Report No.: RZA2010-0551-1

TESTING
No. L2264

TEST REPORT

Product Name	Two-way Radio
Model	S820, S830
FCC ID	X9L-S820
Client	Quanzhou Fengze Lianfa Electronic Factory

TA Technology (Shanghai) Co., Ltd.

GENERAL SUMMARY

Product Name	Two-way Radio	**Model**	S820, S830
FCC ID	X9L-S820	**Report No.**	RZA2010-0551-1
Client	Quanzhou Fengze Lianfa Electronic Factory		
Manufacturer	Quanzhou Fengze Lianfa Electronic Factory		
Reference Standard(s)	**IEEE Std C95.1, 1999:**IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz **IEEE Std 1528™-2003:**IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques **OET Bulletin 65 supplement C, published June 2001 including DA 02-1438, published June 2002:** Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits. Transition Period for the Phantom Requirements of Supplement C to OET Bulletin 65.		
Conclusion	This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in Chapter 7 of this test report are below limits specified in the relevant standards. General Judgment: **Pass** (Stamp) **Date of issue: April 23rd, 2010**		
Comment	The test result only responds to the measured sample.		

Approved by 杨伟中 Yang Weizhong **Revised by** 凌敏宝 Ling Minbao **Performed by** 王路 Wang Lu

TABLE OF CONTENT

1. General Information

1.1. Notes of the test report

TA Technology (Shanghai) Co., Ltd. guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at TA Technology (Shanghai) Co., Ltd. at the time of execution of the test.

TA Technology (Shanghai) Co., Ltd. is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. This report only refers to the item that has undergone the test.

This report standalone dose not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

1.2. Testing laboratory

Company: TA Technology (Shanghai) Co., Ltd.
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1.3. Applicant Information

Company: Quanzhou Fengze Lianfa Electronic Factory

Address: Daping Industry Park, Donghai Town, Fengze District, Quanzhou, Fujian, China

City: Quanzhou

Postal Code: /

Country: China

Telephone: /

Fax: /

1.4. Manufacturer Information

Company: Quanzhou Fengze Lianfa Electronic Factory

Address: Daping Industry Park, Donghai Town, Fengze District, Quanzhou, Fujian, China

City: Quanzhou

Postal Code: /

Country: China

Telephone: /

Fax: /

1.5. Information of EUT

General information

Device type :	portable device
Exposure category:	Controlled environment / Occupational
SN:	8202010030004
Device operating configurations :	
Operating mode(s):	PPT
Test Modulation:	FM
Operating frequency range(s)	transmitter frequency range
UHF	406.1-430 MHz, 450-470 MHz
Test channel	406.125MHz, 418.025MHz, 429.975MHz 450.025MHz, 460.000MHz, 469.975MHz
Hardware version:	/
Software version:	/
Antenna type:	External antenna

Equipment Under Test (EUT) is a Two-way Radio with external antenna. SAR is tested for 406.1 – 430 MHz and 450-470 MHz only.

The sample undergoing test was selected by the Client.

Components list please refer to documents of the manufacturer.

1.6. Test Date

The test is performed on March 28, 2010 and from April 20, 2010 to April 21, 2010.

2. Operational Conditions during Test

The spatial peak SAR values were assessed for the lowest, middle and highest channels defined by UHF (406.125MHz, 418.025MHz, 429.975MHz, 450.025MHz, 460.000MHz, 469.975MHz) systems UHF, Battery and accessories shall be those specified by the manufacturer. The battery shall be fully charged before each measurement and there shall be no external connections.

3. SAR Measurements System Configuration

3.1. SAR Measurement Set-up

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

- A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronic (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.
- A unit to operate the optical surface detector which is connected to the EOC.
- The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.
- The DASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 2003
- DASY5 software and SEMCAD data evaluation software.
- Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
- The generic twin phantom enabling the testing of left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- System validation dipoles allowing to validate the proper functioning of the system.

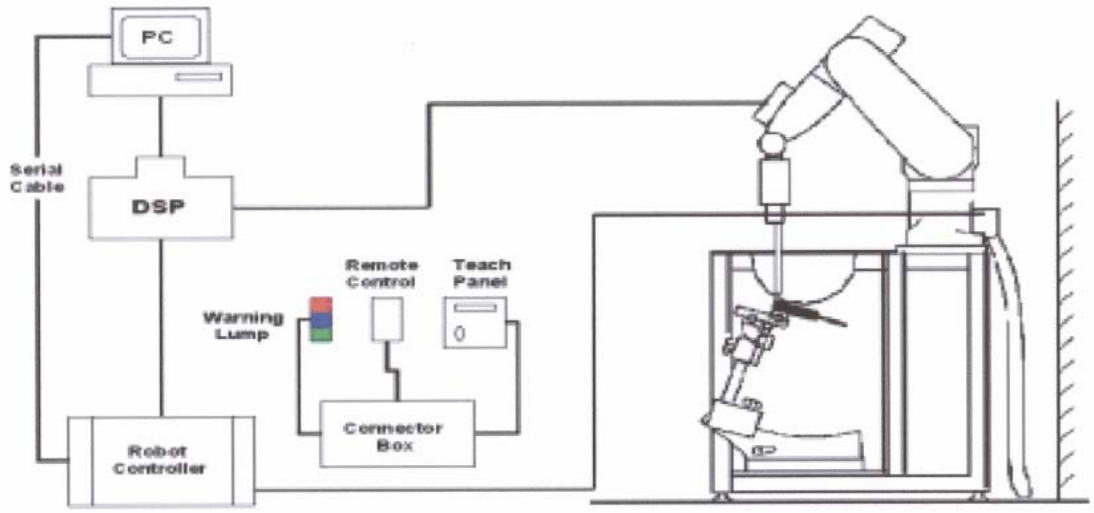

Figure 1. SAR Lab Test Measurement Set-up

3.2. DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe ET3DV6 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

3.2.1. ET3DV6 Probe Specification

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection System (ET3DV6 only) Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.q., glycol)
Calibration	In air from 10 MHz to 3 GHz In brain and muscle simulating tissue at frequencies of 450MHz, 900MHz, 1750 MHz, 1950MHz and 2450 MHz. (accuracy±8%) Calibration for other liquids and frequencies upon request
Frequency	10 MHz to 2.5 GHz; Linearity: ±0.2 dB (30 MHz to 2.5 GHz)
Directivity	±0.2 dB in brain tissue (rotation around probe axis) ±0.4 dB in brain tissue (rotation around probe axis)
Dynamic Range	5u W/g to > 100mW/g; Linearity: ±0.2dB
Surface Detection	±0.2 mm repeatability in air and clear liquids over diffuse reflecting surface (ET3DV6 only)
Dimensions	Overall length: 330mm Tip length: 16mm Body diameter: 12mm Tip diarneter: 6.8mm Distance from probe tip to dipole centers: 2.7mm
Application	General dosimetry up to 2.5GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

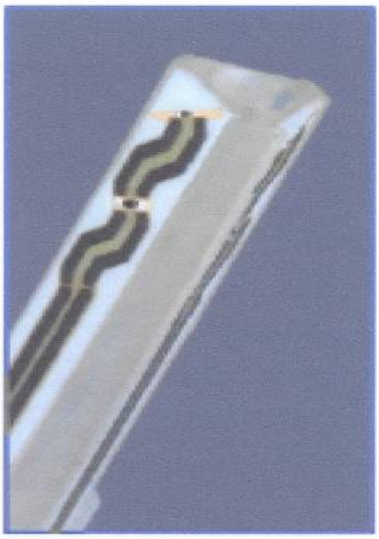

Figure 2 ET3DV6 E-field Probe

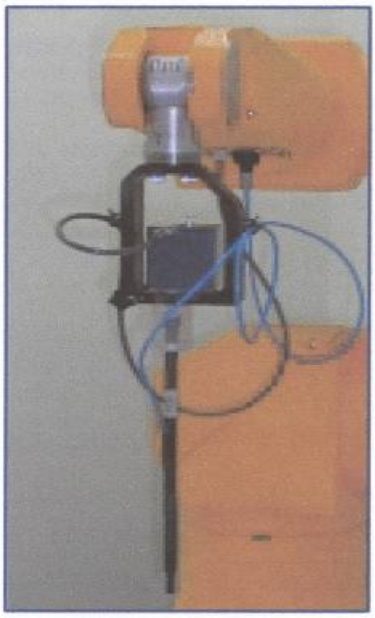

Figure 3 ET3DV6 E-field probe

3.2.2. E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.
E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C\frac{\Delta T}{\Delta t}$$

Where: Δt = Exposure time (30 seconds),
C = Heat capacity of tissue (brain or muscle),
ΔT = Temperature increase due to RF exposure.
Or

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

Where:
σ = Simulated tissue conductivity,
ρ = Tissue density (kg/m3).

3.3. Other Test Equipment

3.3.1. Device Holder for Transmitters

The DASY device holder is designed to cope with the die rent positions given in the standard.
It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.
The DASY device holder is constructed of low-loss POM material.The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the inference of the clamp on the test results could thus be lowered.

Figure 4.Device Holder

3.3.2. Phantom

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (Oval Flat) phantom defined in IEEE 1528-2003, CENELEC 50361 and IEC 62209. It enables the dosimetric evaluation of wireless portable device usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.

Shell Thickness 2 ±0.2 mm
Filling Volume Approx. 30 liters
Dimensions 190×600×400 mm (H×L×W)

Figure 5.Generic Twin Phantom

3.4. Scanning procedure

The DASY5 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

- The ”reference“ and ”drift“ measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT’s output power and should vary max. ± 5 %.

- The ”surface check“ measurement tests the optical surface detection system of the DASY5 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle

to the surface within ± 30°.)

- Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot.Before starting the area scan a grid spacing of 15 mm x 15 mm is set. During the scan the distance of the probe to the phantom remains unchanged.
After finishing area scan, the field maxima within a range of 2 dB will be ascertained.

- Zoom Scan

Zoom Scans are used to estimate the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan is done by 7x7x7 points within a cube whose base is centered around the maxima found in the preceding area scan.

- Spatial Peak Detection

The procedure for spatial peak SAR evaluation has been implemented and can determine values of masses of 1g and 10g, as well as for user-specific masses.The DASY5 system allows evaluations that combine measured data and robot positions, such as:
• maximum search
• extrapolation
• boundary correction
• peak search for averaged SAR
During a maximum search, global and local maxima searches are automatically performed in 2-D after each Area Scan measurement with at least 6 measurement points. It is based on the evaluation of the local SAR gradient calculated by the Quadratic Shepard's method. The algorithm will find the global maximum and all local maxima within -2 dB of the global maxima for all SAR distributions.
Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space. They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1g and 10g cubes.

- A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

3.5. Data Storage and Evaluation

3.5.1. Data Storage

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA5". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

3.5.2. Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, ai_0, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	Dcp_i
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	
	- Density	

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot c f / d c p_i$$

With V_i = compensated signal of channel i (i = x, y, z)

U_i = input signal of channel i (i = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcp_i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes: $E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$

H-field probes: $H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f^2) / f$

With V_i = compensated signal of channel i (i = x, y, z)

$Norm_i$ = sensor sensitivity of channel i (i = x, y, z)
[mV/(V/m)^2] for E-field Probes

$ConvF$ = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_x^2 + E_Y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (E_{tot}^2 \cdot \ .) / (\quad \cdot 1000)$$

with $\boldsymbol{SAR}$ = local specific absorption rate in mW/g

$\boldsymbol{E_{tot}}$ = total field strength in V/m

σ = conductivity in [mho/m] or [Siemens/m]

ρ = equivalent tissue density in g/cm^3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}^2 / 3770 \quad \text{or} \quad \boldsymbol{P_{pwe} = H_{tot}^2 \cdot 37.7}$$

with P_{pwe} = equivalent power density of a plane wave in mW/cm^2

$\boldsymbol{E_{tot}}$ = total electric field strength in V/m

$\boldsymbol{H_{tot}}$ = total magnetic field strength in A/m

3.6. System check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulants were measured every day using the dielectric probe kit and the network analyser. A system check measurement was made following the determination of the dielectric parameters of the simulant, using the dipole validation kit. A power level of 398 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the table 7.

System check results have to be equal or near the values determined during dipole calibration with the relevant liquids and test system (±10 %).

System check is performed regularly on all frequency bands where tests are performed with the DASY5 system.

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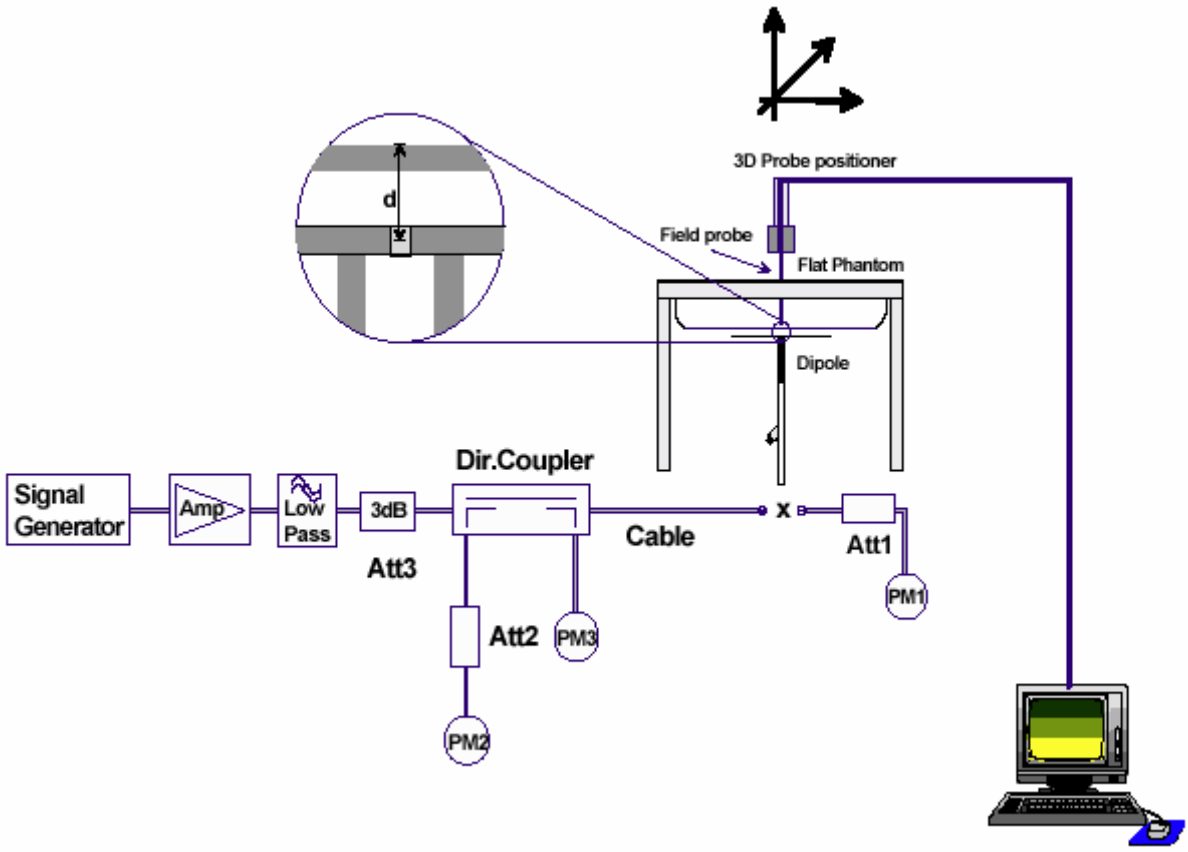

Figure 6. System Check Set-up

3.7. Equivalent Tissues

The liquid is consisted of water, sugar, salt, Preventol and Cellulose. The liquid has previously been proven to be suited for worst-case. The Table 1 and Table 2 show the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the OET 65.

Table 1: Composition of the Head Tissue Equivalent Matter

MIXTURE%	FREQUENCY(Brain) 450MHz
Water	38.56
Sugar	56.32
Salt	3.95
Preventol	0.10
Cellulose	1.07
Dielectric Parameters Target Value	f=450MHz ε=43.5 σ=0.87

Table 2: Composition of the Body Tissue Equivalent Matter

MIXTURE%	FREQUENCY(Body)450MHz
Water	51.16
Sugar	46.78
Salt	1.49
Preventol	0.10
Cellulose	0.47
Dielectric Parameters Target Value	f=450MHz ε=56.7 σ=0.94

4. Laboratory Environment

Table 3: The Ambient Conditions during Test

Temperature	Min. = 20°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

5. Charcteristics of the Test

5.1. Applicable Limit Regulations

IEEE C95.1-1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

5.2. Applicable Measurement Standards

IEEE Std 1528™-2003: IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

SUPPLEMENT C Edition 01-01 to OET BULLETIN 65 Edition 97-01 June 2001: Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields Additional Information for Evaluation Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions.

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6. Conducted Output Power Measurement

6.1. Conducted Power Results

Table 4: Conducted Power Measurement Results

UHF 12.5KHz		Conducted Power		
		406.125MHz	429.975MHz	469.975MHz
5W	Before test (dBm)	36.93	37.06	36.68
	After test (dBm)	36.92	37.05	36.67
UHF 25KHz		**Conducted Power**		
		406.125MHz	429.975MHz	469.975MHz
5W	Before test (dBm)	36.72	37.11	36.71
	After test (dBm)	36.73	37.10	36.72

UHF 12.5KHz		Conducted Power		
		418.025MHz	450.025MHz	460.000MHz
5W	Before test (dBm)	36.95	37.04	36.87
	After test (dBm)	36.94	37.03	36.86
UHF 25KHz		**Conducted Power**		
		418.025MHz	450.025MHz	460.000MHz
5W	Before test (dBm)	36.79	37.08	36.76
	After test (dBm)	36.78	37.07	36.75

7. Test Results

7.1. Dielectric Performance

Table 5: Dielectric Performance of Head Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp
		ε_r	σ(s/m)	℃
450MHz (head)	Target value ±5% window	43.50 41.33 — 45.68	0.87 0.83 — 0.91	/
	Measurement value 2010-03-28	44.75	0.88	21.8
	Measurement value 2010-04-20	44.75	0.88	21.8

Table 6: Dielectric Performance of Body Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp
		ε_r	σ(s/m)	℃
450MHz (body)	Target value ±5% window	56.70 53.87 — 59.54	0.94 0.89— 0.99	/
	Measurement value 2010-03-28	57.02	0.94	21.9
	Measurement value 2010-04-20	57.02	0.94	21.8

7.2. System Check Results

Table 7: System Check

Frequency	Description	SAR(W/kg)		Dielectric Parameters		Temp
		10g	1g	ε_r	σ(s/m)	℃
450MHz	Recommended value ±10% window	1.25 1.13—1.38	1.87 1.68 — 2.06	44.2	0.86	/
	Measurement value 2010-3-28	1.32	2.02	44.75	0.88	21.9
	Measurement value 2010-4-20	1.31	2.00	44.75	0.88	21.9

Note：1. The graph results see ANNEX B.

2. Recommended Values used derive from the calibration certificate and 398 mW is used as feeding power to the calibrated dipole.

7.3. Summary of Measurement Results

Table 8: SAR Values (UHF)

Frequency	1 g Average		Power Drift (dB)	Graph Results
	Limits 8.0 W/kg		± 0.21	
	Duty cycle		Power	
	100%	50%	Drift(dB)	
The EUT display towards phantom, with 25KHz,Distance 12mm (5W, Face Held)				
406.125 MHz	9.720	4.860	-0.053	Figure 9
418.025 MHz	9.880	4.940	-0.068	Figure 10
429.975 MHz	9.620	4.810	-0.094	Figure 11
450.025 MHz	9.620	4.810	-0.045	Figure 12
460.000 MHz	9.380	4.690	-0.093	Figure 13
469.975 MHz	10.100	5.050	-0.111	Figure 14
The EUT display towards ground with belt clip, with 25KHz, Distance 0mm (5W,Body-Worn)				
406.125 MHz	7.900	3.950	-0.091	Figure 15
418.025 MHz	8.830	4.415	0.180	Figure 16
429.975 MHz	7.960	3.980	-0.060	Figure 17
450.025 MHz	8.320	4.160	-0.110	Figure 18
460.000 MHz	8.25	4.125	-0.020	Figure 19
469.975 MHz	8.770	4.385	-0.109	Figure 20
Worst case of 25KHz with 12.5KHz				
469.975 MHz	10.000	5.000	-0.070	Figure 21

Table 9: SAR Values are scaled for the power drift

Frequency	1 g Average		Power Drift (dB)	+ Power Drift 10^(dB/10)	SAR 1g(W/kg) (include +power drift)	
	Limits 8.0 W/kg		± 0.21		Duty cycle	
	Duty cycle		Power Drift(dB)		100%	50%
	100%	50%				
The EUT display towards phantom, with 25KHz,Distance 12mm (5W, Face Held)						
406.125 MHz	9.720	4.860	-0.053	0.988	9.603	4.802
418.025 MHz	9.880	4.940	-0.068	0.984	9.772	4.861
429.975 MHz	9.620	4.810	-0.094	0.979	9.418	4.709
450.025 MHz	9.620	4.810	-0.045	0.990	9.524	4.762
460.000 MHz	9.380	4.690	-0.093	0.979	9.183	4.592
469.975 MHz	10.100	5.050	-0.111	0.975	9.848	4.924
The EUT display towards ground with belt clip, with 25KHz, Distance 0mm (5W,Body-Worn)						
406.125 MHz	7.900	3.950	-0.091	0.979	7.734	3.867
418.025 MHz	8.830	4.415	-0.180	1.042	9.201	4.600
429.975 MHz	7.960	3.980	-0.060	0.986	7.849	3.924
450.025 MHz	8.320	4.160	-0.110	8.320	8.112	4.056
460.000 MHz	8.250	4.125	-0.020	8.250	8.209	4.104
469.975 MHz	8.770	4.385	-0.109	0.975	8.551	4.275
Worst case of 25KHz with 12.5KHz						
470.025 MHz	10.000	5.000	-0.070	0.984	9.840	4.920

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2. The Exposure category about EUT: controlled environment / Occupational, so the SAR limit is 8.0 W/kg averaged over any 1 gram of tissue.

7.4. Conclusion

Localized Specific Absorption Rate (SAR) of this portable wireless device has been measured in all cases requested by the relevant standards cited in Clause 5.2 of this report. Maximum localized SAR is 4.924 W/kg that is below exposure limits specified in the relevant standards cited in Clause 5.1 of this test report.

8. Measurement Uncertainty

No.	source	Type	Uncertainty Value (%)	Probability Distribution	k	c_i	Standard ncertainty $u_i^{'}$ (%)	Degree of freedom V_{eff} or v_i
1	System repetivity	A	0.5	N	1	1	0.5	9
Measurement system								
2	probe calibration	B	5.9	N	1	1	5.9	∞
3	axial isotropy of the probe	B	4.7	R	$\sqrt{3}$	$\sqrt{0.5}$	1.9	∞
4	Hemispherical isotropy of the probe	B	9.4	R	$\sqrt{3}$	$\sqrt{0.5}$	3.9	∞
6	boundary effect	B	1.9	R	$\sqrt{3}$	1	1.1	∞
7	probe linearity	B	4.7	R	$\sqrt{3}$	1	2.7	∞
8	System detection limits	B	1.0	R	$\sqrt{3}$	1	0.6	∞
9	readout Electronics	B	1.0	N	1	1	1.0	∞
10	response time	B	0	R	$\sqrt{3}$	1	0	∞
11	integration time	B	4.32	R	$\sqrt{3}$	1	2.5	∞
12	noise	B	0	R	$\sqrt{3}$	1	0	∞
13	RF Ambient Conditions	B	3	R	$\sqrt{3}$	1	1.73	∞
14	Probe Positioner Mechanical Tolerance	B	0.4	R	$\sqrt{3}$	1	0.2	∞
15	Probe Positioning with respect to Phantom Shell	B	2.9	R	$\sqrt{3}$	1	1.7	∞
16	Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	B	3.9	R	$\sqrt{3}$	1	2.3	∞
Test sample Related								
17	-Test Sample Positioning	A	2.9	N	1	1	2.9	5
18	-Device Holder Uncertainty	A	4.1	N	1	1	4.1	5
19	-Output Power Variation - SAR drift measurement	B	5.0	R	$\sqrt{3}$	1	2.9	∞
Physical parameter								

20	-phantom	B	4.0	R	$\sqrt{3}$	1	2.3	∞
21	-liquid conductivity (deviation from target)	B	5.0	R	$\sqrt{3}$	0.64	1.8	∞
22	-liquid conductivity (measurement uncertainty)	B	5.0	N	1	0.64	3.2	∞
23	-liquid permittivity (deviation from target)	B	5.0	R	$\sqrt{3}$	0.6	1.7	∞
24	-liquid permittivity (measurement uncertainty)	B	5.0	N	1	0.6	3.0	∞
Combined standard uncertainty		$u_c^{'} = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$					12.0	
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$		N		k=2	24.0	

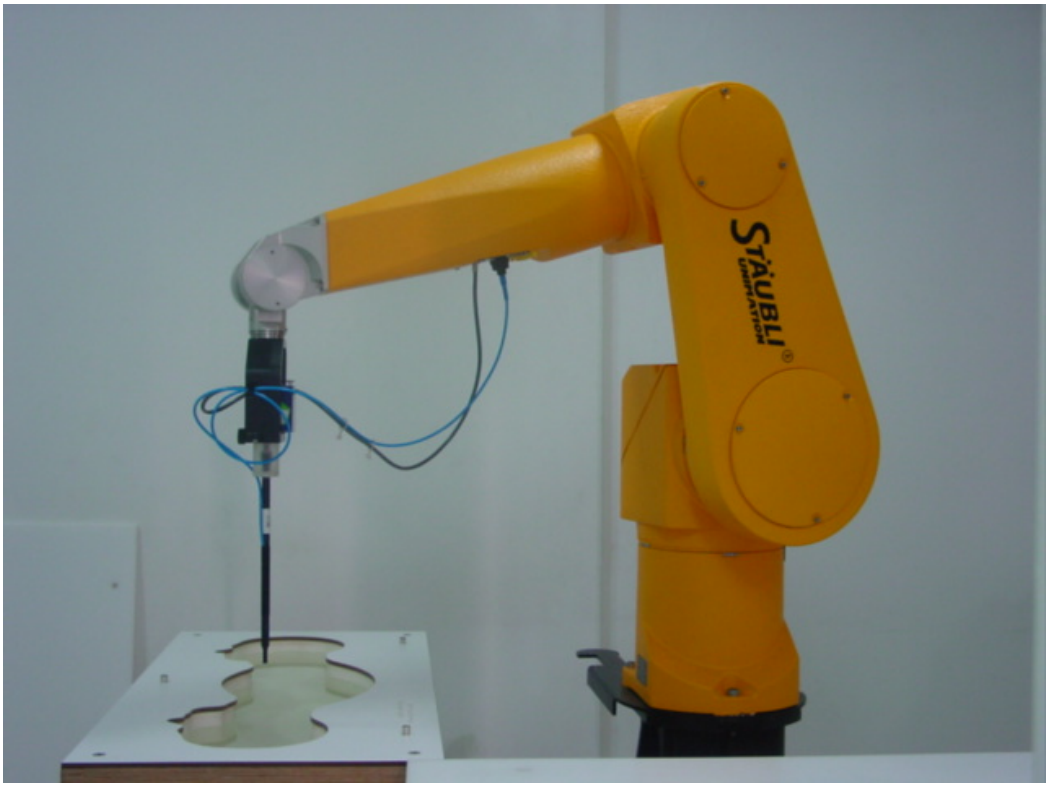
9. Main Test Instruments

Table 10: List of Main Instruments

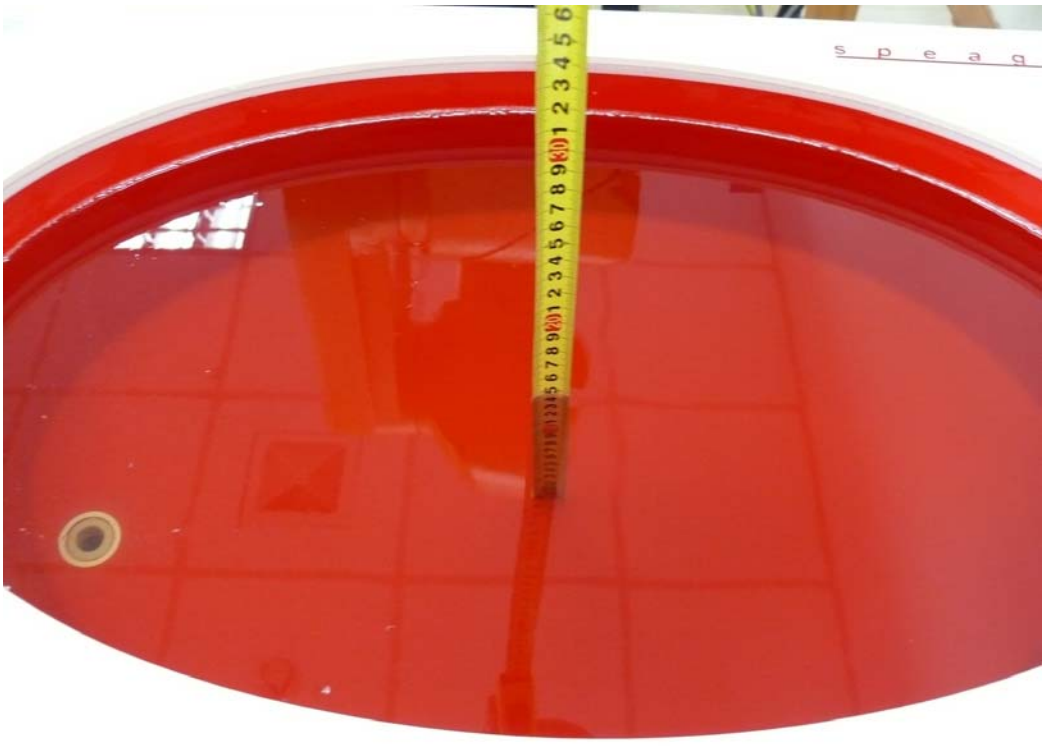
No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	Agilent 8753E	US37390326	September 13, 2009	One year
02	Dielectric Probe Kit	Agilent 85070E	US44020115	No Calibration Requested	
03	Power meter	Agilent E4417A	GB41291714	March 13, 2010	One year
04	Power sensor	Agilent 8481H	MY41091316	March 26, 2010	One year
05	Signal Generator	HP 8341B	2730A00804	September 13, 2009	One year
06	Amplifier	IXA-020	0401	No Calibration Requested	
07	E-field Probe	ET3DV6	1737	November 20, 2009	One year
08	DAE	DAE4	905	June 24, 2009	One year
09	Validation Kit 450MHz	D450V3	1065	November 9, 2009	One year

*******END OF REPORT BODY*******

ANNEX A: Test Layout



Picture 1: Specific Absorption Rate Test Layout



Picture 2: Liquid depth in the Flat Phantom (450 MHz)
(15.3cm deep)

ANNEX B: System Check Results

System Performance Check at 450 MHz

DUT: Dipole450 MHz; Type: D450V3; Serial: 1065

Date/Time: 03/28/2010 4:10:21 AM

Communication System: CW; Frequency: 450 MHz;Duty Cycle: 1:1

Medium parameters used: f = 450 MHz; σ = 0.88 mho/m; ε_r = 44.75; ρ = 1000 kg/m^3

Probe: ET3DV6 - SN1737; ConvF(7.2, 7.2, 7.2) Calibrated: 11/20/2009;

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

d=15mm, Pin=398mW/Area Scan (41x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.15 mW/g

d=15mm, Pin=398mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 52.2 V/m; Power Drift = -0.034 dB

Peak SAR (extrapolated) = 3.29 W/kg

SAR(1 g) = 2.02 mW/g; SAR(10 g) = 1.32 mW/g

Maximum value of SAR (measured) = 2.15 mW/g

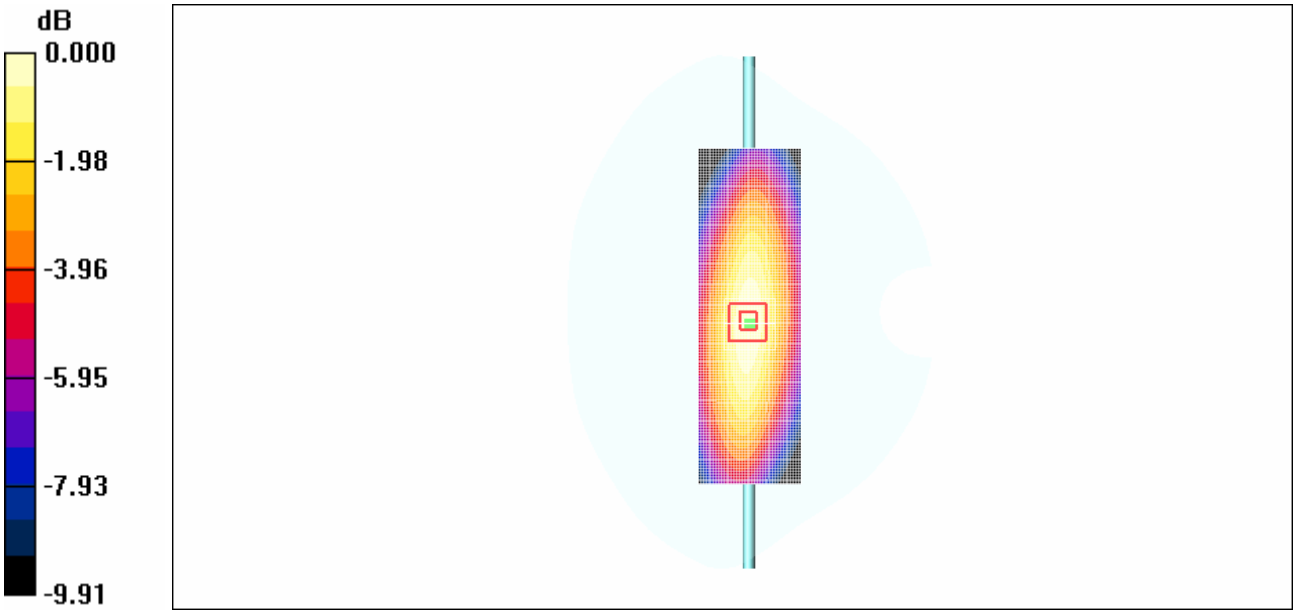


Figure 7 System Performance Check 450MHz 398mW

System Performance Check at 450 MHz

DUT: Dipole450 MHz; Type: D450V3; Serial: 1065

Date/Time: 04/20/2010 4:10:21 PM

Communication System: CW; Frequency: 450 MHz;Duty Cycle: 1:1

Medium parameters used: f = 450 MHz; σ = 0.88 mho/m; ε_r = 44.75; ρ = 1000 kg/m^3

Probe: ET3DV6 - SN1737; ConvF(7.2, 7.2, 7.2) Calibrated: 11/20/2009;

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

d=15mm, Pin=398mW/Area Scan (41x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.14 mW/g

d=15mm, Pin=398mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 52.1 V/m; Power Drift = -0.011 dB

Peak SAR (extrapolated) = 3.24 W/kg

SAR(1 g) = 2.00 mW/g; SAR(10 g) = 1.31 mW/g

Maximum value of SAR (measured) = 2.15 mW/g

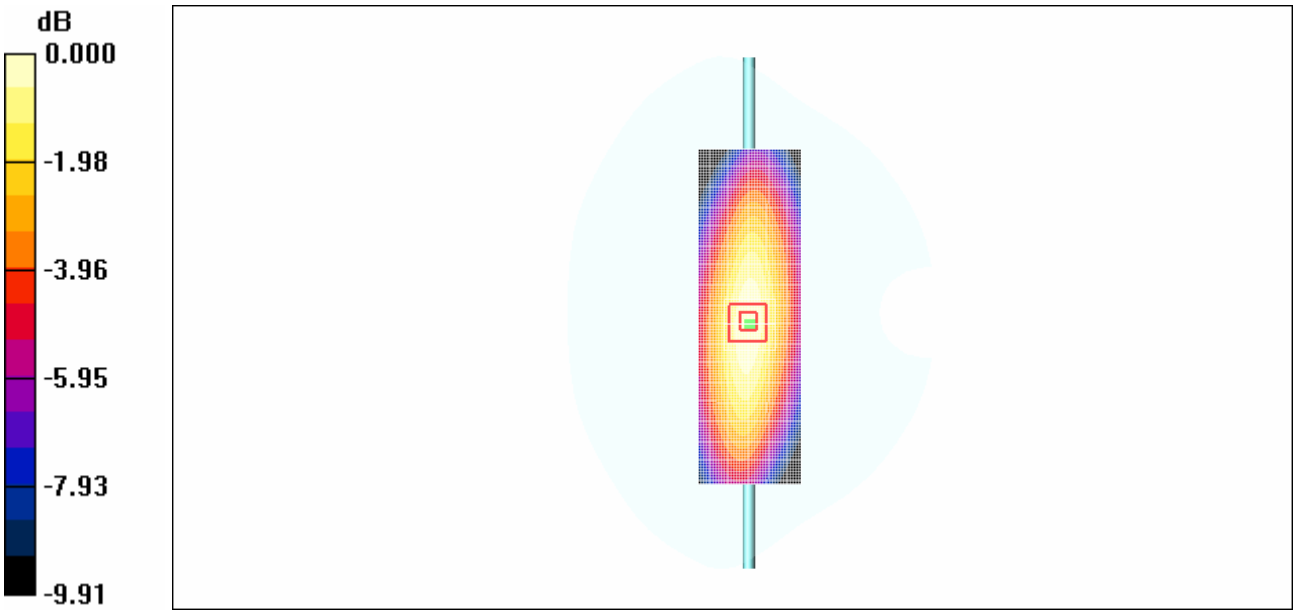


Figure 8 System Performance Check 450MHz 398mW

ANNEX C: Graph Results

Face Held, 25 KHz, Front towards Phantom, 406.125 MHz

Date/Time: 3/28/2010 10:42:15 AM
Communication System: PTT 450; Frequency: 406.125 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 406.125 MHz; σ = 0.836 mho/m; ε_r = 45.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
DASY5 Configuration:
Probe: ET3DV6 - SN1737; ConvF(7.2, 7.2, 7.2); Calibrated: 11/20/2009
Electronics: DAE4 Sn905; Calibrated: 6/24/2009
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 10.6 mW/g

Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 112.6 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 13.9 W/kg
SAR(1 g) = 9.72 mW/g; SAR(10 g) = 7.04 mW/g
Maximum value of SAR (measured) = 10.2 mW/g

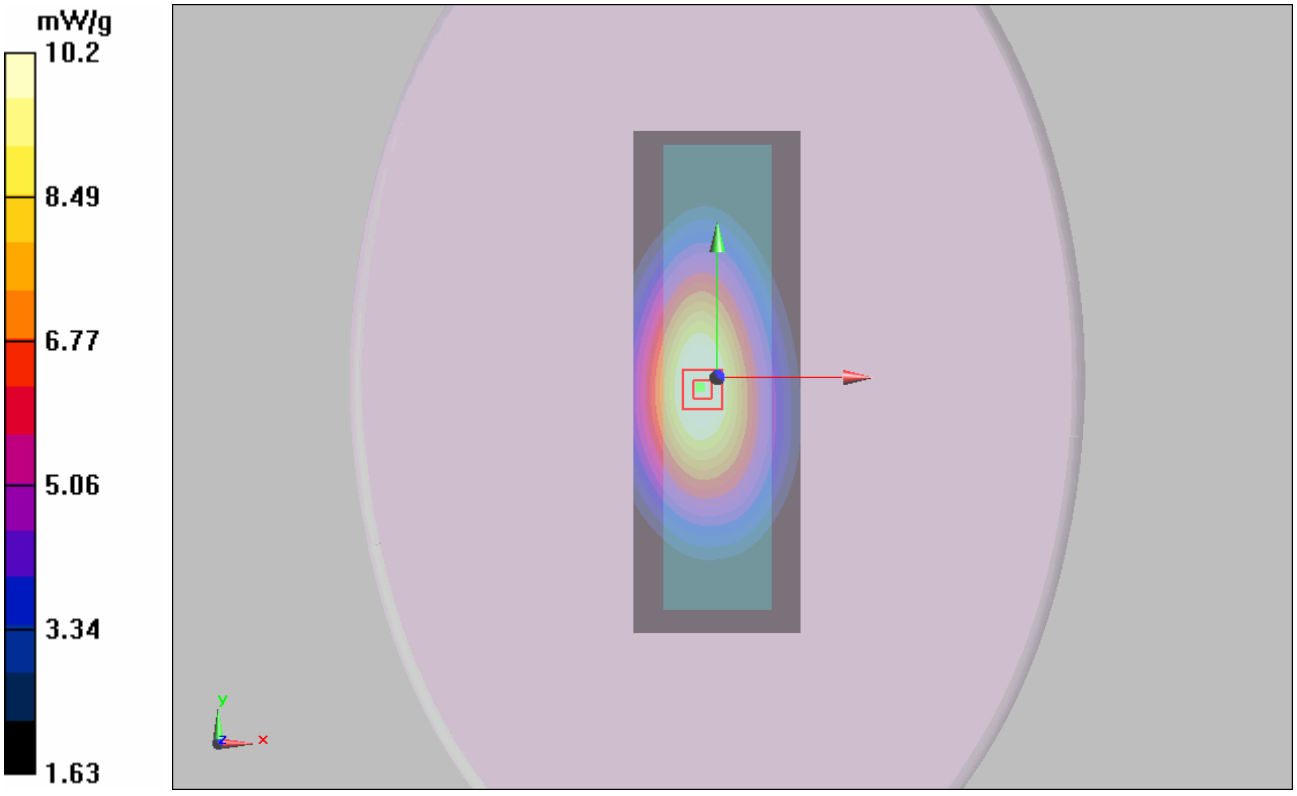


Figure 9 Face Held, 25 KHz, Front Towards Phantom, 400.025 MHz

Face Held, 25 KHz, Front towards Phantom, 418.025 MHz

Date/Time: 4/20/2010 7:47:57 PM

Communication System: PTT 450; Frequency: 418.025 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 418.025 MHz; σ = 0.855 mho/m; ε_r = 45.5; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

DASY5 Configuration:

Probe: ET3DV6 - SN1737; ConvF(7.2, 7.2, 7.2); Calibrated: 11/20/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.4 mW/g

Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 115.6 V/m; Power Drift = -0.068 dB

Peak SAR (extrapolated) = 14.1 W/kg

SAR(1 g) = 9.88 mW/g; SAR(10 g) = 7.16 mW/g

Maximum value of SAR (measured) = 10.4 mW/g

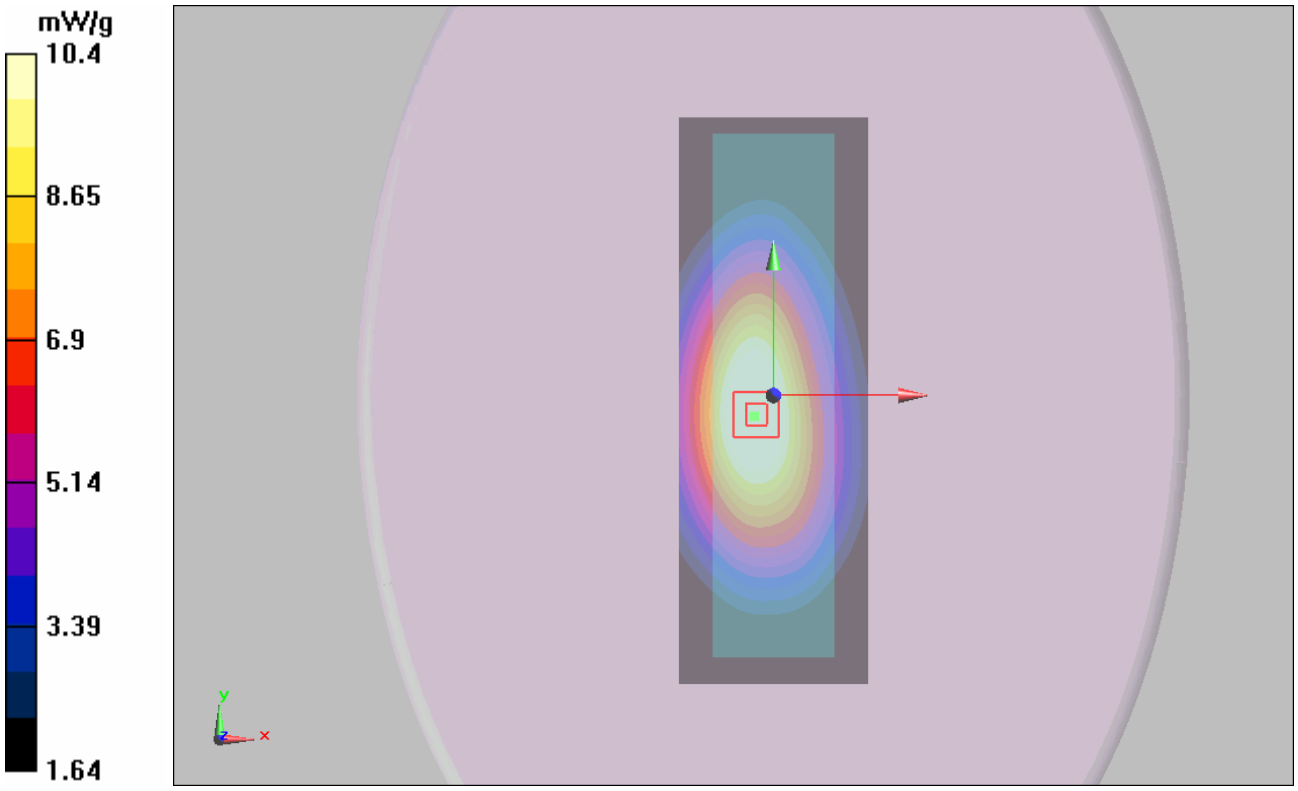


Figure 10 Face Held, 25 KHz, Front Towards Phantom, 420.025 MHz

Face Held , 25 KHz,Front towards Phantom, 429.975MHz

Date/Time: 3/28/2010 10:03:15 AM

Communication System: PTT 450; Frequency: 429.975 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 429.975 MHz; σ = 0.868 mho/m; ε_r = 45; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

DASY5 Configuration:

Probe: ET3DV6 - SN1737; ConvF(7.2, 7.2, 7.2); Calibrated: 11/20/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.1 mW/g

Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 116.0 V/m; Power Drift = -0.094 dB

Peak SAR (extrapolated) = 13.7 W/kg

SAR(1 g) = 9.62 mW/g; SAR(10 g) = 6.94 mW/g

Maximum value of SAR (measured) = 10.1 mW/g

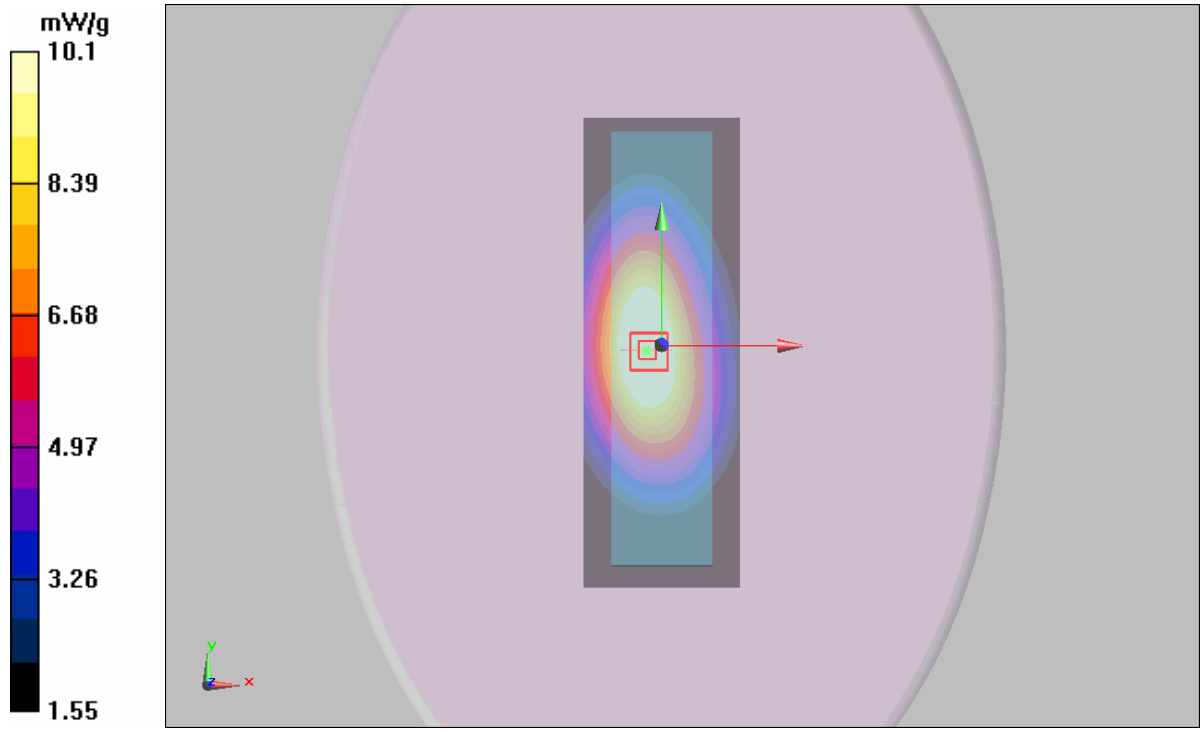


Figure 11 Face Held, 25 KHz, Front Towards Phantom, 435.025MHz

Face Held, 25 KHz, Front towards Phantom, 450.025 MHz

Date/Time: 4/20/2010 7:13:27 PM

Communication System: PTT 450; Frequency: 450.025 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 450.025 MHz; σ = 0.881 mho/m; ε_r = 44.7; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

DASY5 Configuration:

Probe: ET3DV6 - SN1737; ConvF(7.2, 7.2, 7.2); Calibrated: 11/20/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11 mW/g

Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 112.4 V/m; Power Drift = -0.045 dB

Peak SAR (extrapolated) = 13.8 W/kg

SAR(1 g) = 9.62 mW/g; SAR(10 g) = 6.92 mW/g

Maximum value of SAR (measured) = 10.1 mW/g

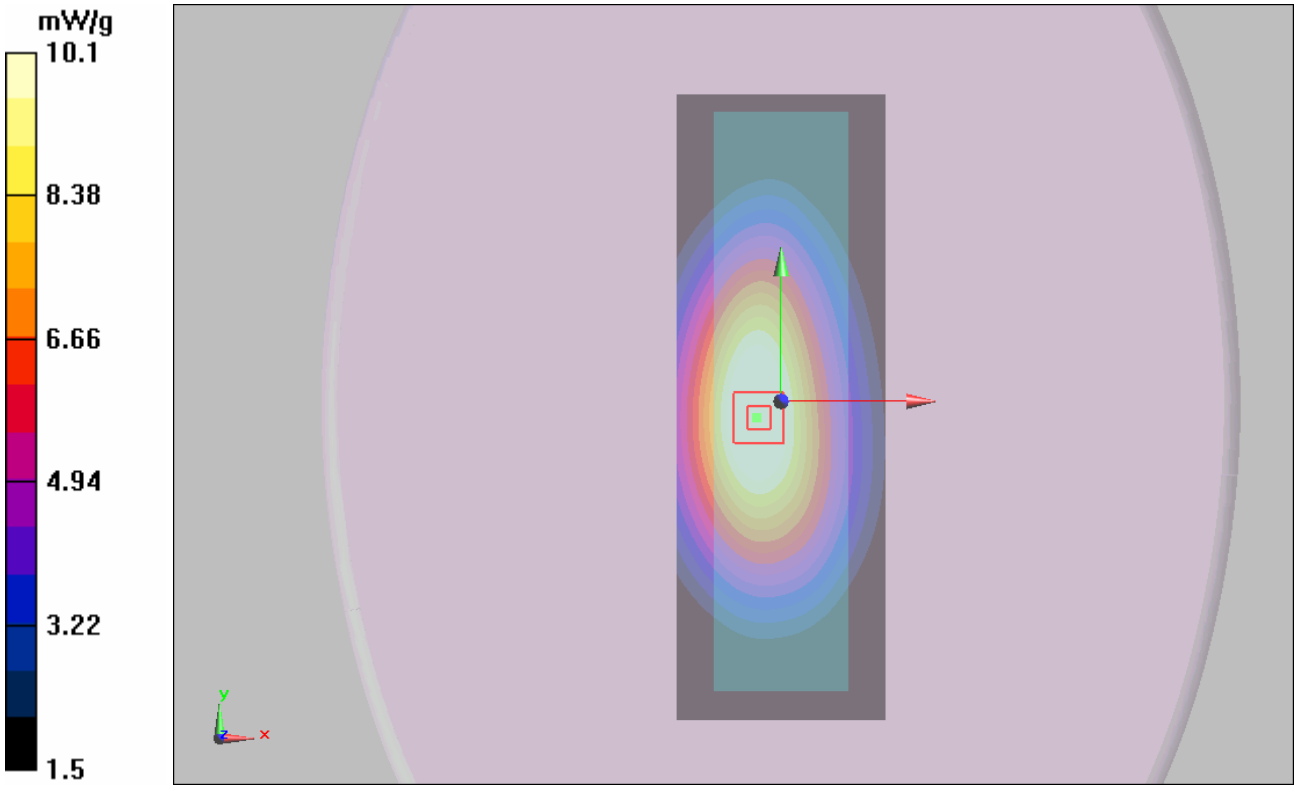


Figure 12 Face Held, 25 KHz, Towards Phantom, 450.025 MHz

Face Held, 25 KHz, Front towards Phantom, 460.000 MHz

Date/Time: 4/20/2010 10:12:14 PM

Communication System: PTT 450; Frequency: 460.000 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 460.000 MHz; σ = 0.887 mho/m; ε_r = 44.5; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

DASY5 Configuration:

Probe: ET3DV6 - SN1737; ConvF(7.2, 7.2, 7.2); Calibrated: 11/20/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.1 mW/g

Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 108.8 V/m; Power Drift = -0.093 dB

Peak SAR (extrapolated) = 13.5 W/kg

SAR(1 g) = 9.38 mW/g; SAR(10 g) = 6.79 mW/g

Maximum value of SAR (measured) = 9.98 mW/g

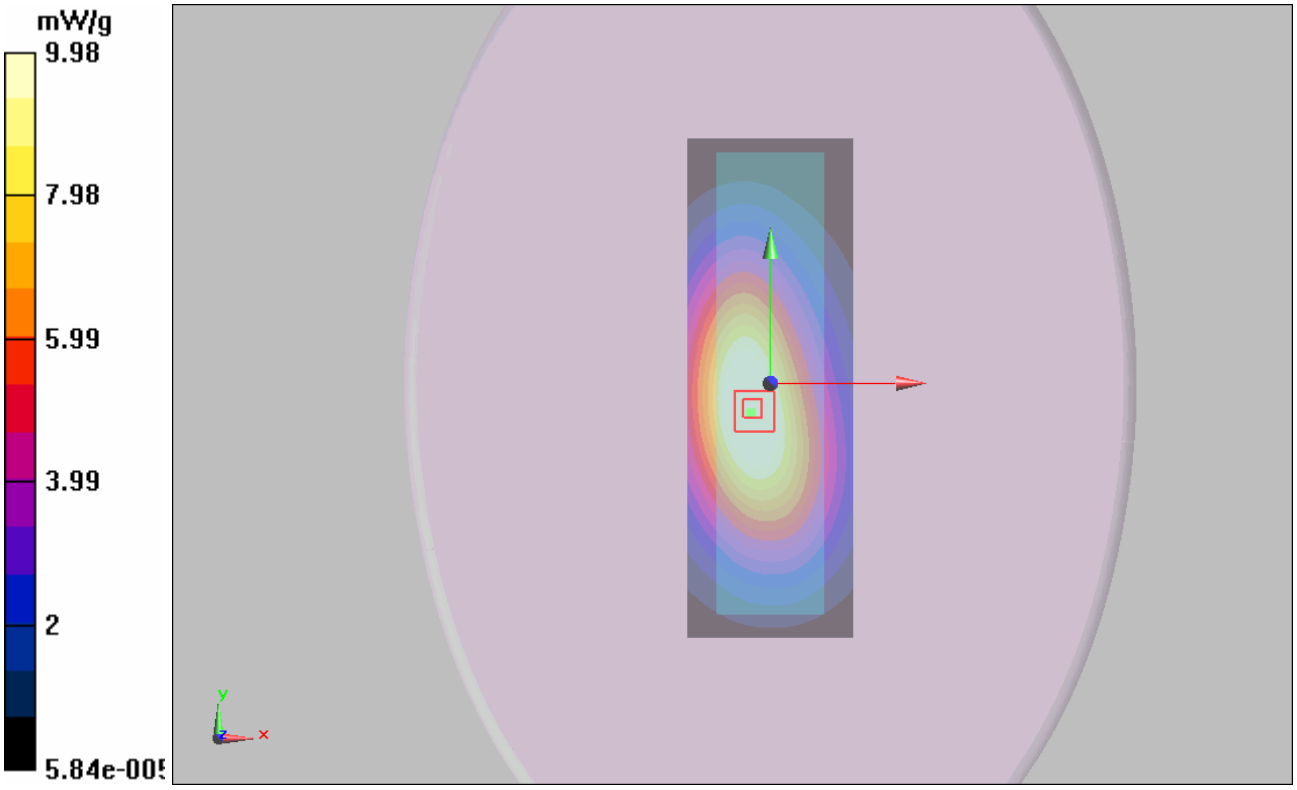


Figure 13 Face Held, 25 KHz, Towards Phantom, 460.025 MHz

Face Held, 25 KHz, Front towards Phantom, 469.975 MHz

Date/Time: 3/28/2010 9:30:15 AM

Communication System: PTT 450; Frequency: 469.975 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 469.975 MHz; σ = 0.895 mho/m; ε_r = 44.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

DASY5 Configuration:

Probe: ET3DV6 - SN1737; ConvF(7.2, 7.2, 7.2); Calibrated: 11/20/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.7 mW/g

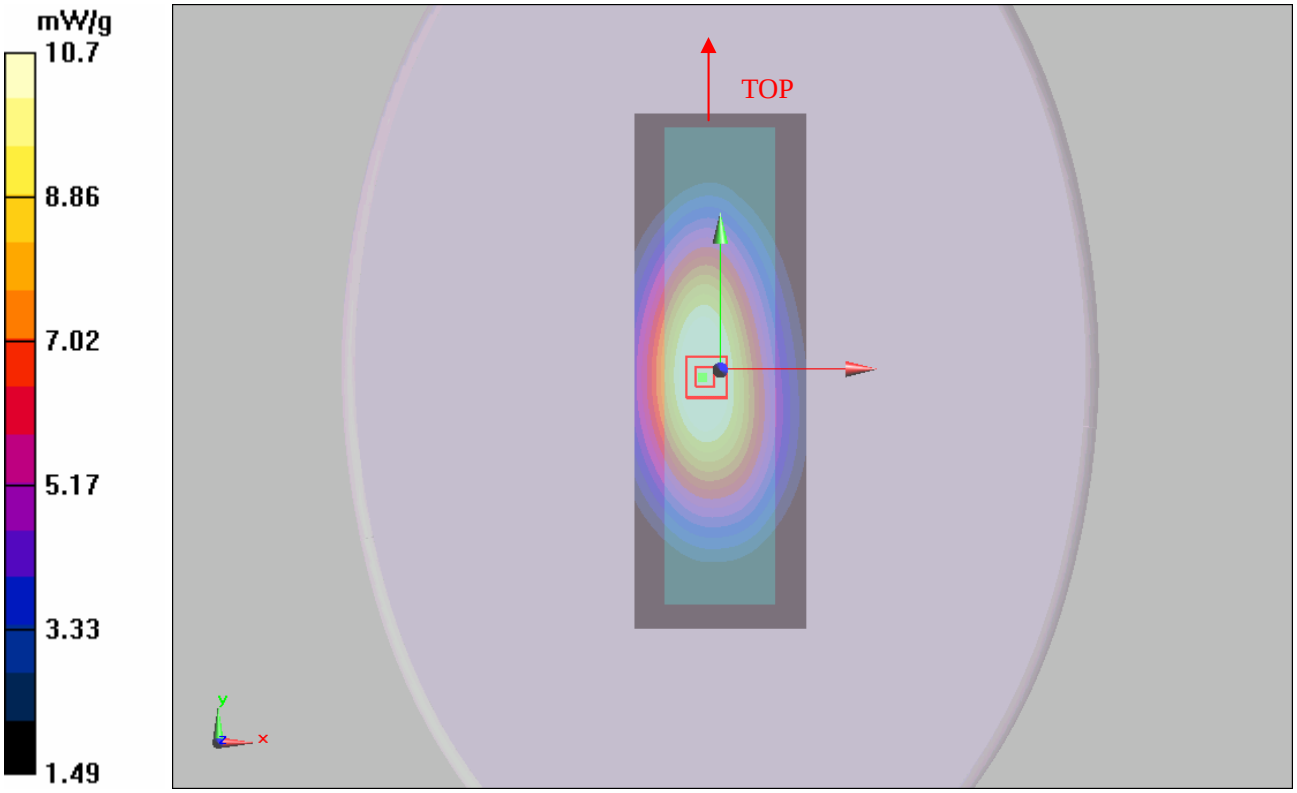
Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 117.2 V/m; Power Drift = -0.111 dB

Peak SAR (extrapolated) = 14.6 W/kg

SAR(1 g) = 10.1 mW/g; SAR(10 g) = 7.24 mW/g

Maximum value of SAR (measured) = 10.7 mW/g



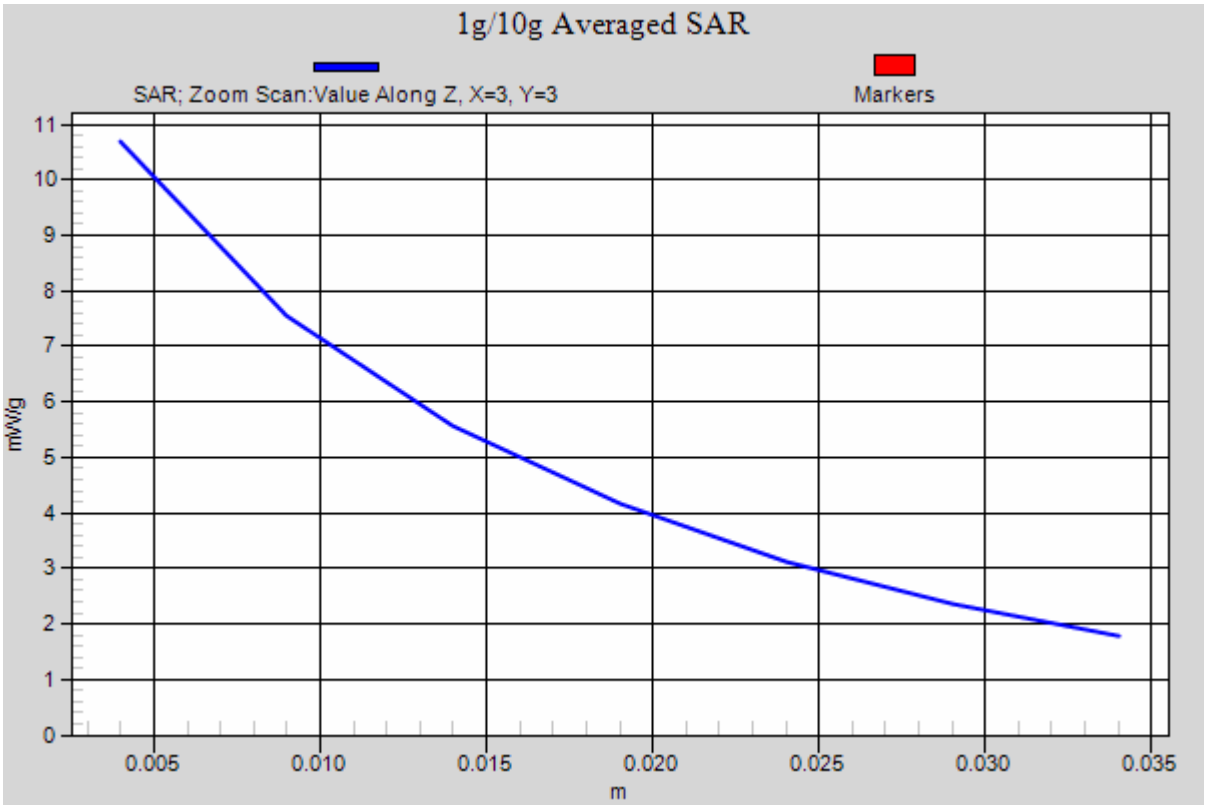


Figure 14 Face Held, 25 KHz, Towards Phantom, 470.025 MHz

Body-Worn, 25 KHz, Front towards Ground, 406.125 MHz

Date/Time: 3/28/2010 1:30:15 PM
Communication System: PTT 450; Frequency: 406.125 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 406.125 MHz; σ = 0.905 mho/m; ε_r = 57.6; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
DASY5 Configuration:
Probe: ET3DV6 - SN1737; ConvF(7.52, 7.52, 7.52); Calibrated: 11/20/2009
Electronics: DAE4 Sn905; Calibrated: 6/24/2009
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 7.24 mW/g

Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 84.7 V/m; Power Drift = -0.091 dB
Peak SAR (extrapolated) = 17.5 W/kg
SAR(1 g) = 7.9 mW/g; SAR(10 g) = 5.15 mW/g
Maximum value of SAR (measured) = 7.43 mW/g

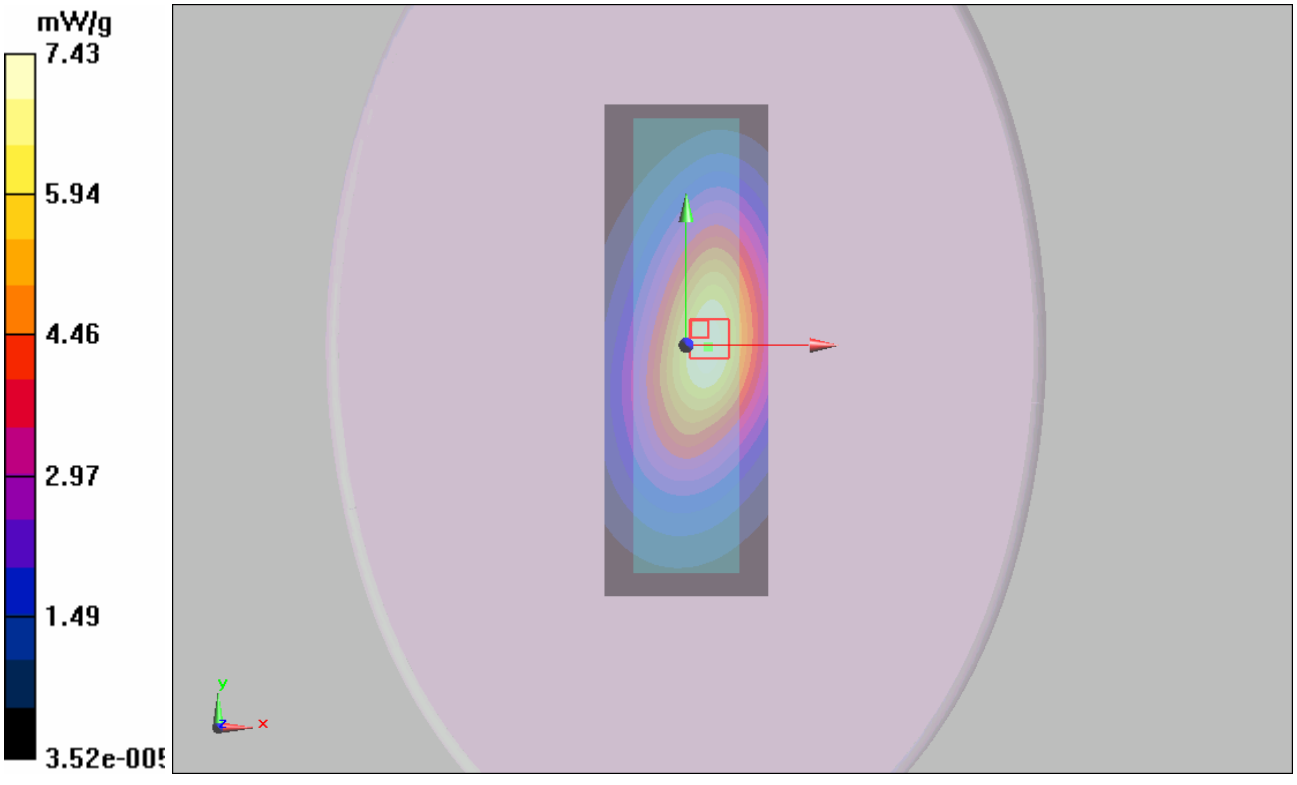


Figure 15 Body-Worn, 25 KHz, Front towards Ground, 400.025 MHz

Body-Worn, 25 KHz, Front towards Ground, 418.025 MHz

Date/Time: 4/21/2010 6:52:54 AM

Communication System: PTT 450; Frequency: 418.025 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 418.025 MHz; σ = 0.93 mho/m; ε_r = 57.4; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

DASY5 Configuration:

Probe: ET3DV6 - SN1737; ConvF(7.52, 7.52, 7.52); Calibrated: 11/20/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 9.26 mW/g

Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.6 V/m; Power Drift = 0.180 dB

Peak SAR (extrapolated) = 18.5 W/kg

SAR(1 g) = 8.83 mW/g; SAR(10 g) = 5.91 mW/g

Maximum value of SAR (measured) = 8.4 mW/g

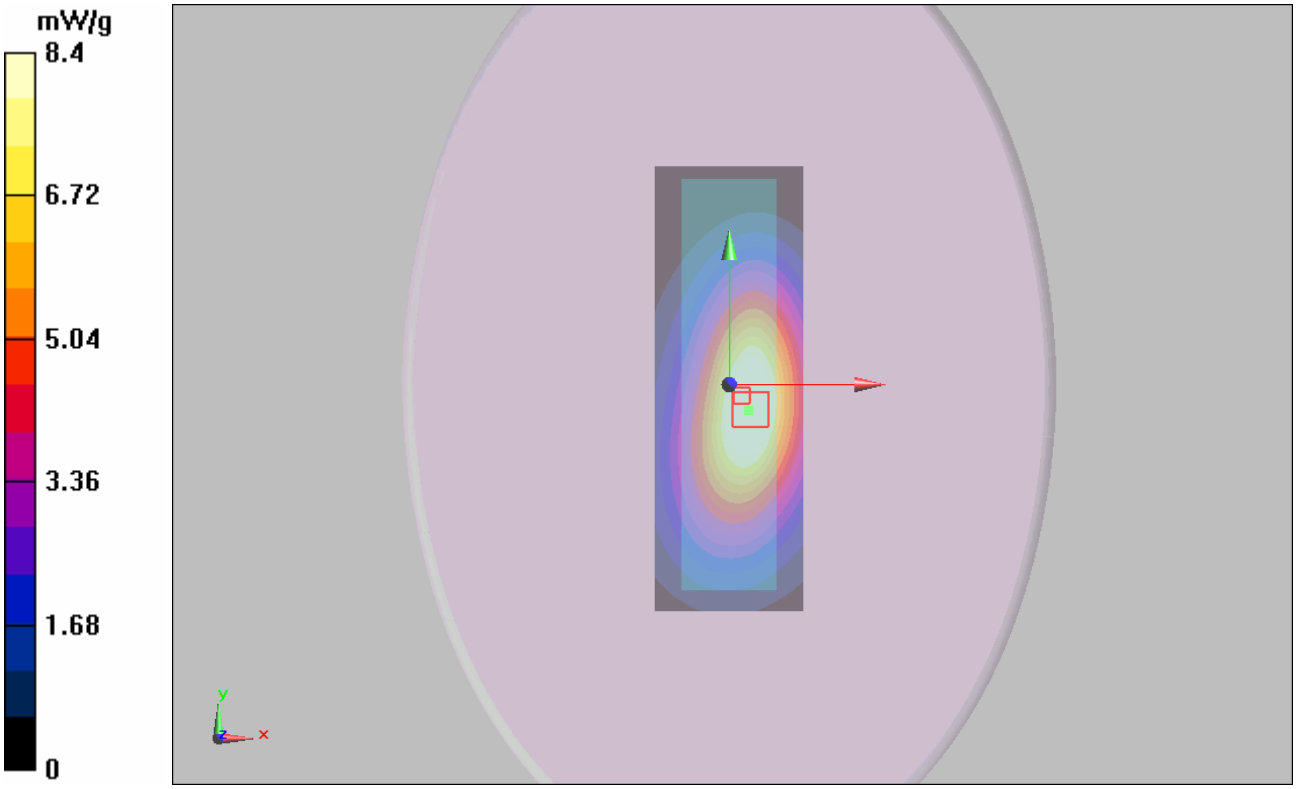


Figure 16 Body-Worn, 25 KHz, Front towards Ground, 420.025 MHz

Body-Worn, 25 KHz, Front towards Ground, 429.975MHz

Date/Time: 3/28/2010 12:07:15 AM

Communication System: PTT 450; Frequency: 429.975 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 429.975 MHz; σ = 0.939 mho/m; ε_r = 57.2; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

DASY5 Configuration:

Probe: ET3DV6 - SN1737; ConvF(7.52, 7.52, 7.52); Calibrated: 11/20/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 9.47 mW/g

Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.6 V/m; Power Drift = -0.060 dB

Peak SAR (extrapolated) = 11.7 W/kg

SAR(1 g) = 7.96 mW/g; SAR(10 g) = 5.6 mW/g

Maximum value of SAR (measured) = 8.39 mW/g

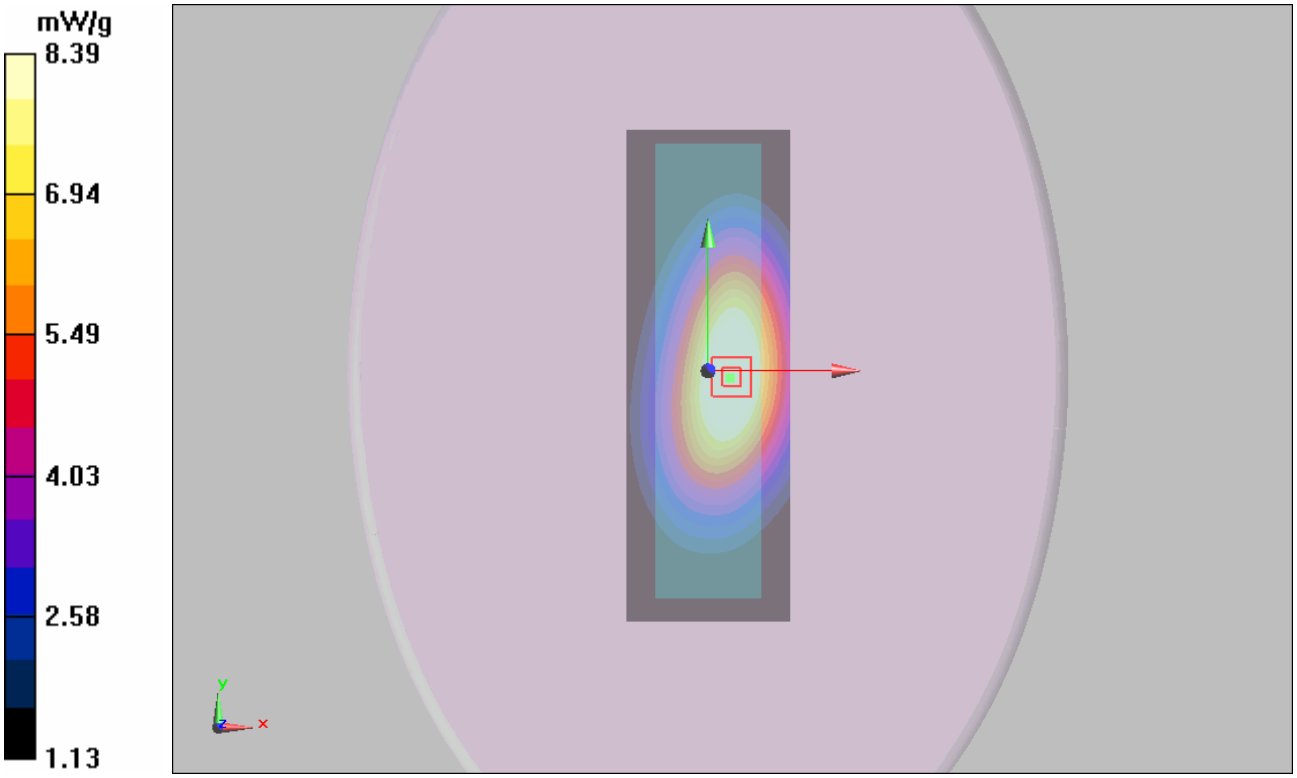


Figure 17 Body-Worn, 25 KHz, Front towards Ground, 435.025MHz

Body-Worn, 25 KHz, Front towards Ground, 450.025 MHz

Date/Time: 4/21/2010 7:30:46 AM

Communication System: PTT 450; Frequency: 450.025 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 450.025 MHz; σ = 0.945 mho/m; ε_r = 57; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

DASY5 Configuration:

Probe: ET3DV6 - SN1737; ConvF(7.52, 7.52, 7.52); Calibrated: 11/20/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 9.88 mW/g

Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.7 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 12.5 W/kg

SAR(1 g) = 8.32 mW/g; SAR(10 g) = 5.86 mW/g

Maximum value of SAR (measured) = 8.77 mW/g

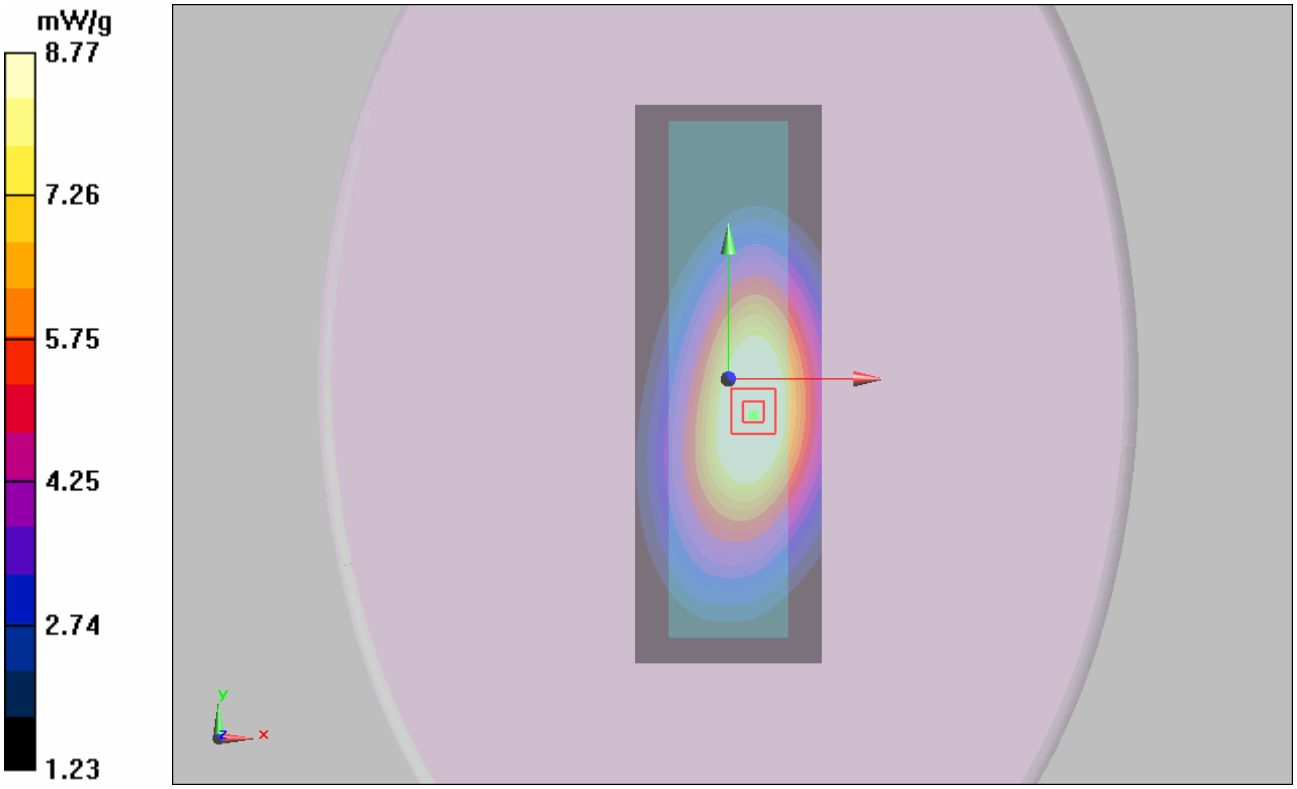


Figure 18 Body-Worn, 25 KHz, Front towards Ground, 450.025 MHz

Body-Worn, 25 KHz, Front towards Ground, 460.000 MHz

Date/Time: 4/21/2010 1:09:19 PM

Communication System: PTT 450; Frequency: 460.000 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 460.000 MHz; σ = 0.95 mho/m; ε_r = 56.9; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

DASY5 Configuration:

Probe: ET3DV6 - SN1737; ConvF(7.52, 7.52, 7.52); Calibrated: 11/20/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 9.6 mW/g

Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 100.8 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 12.4 W/kg

SAR(1 g) = 8.25 mW/g; SAR(10 g) = 5.78 mW/g

Maximum value of SAR (measured) = 8.67 mW/g

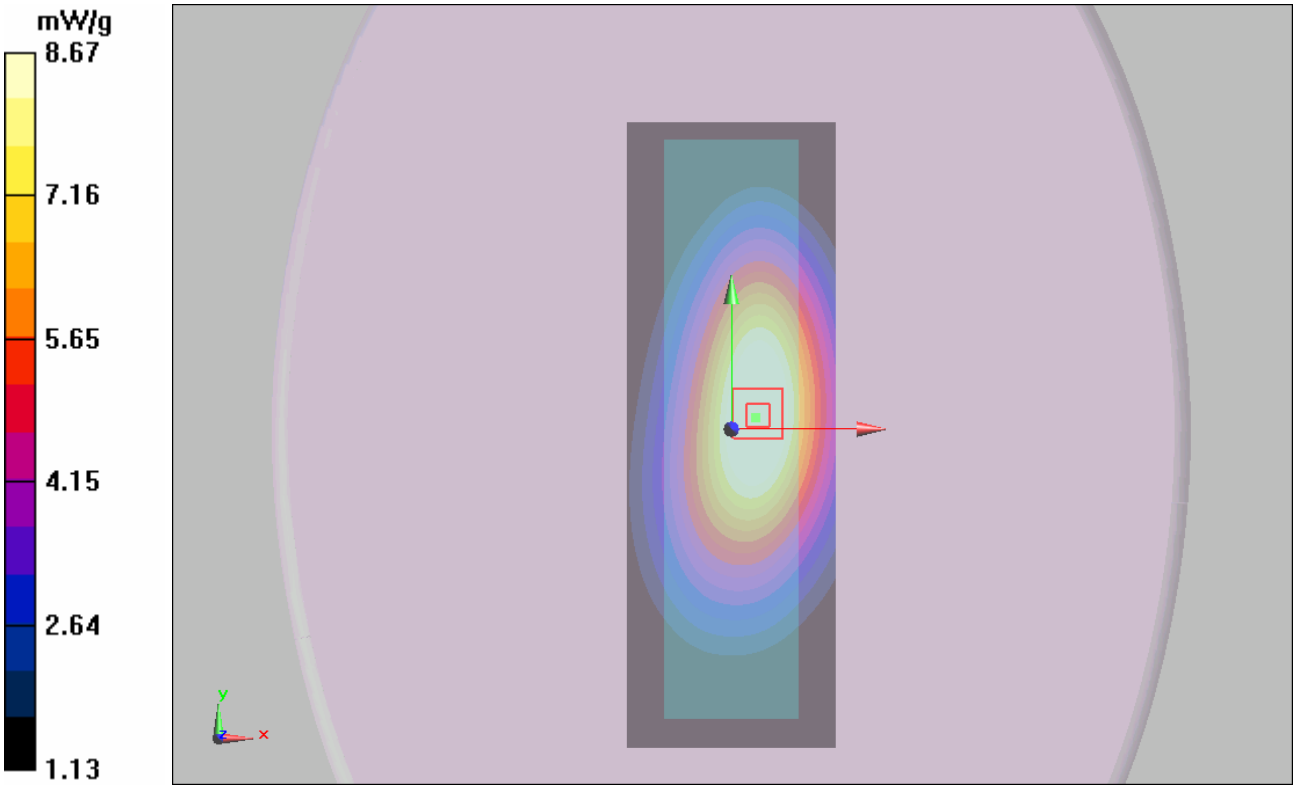


Figure 19 Body-Worn, 25 KHz, Front towards Ground, 460.025 MHz

Body-Worn, 25 KHz, Front towards Ground, 469.975MHz

Date/Time: 3/28/2010 11:30:15 AM

Communication System: PTT 450; Frequency: 469.975 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 469.975 MHz; σ = 0.956 mho/m; ε_r = 56.6; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

DASY5 Configuration:

Probe: ET3DV6 - SN1737; ConvF(7.52, 7.52, 7.52); Calibrated: 11/20/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 10.3 mW/g

Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 102.1 V/m; Power Drift =-0.109 dB

Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 8.77 mW/g; SAR(10 g) = 6.02 mW/g

Maximum value of SAR (measured) = 9 mW/g

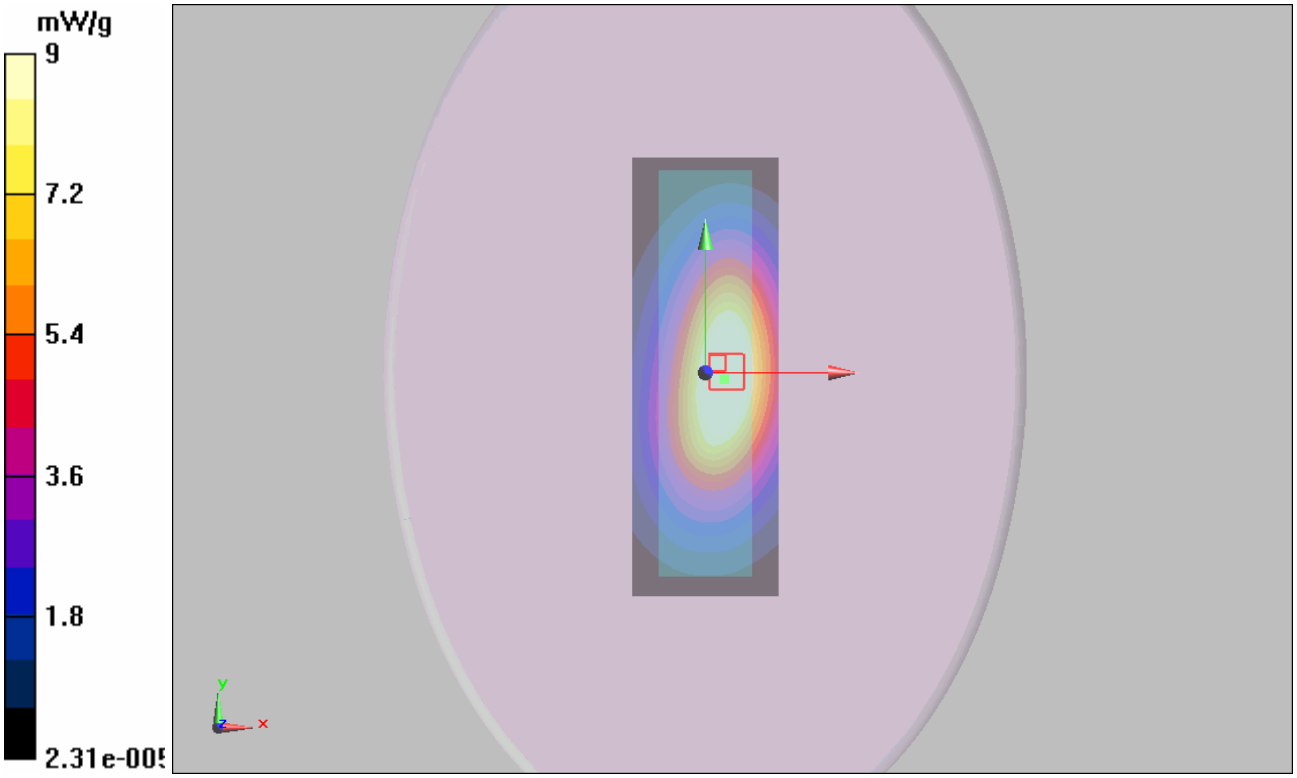


Figure 20 Body-Worn, 25 KHz, Front towards Ground, 470.025MHz

Face Held, 12.5 KHz, Front towards Phantom, 469.975 MHz

Date/Time: 3/28/2010 2:02:15 PM

Communication System: PTT 450; Frequency: 469.975 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 469.975 MHz; σ = 0.895 mho/m; ε_r = 44.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

DASY5 Configuration:

Probe: ET3DV6 - SN1737; ConvF(7.2, 7.2, 7.2); Calibrated: 11/20/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Towards Phantom/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.3 mW/g

Towards Phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 114.3 V/m; Power Drift = -0.070 dB

Peak SAR (extrapolated) = 14.4 W/kg

SAR(1 g) = 10 mW/g; SAR(10 g) = 7.16 mW/g

Maximum value of SAR (measured) = 10.5 mW/g

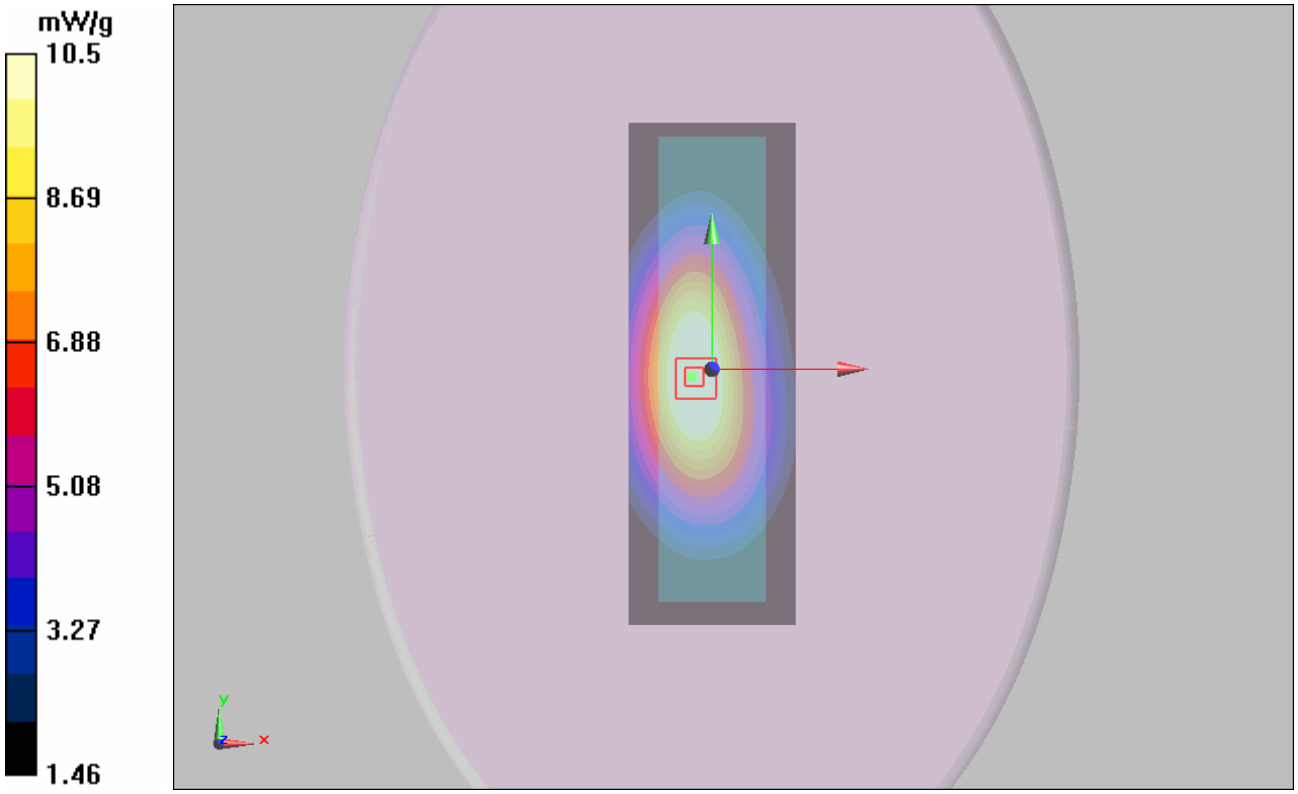


Figure 21 Face Held, 12.5KHz, Front Towards Phantom, 470.025 MHz