 20.1 mW/g; SAR(10 g) = 5.54 mW/g
Maximum value of SAR (measured) = 41.9 mW/g



Test Laboratory: Quietek

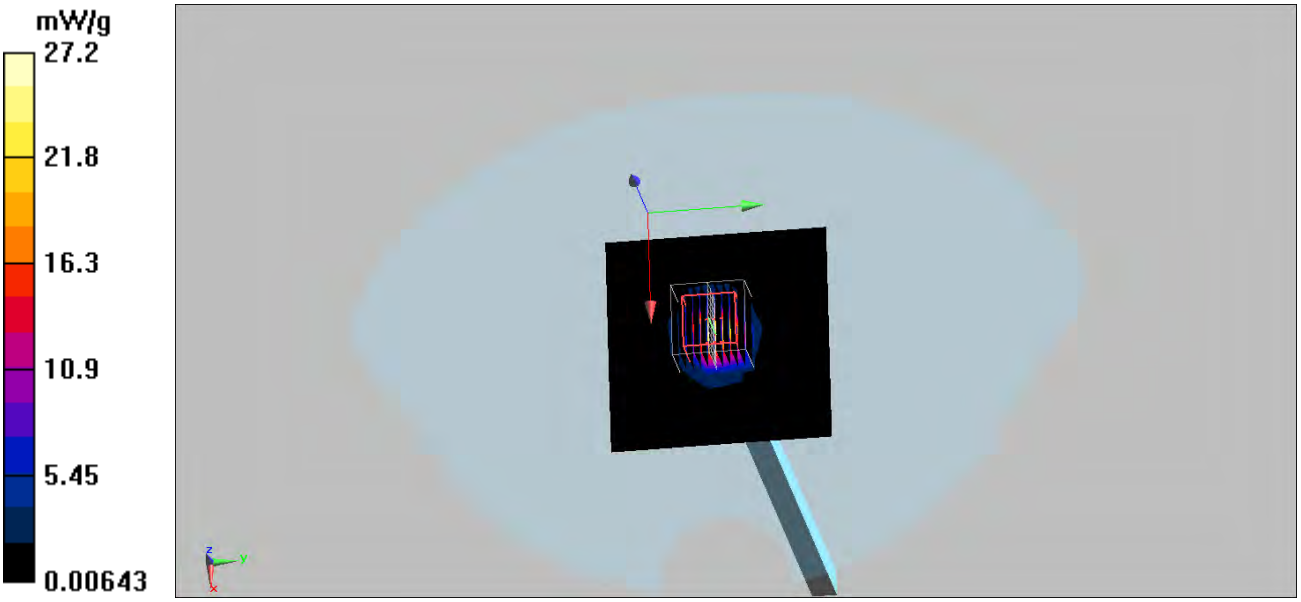
Date/Time: 8/11/2009

SystemPerformanceCheck-5800 Body
DUT:Dipole 5GHz; Type: D5GHzV2; Serial: QTK-1041
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 6.28 mho/m; ε_r = 48.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4, 4, 4); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

d=10mm, Pin=250mW, f=5800 MHz/Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 27.2 mW/g

d=10mm, Pin=250mW/Zoom Scan (8x8x8), dist=2mm (8x8x5)/Cube 0:
Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 85.1 V/m; Power Drift = -0.140 dB
Peak SAR (extrapolated) = 73.5 W/kg
SAR(1 g) = 17 mW/g; SAR(10 g) = 4.72 mW/g
Maximum value of SAR (measured) = 37.9 mW/g



Appendix B. SAR measurement Data

Test Laboratory: Quietek

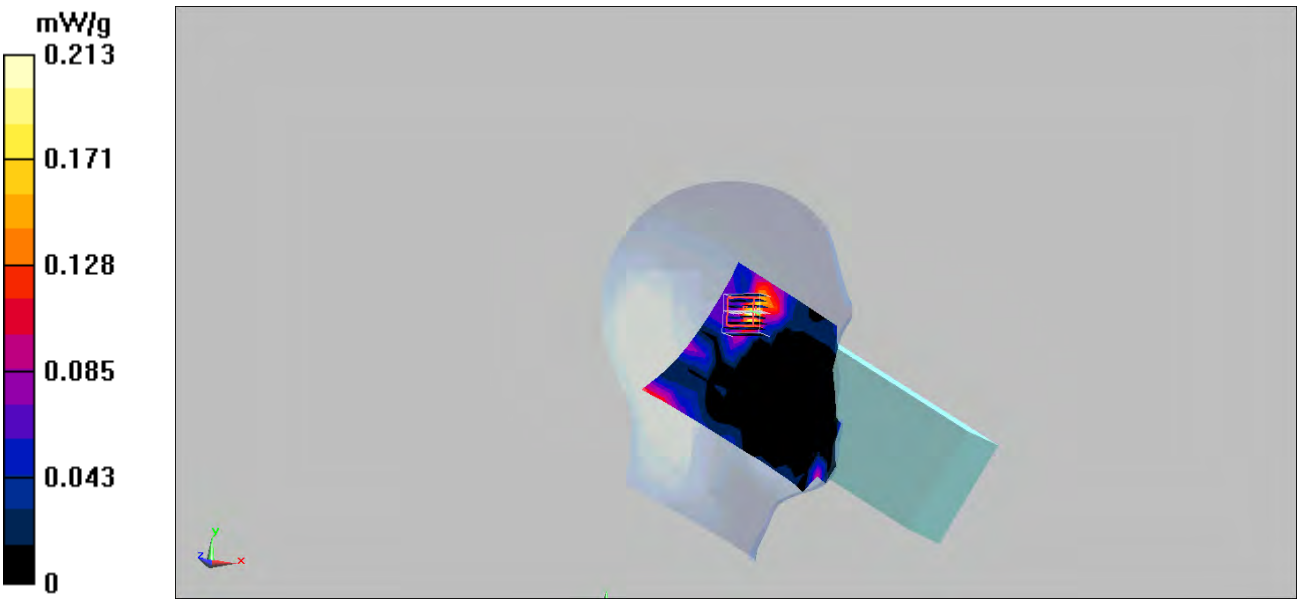
Date/Time: 8/5/2009

802.11a_Left-Cheek_Channel-36
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5180 MHz; σ = 4.67 mho/m; ε_r = 36.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.79, 4.79, 4.79); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.213 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 0.204 V/m; Power Drift = 0.167 dB
Peak SAR (extrapolated) = 0.386 W/kg
SAR(1 g) = 0.079 mW/g; SAR(10 g) = 0.014 mW/g
Maximum value of SAR (measured) = 0.209 mW/g



Test Laboratory: Quietek

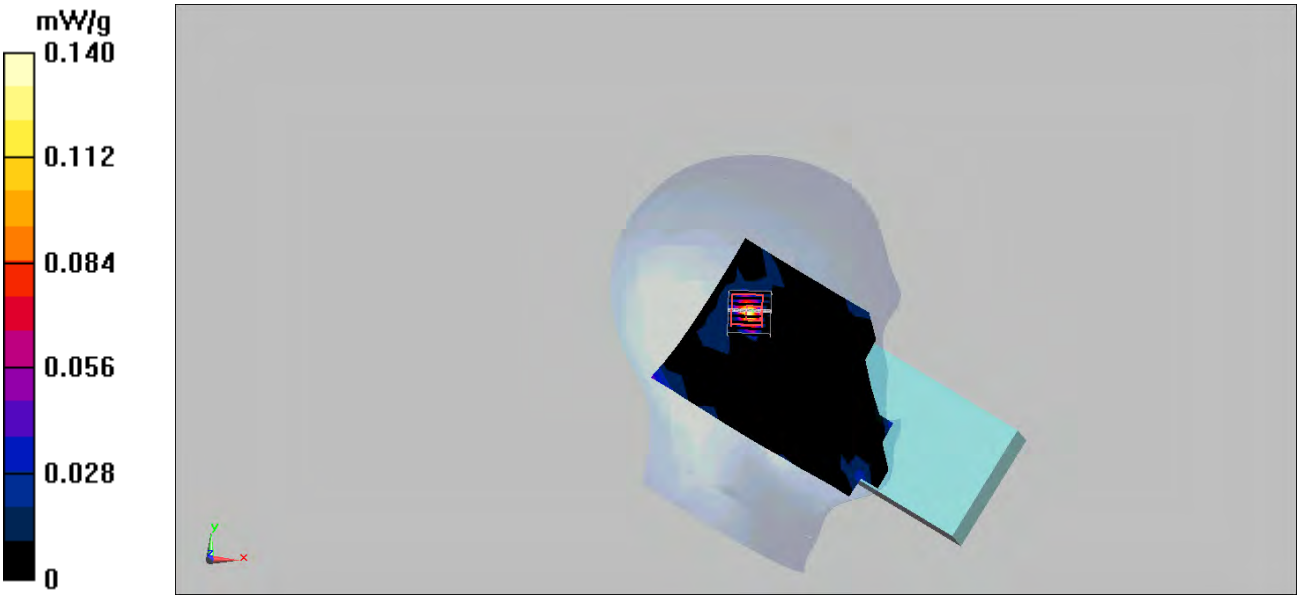
Date/Time: 8/5/2009

802.11a_Left-Cheek_Channel-48
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5240 MHz; σ = 4.69 mho/m; ε_r = 36.; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.79, 4.79, 4.79); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.140 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 0.712 V/m; Power Drift = -0.181 dB
Peak SAR (extrapolated) = 0.269 W/kg
SAR(1 g) = 0.064 mW/g; SAR(10 g) = 0.012 mW/g
Maximum value of SAR (measured) = 0.177 mW/g



Test Laboratory: Quietek

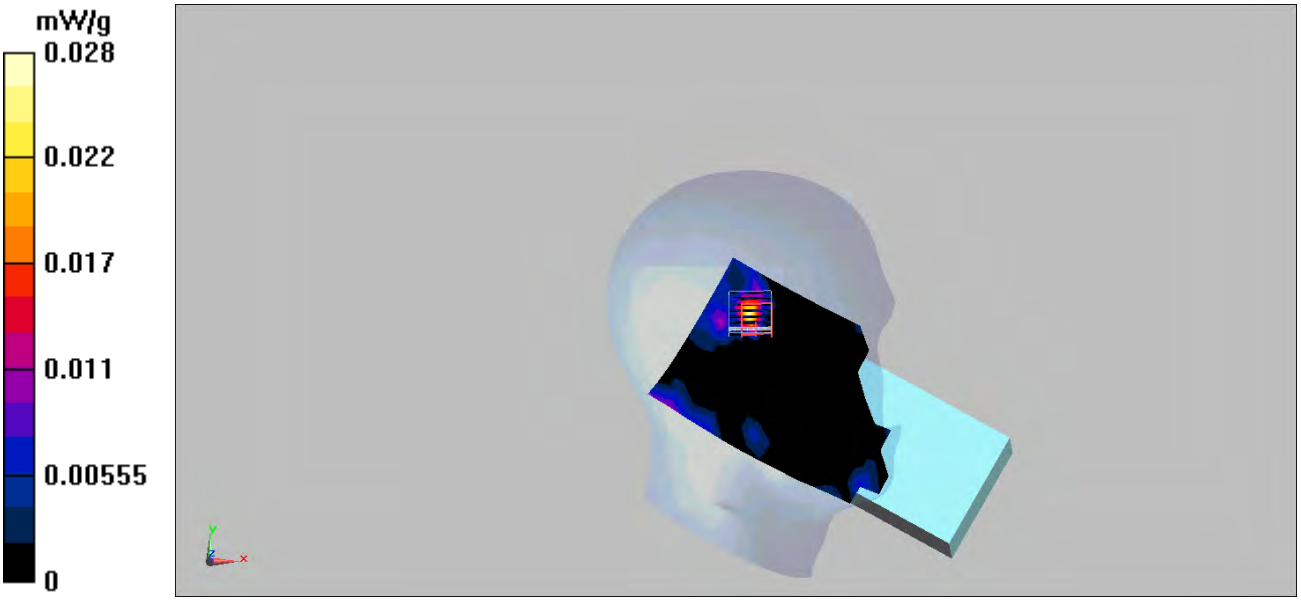
Date/Time: 8/5/2009

802.11a_ Left -Cheek_Channel-52
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5260 MHz; σ = 4.70 mho/m; ε_r = 35.9; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.43, 4.43, 4.43); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.028 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 0.479 V/m; Power Drift = 0.122 dB
Peak SAR (extrapolated) = 0.127 W/kg
SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.00862 mW/g
Maximum value of SAR (measured) = 0.060 mW/g



Test Laboratory: Quietek

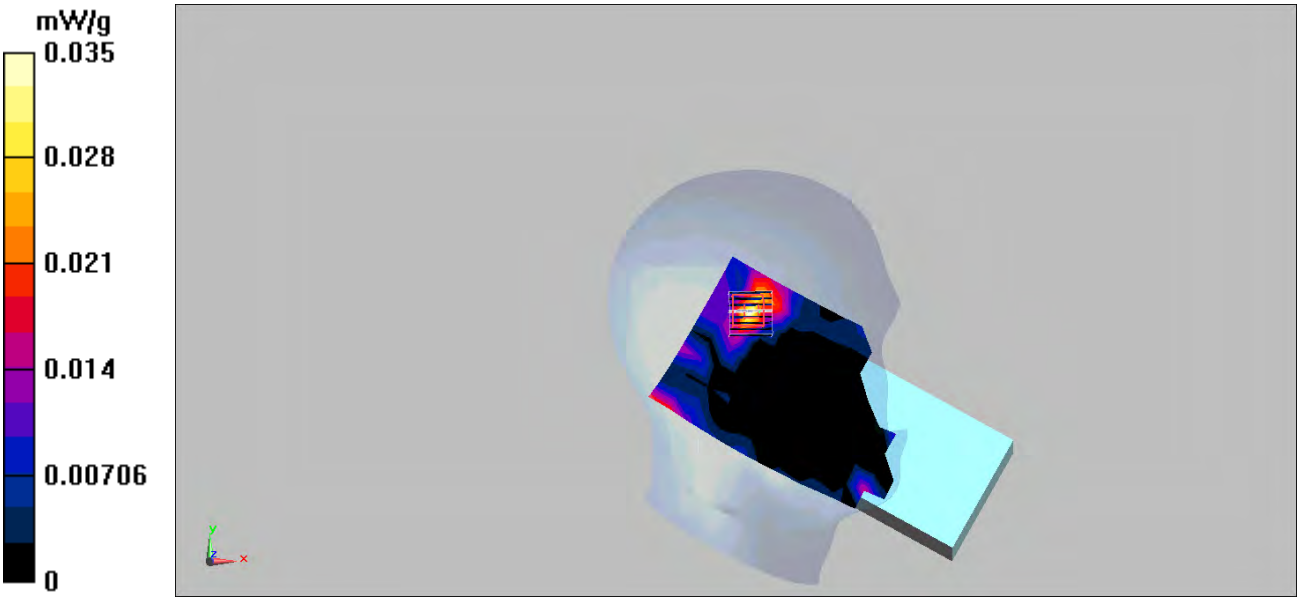
Date/Time: 8/5/2009

802.11a_ Left -Cheek_Channel-64
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5320 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 4.72 mho/m; ε_r = 35.7; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.43, 4.43, 4.43); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.035 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.42 V/m; Power Drift = 0.134 dB
Peak SAR (extrapolated) = 0.105 W/kg
SAR(1 g) = 0.017 mW/g; SAR(10 g) = 0.00501 mW/g
Maximum value of SAR (measured) = 0.036 mW/g



Test Laboratory: Quietek

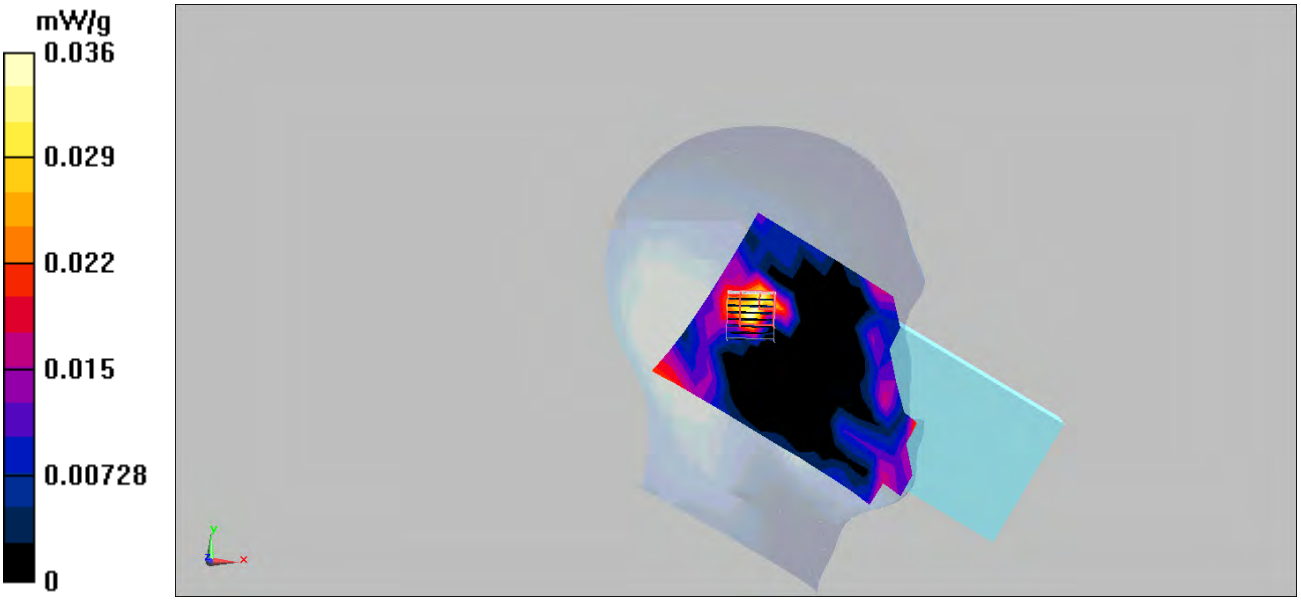
Date/Time: 8/5/2009

802.11a_ Left -Tilt_Channel-36
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5180 MHz; σ = 4.67 mho/m; ε_r = 36.2; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.79, 4.79, 4.79); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head /Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.036 mW/g

Head /Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.55 V/m; Power Drift = -0.091 dB
Peak SAR (extrapolated) = 0.150 W/kg
SAR(1 g) = 0.014 mW/g; SAR(10 g) = 0.00361 mW/g
Maximum value of SAR (measured) = 0.034 mW/g



Test Laboratory: Quietek

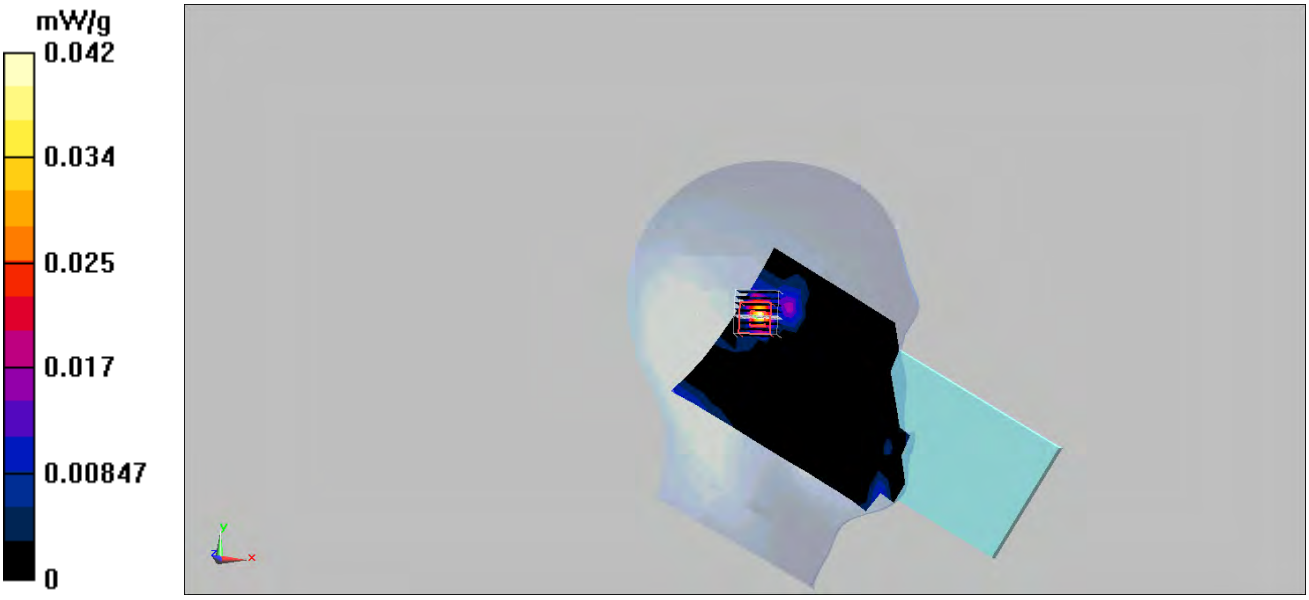
Date/Time: 8/5/2009

802.11a_ Left -Tilt_Channel-48
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5240 MHz; σ = 4.69 mho/m; εr = 36; ρ = 1000 kg/m3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.79, 4.79, 4.79); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.042 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 0.354 V/m; Power Drift = 0.140 dB
Peak SAR (extrapolated) = 0.234 W/kg
SAR(1 g) = 0.018 mW/g; SAR(10 g) = 0.00218 mW/g
Maximum value of SAR (measured) = 0.053mW/g



Test Laboratory: Quietek

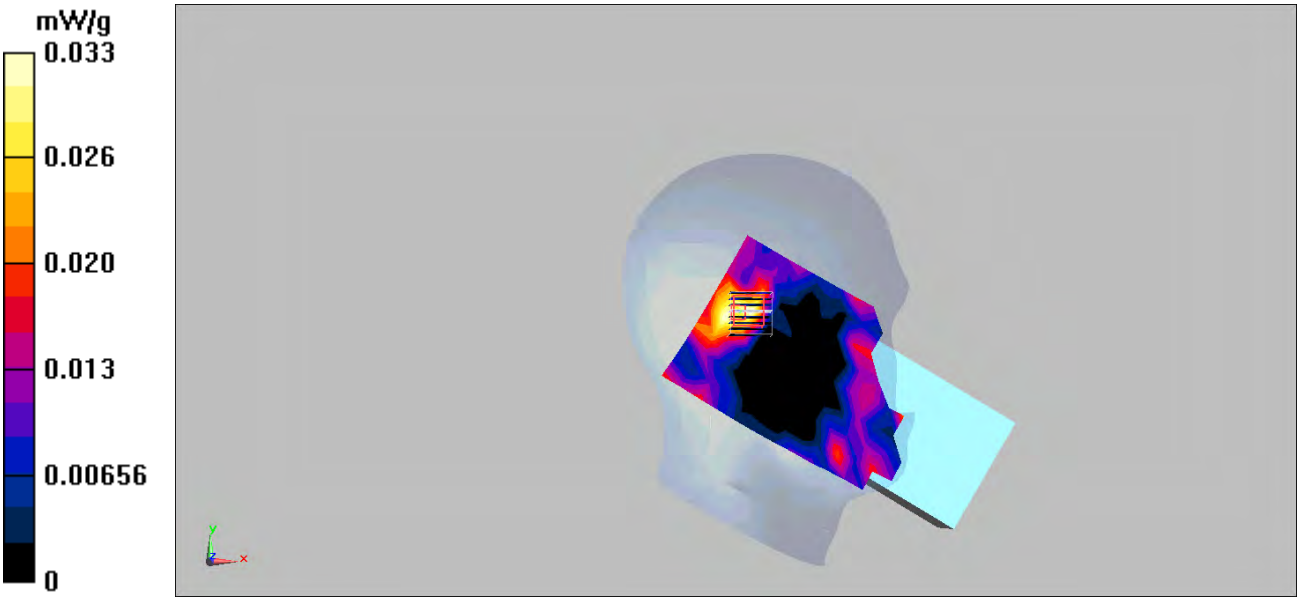
Date/Time: 8/5/2009

802.11a_ Left -Tilt_Channel-52
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5260 MHz; σ = 4.70 mho/m; ε_r = 35.9; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.43, 4.43, 4.43); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head /Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.033 mW/g

Head /Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.18 V/m; Power Drift = 0.133 dB
Peak SAR (extrapolated) = 0.175 W/kg
SAR(1 g) = 0.026 mW/g; SAR(10 g) = 0.00804 mW/g
Maximum value of SAR (measured) = 0.058 mW/g



Test Laboratory: Quietek

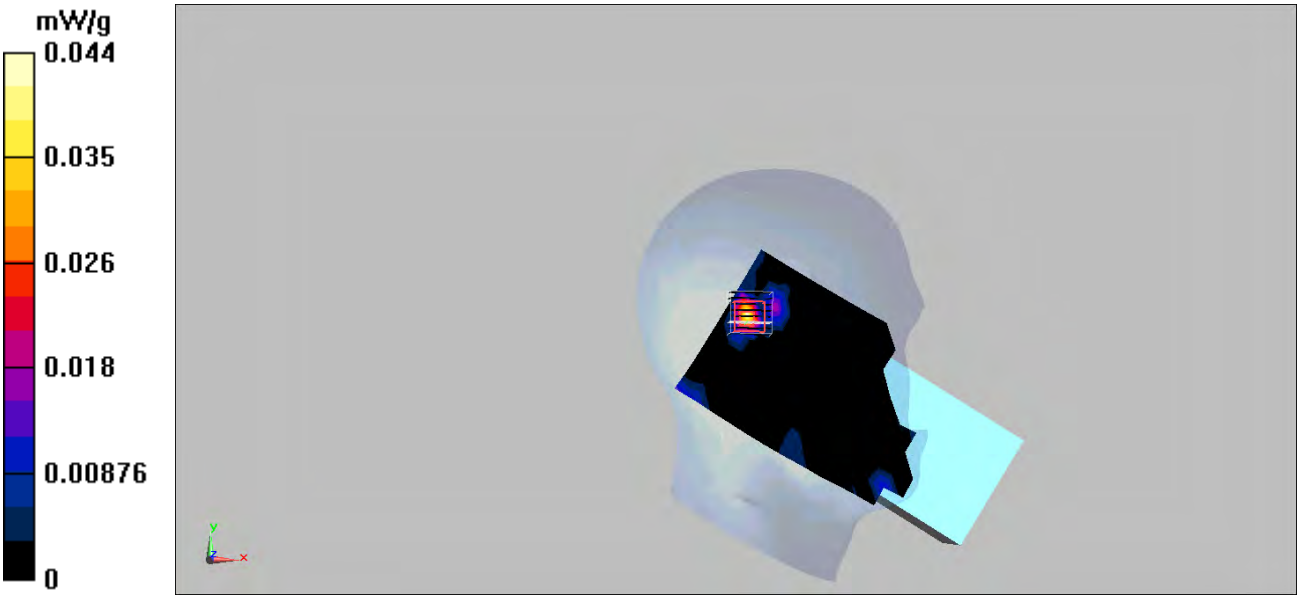
Date/Time: 8/5/2009

802.11a_ Left -Tilt_Channel-64
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5320 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 4.72 mho/m; ε_r = 35.7; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.43, 4.43, 4.43); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head /Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.044 mW/g

Head /Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 0.724 V/m; Power Drift = 0.115 dB
Peak SAR (extrapolated) = 0.290 W/kg
SAR(1 g) = 0.025 mW/g; SAR(10 g) = 0.00359 mW/g
Maximum value of SAR (measured) = 0.064 mW/g



Test Laboratory: Quietek

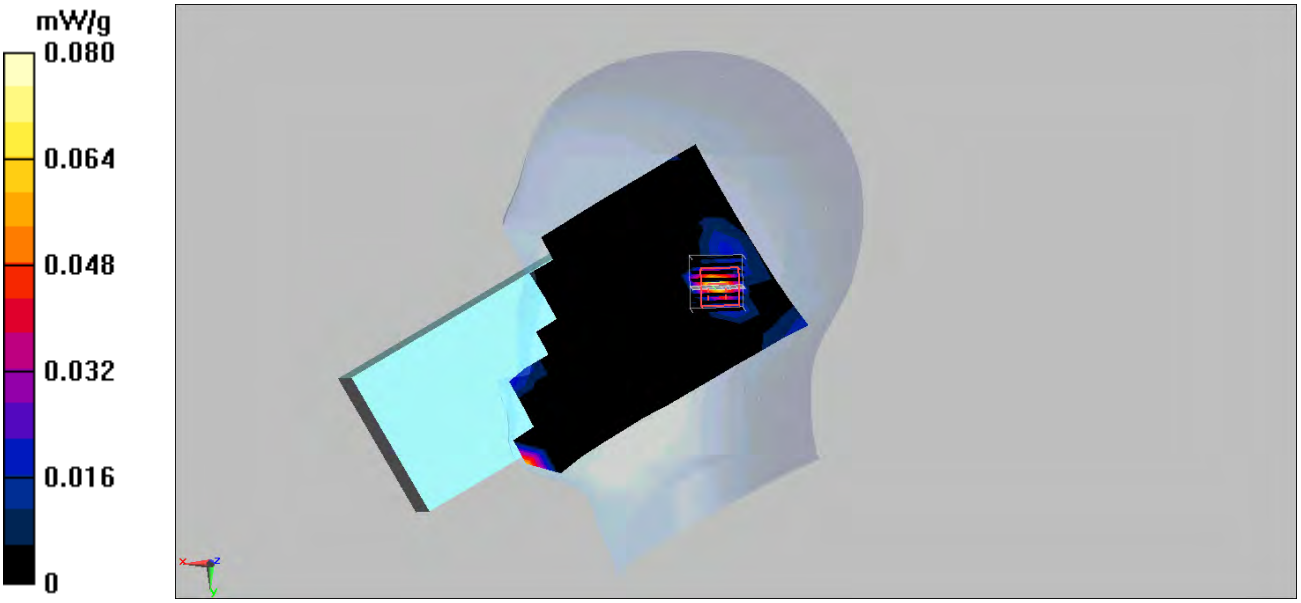
Date/Time: 8/5/2009

802.11a_Right-Cheek_Channel-36
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5180 MHz; σ = 4.67 mho/m; ε_r = 36.2; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.79, 4.79, 4.79); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.080 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.76 V/m; Power Drift = -0.110 dB
Peak SAR (extrapolated) = 0.175 W/kg
SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.00831 mW/g
Maximum value of SAR (measured) = 0.088 mW/g



Test Laboratory: Quietek

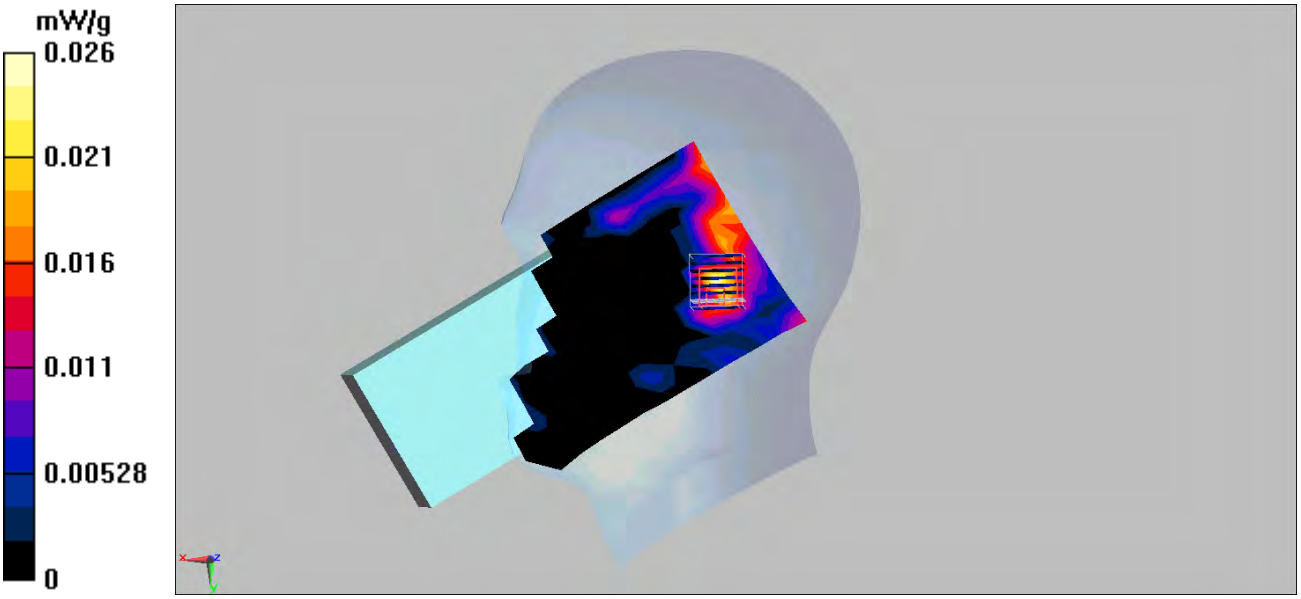
Date/Time: 8/5/2009

802.11a_Right-Cheek_Channel-48
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5240 MHz; σ = 4.69 mho/m; ε_r = 36; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.79, 4.79, 4.79); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.026 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.6 V/m; Power Drift = -0.167 dB
Peak SAR (extrapolated) = 0.063 W/kg
SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.00421 mW/g
Maximum value of SAR (measured) = 0.039 mW/g



Test Laboratory: Quietek

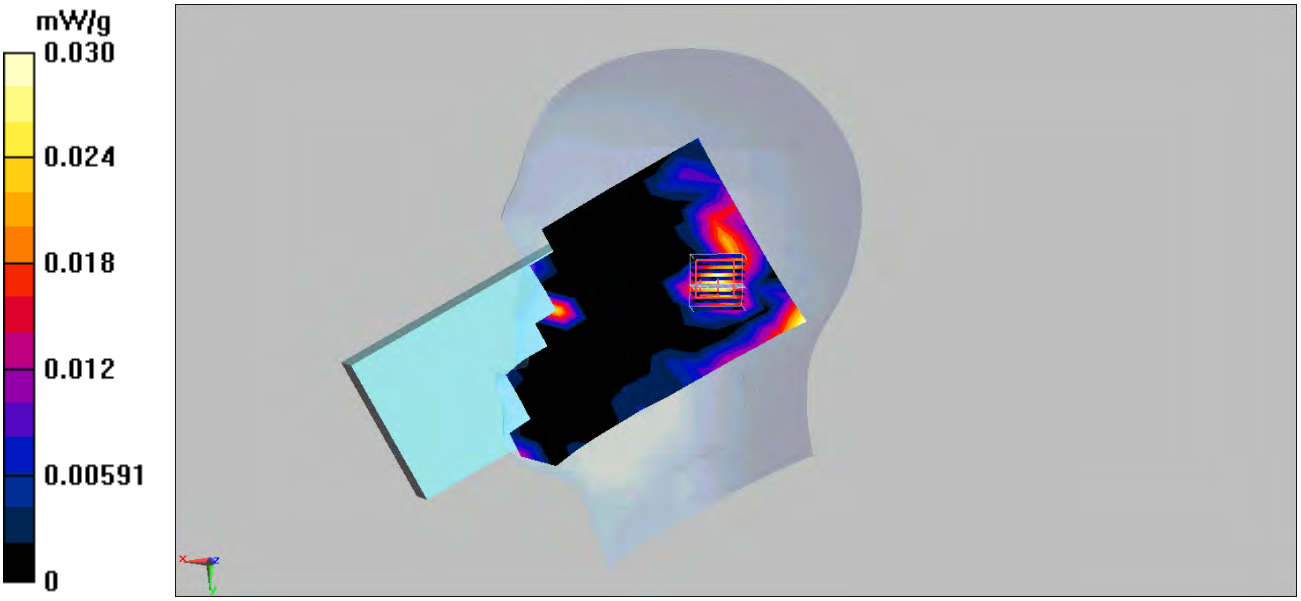
Date/Time: 8/5/2009

802.11a_Right-Cheek_Channel-52
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5260 MHz; σ = 4.70 mho/m; ε_r = 35.9; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.43, 4.43, 4.43); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.030 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 0.454 V/m; Power Drift = 0.133 dB
Peak SAR (extrapolated) = 0.129 W/kg
SAR(1 g) = 0.026 mW/g; SAR(10 g) = 0.00823 mW/g
Maximum value of SAR (measured) = 0.057 mW/g



Test Laboratory: Quietek

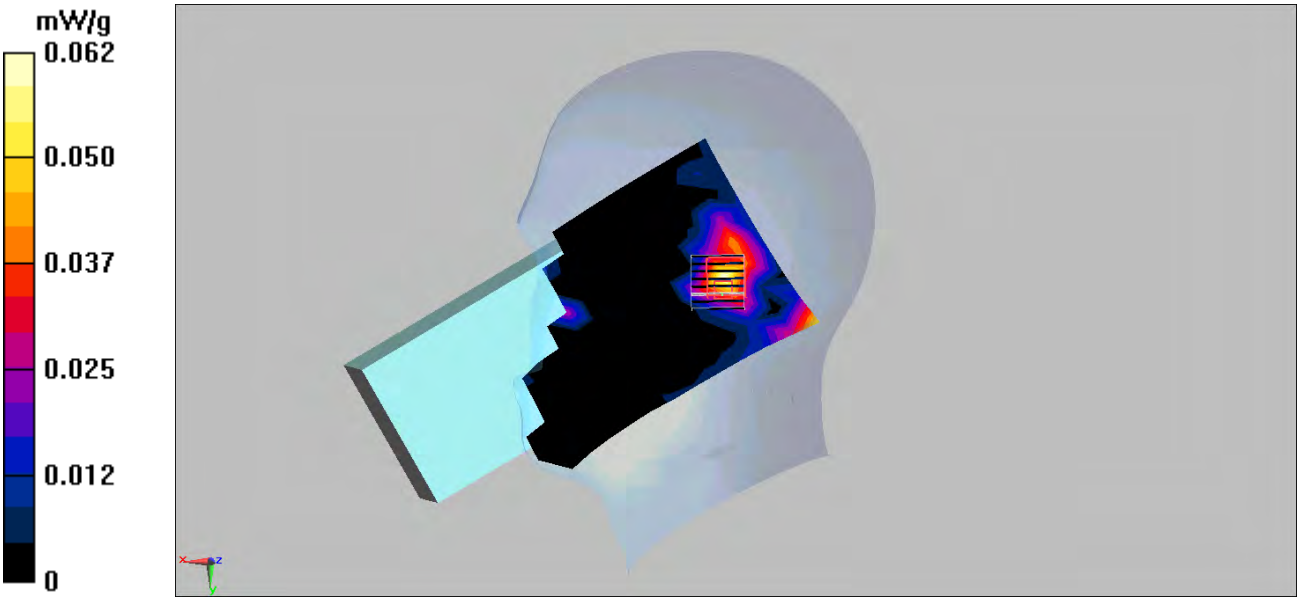
Date/Time: 8/5/2009

802.11a_Right-Cheek_Channel-64
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5320 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 4.72 mho/m; ε_r = 35.7; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.79, 4.79, 4.79); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.062 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.5 V/m; Power Drift = -0.116 dB
Peak SAR (extrapolated) = 0.167 W/kg
SAR(1 g) = 0.042 mW/g; SAR(10 g) = 0.015 mW/g
Maximum value of SAR (measured) = 0.091 mW/g



Test Laboratory: Quietek

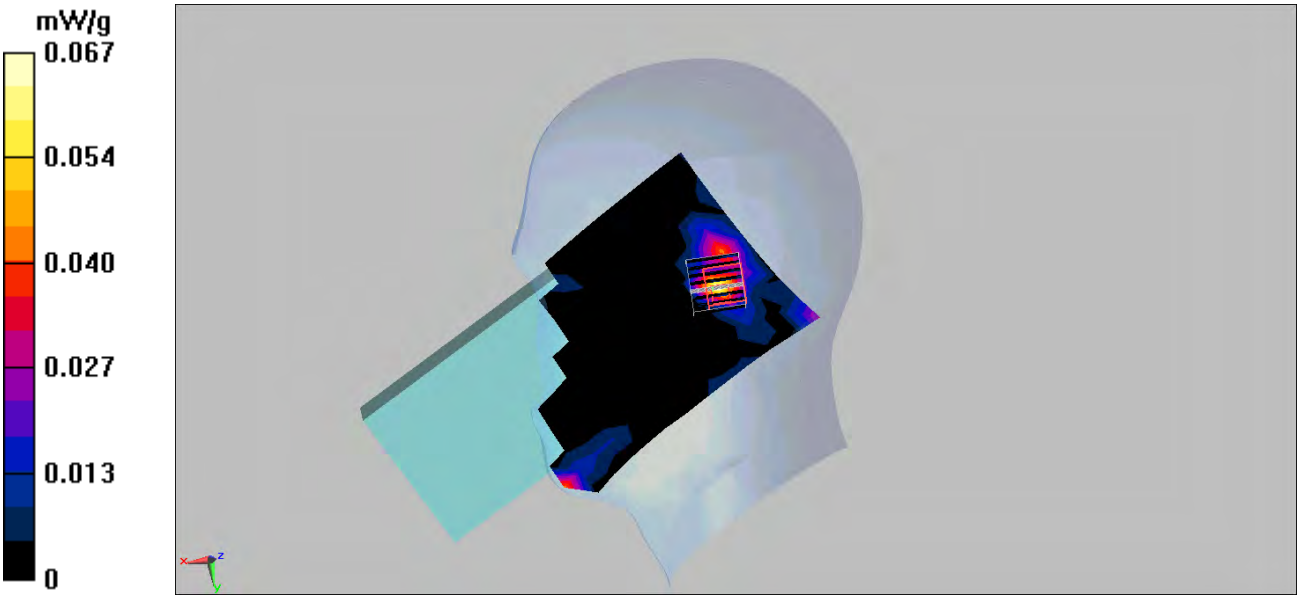
Date/Time: 8/5/2009

802.11a_Right-Tilt_Channel-36
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5180 MHz; σ = 4.67 mho/m; ε_r = 36.2; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.79, 4.79, 4.79); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.067 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.3 V/m; Power Drift = -0.115 dB
Peak SAR (extrapolated) = 0.144 W/kg
SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.00645 mW/g
Maximum value of SAR (measured) = 0.062 mW/g



Test Laboratory: Quietek

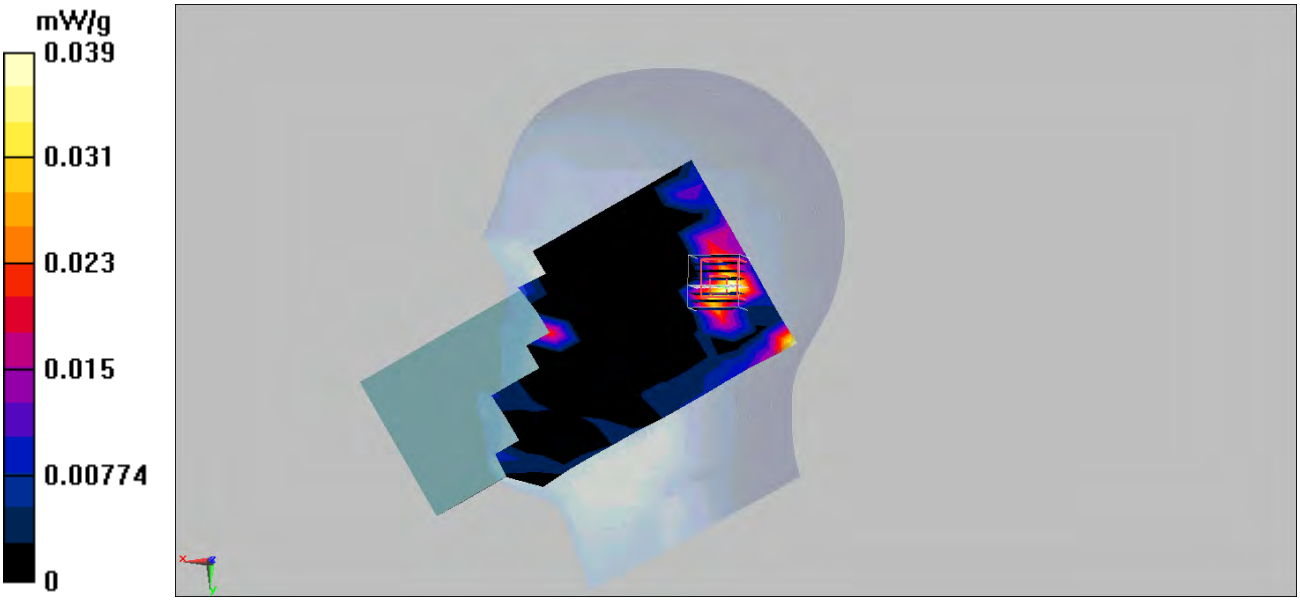
Date/Time: 8/5/2009

802.11a_Right-Tilt_Channel-48
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5240 MHz; σ = 4.70 mho/m; ε_r = 36; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.79, 4.79, 4.79); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.039 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.2 V/m; Power Drift = 0.096 dB
Peak SAR (extrapolated) = 0.109 W/kg
SAR(1 g) = 0.018 mW/g; SAR(10 g) = 0.00509 mW/g
Maximum value of SAR (measured) = 0.048 mW/g



Test Laboratory: Quietek

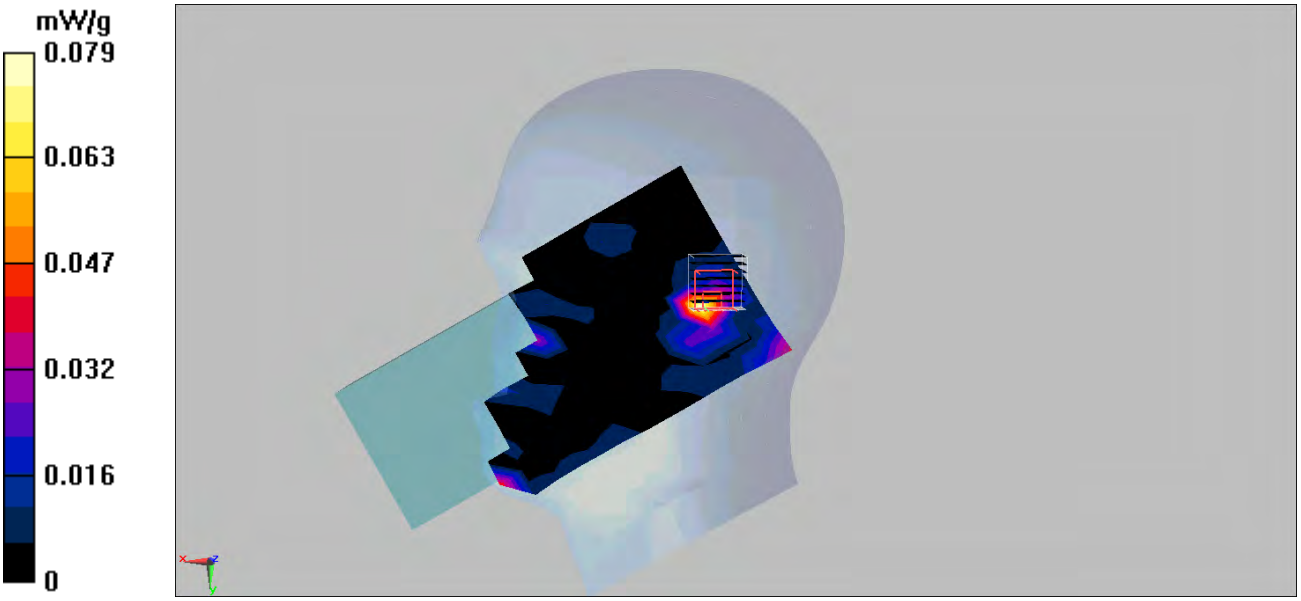
Date/Time: 8/5/2009

802.11a_Right-Tilt_Channel-52
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5260 MHz; σ = 4.70 mho/m; ε_r = 35.9; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.43, 4.43, 4.43); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.079 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.3 V/m; Power Drift = -0.114 dB
Peak SAR (extrapolated) = 0.181 W/kg
SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.00811 mW/g
Maximum value of SAR (measured) = 0.085 mW/g



Test Laboratory: Quietek

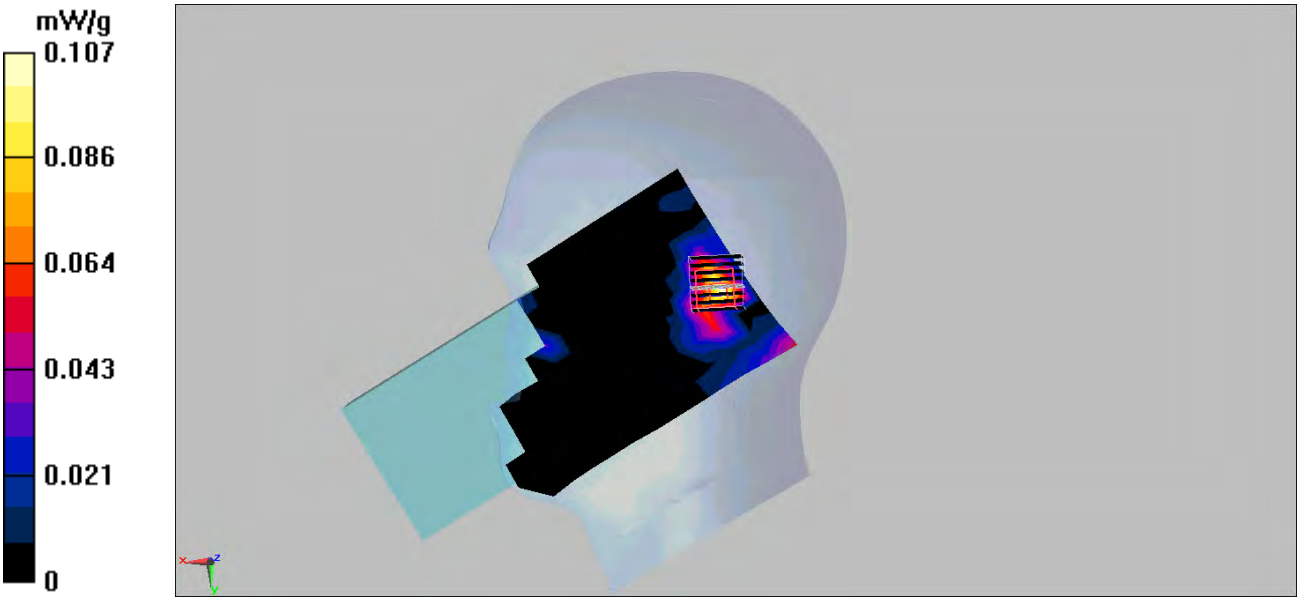
Date/Time: 8/5/2009

802.11a_Right-Tilt_Channel-64
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5320 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 4.72 mho/m; ε_r = 35.7; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.43, 4.43, 4.43); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.107 mW/g

Hesd/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.41 V/m; Power Drift = -0.183 dB
Peak SAR (extrapolated) = 0.296 W/kg
SAR(1 g) = 0.079 mW/g; SAR(10 g) = 0.025 mW/g
Maximum value of SAR (measured) = 0.153 mW/g



Test Laboratory: Quietek

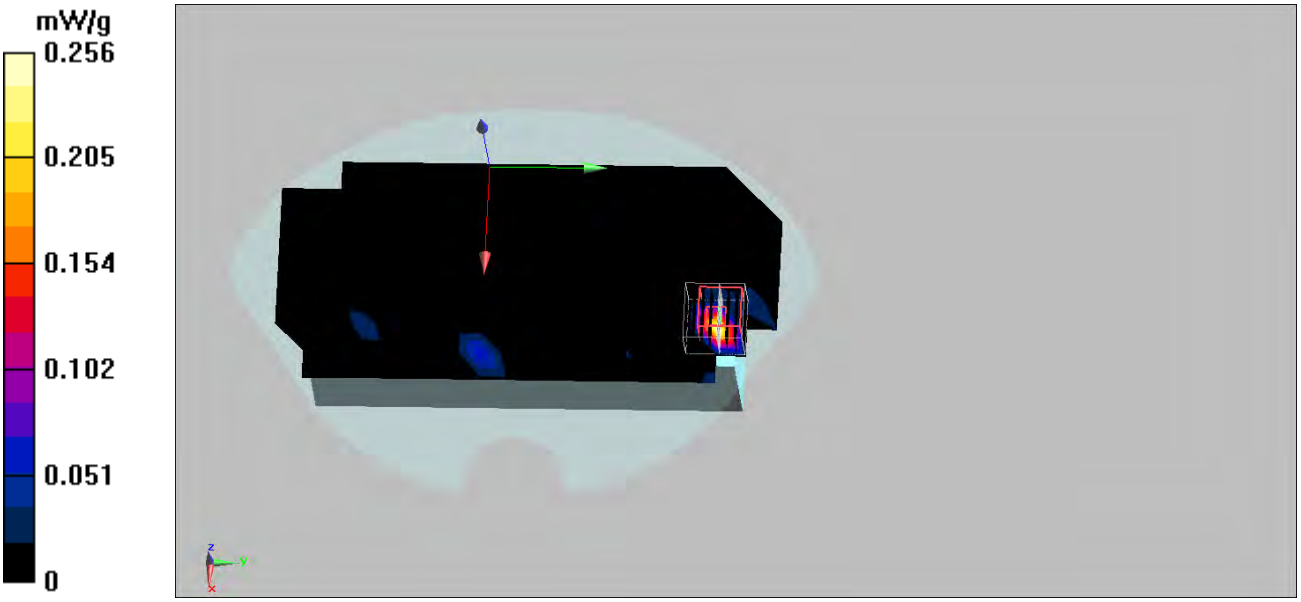
Date/Time: 8/5/2009

802.11a_Body_Channel-36
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5180 MHz; σ = 5.29 mho/m; ε_r = 50.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.43, 4.43, 4.43); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Body/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.256 mW/g

Body/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 0.354 V/m; Power Drift = 0.131 dB
Peak SAR (extrapolated) = 0.457 W/kg
SAR(1 g) = 0.095 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.251 mW/g



Test Laboratory: Quietek

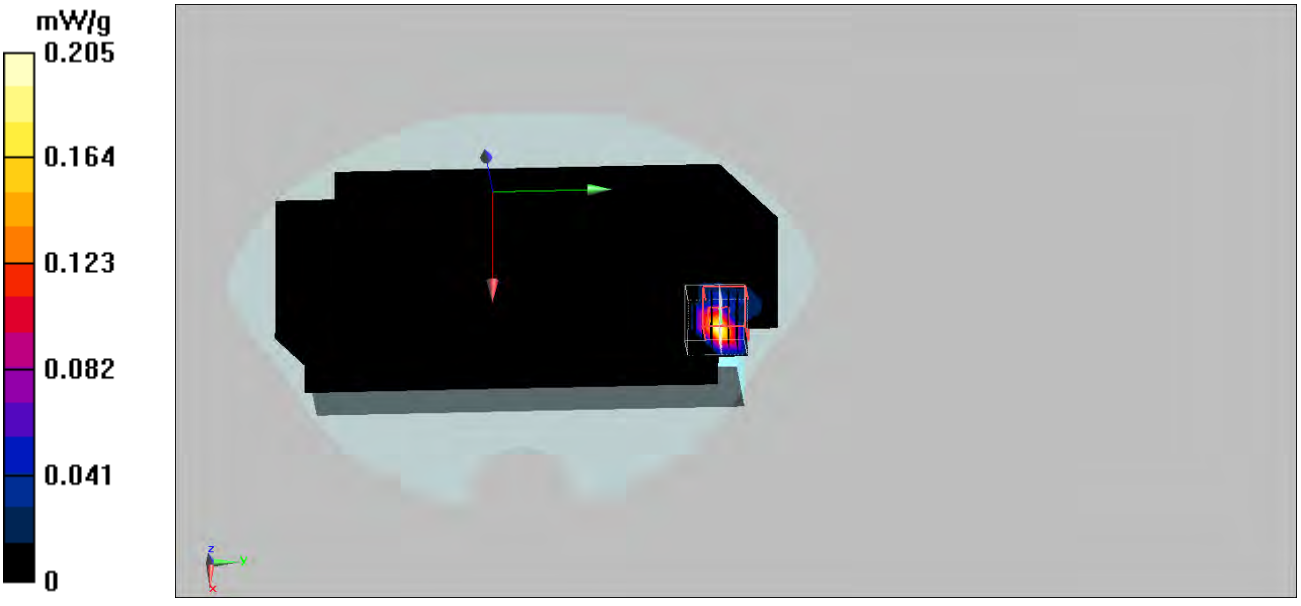
Date/Time: 8/5/2009

802.11a_Body_Channel-48
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5240 MHz; σ = 5.38 mho/m; ε_r = 49.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.43, 4.43, 4.43); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Body/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.205 mW/g

Body/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 0.457 V/m; Power Drift = 0.096 dB
Peak SAR (extrapolated) = 0.493 W/kg
SAR(1 g) = 0.091 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.260 mW/g



Test Laboratory: Quietek

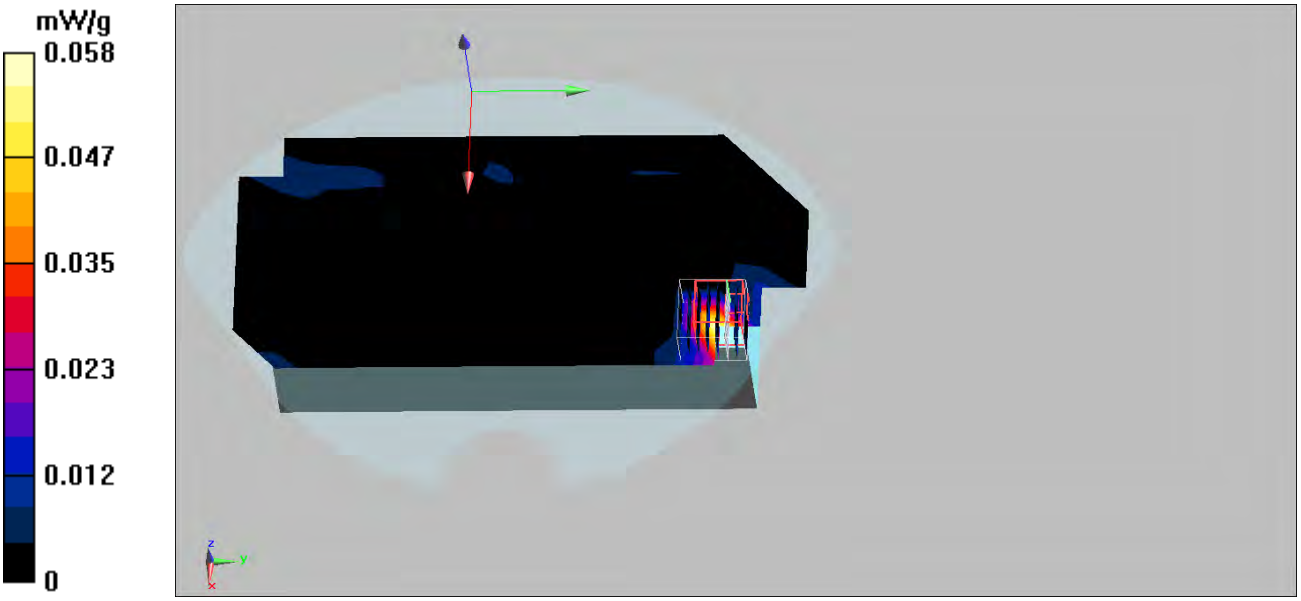
Date/Time: 8/5/2009

802.11a_Body_Channel-52
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5260 MHz; σ = 5.44 mho/m; ε_r = 49.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.23, 4.23, 4.23); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Body/Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.058 mW/g

Body/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 0.110 V/m; Power Drift = -0.085 dB
Peak SAR (extrapolated) = 0.258 W/kg
SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.012 mW/g
Maximum value of SAR (measured) = 0.118 mW/g



Test Laboratory: Quietek

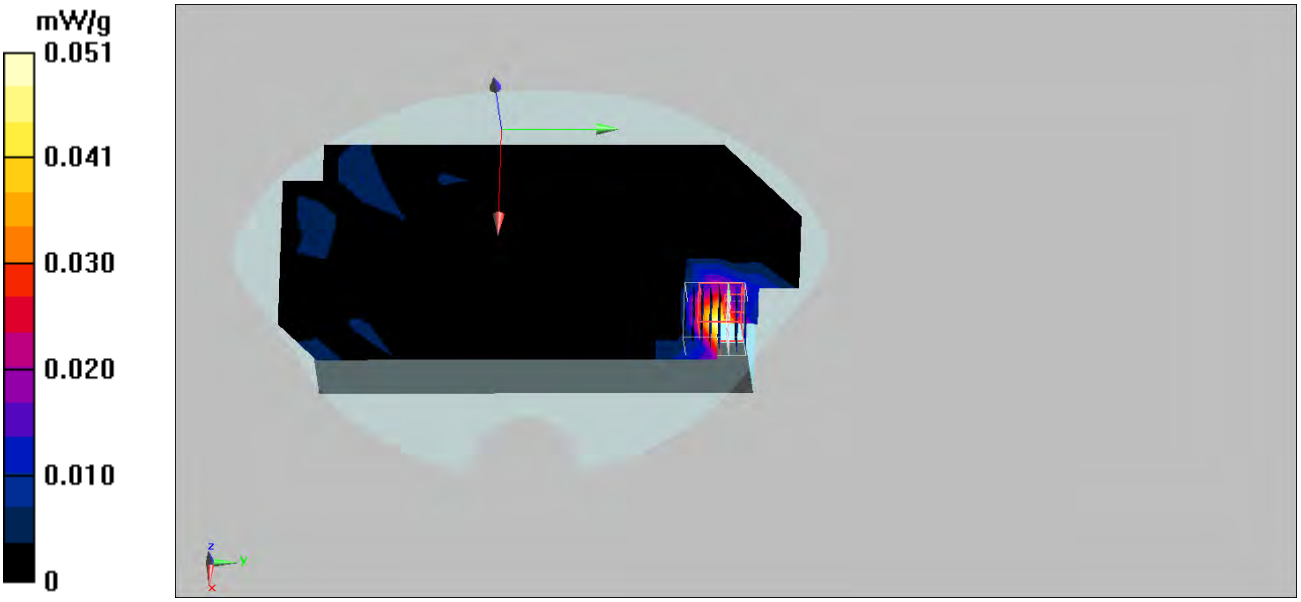
Date/Time: 8/5/2009

802.11a_Body_Channel-64
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5320 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 5.47 mho/m; ε_r = 49.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.23, 4.23, 4.23); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Body/Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.051 mW/g

Body/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 0.451 V/m; Power Drift = 0.145 dB
Peak SAR (extrapolated) = 0.255 W/kg
SAR(1 g) = 0.043 mW/g; SAR(10 g) = 0.014 mW/g
Maximum value of SAR (measured) = 0.126 mW/g



Test Laboratory: Quietek

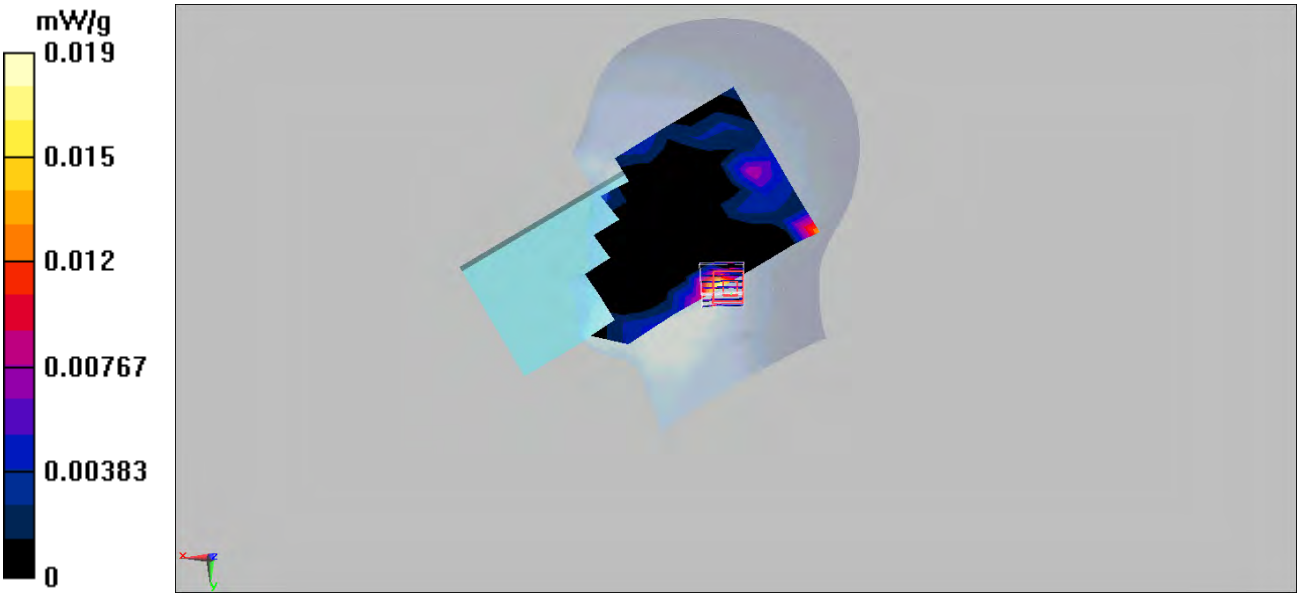
Date/Time: 8/5/2009

802.11a_Right-Cheek_Channel-36 Main
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5180 MHz; σ = 4.67 mho/m; ε_r = 36.2; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.79, 4.79, 4.79); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (7x14x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.019 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1 V/m; Power Drift = -0.075 dB
Peak SAR (extrapolated) = 0.011 W/kg
SAR(1 g) = 0.00785 mW/g; SAR(10 g) = 0.00254 mW/g
Maximum value of SAR (measured) = 0.026 mW/g



Test Laboratory: Quietek

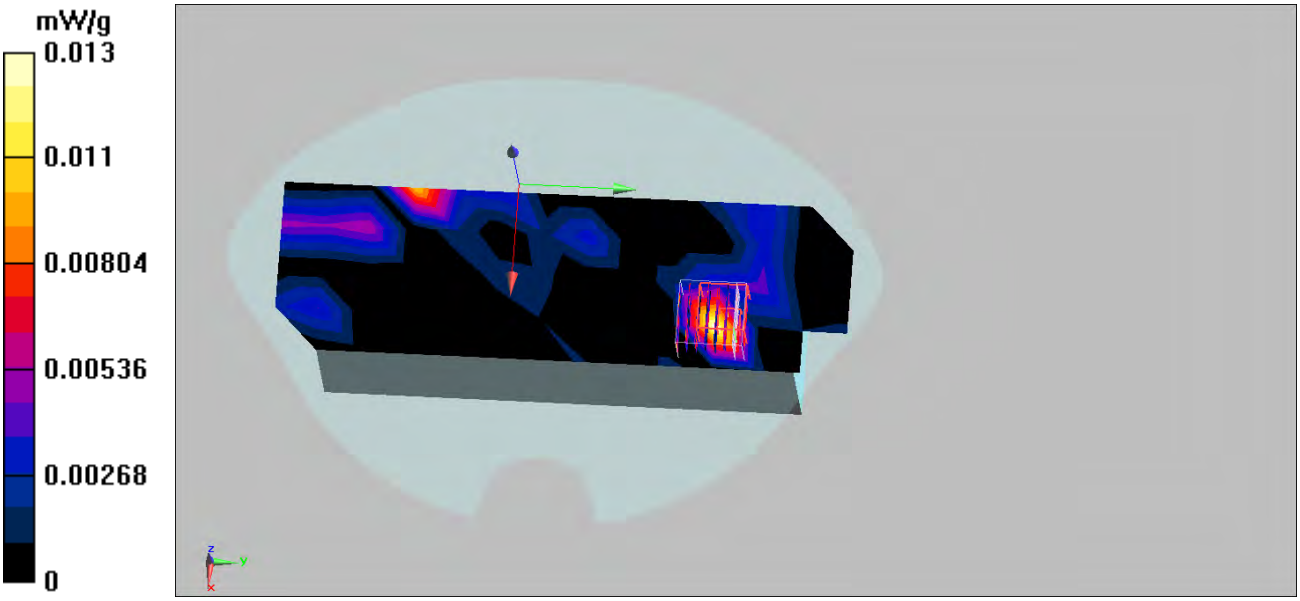
Date/Time: 8/5/2009

802.11a_Body_Channel-36 Main
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5180 MHz; σ = 5.29 mho/m; ε_r = 50.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.43, 4.43, 4.43); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

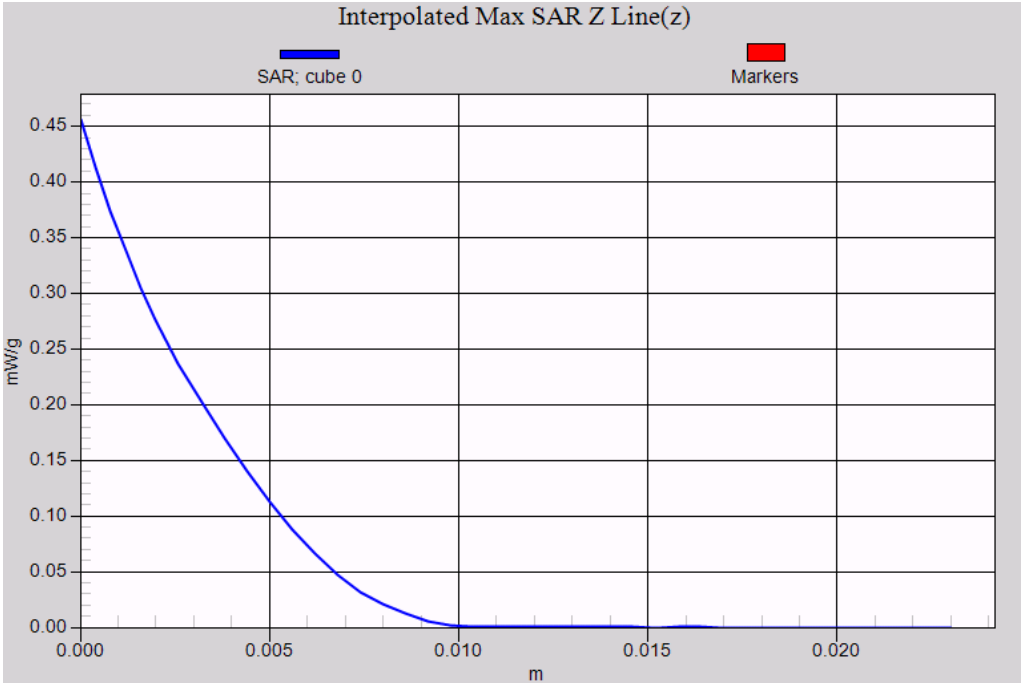
Body/Area Scan (5x14x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.013 mW/g

Body/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.4 V/m; Power Drift = 0.098 dB
Peak SAR (extrapolated) = 0.100 W/kg
SAR(1 g) = 0.015 mW/g; SAR(10 g) = 0.00382 mW/g
Maximum value of SAR (measured) = 0.043 mW/g



802.11a 5200 MHz EUT Body-worn Z-Axis plot

Channel: 36



Test Laboratory: Quietek

Date/Time: 8/6/2009

802.11a_ Left -Cheek_Channel-100
DUT: Portable Data Collection Terminal; Type: MM3
Communication System: 802.11a; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 4.91 mho/m; ε_r = 36.4; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3602; ConvF(4.44, 4.44, 4.44); Calibrated: 5/20/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1207; Calibrated: 4/7/2009
- Phantom: SAM Right Table; Type: SAM;
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Head/Area Scan (9x18x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.050 mW/g

Head/Zoom Scan (8x8x8) (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 0.231 V/m; Power Drift = 0.110 dB
Peak SAR (extrapolated) = 0.300 W/kg
SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.00872 mW/g
Maximum value of SAR (measured) = 0.090 mW/g