



MOTOROLA



Certificate Number: 1449-01

FCC ID: AZ489FT5844
DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 2 of 3

Government & Enterprise Mobility Solutions
EME Test Laboratory
8000 West Sunrise Blvd
Fort Lauderdale, FL. 33322

Date of Report: March 29, 2005
Report Revision: Rev. O
Report ID: FCC rpt_i850_Rev O_050329
SR2008

Responsible Engineer: Kim Uong (EME lead Eng.)
Date/s Tested: 3/06/05-3/28/05
Manufacturer/Location: Motorola - Plantation
Sector/Group/Div.: iDEN Subscriber
Date submitted for test: 2/21/05
DUT Description: i850; TDMA: 236:310 (76.1%), 1:6, 2:6, 81:120, 1:12; 64QAM, 16 QAM & QPSK Modulation; 0.6W Pulse Avg. MOTotalk (114:120 8FSK; 0.85 W nominal); GPS capable
Test TX mode(s): 1:3, 1:6, 114:120, 236:310, 81:120,
Max. Power output: Mototalk - 0.891W, iDEN/WiDEN - 0.640W
Nominal Power: MOTotalk - 0.85W, iDEN/WiDEN - 0.60W
Tx Frequency Bands: MOTotalk - 902-928MHz, iDEN/WiDEN - 806-825, 896-902MHz
Signaling type: TDMA: iDEN; WiDEN, MOTotalk - (FHSS 8FSK)
Model(s) Tested: H65XAN6RR4AN/NWF1000A
Model(s) Certified: H65XAN6RR4AN/NWF1000A
Serial Number(s): 364AFA021M
Classification: General Population/Uncontrolled
Rule Part(s): 15 & 90



Approved Accessories:

Antenna(s):
 8585744F04 (806-825MHz retractable ¼ wave antenna, -2.4dBd; 896-902MHz, -1.1dBd; 902-925MHz, -1.2dBd)
Battery(ies):
 SNN5705C (Hi performance Li Ion); SNN5704C (Slim battery); NNTN5728A (Hi performance battery door); NNTN5727A (Slim battery door)
Body worn accessory(ies):
 NNTN6026A (Holster); NNTN4747A (Belt clip)
Audio accessory(ies):
 NSN6066A (Light duty RSM), NNTN5004A (PTT headset over ear), NNTN5005A (PTT headset over head), SYN8390B (Privacy earpiece), SYN8146C (Lightweight headset w/ boom mic), NTN8496A (Lightweight headset w/ mic), NNTN4033A (Privacy Earpiece/mic w/ PTT), NNTN5006A (Silver Earbud), SYN7875C (Hearing Aide Neckloop), NTN8513B (Lightweight headband), NNTN5330A (Ear bud accessory), NNTN4620A (Silver ear bud), NNTN5211A (Falcon Surveillance kit); NKN6559A (USB Cable), NKN6560A (RS232), NNTN5405A (USB cable w/ charging), NNTN5406A (RS-232 data cable w/ charging)

Max. Calc. 1-g/10-g Avg. SAR: 1.15/0.84 mW/g (Body)
Max. Calc. 1-g/10-g Avg. SAR: 0.43/0.31 mW/g (Face)
Max. Calc. 1-g/10-g Avg. SAR: 1.05/0.72 mW/g (Head)

Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with the national and international reference standards and guidelines listed in section 2.0 of this report.
 This report shall not be reproduced without written approval from an officially designated representative of the Motorola EME Laboratory.

This reporting format is consistent with the test report guidelines of the TIA TSB-150 December 2004
 The results and statements contained in this report pertain only to the device(s) evaluated.

Signature on file
Ken Enger GEMS EME Lab Senior Resource Manager,
Laboratory Director,

3/29/05
Approval Date:

Certification Date: 3/29/05

Certification No.: L1050365P

Appendix C
Dipole Calibration Certificates

Calibration Laboratory of
 Schmid & Partner
 Engineering AG
 Zeughausstrasse 43, 8004 Zurich, Switzerland

Client **Motorola CGISS**

CALIBRATION CERTIFICATE

Object(s) **D900V2 - SN:084**

Calibration procedure(s) **QA CAL-05 v2
 Calibration procedure for dipole validation kits**

Calibration date: **March 22, 2004**

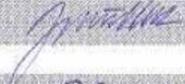
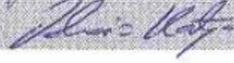
Condition of the calibrated item **In Tolerance (according to the specific calibration document)**

This calibration statement documents traceability of M&TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.

All calibrations have been conducted in the closed laboratory facility: environment temperature 22 +/- 2 degrees Celsius and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM E442	GB37480704	6-Nov-03 (METAS, No. 252-0254)	Nov-04
Power sensor HP 8481A	US37292783	6-Nov-03 (METAS, No. 252-0254)	Nov-04
Power sensor HP 8481A	MY41092317	18-Oct-02 (Agilent, No. 20021018)	Oct-04
RF generator R&S SML-03	100698	27-Mar-2002 (R&S, No. 20-92389)	In house check: Mar-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-03)	In house check: Oct 05

	Name	Function	Signature
Calibrated by:	Judith Mueller	Technician	
Approved by:	Katja Pokovic	Laboratory Director	

Date issued: March 23, 2004

This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid & Partner Engineering AG is completed.

1. Measurement Conditions

The measurements were performed in the flat section of the SAM twin phantom filled with head simulating solution of the following electrical parameters at 900 MHz:

Relative Dielectricity	41.4	$\pm 5\%$
Conductivity	0.95 mho/m	$\pm 5\%$

The DASY4 System with a dosimetric E-field probe ET3DV6 (SN:1507, Conversion factor 6.18 at 900 MHz) was used for the measurements.

The dipole was mounted on the small tripod so that the dipole feedpoint was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 15mm from dipole center to the solution surface. The included distance spacer was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 15mm was aligned with the dipole. The 7x7x7 fine cube was chosen for cube integration.

The dipole input power (forward power) was 250 mW $\pm 3\%$. The results are normalized to 1W input power.

2. SAR Measurement with DASY4 System

Standard SAR-measurements were performed according to the measurement conditions described in section 1. The results (see figure supplied) have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values measured with the dosimetric probe ET3DV6 SN:1507 and applying the advanced extrapolation are:

averaged over 1 cm ³ (1 g) of tissue:	10.9 mW/g $\pm 16.8\%$ (k=2) ¹
averaged over 10 cm ³ (10 g) of tissue:	7.04 mW/g $\pm 16.2\%$ (k=2) ¹

3. Dipole Impedance and Return Loss

The impedance was measured at the SMA-connector with a network analyzer and numerically transformed to the dipole feedpoint. The transformation parameters from the SMA-connector to the dipole feedpoint are:

Electrical delay: **1.388 ns** (one direction)
Transmission factor: **0.989** (voltage transmission, one direction)

The dipole was positioned at the flat phantom sections according to section 1 and the distance spacer was in place during impedance measurements.

Feedpoint impedance at 900 MHz: $\text{Re}\{Z\} = 52.6 \Omega$
 $\text{Im}\{Z\} = -3.4 \Omega$
Return Loss at 900 MHz: **-27.7 dB**

4. Handling

Do not apply excessive force to the dipole arms, because they might bend. Bending of the dipole arms stresses the soldered connections near the feedpoint leading to a damage of the dipole.

5. Design

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

6. Power Test

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN084

Communication System: CW-900; Frequency: 900 MHz; Duty Cycle: 1:1

Medium: HSL 900 MHz;

Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.95 \text{ mho/m}$; $\epsilon_r = 41.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

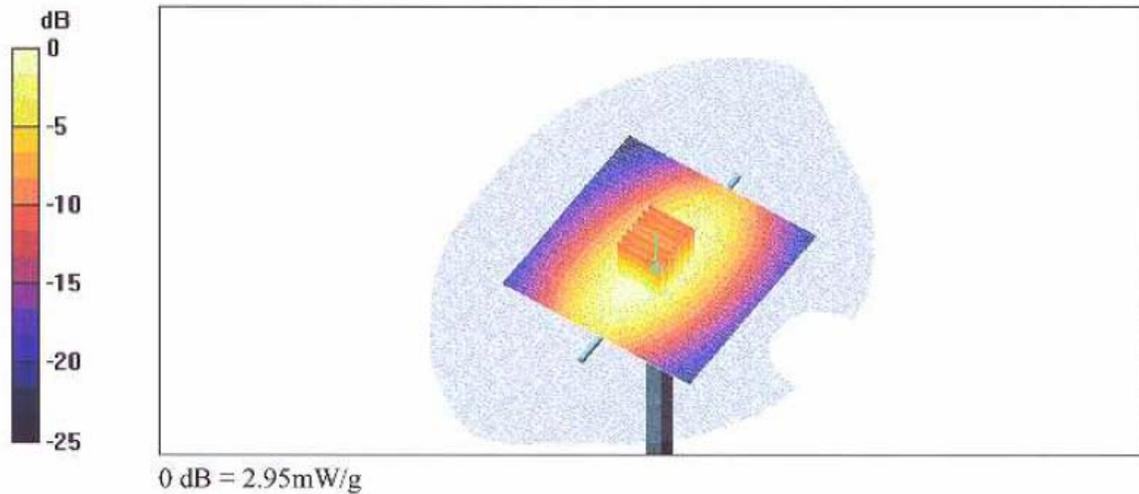
Measurement Standard: DASYS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(6.18, 6.18, 6.18); Calibrated: 1/23/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn411; Calibrated: 11/6/2003
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006;
- Measurement SW: DASYS4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Pin = 250 mW; d = 15 mm/Area Scan (81x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Reference Value = 57 V/m; Power Drift = 0.0 dB
 Maximum value of SAR (interpolated) = 2.92 mW/g

Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 57 V/m; Power Drift = 0.0 dB
 Maximum value of SAR (measured) = 2.95 mW/g
 Peak SAR (extrapolated) = 4.11 W/kg
 SAR(1 g) = 2.73 mW/g; SAR(10 g) = 1.76 mW/g



Appendix D

Test System Verification Scans

Note: Dipole validation scans at the head from SPEAG are provided in APPENDIX D. The GEMS EME lab validated the dipole to the applicable IEEE system performance targets. Within the same day system validation was performed using FCC body tissue parameters to generate the system performance target values for body at the applicable frequency. The results of the GEMS EME system performance validation are provided herein. To assess the isotropic characteristics of the measurement probe, two system performance zoom scans (0 and 90 degrees) were measured. The results were averaged together and adjusted to account for the power drift in order to obtain the final calculated 1 and 10 gram results.

Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/6/05

Run #: 050306-01 Test operator: E. Church

Tissue Temp: 21.5 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.75 mW/g for 1g SAR; 7.47 mW/g for 10g SAR
11.64 mW/g calculated 1g-SAR; - 0.97% from target (including drift)
7.58 mW/g calculated 10g-SAR; + 1.45% from target (including drift)

Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.35, 6.35, 6.35)

Duty Cycle: 1:1, Medium: 900 MHz FCC Body, Medium parameters used: $\sigma = 1.06$; mho/m, $\epsilon_r = 54.7$; $\rho = 1000$ kg/m³

Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

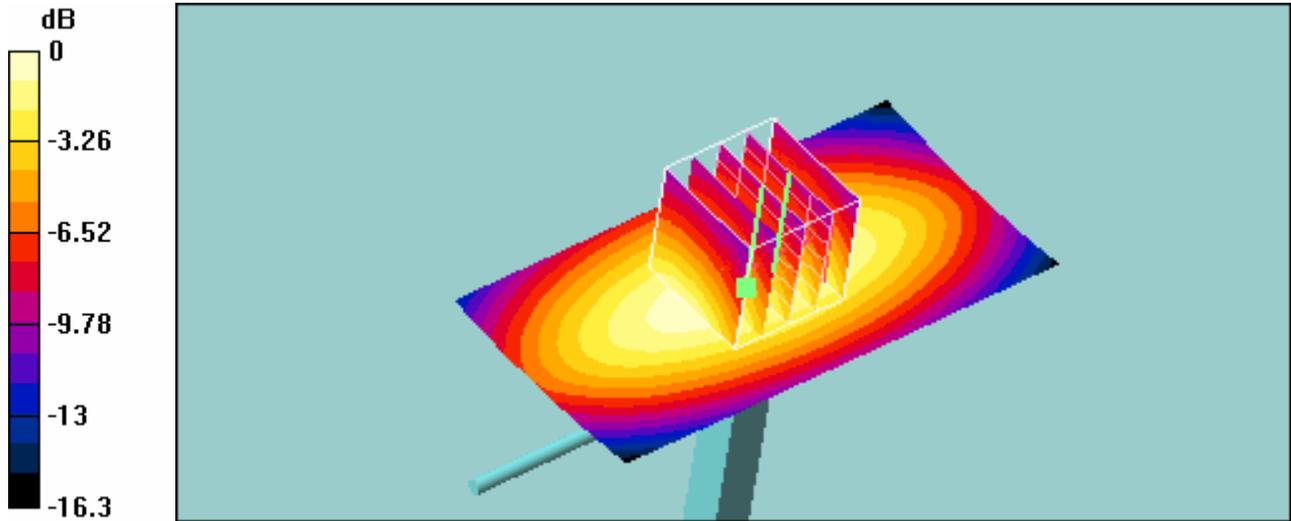
Reference Value = 56.3 V/m; Power Drift = 0.0 dB; Peak SAR (extrapolated) = 4.16 W/kg

SAR(1 g) = 2.9 mW/g; SAR(10 g) = 1.89 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 56.3 V/m; Power Drift = 0.0 dB; Peak SAR (extrapolated) = 4.23 W/kg

SAR(1 g) = 2.95 mW/g; SAR(10 g) = 1.92 mW/g



Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/7/05

DUT: Dipole 900 MHz; Date/Time: 03/07/05 16:39:40

Run #: 050307-01 Test operator: C. Miller

Tissue Temp: 21.2 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.15 mW/g for 1g SAR 6.98 mW/g for 10g SAR
11.40 mW/g calculated 1g-SAR; 2.26 % from target (including drift)
7.25 mW/g calculated 10g-SAR; 3.93 % from target (including drift)

Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.73, 6.73, 6.73)

Duty Cycle: 1:1, Medium: 900 MHz IEEE Head, Medium parameters used: $\sigma = 1.01$; mho/m, $\epsilon_r = 40.7$; $\rho = 1000$ kg/m³

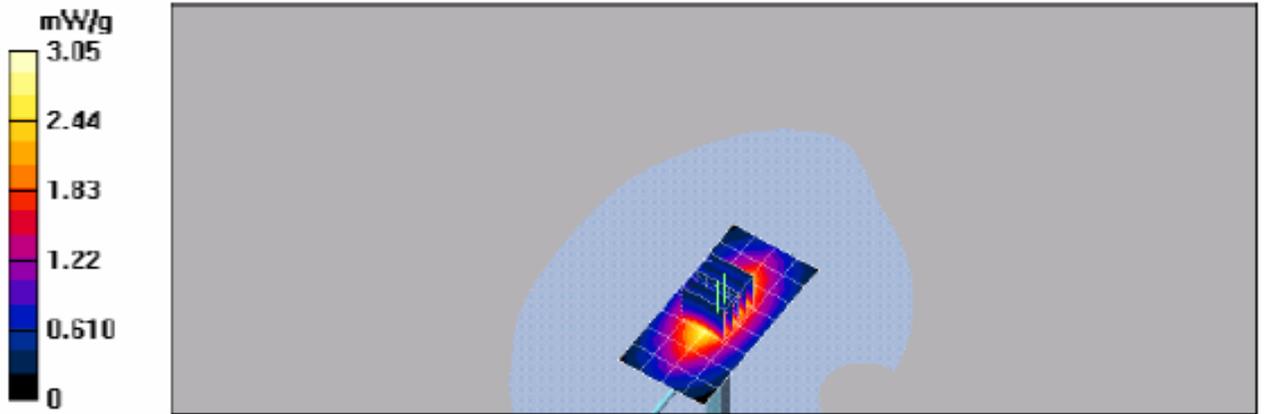
Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm Reference Value = 57 V/m; Power Drift = -0.00847 dB; Peak SAR (extrapolated) = 4.23 W/kg

SAR(1 g) = 2.82 mW/g; SAR(10 g) = 1.8 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm; Reference Value = 57 V/m; Power Drift = -0.00847 dB; Peak SAR (extrapolated) = 4.29 W/kg

SAR(1 g) = 2.87 mW/g; SAR(10 g) = 1.82 mW/g



Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/8/05

Run #: 050308-01 Test operator: A. Gessner

Tissue Temp: 21.2 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.15 mW/g for 1g SAR 6.98 mW/g for 10g SAR
11.25 mW/g calculated 1g-SAR; 0.93 % from target (including drift)
7.14 mW/g calculated 10g-SAR; 2.28 % from target (including drift)

Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.73, 6.73, 6.73)

Duty Cycle: 1:1, Medium: 900 MHz IEEE Head, Medium parameters used: $\sigma = 1$; mho/m, $\epsilon_r = 41.1$; $\rho = 1000$ kg/m³

Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm,dz=5mm;

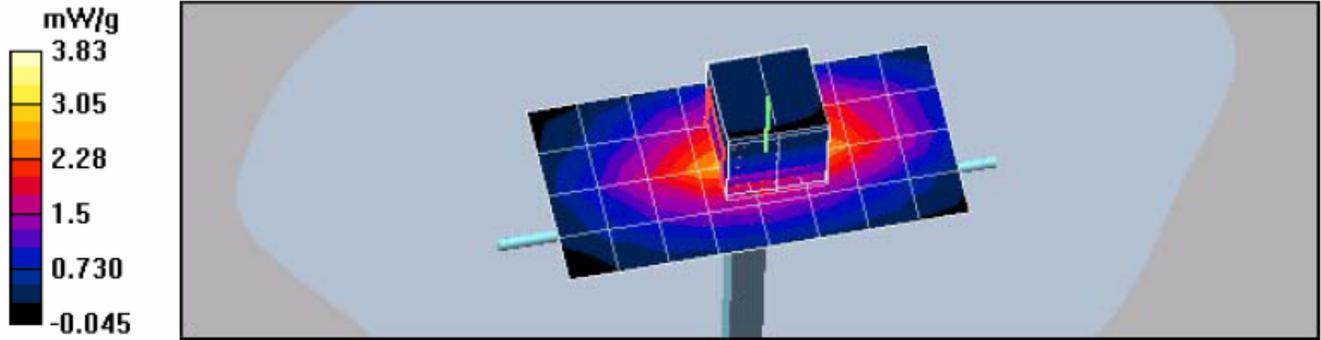
Reference Value = 56.1 V/m; Power Drift = -0.0363 dB;Peak SAR (extrapolated) = 4.23 W/kg

SAR(1 g) = 2.8 mW/g; SAR(10 g) = 1.78 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm,

dy=7.5mm,dz=5mm;Reference Value = 56.1 V/m; Power Drift = -0.0363 dB

SAR(1 g) = 2.78 mW/g; SAR(10 g) = 1.76 mW/g



Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/9/05

Run #: 050309-06 Test operator: C. Miller

Tissue Temp: 20.9 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.75 mW/g for 1g SAR 7.47 mW/g for 10g SAR
11.00 mW/g calculated 1g-SAR; -6.36 % from target (including drift)
7.17 mW/g calculated 10g-SAR; -3.96 % from target (including drift)

Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.35, 6.35, 6.35)

Duty Cycle: 1:1, Medium: 900 MHz FCC Body, Medium parameters used: $\sigma = 1$; mho/m, $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³

Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm,dz=5mm

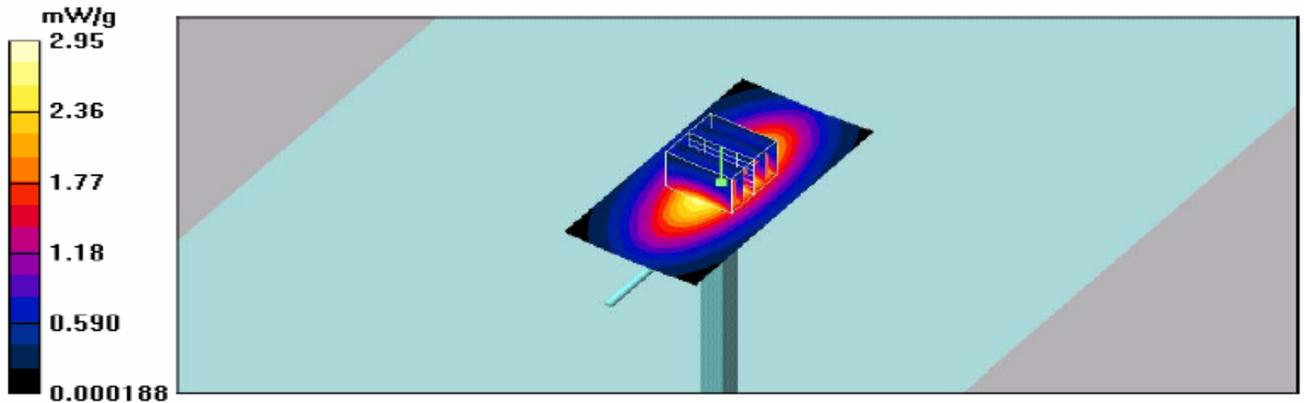
Reference Value = 56.5 V/m; Power Drift = -0.00881 dB

SAR(1 g) = 2.72 mW/g; SAR(10 g) = 1.77 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm;

Reference Value = 56.5 V/m; Power Drift = -0.00881 dB

SAR(1 g) = 2.77 mW/g; SAR(10 g) = 1.81 mW/g



Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/10/05

Run #: 050310-01 Test operator: E. Church

Tissue Temp: 21.2 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.75 mW/g for 1g SAR 7.47 mW/g for 10g SAR
11.47 mW/g calculated 1g-SAR; - 2.36 % from target (including drift)
7.47 mW/g calculated 10g-SAR; - 0.04 % from target (including drift)

Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.35, 6.35, 6.35)

Duty Cycle: 1:1, Medium: 900 MHz FCC Body, Medium parameters used: $\sigma = 1.04$; mho/m, $\epsilon_r = 52.9$; $\rho = 1000$ kg/m³

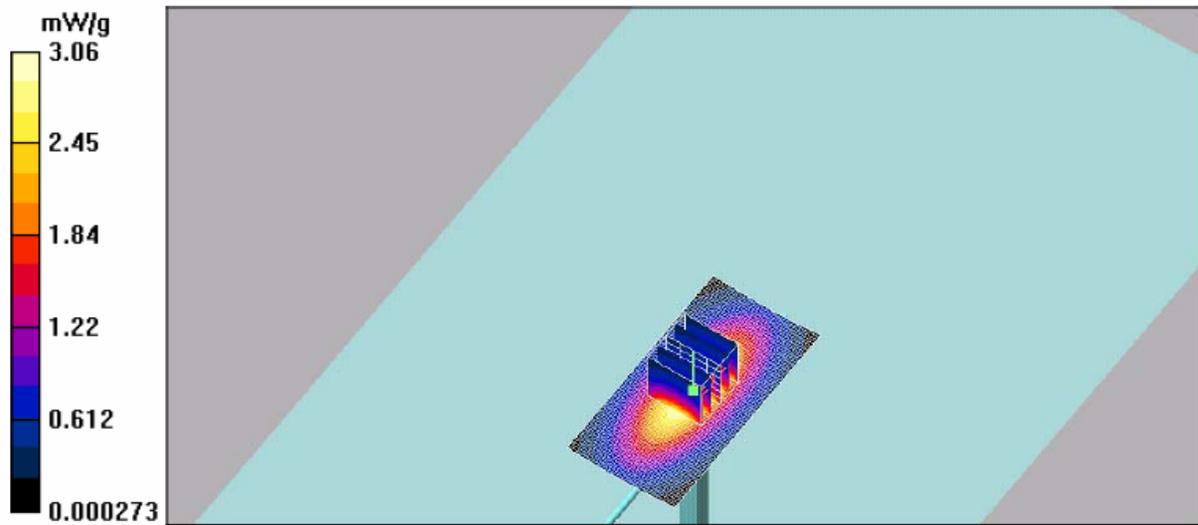
Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 56.7 V/m; Power Drift = -0.0 dB

SAR(1 g) = 2.83 mW/g; SAR(10 g) = 1.84 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 56.7 V/m; Power Drift = -0.0 dB

SAR(1 g) = 2.87 mW/g; SAR(10 g) = 1.87 mW/g



Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/11/05

Run #: 050311-01 Test operator: E. Church

Tissue Temp: 21.3 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.75 mW/g for 1g SAR 7.47 mW/g for 10g SAR
11.16 mW/g calculated 1g-SAR; - 5.03 % from target (including drift)
7.27 mW/g calculated 10g-SAR; - 2.70 % from target (including drift)

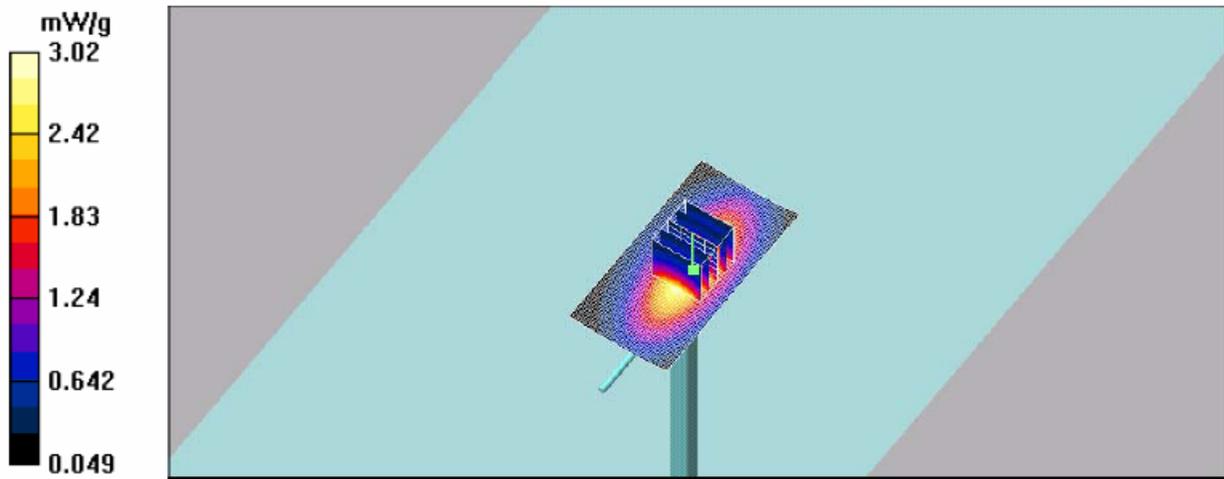
Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.35, 6.35, 6.35)
Duty Cycle: 1:1, Medium: 900 MHz FCC Body, Medium parameters used: $\sigma = 1.03$; mho/m, $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³
Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 54.7 V/m; Power Drift = 0.0546 dB

SAR(1 g) = 2.79 mW/g; SAR(10 g) = 1.82 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 54.7 V/m; Power Drift = 0.0546 dB

SAR(1 g) = 2.86 mW/g; SAR(10 g) = 1.86 mW/g



Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/12/05

Run #: 050312-01 Test operator: E. Church

Tissue Temp: 21.8 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.75 mW/g for 1g SAR 7.47 mW/g for 10g SAR
11.50 mW/g calculated 1g-SAR; - 2.15 % from target (including drift)
7.49 mW/g calculated 10g-SAR; + 0.70 % from target (including drift)

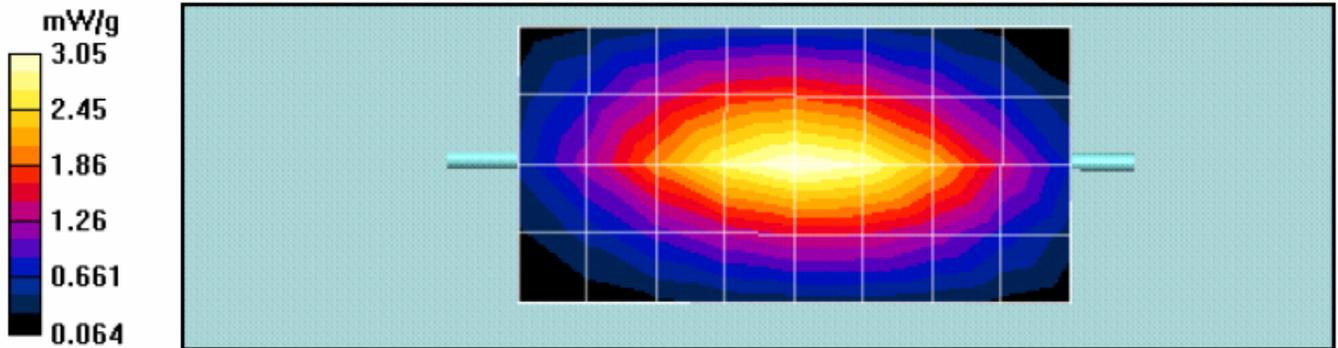
Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.35, 6.35, 6.35),
Duty Cycle: 1:1, Medium: 900 MHz FCC Body, Medium parameters used: $\sigma = 1.04$; mho/m, $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³ ;
Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 56.4 V/m; Power Drift = -0.0523 dB

SAR(1 g) = 2.81 mW/g; SAR(10 g) = 1.83 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 56.4 V/m; Power Drift = -00523 dB

SAR(1 g) = 2.87 mW/g; SAR(10 g) = 1.87 mW/g



Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/13/05

Run #: 050313-01 Test operator: C. Miller

Tissue Temp: 22.1 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.75 mW/g for 1g SAR 7.47 mW/g for 10g SAR
11.27 mW/g calculated 1g-SAR; - 4.05 % from target (including drift)
7.35 mW/g calculated 10g-SAR; - 1.60 % from target (including drift)

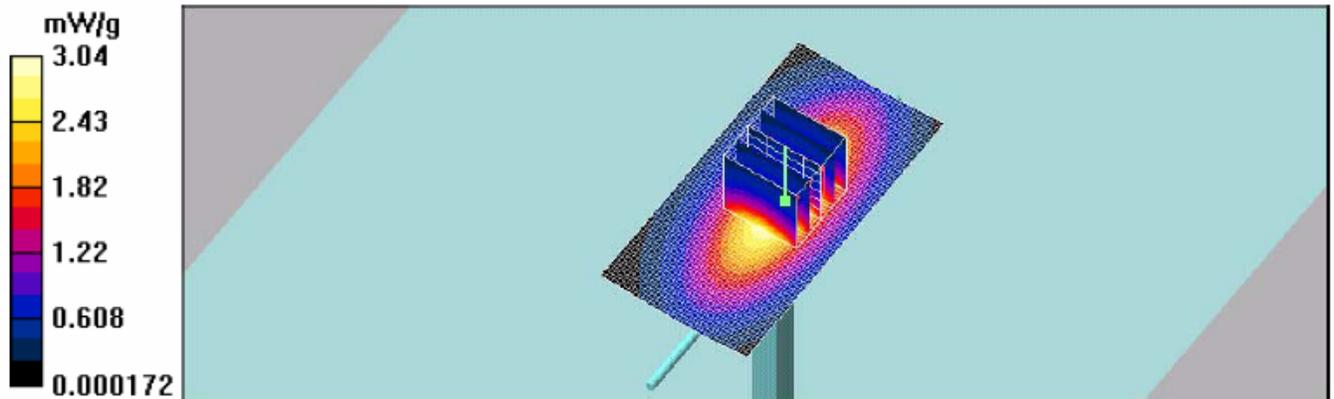
Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.35, 6.35, 6.35)
Duty Cycle: 1:1, Medium: 900 MHz FCC Body, Medium parameters used: $\sigma = 1.04$; mho/m, $\epsilon_r = 52.9$; $\rho = 1000$ kg/m³
Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 55.6 V/m; Power Drift = 0.0176 dB

SAR(1 g) = 2.8 mW/g; SAR(10 g) = 1.83 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 55.6 V/m; Power Drift = 0.0176 dB

SAR(1 g) = 2.86 mW/g; SAR(10 g) = 1.86 mW/g



Motorola GEMS EME Laboratory

SPEAG 900MHz Dipole; Model D900V2, SN084; Test Date: 3/14/05

Run #: 050314-01 Test operator: C. Miller

Tissue Temp: 21.7 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.75 mW/g for 1g SAR 7.47 mW/g for 10g SAR
11.21 mW/g calculated 1g-SAR; -4.56 % from target (including drift)
7.32 mW/g calculated 10g-SAR; -2.03 % from target (including drift)

Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.35, 6.35, 6.35)

Duty Cycle: 1:1, Medium: 900 MHz FCC Body, Medium parameters used: $\sigma = 1.04$ mho/m, $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³ ;

Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

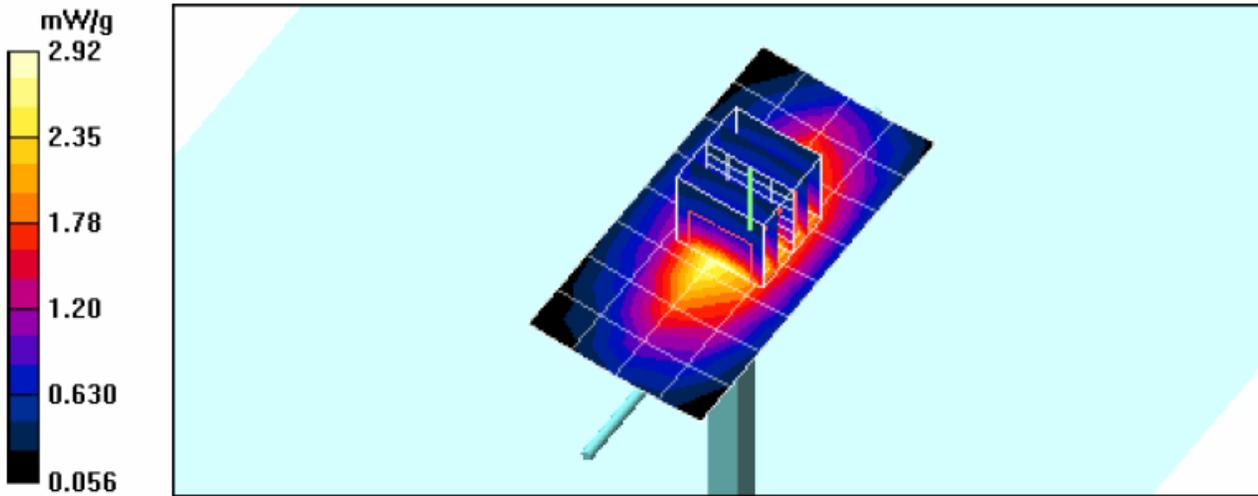
Reference Value = 55.2 V/m; Power Drift = 0.048 dB

SAR(1 g) = 2.81 mW/g; SAR(10 g) = 1.84 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 55.2 V/m; Power Drift = 0.048 dB

SAR(1 g) = 2.86 mW/g; SAR(10 g) = 1.86 mW/g



Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/16/05

Run #: 050316-01 Test operator: C. Miller

Tissue Temp: 20.5 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.15 mW/g for 1g SAR 6.98 mW/g for 10g SAR
11.40 mW/g calculated 1g-SAR; 2.22 % from target (including drift)
7.26 mW/g calculated 10g-SAR; 4.06 % from target (including drift)

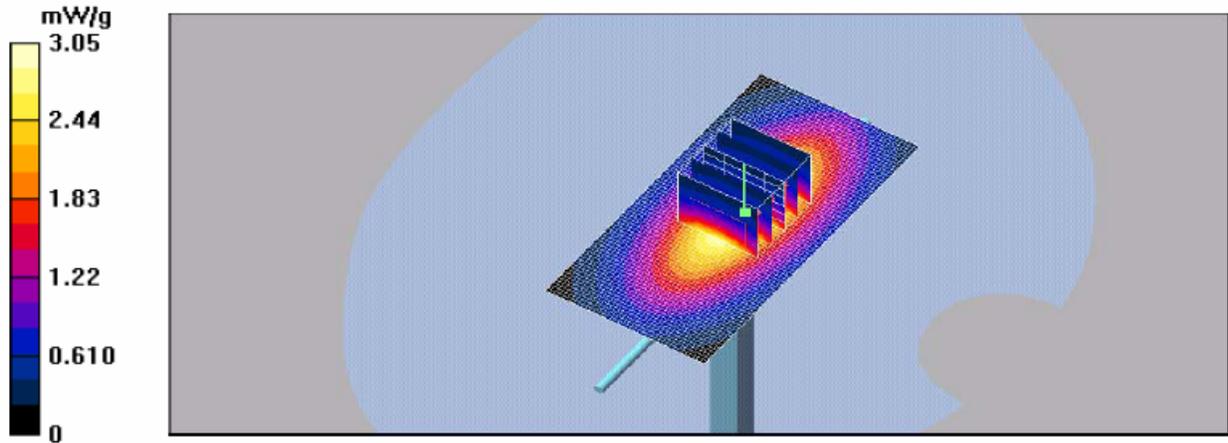
Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.73, 6.73, 6.73)
Duty Cycle: 1:1, Medium: 900 MHz IEEE Head, Medium parameters used: $\sigma = 1.01$; mho/m, $\epsilon_r = 40.4$; $\rho = 1000$ kg/m³
Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 56.7 V/m; Power Drift = -0.0142 dB

SAR(1 g) = 2.81 mW/g; SAR(10 g) = 1.79 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 56.7 V/m; Power Drift = -0.0142 dB

SAR(1 g) = 2.87 mW/g; SAR(10 g) = 1.83 mW/g



Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/17/05

Run #: 050317-01 Test operator: C. Miller

Tissue Temp: 21.5 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.15 mW/g for 1g SAR 6.98 mW/g for 10g SAR
11.33 mW/g calculated 1g-SAR; 1.61 % from target (including drift)
7.21 mW/g calculated 10g-SAR; 3.32 % from target (including drift)

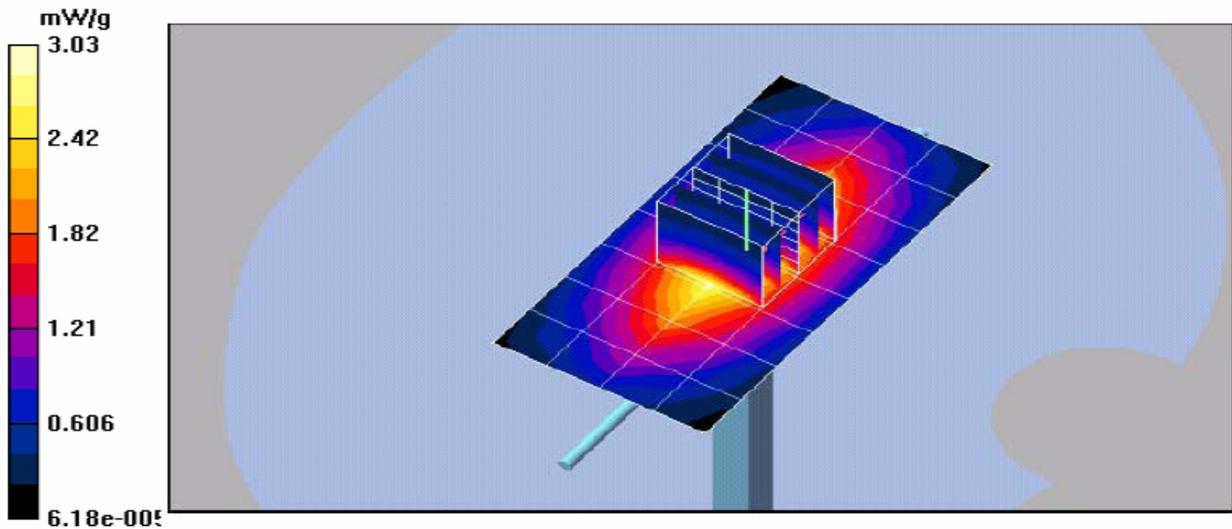
Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.73, 6.73, 6.73)
Duty Cycle: 1:1, Medium: 900 MHz IEEE Head, Medium parameters used: $\sigma = 1.01$; mho/m, $\epsilon_r = 40.4$; $\rho = 1000$ kg/m³
Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 56.8 V/m; Power Drift = -0.019 dB

SAR(1 g) = 2.79 mW/g; SAR(10 g) = 1.78 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 56.8 V/m; Power Drift = -0.019 dB

SAR(1 g) = 2.85 mW/g; SAR(10 g) = 1.81 mW/g



Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/18/05

Run #: 050318-01 Test operator: C. Miller

Tissue Temp: 20.3 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.75 mW/g for 1g SAR 7.47 mW/g for 10g SAR
11.61 mW/g calculated 1g-SAR; -1.19 % from target (including drift)
7.52 mW/g calculated 10g-SAR; + 0.73 % from target (including drift)

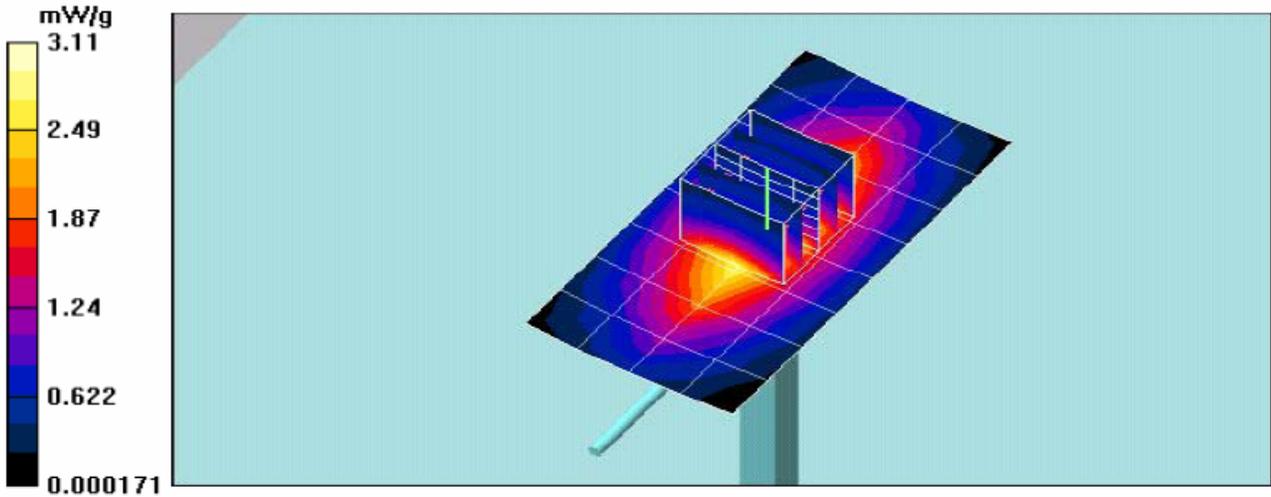
Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.35, 6.35, 6.35)
Duty Cycle: 1:1, Medium: 900 MHz FCC Body, Medium parameters used: $\sigma = 1.04$; mho/m, $\epsilon_r = 52.5$; $\rho = 1000$ kg/m³
Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 56.4 V/m; Power Drift = -0.0489 dB

SAR(1 g) = 2.84 mW/g; SAR(10 g) = 1.84 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 56.4 V/m; Power Drift = -0.0489 dB

SAR(1 g) = 2.9 mW/g; SAR(10 g) = 1.88 mW/g



Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/21/05

Run #: 050321-01 Test operator: C. Miller

Tissue Temp: 20.9 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.75 mW/g for 1g SAR 7.47 mW/g for 10g SAR
11.33 mW/g calculated 1g-SAR; -3.55 % from target (including drift)
7.35 mW/g calculated 10g-SAR; -1.61 % from target (including drift)

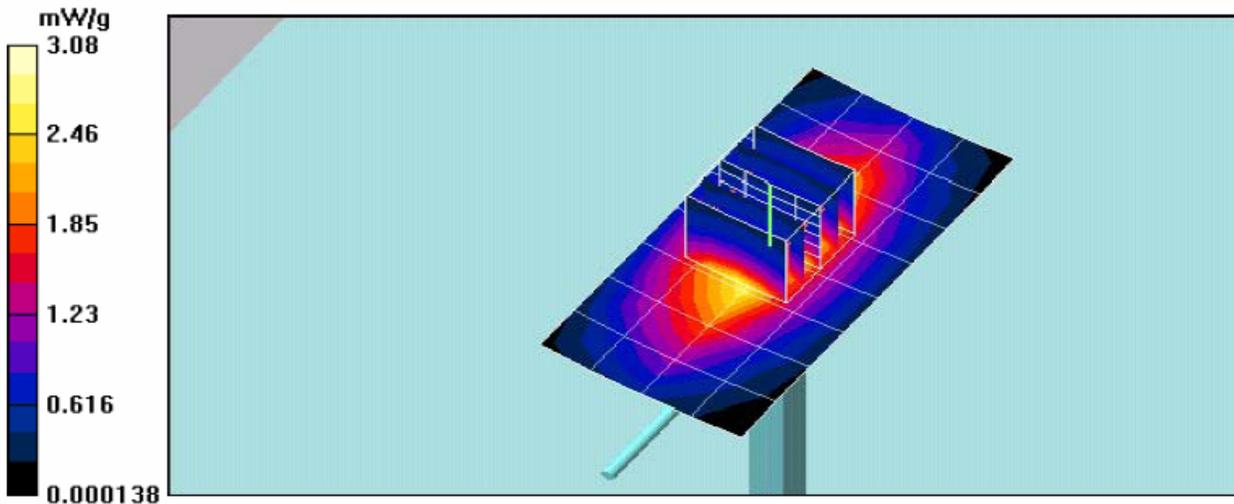
Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.35, 6.35, 6.35)
Duty Cycle: 1:1, Medium: 900 MHz FCC Body, Medium parameters used: $\sigma = 1.04$; mho/m, $\epsilon_r = 52.6$; $\rho = 1000$ kg/m³
Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 54.9 V/m; Power Drift = 0.0178 dB

SAR(1 g) = 2.82 mW/g; SAR(10 g) = 1.83 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 54.9 V/m; Power Drift = 0.0178 dB

SAR(1 g) = 2.87 mW/g; SAR(10 g) = 1.86 mW/g



Motorola GEMS EME Lab

SPEAG 900 MHz Dipole; Model D900V2, SN 084; Test Date: 3/22/05

Run #: 050322-01 Test operator: C. Miller

Tissue Temp: 20.9 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.75 mW/g for 1g SAR 7.47 mW/g for 10g SAR
11.29 mW/g calculated 1g-SAR; -3.90 % from target (including drift)
7.33 mW/g calculated 10g-SAR; -1.81 % from target (including drift)

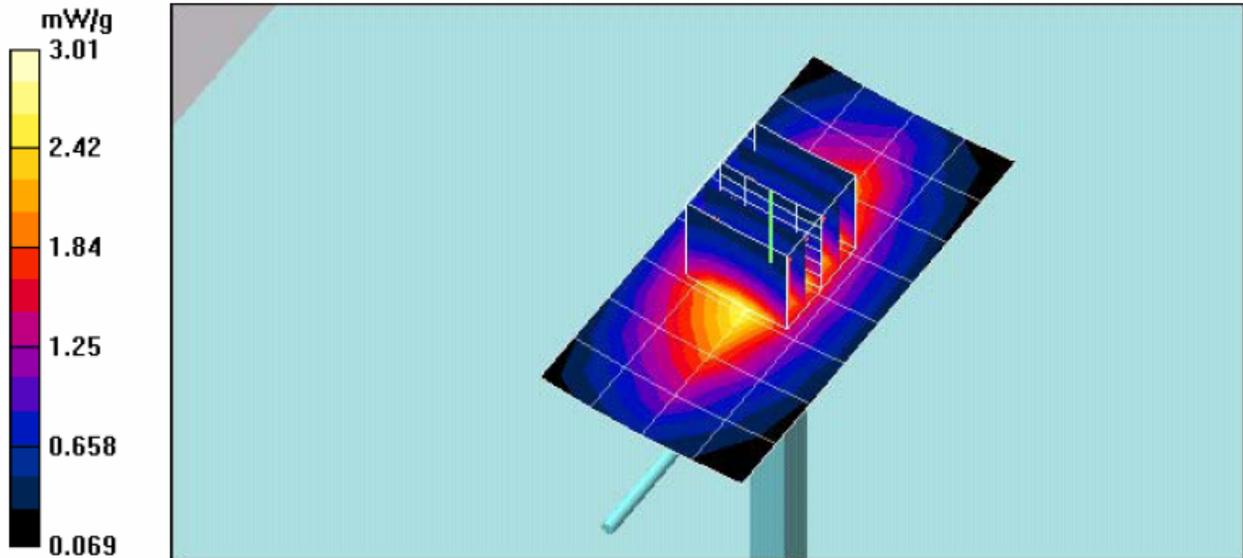
Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.35, 6.35, 6.35)
Duty Cycle: 1:1, Medium: 900 MHz FCC Body, Medium parameters used: $\sigma = 1.03$; mho/m, $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³
Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 55.2 V/m; Power Drift = 0.00316 dB

SAR(1 g) = 2.8 mW/g; SAR(10 g) = 1.82 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm, Reference Value = 55.2 V/m; Power Drift = 0.00316 dB

SAR(1 g) = 2.85 mW/g; SAR(10 g) = 1.85 mW/g



Motorola GEMS EME Laboratory

SPEAG 900MHz Dipole; Model D900V2, SN084; Test Date: 3/28/05

Run #: 050328-01 Test operator: C. Miller

Tissue Temp: 20.5 (C)

TX Freq: 900(MHz) Start power: 250 (mW)

Target: 11.15 mW/g for 1g SAR 6.98 mW/g for 10g SAR
11.27 mW/g calculated 1g-SAR; 1.03 % from target (including drift)
7.19 mW/g calculated 10g-SAR; 2.99 % from target (including drift)

Probe: ET3DV6 - SN1393, Calibrated: 4/28/2004, ConvF(6.73, 6.73, 6.73)

Duty Cycle: 1:1, Medium: 900 MHz IEEE Head, Medium parameters used: $\sigma = 1.01$ mho/m, $\epsilon_r = 40.4$; $\rho = 1000$ kg/m³ ;

Electronics: DAE3 Sn406, Calibrated: 11/17/2004

System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

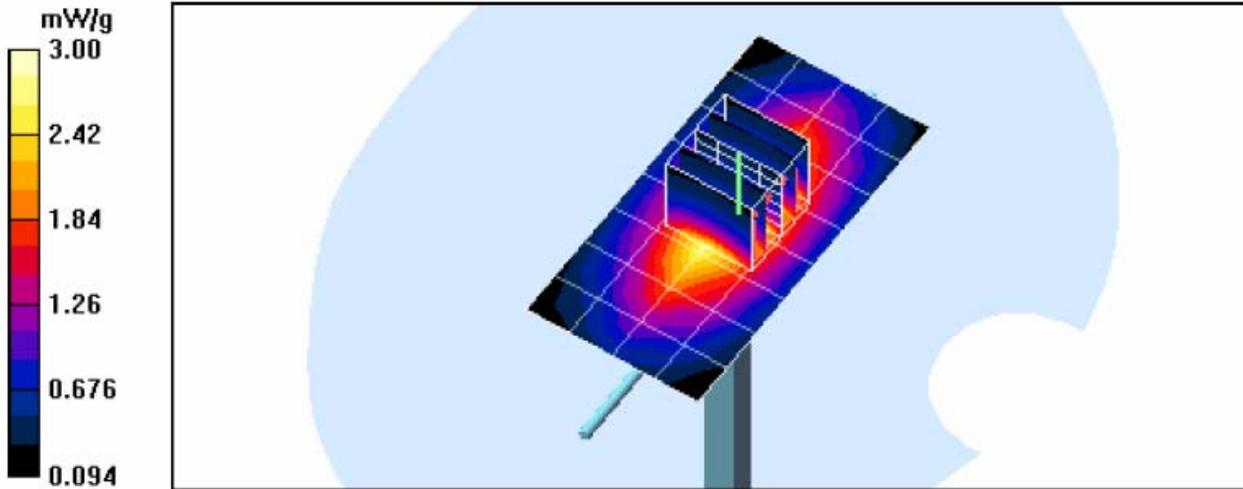
Reference Value = 56.6 V/m; Power Drift = -0.018 dB

SAR(1 g) = 2.78 mW/g; SAR(10 g) = 1.77 mW/g

System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 56.6 V/m; Power Drift = -0.018 dB

SAR(1 g) = 2.83 mW/g; SAR(10 g) = 1.81 mW/g



SYSTEM VALIDATION

Date:	<u>4/14/2004</u>	Frequency (MHz):	<u>900</u>
Lab Location:	<u>CGISS</u>	Mixture Type:	<u>IEEE-Head</u>
Robot System:	<u>3</u>	Ambient Temp.(°C):	<u>23</u>
Probe Serial #:	<u>1383</u>	Tissue Temp.(°C):	<u>21</u>
DAE Serial #:	<u>406</u>		

Tissue Characteristics

Permittivity:	<u>41.2</u>	Phantom Type/SN:	<u>SAMTP1022</u>
Conductivity:	<u>1.00</u>	Distance (mm):	<u>15 (tissue/dipole cnt)</u>

Reference Source:	<u>D900V2</u>	(Dipole)
Reference SN:	<u>84</u>	

Power to Dipole:	<u>250</u>	mW
Power Output (radio):	<u>n/a</u>	mW

Target SAR Value:	<u>10.8</u>	mW/g,	<u>6.9</u>	mW/g (10g avg.)
(normalized to 1.0 W)				

Measured SAR Value:	<u>2.78</u>	mW/g,	<u>1.74</u>	mW/g (10g avg.)
Power Drift:	<u>-0.01</u>	dB		

Measured SAR Value:	<u>11.15</u>	mW/g,	<u>6.98</u>	mW/g (10g avg.)
(normalized to 1.0 W, including drift)				

Percent Difference From Target (MUST be within System Uncertainty):	<u>3.20</u>	% (1g ave)
	<u>1.10</u>	% (10g ave)

Test performed by: C. Miller Initial: 

SYSTEM PERFORMANCE CHECK TARGET SAR

Date:	<u>4/14/2004</u>	Frequency (MHz):	<u>900</u>
Lab Location:	<u>CGISS</u>	Mixture Type:	<u>FCC Body</u>
Robot System:	<u>3</u>	Ambient Temp.(°C):	<u>23</u>
Probe Serial #:	<u>1545</u>	Tissue Temp.(°C):	<u>20.5</u>
DAE Serial #:	<u>406</u>		

Tissue Characteristics			
Permittivity:	<u>53.3</u>	Phantom Type/SN:	<u>80302002A/S8</u>
Conductivity:	<u>1.05</u>	Distance (mm):	<u>15 (tissue/dipole cnt)</u>

Reference Source:	<u>D900V2</u>	(Dipole)
Reference SN:	<u>84</u>	

Power to Dipole: 250 mW

Measured SAR Value:	<u>2.91</u> mW/g,	<u>1.85</u> mW/g (10g avg.)
Power Drift:	<u>-0.04</u> dB	

New Target/Measured		
SAR Value:	<u>11.75</u> mW/g,	<u>7.47</u> mW/g (10g avg.)
(normalized to 1.0 W, including drift)		

Test performed by: C. Miller Initial: 

SPEAG DIPOLE D900V2; Test date:04/14/04

Run #: Sys Perf-040414-08 Phantom #: SAMTP1022
Model #: D900 V2 SN: 084
Robot: CGISS-3 Tester: C. Miller
TX Freq: 900 MHz 900 MHz Sim Tissue Temp: 21.0 (Celsius)
Start Power: 250 mW
DAE3: 401 DAE Cal Date: 08/21/2003
- Comments-

SAR calculated at 1W is 11.15 mW/g (1g avg).
SAR calculated at 1W is 6.98 mW/g (10g avg).
SAM; Probe: ET3DV6 - SN1383(Cal Date 25 Feb 2004); ConvF(6.30,6.30,6.30); Crest factor: 1.0; IEEE
Head 900: $\sigma = 1.00$ mho/m $\epsilon_r = 41.2$ $\rho = 1.00$ g/cm³
Cubes (2): Peak: 4.44 mW/g ± 0.01 dB, SAR (1g): 2.78 mW/g ± 0.02 dB, SAR (10g): 1.74 mW/g ± 0.03 dB, (Worst-case extrapolation)
Penetration depth: 11.2 (10.4, 12.4) [mm]
Powerdrift: -0.01 dB

