




MOTOROLA

Portable Cellular Phone SAR Test Report

Tests Requested By: Motorola Mobile Devices
600 N. US Highway 45
Libertyville, IL 60048

Test Report #: 22717-1F
Date of Report: Feb-12-2009
Date of Test: Jan-07-2009 to Feb-10-2009
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Test Laboratory: Motorola Mobile Devices Business Product Safety & Compliance Laboratory
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This laboratory is accredited to ISO/IEC 17025-2005 to perform the following tests:

Accreditation:



TESTING CERT #2518-02

- | | |
|--|---|
| <u>Tests:</u> | <u>Procedures:</u> |
| Electromagnetic Specific Absorption Rate | IEC 62209-1 |
| | RSS-102 |
| | IEEE 1528 - 2003 |
| | FCC OET Bulletin 65 (including Supplement C) |
| | Australian Communications Authority Radio |
| | Communications (Electromagnetic Radiation – Human |
| | Exposure) Standard 2003 |
| | CENELEC EN 50360 |
| | ARIB Std. T-56 (2002) |

On the following products or types of products:

Wireless Communications Devices (Examples): Two Way Radios; Portable Phones (including Cellular, Licensed Non-Broadcast and PCS); Low Frequency Readers; and Pagers

Statement of Compliance:

Motorola declares under its sole responsibility that the portable cellular telephone model to which this declaration relates, is in conformity with the appropriate General Population/Uncontrolled RF exposure standards, recommendations and guidelines (FCC 47 CFR §2.1093) as well as with CENELEC en50360:2001 and ANSI / IEEE C95.1. It also declares that the product was tested in accordance with IEEE 1528 / CENELEC EN62209-1 (2006), as well as other appropriate measurement standards, guidelines and recommended practices. Any deviations from these standards, guidelines and recommended practices are noted below:

(none)

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1. Introduction

The Motorola Mobile Devices Business Product Safety Laboratory has performed measurements of the maximum potential exposure to the user of the portable cellular phone covered by this test report. The Specific Absorption Rate (SAR) of this product was measured. The portable cellular phone was tested in accordance with [1], [4] and [5]. The SAR values measured for the portable cellular phone are below the maximum recommended levels of 1.6 W/kg in a 1 g average set in [3] and 2.0 W/kg in a 10 g average set in [2].

For ICNIRP (10 g), the final SAR reading for this phone is 0.78 W/kg for head-adjacent use and 0.44 W/kg for body-worn use. For ANSI / IEEE C95.1 (1 g), the final SAR reading for this phone is 1.32 W/kg for head-adjacent use and 0.80 W/kg for body-worn use. These measurements were performed using a Dasy4™ v4.7 system manufactured by Schmid & Partner Engineering AG (SPEAG), of Zurich Switzerland.

2. Description of the Device Under Test

2.1 Antenna description

Type	Internal	
Location	Bottom of the Phone	
Dimensions	Width (x)	42 mm
	Length (y)	14.5 mm
Configuration	PIFA monopole hybrid	

2.2 Device description

Serial Number	356911020000855, 356911020000624					
Mode(s) of Operation	GSM 850	GSM 1800	GSM 1900	WCDMA 850	WCDMA 1900	Bluetooth
Modulation Mode(s)	GSMK	GSMK	GSMK	QPSK	QPSK	GFSK
Maximum Output Power Setting	33.0 dBm	30.0 dBm	30.0 dBm	24.2 dBm	22.5 dBm	9.45 dBm
Duty Cycle	1:8	1:8	1:8	1:1	1:1	1:1
Transmitting Frequency Range(s)	824.2 - 848.8 MHz	1710.2 - 1784.8 MHz	1850.2 - 1909.8 MHz	826.4 - 846.6 MHz	1852.4 - 1907.6 MHz	2400 - 2484 MHz
Production Unit or Identical Prototype (47 CFR §2.908)	Identical Prototype					
Device Category	Portable					
RF Exposure Limits	General Population / Uncontrolled					

Mode(s) of Operation	GPRS 850				GPRS 1800				GPRS 1900			
Modulation	GMSK				GMSK				GMSK			
Maximum Output Power Setting	33.00 dBm	33.00 dBm	32.00 dBm	30.00 dBm	30.00 dBm	30.00 dBm	29.00 dBm	27.00 dBm	30.00 dBm	30.00 dBm	29.00 dBm	27.00 dBm
Duty Cycle	1:8	2:8	3:8	4:8	1:8	2:8	3:8	4:8	1:8	2:8	3:8	4:8
Transmitting Frequency Range(s)	824.2 - 848.8 MHz				1710.2 - 1784.8 MHz				1850.2 - 1909.8 MHz			

Mode(s) of Operation	EDGE 850				EDGE 1800				EDGE 1900			
Modulation	8PSK				8PSK				8PSK			
Maximum Output Power Setting	28.00 dBm	28.00 dBm	26.00 dBm	24.00 dBm	27.00 dBm	27.00 dBm	25.00 dBm	23.00 dBm	27.00 dBm	27.00 dBm	25.00 dBm	23.00 dBm
Duty Cycle	1:8	2:8	3:8	4:8	1:8	2:8	3:8	4:8	1:8	2:8	3:8	4:8
Transmitting Frequency Range(s)	824.2 - 848.8 MHz				1710.2 - 1784.8 MHz				1850.2 - 1909.8 MHz			

Note: Bolded entries indicate data mode configuration of highest time-average power output per band and data mode type.

3. Test Equipment Used

3.1 Dosimetric System

The Motorola Mobile Devices Business Product Safety & Compliance Laboratory utilizes a Dosimetric Assessment System (Dasy4™ v4.7) manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. All the SAR measurements are taken within a shielded enclosure. The overall 10 g RSS uncertainty of the measurement system is $\pm 10.8\%$ (K=1) with an expanded uncertainty of $\pm 21.6\%$ (K=2). The overall 1 g RSS uncertainty of the measurement system is $\pm 11.1\%$ (K=1) with an expanded uncertainty of $\pm 22.2\%$ (K=2). The measurement uncertainty budget is given in Appendix 5. Per IEEE 1528, this uncertainty budget is applicable to the SAR range of 0.4 W/kg to 10 W/kg.

The list of calibrated equipment used for the measurements is shown in the following table.

Description	Serial Number	Cal Due Date
DASY4™ DAE V1	650	Aug-13-2009
E-Field Probe ES3DV3	3124	Mar-17-2009
S.A.M. Phantom used for 800/900 MHz	TP-1005	
S.A.M. Phantom used for 1800/1900/2450 MHz	TP-1139	
Dipole Validation Kit, DV900V2	78	Apr-22-2009
Dipole Validation Kit, DV1800V2	259TR	Apr-22-2009
Dipole Validation Kit, DV2450V2	740	Apr-22-2009

3.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3847A04810	Jun-13-2009
Power Meter E4419B	GB39510961	Jan-24-2010
Power Sensor #1 - E9301A	US39210915	Jul-07-2009
Power Sensor #2 - E9301A	US39210916	Jul-07-2009
Signal Generator HP8648C	3847A04844	Jan-29-2010
Power Meter E4419B	US39250622	Jun-07-2009
Power Sensor #1 - E9301A	US39211008	Jun-02-2009
Power Sensor #2 - E9301A	US39211009	Jun-02-2009
Network Analyzer HP8753ES	US39171846	Jul-05-2009
Dielectric Probe Kit HP85070C	US99360070	

4. Electrical parameters of the tissue simulating liquid

Prior to conducting SAR measurements, the relative permittivity, ϵ_r , and the conductivity, σ , of the tissue simulating liquids were measured with a HP85070 Dielectric Probe Kit. These values, along with the temperature of the simulated tissue are shown in the table below. The recommended limits for permittivity and conductivity are also shown. A mass density of $\rho = 1 \text{ g/cm}^3$ was entered into the system in all the cases. It can be seen that the measured parameters are within tolerance of the recommended limits specified in [1] and [5].

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			ϵ_r	σ (S/m)	Temp (°C)
835	Head	Measured, Jan-07-2009	40.6	0.91	19.1
		Measured, Jan-13-2009	41.2	0.92	19.2
		Measured, Jan-14-2009	40.8	0.92	19.0
		Measured, Jan-15-2009	40.4	0.91	19.2
		Recommended Limits	41.5 ±5%	0.90 ±5%	18-25
	Body	Measured, Jan-13-2009	53.5	0.99	19.1
		Measured, Jan-14-2009	53.4	1.00	19.0
Recommended Limits		55.2 ±5%	0.97 ±5%	18-25	
1880	Head	Measured, Jan-08-2009	38.5	1.47	19.3
		Measured, Jan-09-2009	38.1	1.47	19.3
		Measured, Jan-12-2009	39.0	1.44	19.0
		Measured, Jan-14-2009	38.5	1.47	19.4
		Measured, Jan-15-2009	38.0	1.47	19.4
		Recommended Limits	40.0 ±5%	1.40 ±5%	18-25
	Body	Measured, Jan-12-2009	50.9	1.59	18.7
		Measured, Jan-15-2009	51.0	1.57	19.1
		Recommended Limits	53.3 ±5%	1.52 ±5%	18-25
2450	Body	Measured, Jan-20-2009	49.6	2.04	19.1
		Recommended Limits	52.7 ±10%	1.95 ±5%	18-25

The list of ingredients and the percent composition used for the tissue simulates are indicated in the table below.

Ingredient	835 MHz / 900 MHz Head	835 MHz / 900 MHz Body	1800 MHz / 1900 MHz Head	1800 MHz / 1900 MHz Body	2450 MHz Head	2450 MHz Body
Sugar	57	44.9	--	--	--	--
DGBE	--	--	47	30.8	--	30
Diacetin	--	--	--	--	51	--
Water	40.45	53.06	52.62	68.8	48.75	70
Salt	1.45	0.94	0.38	0.4	0.15	--
HEC	1	1	--	--	--	--
Bact.	0.1	0.1	--	--	0.1	--

5. System Accuracy Verification

A system accuracy verification of the DASY4™ was performed using the measurement equipment listed in Section 3.1. The daily system accuracy verification occurs within the flat section of the SAM phantom.

A SAR measurement was performed to verify the measured SAR was within ±10% from the target SAR indicated in Appendix 6. These frequencies are within ±10% of the compliance test mid-band frequency as required in [1] and [5]. The test was conducted on the same days as the measurement of the DUT. Recommended limits for permittivity and conductivity, specified in [5], are shown in the table below. The obtained results from the system accuracy verification are also displayed in the table below. SAR values are normalized to 1W forward power delivered to the dipole. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values. The distributions of SAR compare well with those of the reference measurements (see Appendix 1). The tissue stimulant depth was verified to be 15.0 cm ± 0.5 cm. Z-axis scans showing the SAR penetration are also included in Appendix 1.

f (MHz)	Description	SAR (W/kg), 1 gram	Dielectric Parameters		Ambient Temp (°C)	Tissue Temp (°C)
			ϵ_r	σ (S/m)		
900	Measured, Jan-07-2009	10.825	39.8	0.97	20.3	19.1
	Measured, Jan-13-2009	10.55	40.3	0.98	19.8	19.2
	Measured, Jan-14-2009	10.825	39.9	0.98	20.0	18.8
	Measured, Jan-15-2009	10.825	39.7	0.97	20.0	19.0
	Recommended Limits	11.29	41.5 ±5%	0.97 ±5%	18-25	18-25
1800	Measured, Jan-08-2009	40.20	38.9	1.39	19.9	19.1
	Measured, Jan-09-2009	39.075	38.5	1.38	19.5	19.9
	Measured, Jan-11-2009	39.475	38.5	1.38	19.7	19.5
	Measured, Jan-12-2009	39.85	38.5	1.38	20.0	18.2
	Measured, Jan-14-2009	39.575	38.9	1.38	19.8	19.1
	Measured, Jan-15-2009	40.30	38.4	1.39	19.9	18.6
	Measured, Feb-10-2009	38.90	39.4	1.38	20.1	19.0
	Recommended Limits	37.7	40.0 ±5%	1.4 ±5%	18-25	18-25
2450	Measured, Jan-20-2009	57.0	36.0	1.87	20.1	19.7
	Recommended Limits	56.5	39.2 ±10%	1.80 ±5%	18-25	18-25

The following probe conversion factors were used on the E-Field probe(s) used for the system accuracy verification measurements:

Description	Serial Number	f (MHz)	Conversion Factor	Cal Cert pg #
E-Field Probe ES3DV3	3124	900	6.03	8 of 9
		1810	4.98	8 of 9
		2450	4.51	8 of 9

6. Test Results

The test sample was operated using an actual transmission through a base station simulator. The base station simulator was set up to the proper channel, transmitter power level and transmit mode of operation. The phone was tested in the configurations stipulated in [1], [4] and [5]. The phone was positioned into these configurations using the device holder supplied with the DASY4™ SAR measurement system. The measured dielectric constant of the material used for the device holder is less than 2.9 and the loss tangent is less than 0.02 ($\pm 30\%$) at 850 MHz. The default settings for the “coarse” and “cube” scans were chosen and used for measurements. The grid spacing of the course scan was set to 15 mm as shown in the SAR plots included in Appendix 2 and 3. Please refer to the DASY4™ manual for additional information on SAR scanning procedures and algorithms used.

The Cellular Phone model covered by this report has the following battery options:

SNN5804A - 910 mAH Battery

SNN5814A - 910 mAH Battery

SNN5804A battery was used to do most of the SAR testing. The phone was placed in the SAR measurement system with a fully charged battery. The configuration that resulted in the highest SAR values were tested using the other battery listed above.

Per the “SAR Measurement Procedures for 3G Devices” released in October, 2007, 12.2 kbps RMC, 12.2 kbps AMR, HS-DPCCH Sub-test 1-4, and E-DCH Sub-test 1-5 modes were considered. The conducted power measurements (per section 5.2 of 3GPP TS 34.121) for each mode are shown in the table below.

Conducted power (dBm) for WCDMA modes			
Band	Channel	RMC	AMR
WCDMA 850	4132	24.15	24.19
	4180	24.07	24.03
	4233	24.07	24.04
WCDMA 1900	9262	22.40	22.57
	9400	22.35	22.41
	9538	22.50	22.62

6.1 Head Adjacent Test Results

The SAR results shown in tables 1 through 12 are maximum SAR values averaged over 1 gram of phantom tissue, to demonstrate compliance to [3] and also over 10 grams of phantom tissue, to demonstrate compliance to the [6]. Also shown are the measured conducted output power levels, the temperature of the simulated tissue after the test, the measured drift and the extrapolated SAR. The exact method of extrapolation is $\text{New SAR} = \text{Old SAR} * 10^{(-\text{drift}/10)}$. The SAR reported at the end of the measurement process by the DASY4™ measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process. This is the most conservative SAR because it corresponds to the average output power at the beginning of the SAR test. This extrapolation has been done because when the DUT is operating properly it may exhibit a slump in radiated power and SAR over time. This is verified by measuring the SAR drift after the test.

The left head and right head SAR contour distributions are similar. Because of this similarity, the cheek/touch and 15° tilt test conditions with the highest SAR values in each band are indicated as bold numbers in the following tables and are included in Appendix 2. All other test conditions measured lower SAR values than those included in Appendix 2.

The SAR measurements were performed using the SAM phantoms listed in section 3.1. Since the same phantoms and simulated tissue were used for the system accuracy verification and the device SAR measurements, the Z-axis scans included in Appendix 1 are applicable for verification of simulated tissue depth to be 15.0 cm ± 0.5 cm.

The following probe conversion factors were used on the E-Field probe(s) used for head-adjacent measurements:

Description	Serial Number	f (MHz)	Conversion Factor	Cal Cert pg #
E-Field Probe ES3DV3	3124	900	6.03	8 of 9
		1810	4.98	8 of 9

Left Head Cheek Position, Slider Extended								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.1	-0.021	0.408	0.41	0.554	0.56
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	19.3	-0.075	0.334	0.34	0.579	0.59
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	19.2	-0.209	0.483	0.51	0.655	0.69
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40	19.4	0.085	0.541	0.54	0.944	0.94
	Channel 9400	22.35	19.4	0.136	0.527	0.53	0.921	0.92
	Channel 9538	22.50	19.4	0.067	0.443	0.44	0.794	0.79

Table 1: SAR measurement results at the highest possible output power, measured in a head cheek position against the ICNIRP and ANSI SAR Limit.

Left Head Cheek Position, Slider Retracted								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31	19.1	0.030	0.519	0.52	0.715	0.72
	Channel 190	33.17	19.1	0.042	0.586	0.59	0.812	0.81
	Channel 251	32.91	19.1	0.041	0.666	0.67	0.929	0.93
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	19.3	0.122	0.395	0.40	0.709	0.71
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15	19.2	-0.222	0.674	0.71	0.920	0.97
	Channel 4180	24.07	19.2	-0.036	0.582	0.59	0.812	0.82
	Channel 4233	24.07	19.2	-0.051	0.675	0.68	0.931	0.94
WCDMA 1900	Channel 9262	22.40	19.4	-0.130	0.537	0.55	0.930	0.96
	Channel 9400	22.35	19.4	0.009	0.505	0.51	0.890	0.89
	Channel 9538	22.50	19.4	0.196	0.455	0.46	0.816	0.82

Table 2: SAR measurement results at the highest possible output power, measured in a head cheek position against the ICNIRP and ANSI SAR Limit.

Right Head Cheek Position, Slider Extended								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.1	0.062	0.355	0.36	0.482	0.48
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	19.3	-0.050	0.270	0.27	0.446	0.45
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	19.2	-0.258	0.397	0.42	0.540	0.57
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40						
	Channel 9400	22.35	19.0	0.125	0.393	0.39	0.653	0.65
	Channel 9538	22.50						

Table 3: SAR measurement results at the highest possible output power, measured in a head cheek position against the ICNIRP and ANSI SAR Limit.

Right Head Cheek Position, Slider Retracted								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.1	0.106	0.538	0.54	0.740	0.74
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	19.3	0.170	0.296	0.30	0.537	0.54
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	19.0	-0.392	0.522	0.57	0.721	0.79
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40	19.0	0.144	0.702	0.70	1.30	1.30
	Channel 9400	22.35	19.0	0.266	0.585	0.59	1.08	1.08
	Channel 9538	22.50	19.0	0.107	0.512	0.51	0.967	0.97

Table 4: SAR measurement results at the highest possible output power, measured in a head cheek position against the ICNIRP and ANSI SAR Limit.

Highest Head Cheek Position, Slider Extended, with Battery SNN5814A								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.1	-0.176	0.433	0.45	0.585	0.61
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	19.3	-0.052	0.369	0.37	0.650	0.66
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	18.8	-0.071	0.488	0.50	0.658	0.67
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40	19.0	0.125	0.528	0.53	0.932	0.93
	Channel 9400	22.35						
	Channel 9538	22.50						

Table 5: SAR measurement results at the highest possible output power, measured in a head cheek position against the ICNIRP and ANSI SAR Limit.

Highest Head Cheek Position, Slider Retracted, with Battery SNN5814A								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17						
	Channel 251	32.91	19.2	-0.004	0.688	0.69	0.958	0.96
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	19.3	-0.029	0.376	0.38	0.667	0.67
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15	19.0	-0.293	0.731	0.78	1.01	1.08
	Channel 4180	24.07						
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40	19.0	0.276	0.715	0.72	1.32	1.32
	Channel 9400	22.35						
	Channel 9538	22.50						

Table 6: SAR measurement results at the highest possible output power, measured in a head cheek position against the ICNIRP and ANSI SAR Limit.

Left Head Tilt Position, Slider Extended								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.1	0.113	0.244	0.24	0.337	0.34
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	19.3	0.120	0.174	0.17	0.288	0.29
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	19.2	-0.005	0.285	0.29	0.393	0.39
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40						
	Channel 9400	22.35	19.4	-0.061	0.194	0.20	0.326	0.33
	Channel 9538	22.50						

Table 7: SAR measurement results at the highest possible output power, measured in a head 15° Tilt position against the ICNIRP and ANSI SAR Limit.

Left Head Tilt Position, Slider Retracted								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.1	0.050	0.287	0.29	0.393	0.39
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	19.3	0.133	0.223	0.22	0.377	0.38
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	19.2	0.066	0.287	0.29	0.392	0.39
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40						
	Channel 9400	22.35	19.4	0.072	0.260	0.26	0.442	0.44
	Channel 9538	22.50						

Table 8: SAR measurement results at the highest possible output power, measured in a head 15° Tilt position against the ICNIRP and ANSI SAR Limit.

Right Head Tilt Position, Slider Extended								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.1	0.028	0.210	0.21	0.291	0.29
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	19.3	0.080	0.207	0.21	0.355	0.36
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	19.2	-0.653	0.266	0.31	0.364	0.42
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40						
	Channel 9400	22.35	19.0	0.046	0.299	0.30	0.510	0.51
	Channel 9538	22.50						

Table 9: SAR measurement results at the highest possible output power, measured in a head 15° Tilt position against the ICNIRP and ANSI SAR Limit.

Right Head Tilt Position, Slider Retracted								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.1	-0.025	0.278	0.28	0.380	0.38
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	19.3	-0.040	0.200	0.20	0.332	0.34
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	18.8	-0.057	0.280	0.28	0.383	0.39
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40						
	Channel 9400	22.35	19.0	0.212	0.316	0.32	0.527	0.53
	Channel 9538	22.50						

Table 10: SAR measurement results at the highest possible output power, measured in a head 15° Tilt position against the ICNIRP and ANSI SAR Limit.

Highest Head Tilt Position, Slider Extended, with Battery SNN5814A								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.1	-0.208	0.232	0.24	0.32	0.34
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	19.3	-0.008	0.215	0.22	0.373	0.37
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	18.8	-0.011	0.289	0.29	0.396	0.40
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40						
	Channel 9400	22.35	19.0	0.048	0.313	0.31	0.538	0.54
	Channel 9538	22.50						

Table 11: SAR measurement results at the highest possible output power, measured in a head 15° Tilt position against the ICNIRP and ANSI SAR Limit.

Highest Head Tilt Position, Slider Retracted, with Battery SNN5814A								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.2	0.138	0.308	0.31	0.424	0.42
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	19.3	0.037	0.207	0.21	0.352	0.35
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	18.8	-0.071	0.291	0.30	0.400	0.41
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40						
	Channel 9400	22.35	19.0	0.243	0.343	0.34	0.576	0.58
	Channel 9538	22.50						

Table 12: SAR measurement results at the highest possible output power, measured in a head 15° Tilt position against the ICNIRP and ANSI SAR Limit.

6.2 Body Worn Test Results

The SAR results shown in tables 13 through 18 are maximum SAR values averaged over 1 gram of phantom tissue, to demonstrate compliance to [3] and also over 10 grams of phantom tissue, to demonstrate compliance to the [6]. Also shown are the measured conducted output power levels, the temperature of the test facility during the test, the temperature of the tissue simulate after the test, the measured drift and the extrapolated SAR. The exact method of extrapolation is $\text{New SAR} = \text{Old SAR} * 10^{(-\text{drift}/10)}$. The SAR reported at the end of the measurement process by the DASY4™ measurement system can be scaled up by the measured drift to determine the SAR at the beginning of the measurement process. This is the most conservative SAR because it corresponds to the average output power at the beginning of the SAR test. This extrapolation has been done because when the DUT is operating properly it may exhibit a slump in radiated power and SAR over time. This is verified by measuring the SAR drift after the test.

The test conditions that produced the highest SAR values in each band are indicated as bold numbers in the following tables and are included in Appendix 3. All other test conditions measured lower SAR values than those included in Appendix 3. The tables below also include SAR value summations for primary and secondary co-located transmitters, with the results indicated in italics.

A “flat” phantom was for the body-worn tests. This “flat” phantom is made out of 1” thick natural High Density Polyethylene with a thickness at the bottom equal to 2.0 mm. It measures 52.7 cm(long) x 26.7 cm(wide) x 21.2 cm(tall). The measured dielectric constant of the material used is less than 2.3 and the loss tangent is less than 0.0046 all the way up to 2.184 GHz.

The tissue stimulant depth was verified to be 15.0 cm ± 0.5 cm. The same device holder described in section 6 was used for positioning the phone. The functional accessories were divided into two categories, the ones with metal components and the ones with non-metal components. For non-metallic component accessories’, testing was performed on the accessory that displayed the closest proximity to the flat phantom. Each metallic component accessory, if any, was checked for uniqueness of metal component so that each is tested with the device. If multiple accessories shared an identical metal component, only the accessory that dictates the closest spacing to the body was tested. The cellular phone was tested with a headset connected to the device for all body-worn SAR measurements.

There are no Body-Worn Accessories available for this phone at the time of testing hence the device was tested per the supplement C testing guidelines for devices that do not have body worn accessories. A separation distance of 15 mm between the device and the flat phantom was used for testing body-worn SAR. The device was tested with the front and back of the device facing the phantom.

The cellular phone was tested in data mode operations in the worst-case position from the tests noted above. For these tests, a separation distance of 25 mm between the device and the flat phantom was used.

The following probe conversion factors were used on the E-Field probe(s) used for body-worn measurements:

Description	Serial Number	f (MHz)	Conversion Factor	Cal Cert pg #
E-Field Probe ES3DV3	3124	900	5.64	8 of 9
		1810	5.08	8 of 9
		2450	4.19	8 of 9

Body-Worn; Front of Phone 15 mm from Phantom								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.1	-0.141	0.238	0.25	0.336	0.35
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	18.0	0.098	0.0581	0.06	0.0983	0.10
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	19.0	-0.244	0.202	0.21	0.280	0.30
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40						
	Channel 9400	22.35	19.1	0.327	0.103	0.10	0.187	0.19
	Channel 9538	22.50						

Table 13: SAR measurement results at the highest possible output power, measured in a body-worn position against the ICNIRP and ANSI SAR Limit.

Body-Worn; Back of Phone 15 mm from Phantom								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.0	-0.028	0.426	0.43	0.600	0.60
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	18.0	-0.014	0.157	0.16	0.268	0.27
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	19.0	-0.280	0.339	0.36	0.477	0.51
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40						
	Channel 9400	22.35	19.1	0.021	0.398	0.40	0.731	0.73
	Channel 9538	22.50						
Bluetooth 2450	Channel 0							
	Channel 39	9.205	19.1	0.243	0.0019	0.00	0.00384	0.00
	Channel 78							
<i>GSM 850 + Bluetooth</i>						0.43		0.60
<i>GSM 1900 + Bluetooth</i>						0.16		0.27
<i>WCDMA 850 + Bluetooth</i>						0.36		0.51
<i>WCDMA 1900 + Bluetooth</i>						0.40		0.73

Table 14: SAR measurement results at the highest possible output power, measured in a body-worn position against the ICNIRP and ANSI SAR Limit.

Bluetooth Body-Worn, Back of Phone 25 mm from Phantom								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	10 g SAR value		1 g SAR value	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
Bluetooth 2450	Channel 0							
	Channel 39	9.205	19.1	0.357	0.0000529	0.00	0.000294	0.00
	Channel 78							

Table 15: SAR measurement results at the highest possible output power, measured in a body-worn position against the ICNIRP and ANSI SAR Limit.

GPRS Mode Body-Worn in Class 11 (3 Uplink Slots) Configuration; Back of Phone 25 mm from Phantom								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	10 g SAR value		1 g SAR value	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GPRS 850	Channel 128	32.23						
	Channel 190	32.13	18.0	-0.030	0.128	0.13	0.176	0.18
	Channel 251	31.88						
GPRS 1900	Channel 512	29.41						
	Channel 661	29.38	18.8	-0.028	0.0394	0.04	0.0605	0.06
	Channel 810	28.96						
GPRS 850 + Bluetooth						0.13		0.18
GPRS 1900 + Bluetooth						0.04		0.06

Table 16: SAR measurement results at the highest possible output power, measured in a body-worn position against the ICNIRP and ANSI SAR Limit.

EDGE Mode Body-Worn in Class 10 (2 Uplink Slots) Configuration; Back of Phone 25 mm from Phantom								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	10 g SAR value		1 g SAR value	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
EDGE 850	Channel 128	28.14						
	Channel 190	28.02	19.0	0.006	0.109	0.11	0.150	0.15
	Channel 251	27.77						
EDGE 1900	Channel 512	27.44						
	Channel 661	27.17	18.7	-0.021	0.076	0.08	0.124	0.12
	Channel 810	26.75						
EDGE 850 + Bluetooth						0.11		0.15
EDGE 1900 + Bluetooth						0.08		0.12

Table 17: SAR measurement results at the highest possible output power, measured in a body-worn position against the ICNIRP and ANSI SAR Limit.

Body-Worn; Back of Phone 15 mm from Phantom with Battery SNN5814A								
<i>f</i> (MHz)	Description	Conducted Output Power (dBm)	Temp (°C)	Drift (dB)	<i>10 g SAR value</i>		<i>1 g SAR value</i>	
					Measured (W/kg)	Extrapolated (W/kg)	Measured (W/kg)	Extrapolated (W/kg)
GSM 850	Channel 128	33.31						
	Channel 190	33.17	19.0	-0.040	0.385	0.39	0.542	0.55
	Channel 251	32.91						
GSM 1900	Channel 512	30.49						
	Channel 661	30.22	18.7	-0.003	0.0794	0.08	0.130	0.13
	Channel 810	29.80						
WCDMA 850	Channel 4132	24.15						
	Channel 4180	24.07	19.0	-0.214	0.355	0.37	0.500	0.53
	Channel 4233	24.07						
WCDMA 1900	Channel 9262	22.40						
	Channel 9400	22.35	19.1	0.086	0.438	0.44	0.797	0.80
	Channel 9538	22.50						
Bluetooth 2450	Channel 0							
	Channel 39	9.205	19.1	-0.294	0.000883	0.00	0.00177	0.00
	Channel 78							
<i>GSM 850 + Bluetooth</i>						0.39		0.55
<i>GSM 1900 + Bluetooth</i>						0.08		0.13
<i>WCDMA 850 + Bluetooth</i>						0.37		0.53
<i>WCDMA 1900 + Bluetooth</i>						0.44		0.80

Table 18: SAR measurement results at the highest possible output power, measured in a body-worn position against the ICNIRP and ANSI SAR Limit.

References

- [1] CENELEC, en62209-1:2006 “Human Exposure to Radio Frequency Fields From Hand - Held and Body - Mounted Wireless Communication Devices – Human Models, Instrumentation, and Procedures”
- [2] CENELEC, en50360:2001 “Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300 MHz – 3 GHz)”.
- [3] ANSI / IEEE, C95.1 1999 Edition “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”
- [4] FCC OET Bulletin 65 Supplement C 01-01
- [5] IEEE 1528 2003 Edition “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”
- [6] ICNIRP Guidelines “Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz)”

Appendix 1

SAR distribution comparison for the system accuracy verification

Date/Time: 1/7/2009 9:06:43 AM

Test Laboratory: Motorola - 010709 900MHz

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN: 78; FCC ID: IHDT56KP3

Procedure Notes: 900 MHz System Performance Check; Dipole Sn# 78; Input Power = 200 mW

Sim.Temp@meas = 19.1 °C; Sim.Temp@SPC = 19.1 °C; Room Temp @ SPC = 20.3 °C

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

Medium: VALIDATION Only

Medium parameters used: $f = 900$ MHz; $\sigma = 0.97$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(6.03, 6.03, 6.03); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Sugar SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1005;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Daily SPC Check/Dipole Area Scan (4x9x1):

Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 2.33 mW/g

Daily SPC Check/0-Degree, 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 46.9 V/m; Power Drift = -0.042 dB; Peak SAR (extrapolated) = 3.27 W/kg

SAR(1 g) = 2.18 mW/g; SAR(10 g) = 1.39 mW/g; Maximum value of SAR (measured) = 2.36 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

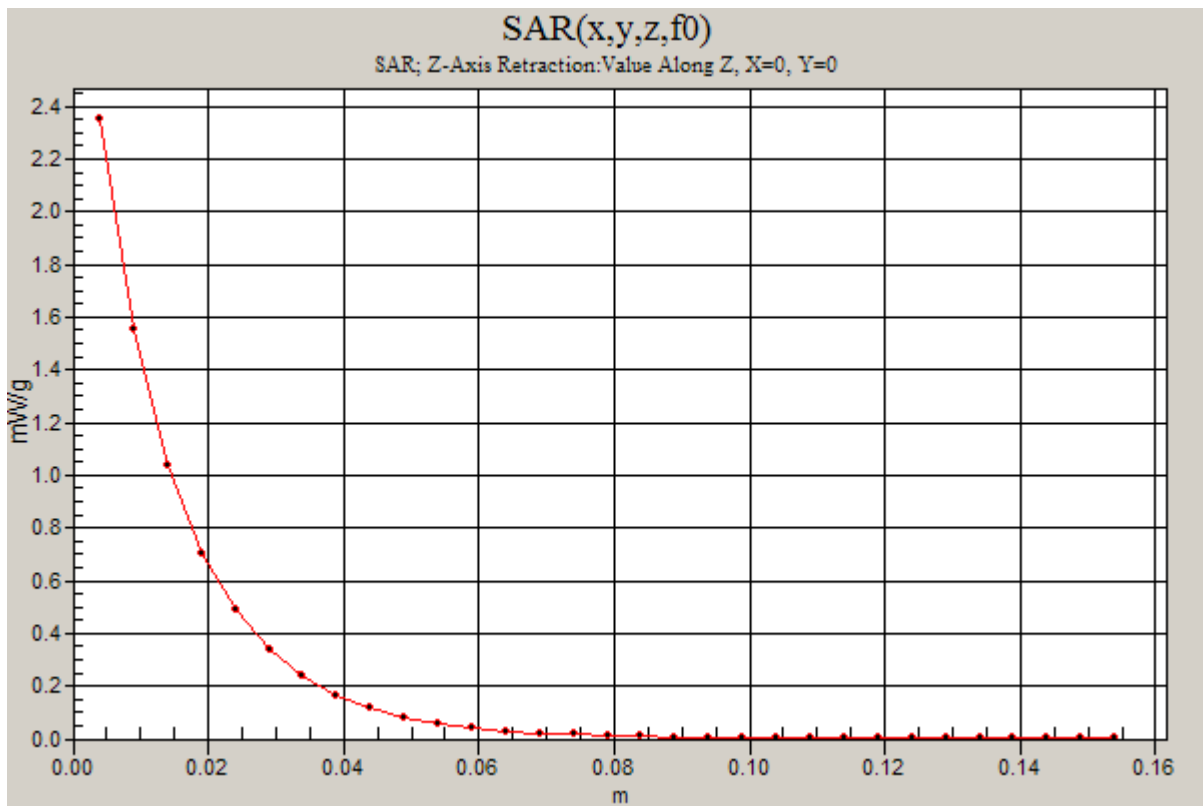
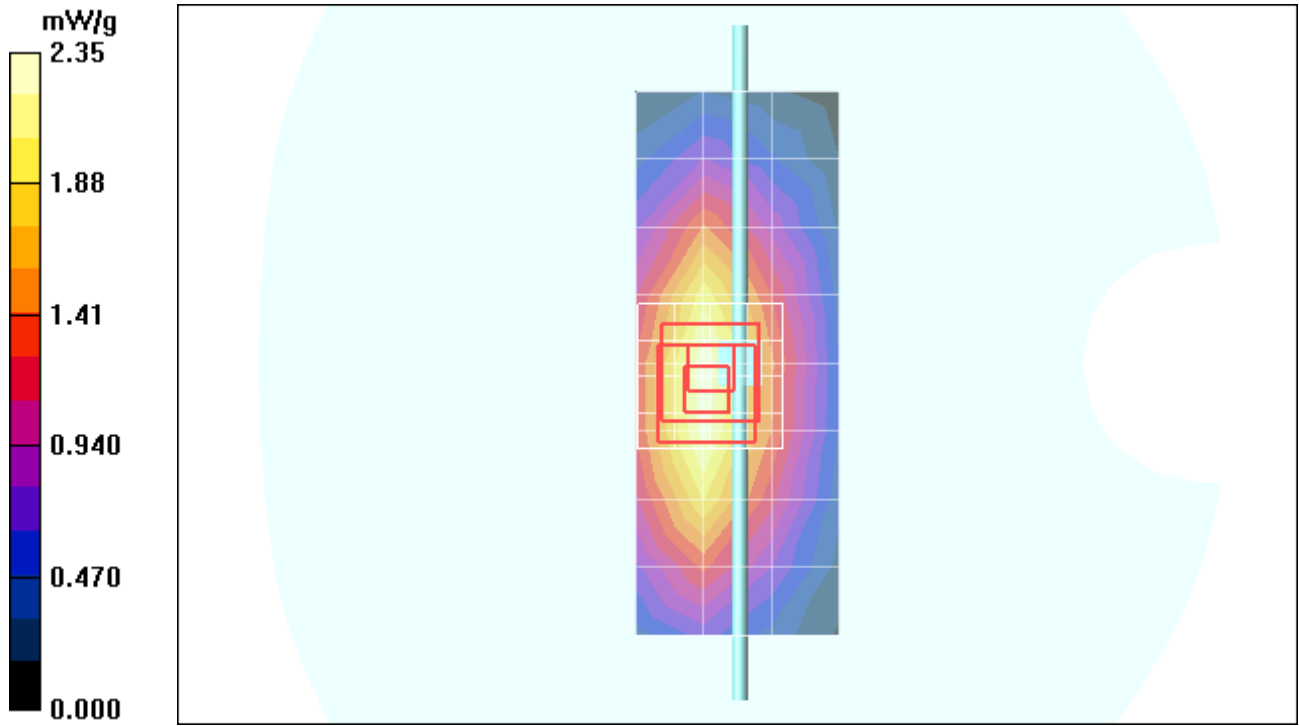
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 46.9 V/m; Power Drift = -0.042 dB; Peak SAR (extrapolated) = 3.22 W/kg

SAR(1 g) = 2.15 mW/g; SAR(10 g) = 1.38 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 2.35 mW/g



Date/Time: 1/13/2009 7:53:48 AM

Test Laboratory: Motorola - 011309 900MHz

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN: 78; FCC ID: IHDT56KP3

Procedure Notes: 900 MHz System Performance Check; Dipole Sn# 078; Input Power = 200 mW

Sim.Temp@meas = 19.2°C; Sim.Temp@SPC = 19.2°C; Room Temp @ SPC = 19.8°C

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

Medium: VALIDATION Only

Medium parameters used: $f = 900$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 40.3$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(6.03, 6.03, 6.03); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Sugar SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1005;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Daily SPC Check/Dipole Area Scan (4x9x1):

Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 2.14 mW/g

Daily SPC Check/0-Degree, 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 49.2 V/m; Power Drift = -0.044 dB; Peak SAR (extrapolated) = 3.16 W/kg

SAR(1 g) = 2.12 mW/g; SAR(10 g) = 1.36 mW/g; Maximum value of SAR (measured) = 2.31 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

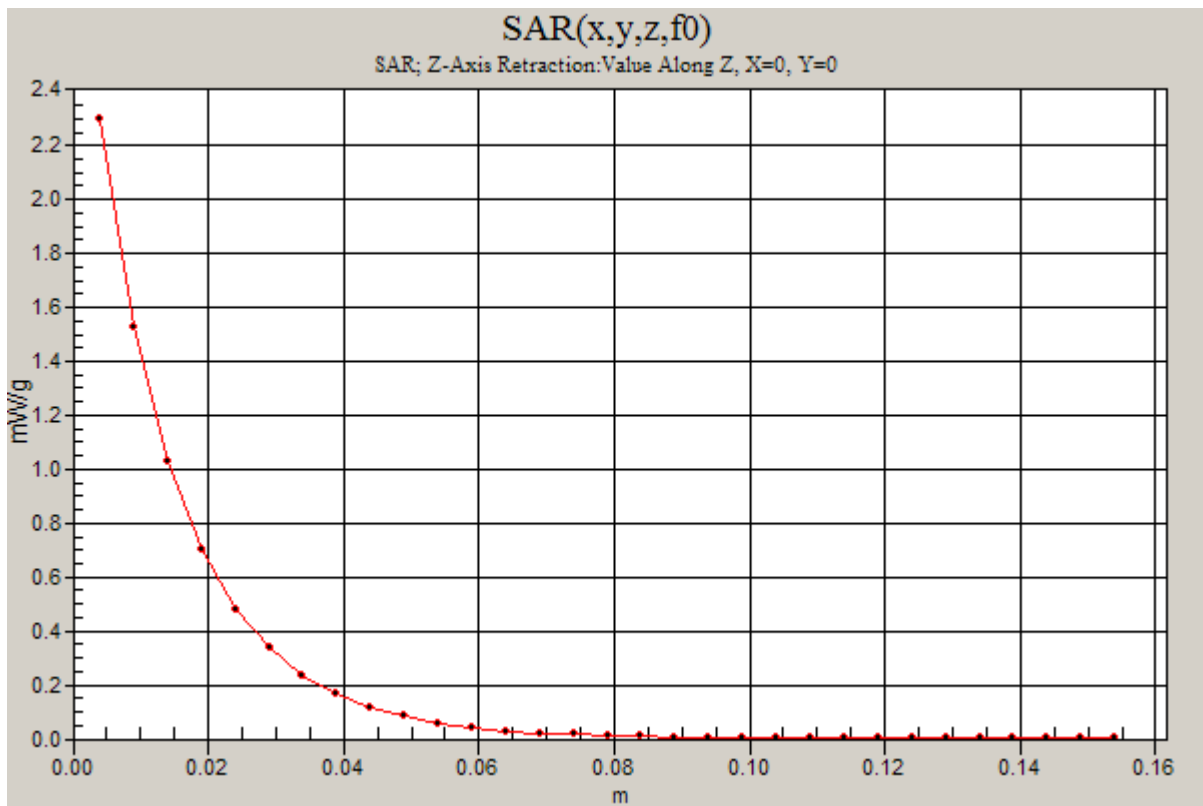
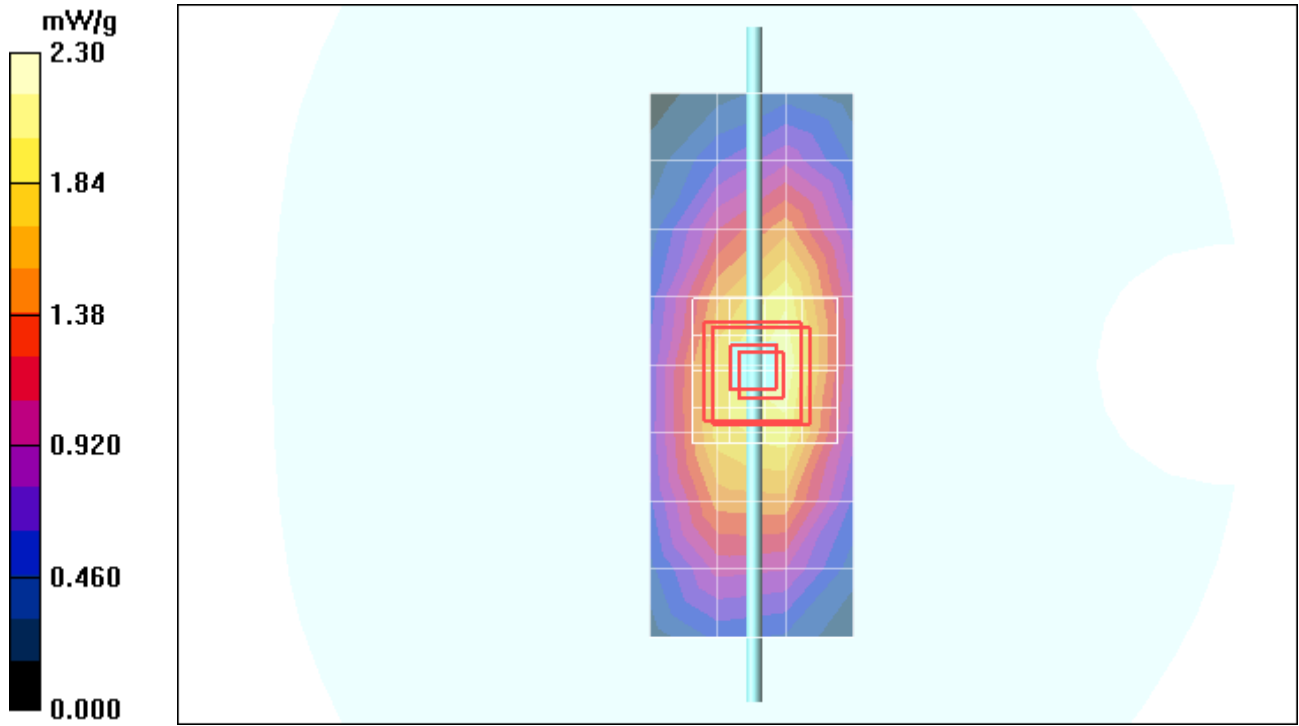
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 49.2 V/m; Power Drift = -0.044 dB; Peak SAR (extrapolated) = 3.16 W/kg

SAR(1 g) = 2.1 mW/g; SAR(10 g) = 1.35 mW/g; Maximum value of SAR (measured) = 2.24 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 2.30 mW/g



Date/Time: 1/14/2009 8:23:37 AM

Test Laboratory: Motorola - 011409 900MHz

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN: 78; FCC ID: IHDT56KP3

Procedure Notes: 900 MHz System Performance Check; Dipole Sn# 78; Input Power = 200 mW

Sim.Temp@meas = 18.8°C; Sim.Temp@SPC = 18.8°C; Room Temp @ SPC = 20.0°C

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

Medium: VALIDATION Only

Medium parameters used: $f = 900$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(6.03, 6.03, 6.03); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Sugar SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1005;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Daily SPC Check/Dipole Area Scan (4x9x1):

Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 2.34 mW/g

Daily SPC Check/0-Degree, 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 47.5 V/m; Power Drift = 0.001 dB; Peak SAR (extrapolated) = 3.24 W/kg

SAR(1 g) = 2.17 mW/g; SAR(10 g) = 1.39 mW/g; Maximum value of SAR (measured) = 2.36 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

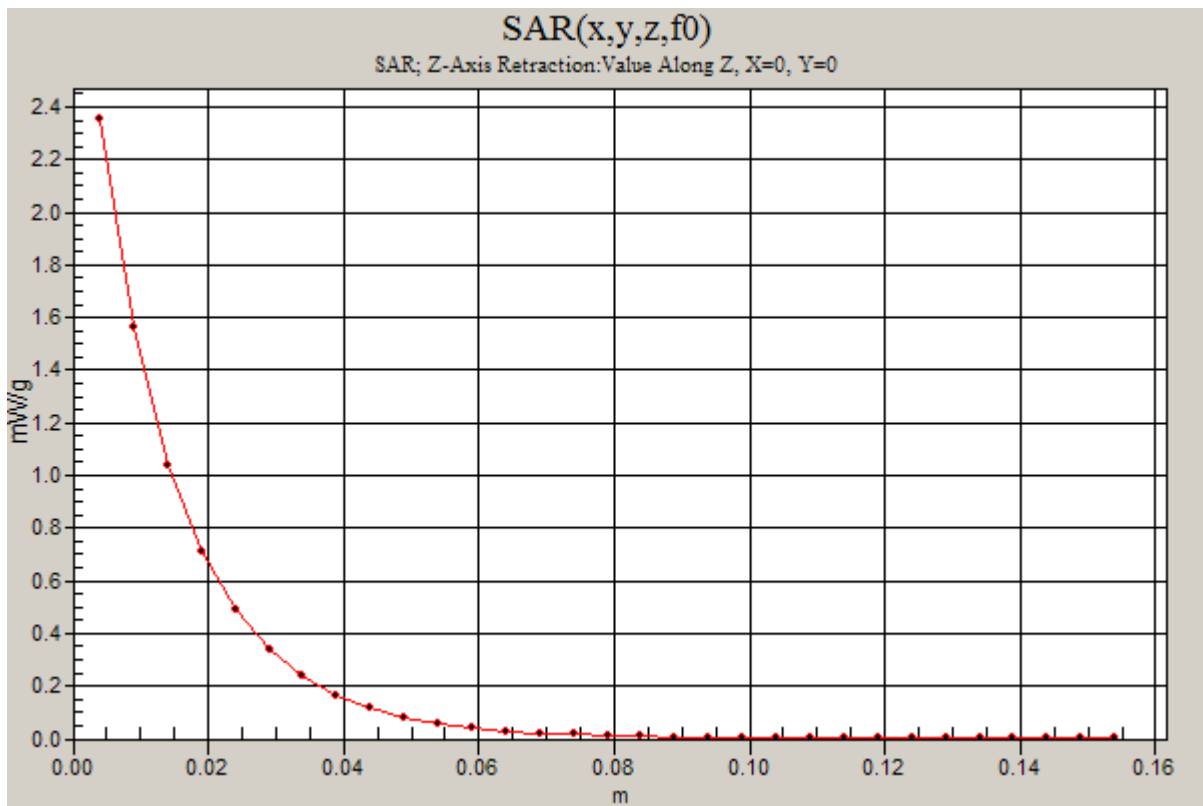
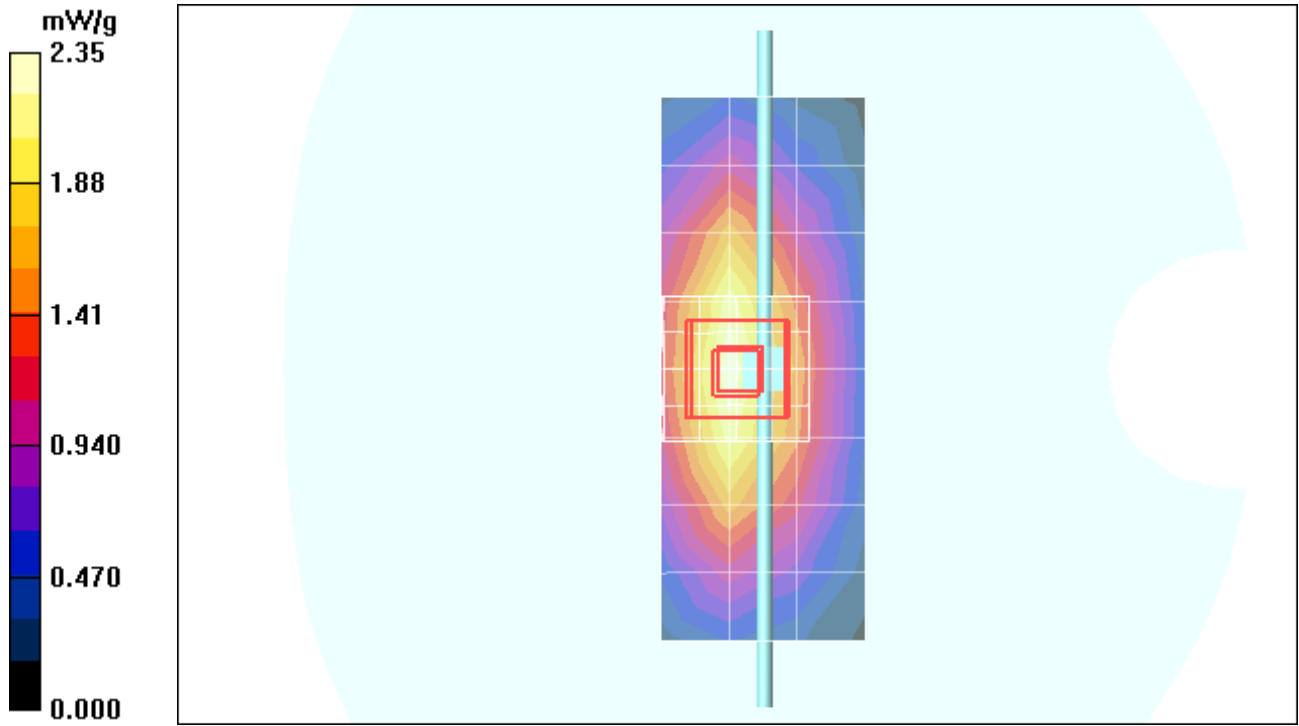
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 47.5 V/m; Power Drift = 0.001 dB; Peak SAR (extrapolated) = 3.22 W/kg

SAR(1 g) = 2.16 mW/g; SAR(10 g) = 1.38 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 2.35 mW/g



Date/Time: 1/15/2009 8:28:21 AM

Test Laboratory: Motorola - 011509 900MHz

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN: 259TR; FCC ID: IHDT56KP3

Procedure Notes: 900 MHz System Performance Check; Dipole Sn# 259TR; Input Power = 200 mW

Sim.Temp@meas = 19.0°C; Sim.Temp@SPC = 19.0°C; Room Temp @ SPC = 20.0°C

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

Medium: VALIDATION Only

Medium parameters used: $f = 900$ MHz; $\sigma = 0.97$ mho/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(6.03, 6.03, 6.03); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Sugar SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1005;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Daily SPC Check/Dipole Area Scan (4x9x1):

Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 2.04 mW/g

Daily SPC Check/0-Degree, 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 49.9 V/m; Power Drift = -0.035 dB; Peak SAR (extrapolated) = 3.26 W/kg

SAR(1 g) = 2.18 mW/g; SAR(10 g) = 1.4 mW/g; Maximum value of SAR (measured) = 2.37 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

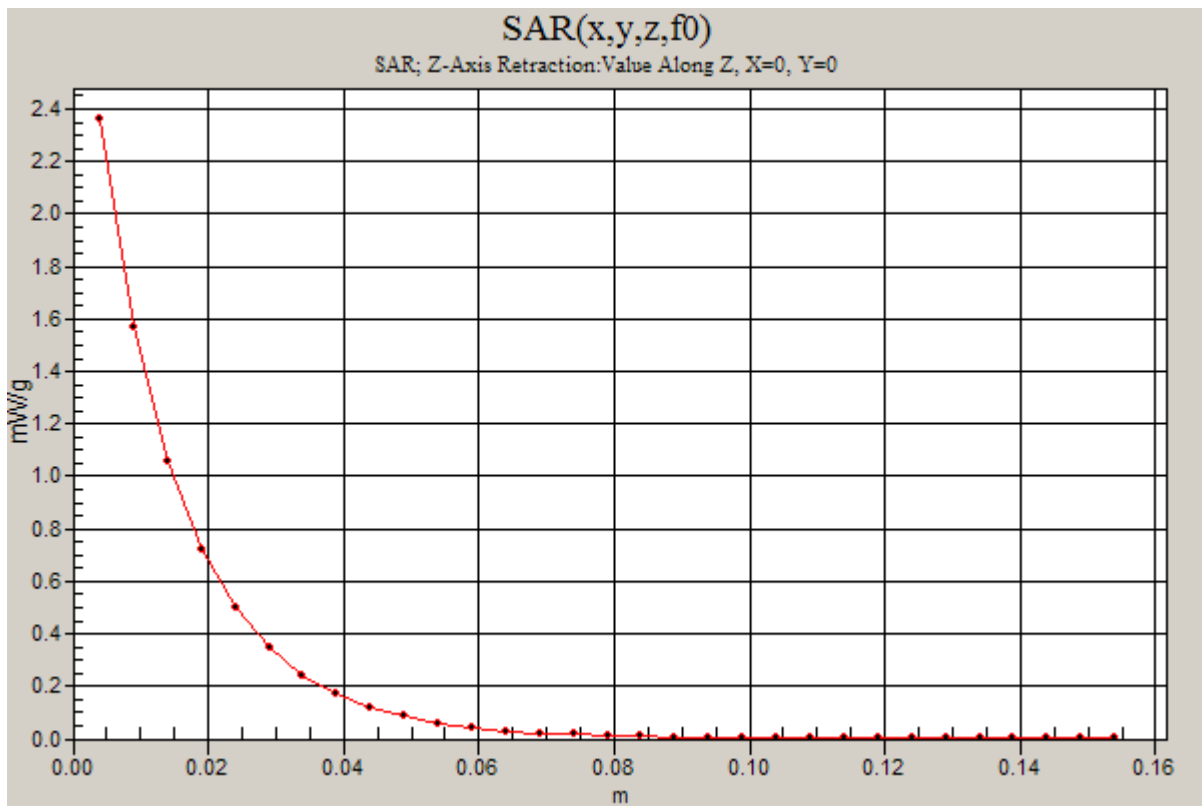
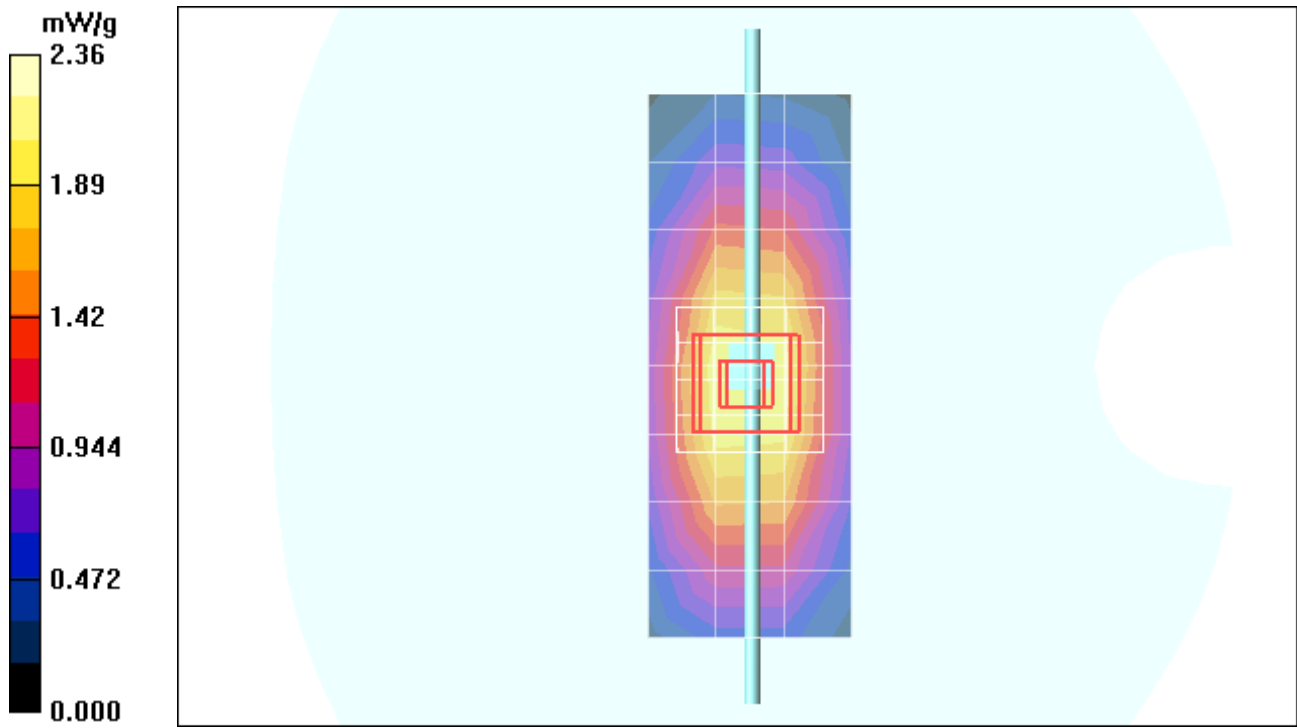
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 49.9 V/m; Power Drift = -0.035 dB; Peak SAR (extrapolated) = 3.22 W/kg

SAR(1 g) = 2.15 mW/g; SAR(10 g) = 1.38 mW/g; Maximum value of SAR (measured) = 2.33 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 2.36 mW/g



Date/Time: 1/8/2009 7:15:31 AM

Test Laboratory: Motorola - 010809 1800MHz

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 259TR; FCC ID: IHDT56KP3

Procedure Notes: 1800 MHz System Performance Check; Dipole Sn# 259TR; Input Power = 200 mW

Sim.Temp@meas = 19.1 °C; Sim.Temp@SPC = 19.1 °C; Room Temp @ SPC = 19.9 °C

Communication System: CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: VALIDATION Only

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.9$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_ Section 1, Amy Twin, Rev2 (23-June-04); Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Daily SPC Check/Dipole Area Scan (9x4x1):

Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 6.57 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 82.1 V/m; Power Drift = -0.021 dB; Peak SAR (extrapolated) = 14.6 W/kg

SAR(1 g) = 8.09 mW/g; SAR(10 g) = 4.26 mW/g; Maximum value of SAR (measured) = 9.08 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

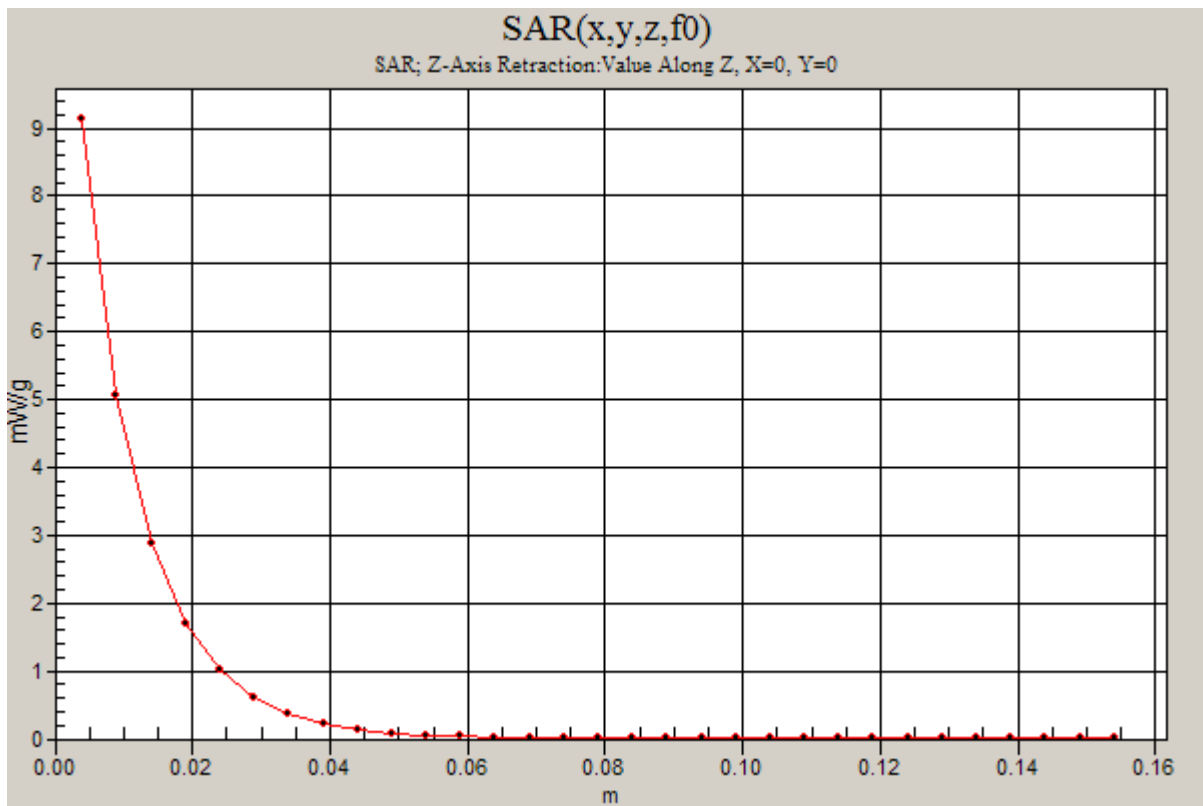
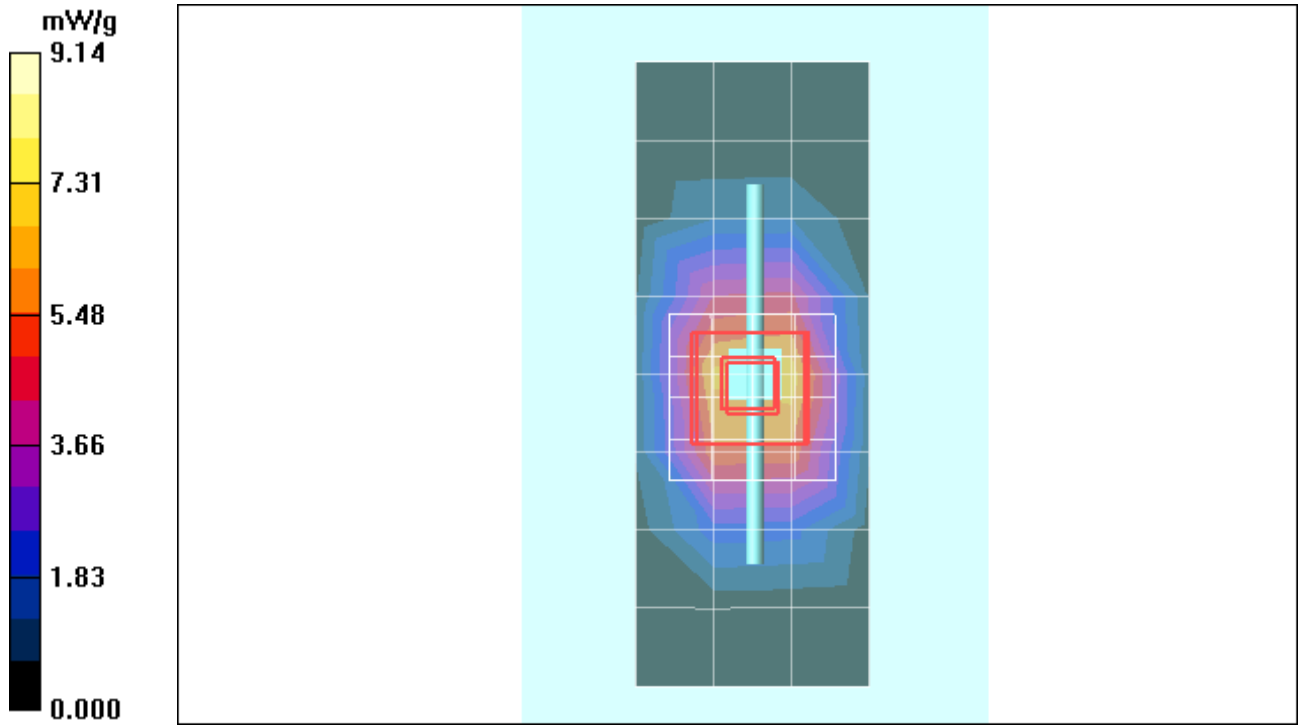
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 82.1 V/m; Power Drift = -0.021 dB; Peak SAR (extrapolated) = 14.4 W/kg

SAR(1 g) = 7.99 mW/g; SAR(10 g) = 4.22 mW/g; Maximum value of SAR (measured) = 8.91 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 9.14 mW/g



Date/Time: 1/9/2009 9:19:20 AM

Test Laboratory: Motorola - 010909 1800MHz

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 259TR; FCC ID: IHDT56KP3

Procedure Notes: 1800 MHz System Performance Check; Dipole Sn# 259TR; Input Power = 200 mW

Sim.Temp@meas = 19.1°C; Sim.Temp@SPC = 19.9°C; Room Temp @ SPC = 19.5°C

Communication System: CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: VALIDATION Only

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 38.5$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Glycol, SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1139;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Daily SPC Check/Dipole Area Scan (4x9x1):

Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 6.41 mW/g

Daily SPC Check/0-Degree, 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 81.2 V/m; Power Drift = -0.022 dB; Peak SAR (extrapolated) = 14.1 W/kg

SAR(1 g) = 7.87 mW/g; SAR(10 g) = 4.14 mW/g; Maximum value of SAR (measured) = 8.84 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

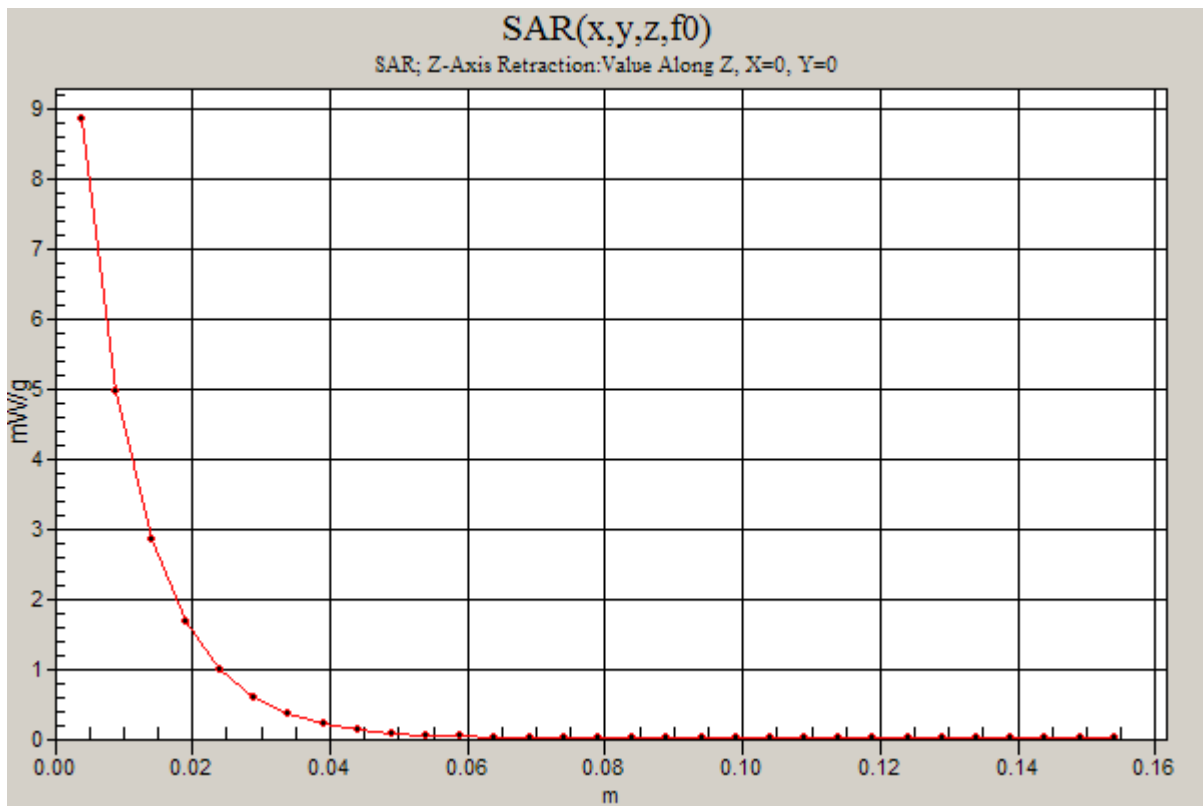
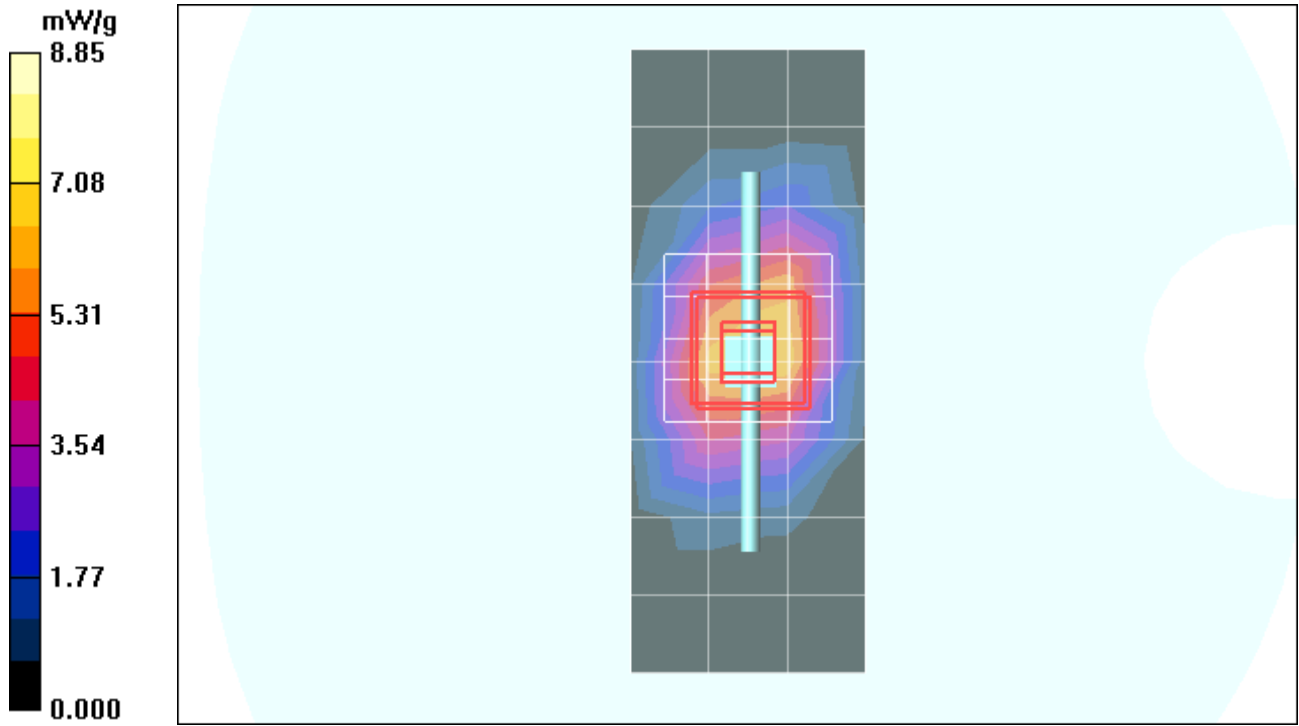
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 81.2 V/m; Power Drift = -0.022 dB; Peak SAR (extrapolated) = 13.9 W/kg

SAR(1 g) = 7.76 mW/g; SAR(10 g) = 4.1 mW/g; Maximum value of SAR (measured) = 8.59 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 8.85 mW/g



Date/Time: 1/11/2009 6:28:35 PM

Test Laboratory: Motorola - 011109 1800MHz

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:259TR; FCC ID: IHDT56KP3

Procedure Notes: 1800 MHz System Performance Check; Dipole Sn# 259TR; Input Power = 200 mW

Sim.Temp@meas = 19.9°C; Sim.Temp@SPC = 19.5°C; Room Temp @ SPC = 19.7°C

Communication System: CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: VALIDATION Only

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 38.5$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Glycol, SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1139;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Daily SPC Check/Dipole Area Scan (4x9x1):

Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 6.86 mW/g

Daily SPC Check/0-Degree, 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 81.8 V/m; Power Drift = -0.033 dB; Peak SAR (extrapolated) = 14.1 W/kg

SAR(1 g) = 7.92 mW/g; SAR(10 g) = 4.18 mW/g; Maximum value of SAR (measured) = 8.85 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

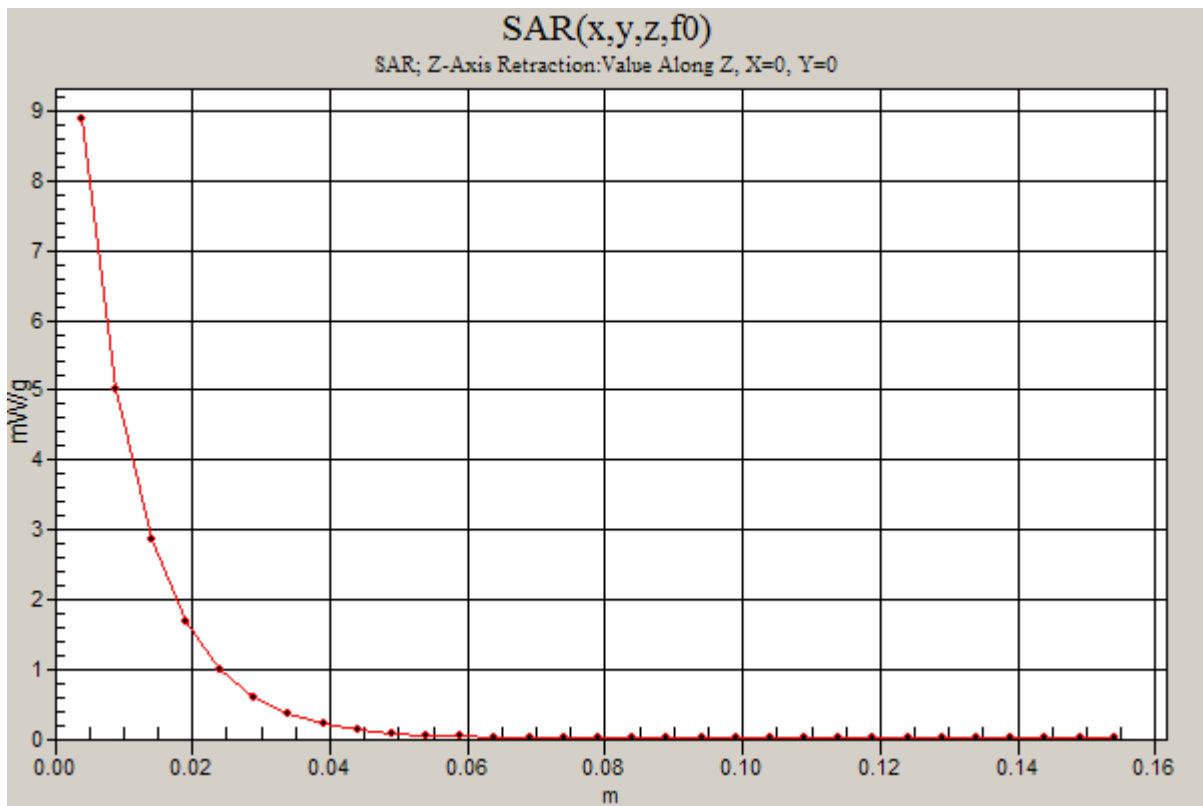
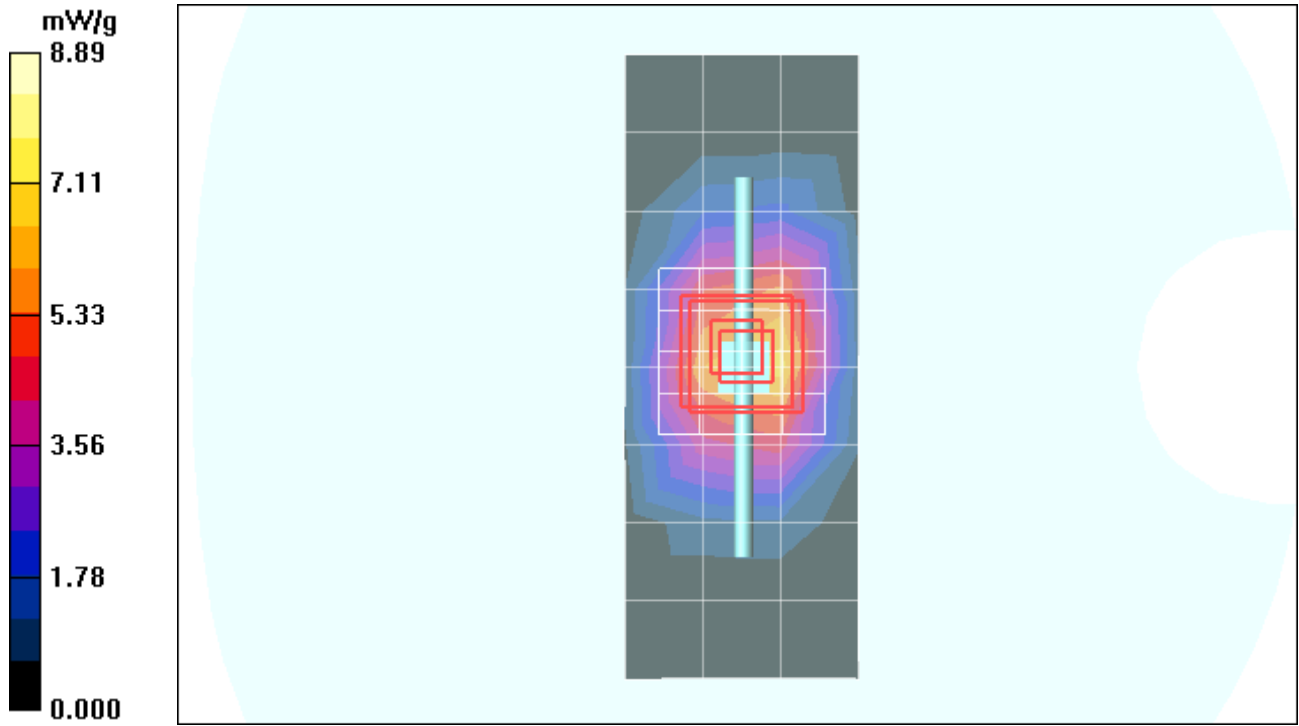
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 81.8 V/m; Power Drift = -0.033 dB; Peak SAR (extrapolated) = 14.1 W/kg

SAR(1 g) = 7.87 mW/g; SAR(10 g) = 4.14 mW/g; Maximum value of SAR (measured) = 8.80 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 8.89 mW/g



Date/Time: 1/12/2009 9:40:23 AM

Test Laboratory: Motorola - 011209 1800MHz

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 259TR; FCC ID: IHDT56KP3

Procedure Notes: 1800 MHz System Performance Check; Dipole Sn# 259TR; Input Power = 200 mW

Sim.Temp@meas = 19.9°C; Sim.Temp@SPC = 18.2°C; Room Temp @ SPC = 20.0°C;

Communication System: CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: VALIDATION Only

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 38.5$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Section 1, Amy Twin, Rev2 (23-June-04); Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Daily SPC Check/Dipole Area Scan (9x4x1):

Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 6.82 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 81.7 V/m; Power Drift = -0.035 dB; Peak SAR (extrapolated) = 14.6 W/kg

SAR(1 g) = 8.02 mW/g; SAR(10 g) = 4.19 mW/g; Maximum value of SAR (measured) = 8.95 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

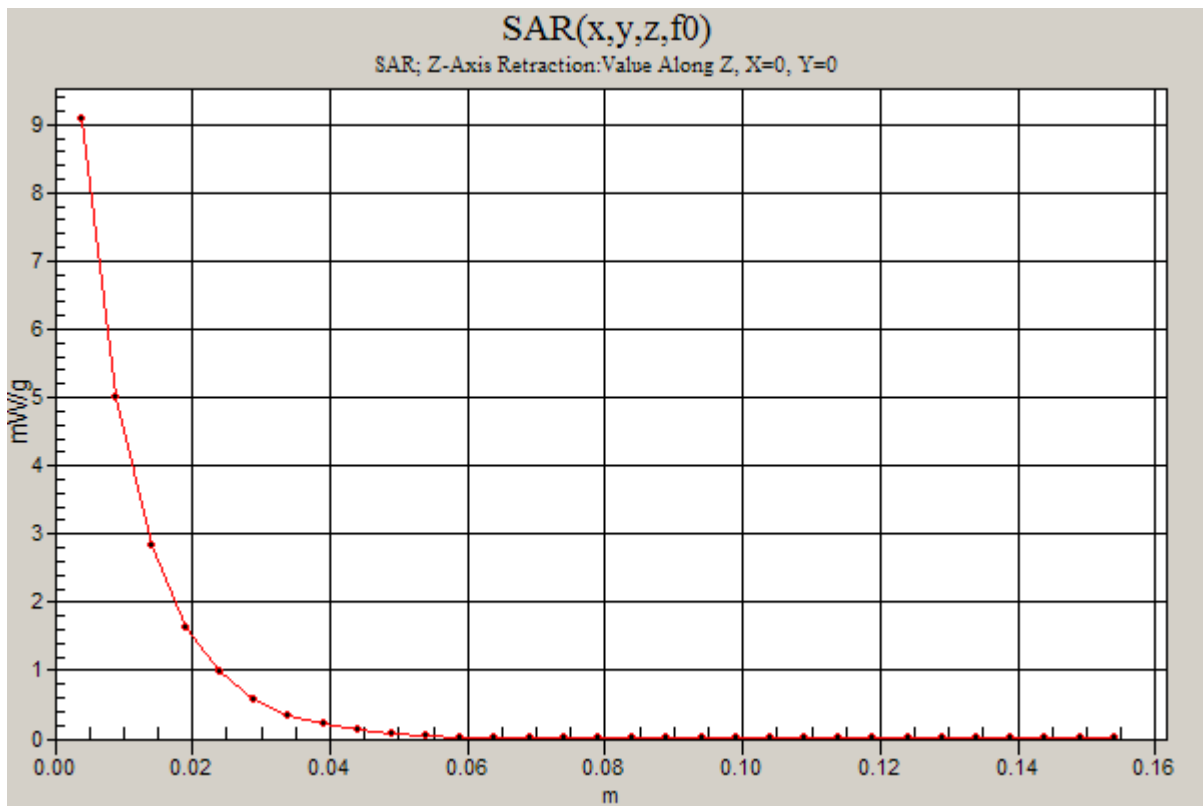
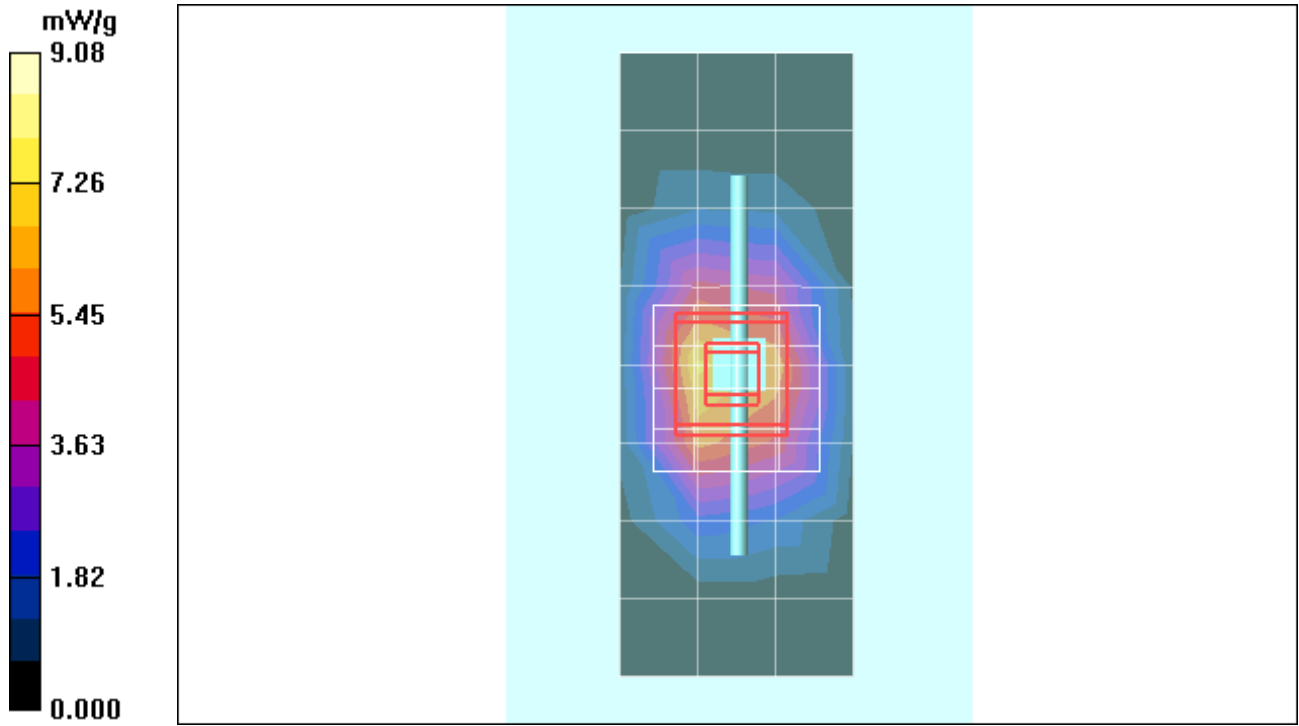
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 81.7 V/m; Power Drift = -0.035 dB; Peak SAR (extrapolated) = 14.4 W/kg

SAR(1 g) = 7.92 mW/g; SAR(10 g) = 4.13 mW/g; Maximum value of SAR (measured) = 8.78 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 9.08 mW/g



Date/Time: 1/14/2009 7:20:29 AM

Test Laboratory: Motorola - 011409 1800MHz

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 259TR; FCC ID: IHDT56KP3

Procedure Notes: 1800 MHz System Performance Check; Dipole Sn# 259TR; Input Power = 200 mW

Sim.Temp@meas = 19.0°C; Sim.Temp@SPC = 19.1°C; Room Temp @ SPC = 19.8°C

Communication System: CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: VALIDATION Only

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 38.9$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Section 1, Amy Twin, Rev2 (23-June-04); Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Daily SPC Check/Dipole Area Scan (9x4x1):

Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 6.45 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 80.9 V/m; Power Drift = -0.017 dB; Peak SAR (extrapolated) = 14.3 W/kg

SAR(1 g) = 7.94 mW/g; SAR(10 g) = 4.18 mW/g; Maximum value of SAR (measured) = 8.92 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

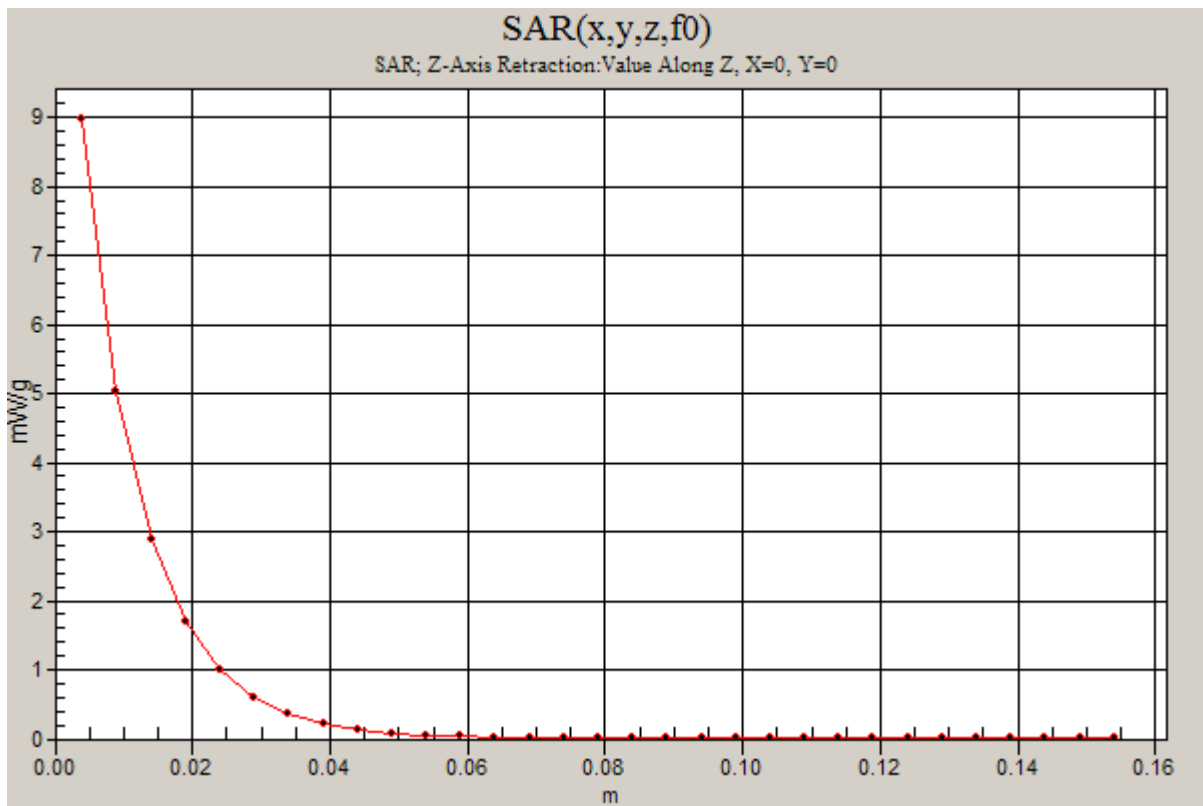
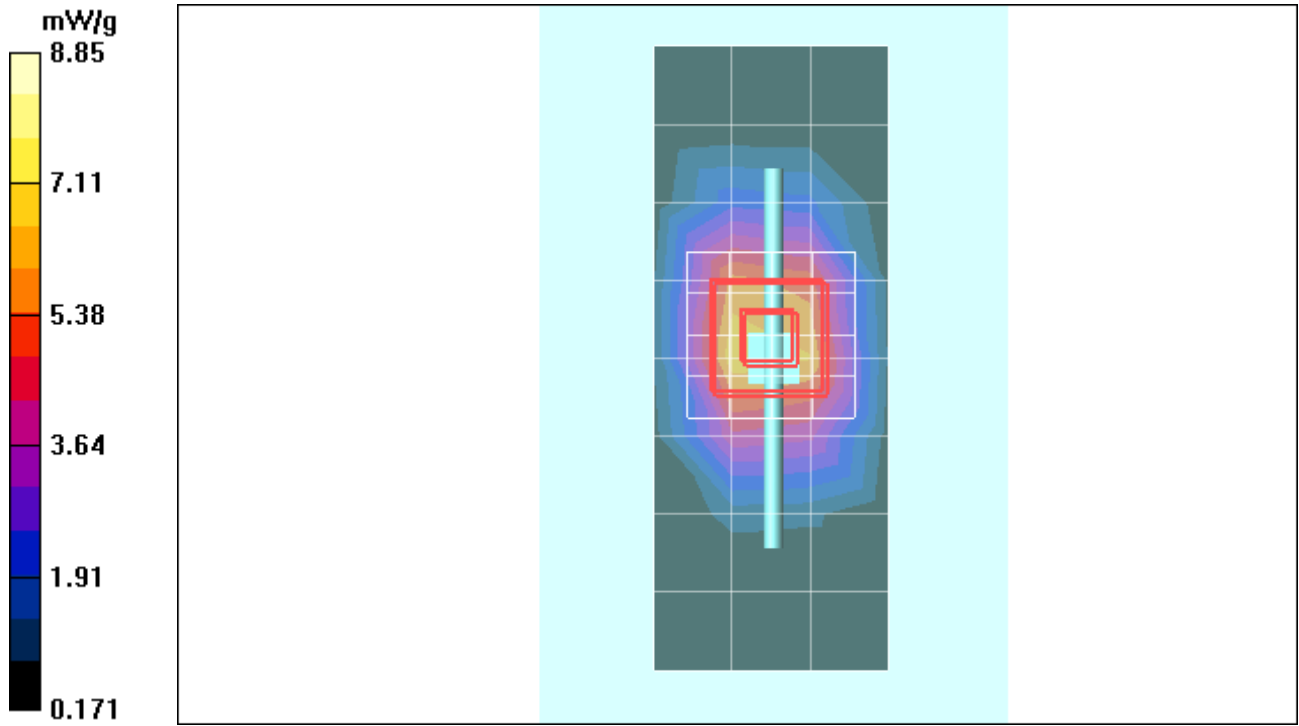
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 80.9 V/m; Power Drift = -0.017 dB; Peak SAR (extrapolated) = 14.2 W/kg

SAR(1 g) = 7.89 mW/g; SAR(10 g) = 4.14 mW/g; Maximum value of SAR (measured) = 8.85 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 8.98 mW/g



Date/Time: 1/15/2009 7:16:51 AM

Test Laboratory: Motorola - 011509 1800MHz

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 259TR; FCC ID: IHDT56KP3

Procedure Notes: 1800 MHz System Performance Check; Dipole Sn# 259TR; Input Power = 200 mW

Sim.Temp@meas = 19.1°C; Sim.Temp@SPC = 18.6°C; Room Temp @ SPC = 19.9°C

Communication System: CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: VALIDATION Only

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Section 1, Amy Twin, Rev2 (23-June-04); Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Daily SPC Check/Dipole Area Scan (9x4x1):

Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 6.53 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 82.5 V/m; Power Drift = -0.028 dB; Peak SAR (extrapolated) = 14.7 W/kg

SAR(1 g) = 8.09 mW/g; SAR(10 g) = 4.24 mW/g; Maximum value of SAR (measured) = 9.12 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

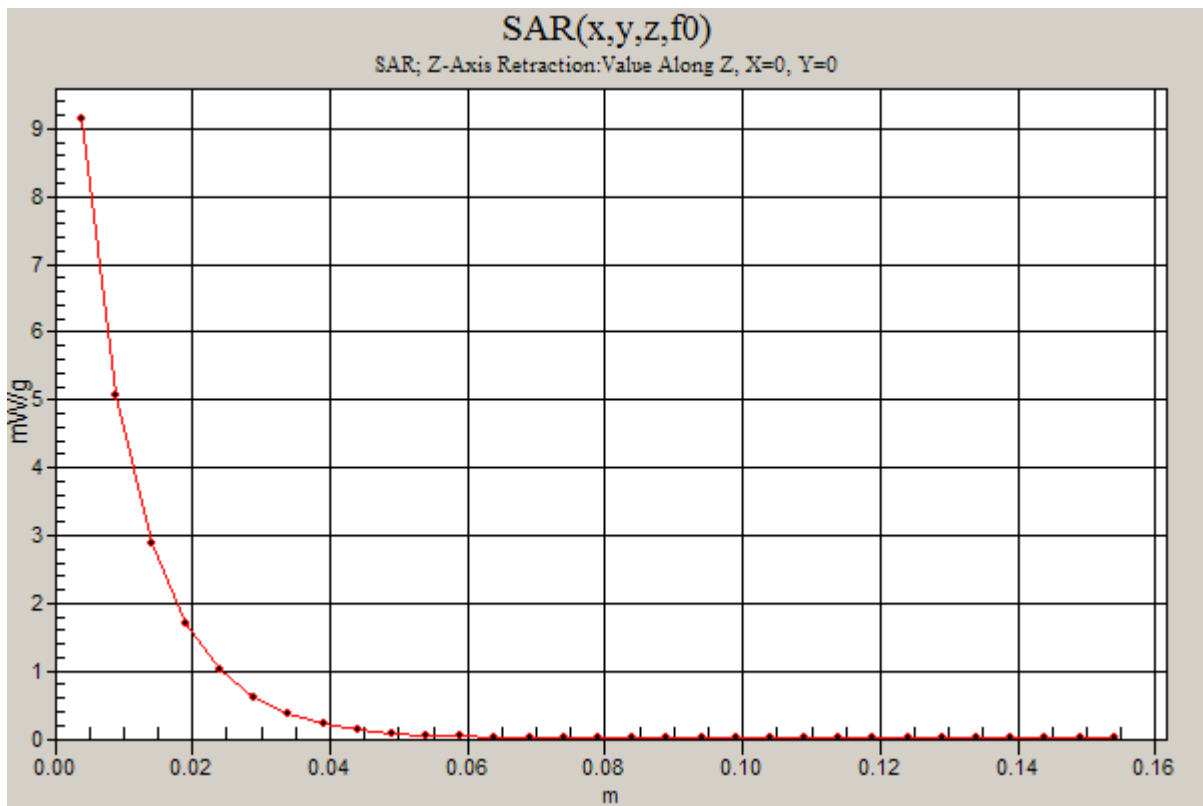
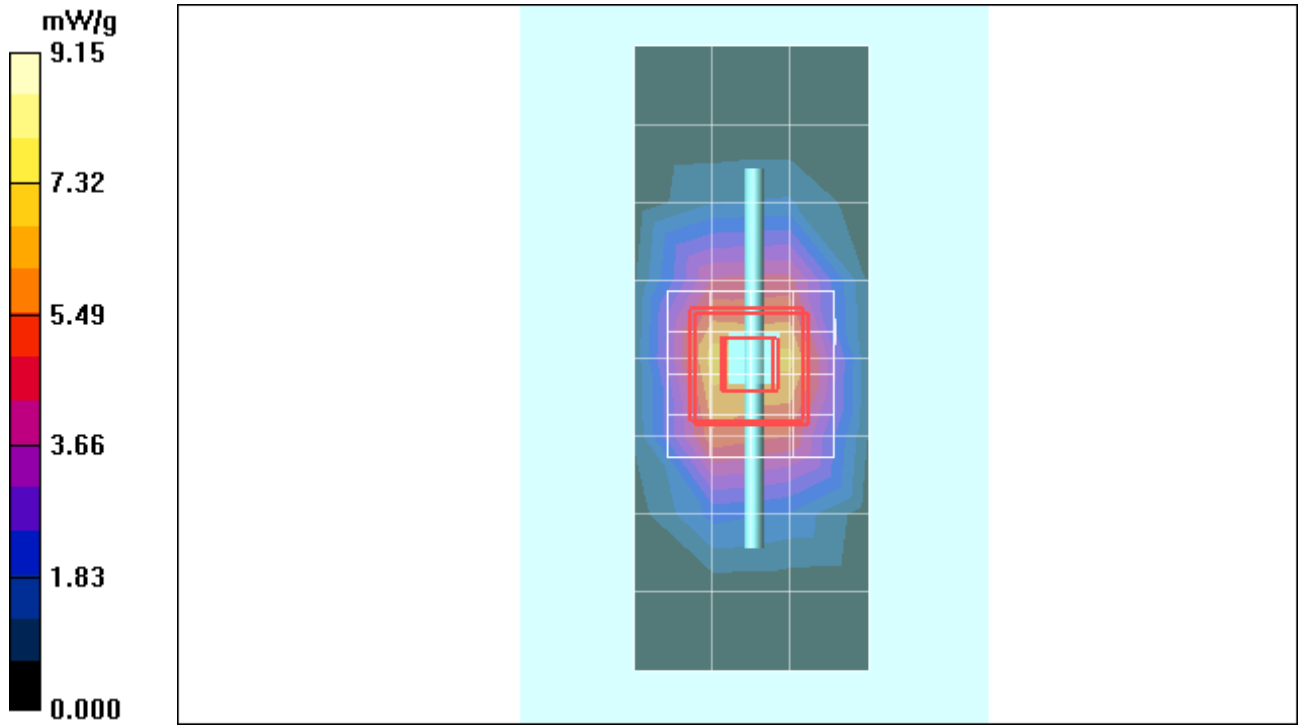
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 82.5 V/m; Power Drift = -0.028 dB; Peak SAR (extrapolated) = 14.5 W/kg

SAR(1 g) = 8.03 mW/g; SAR(10 g) = 4.2 mW/g; Maximum value of SAR (measured) = 9.02 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 9.15 mW/g



Date/Time: 2/10/2009 6:55:57 AM

Test Laboratory: Motorola - 021009 1800MHz

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 259TR; FCC ID: IHDT56KP3

Procedure Notes: 1800 MHz System Performance Check; Dipole Sn# 259TR; Input Power = 200 mW

Sim.Temp@meas = 19.0 °C; Sim.Temp@SPC = 19.0 °C; Room Temp @ SPC = 20.1 °C

Communication System: CW - Dipole; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: VALIDATION Only

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_ Section 1, Amy Twin, Rev2 (23-June-04); Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Daily SPC Check/Dipole Area Scan (9x4x1):

Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 6.36 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 81.2 V/m; Power Drift = -0.032 dB; Peak SAR (extrapolated) = 14.1 W/kg

SAR(1 g) = 7.79 mW/g; SAR(10 g) = 4.11 mW/g; Maximum value of SAR (measured) = 8.75 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

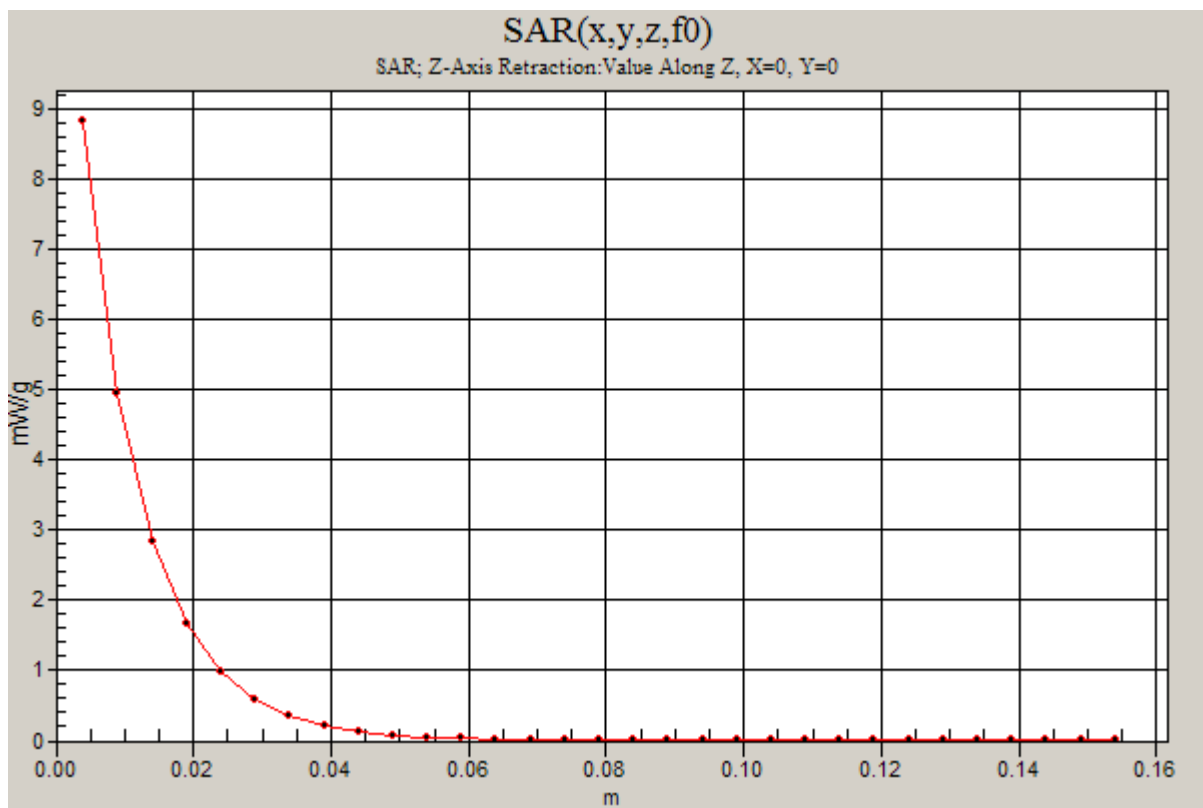
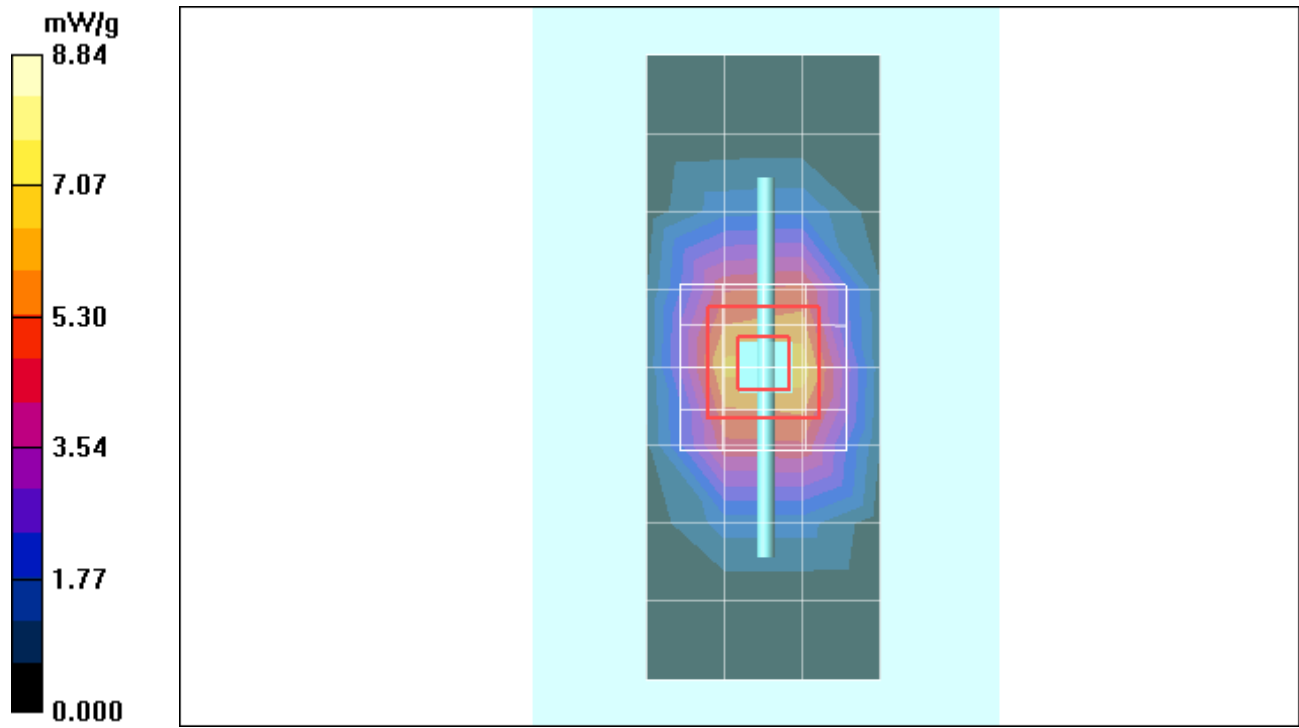
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 81.2 V/m; Power Drift = -0.032 dB; Peak SAR (extrapolated) = 14.1 W/kg

SAR(1 g) = 7.77 mW/g; SAR(10 g) = 4.08 mW/g; Maximum value of SAR (measured) = 8.77 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 8.84 mW/g



Date/Time: 1/20/2009 5:57:06 PM

Test Laboratory: Motorola - 012009 2450 MHz

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:740; FCC ID: IHDT56KP3

Procedure Notes: 2450 MHz System Performance Check; Dipole Sn# 740; Input Power = 200 mW

Sim.Temp@meas = 19.7°C; Sim.Temp@SPC = 19.7°C; Room Temp @ SPC = 20.1°C

Communication System: CW - Dipole; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: VALIDATION Only

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.87$ mho/m; $\epsilon_r = 36$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.51, 4.51, 4.51); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Section 1, Amy Twin, Rev2 (23-June-04); Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Daily SPC Check/Dipole Area Scan (9x4x1):

Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 9.34 mW/g

Daily SPC Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 82.5 V/m; Power Drift = -0.044 dB; Peak SAR (extrapolated) = 25.4 W/kg

SAR(1 g) = 11.4 mW/g; SAR(10 g) = 5.22 mW/g; Maximum value of SAR (measured) = 12.5 mW/g

Daily SPC Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:

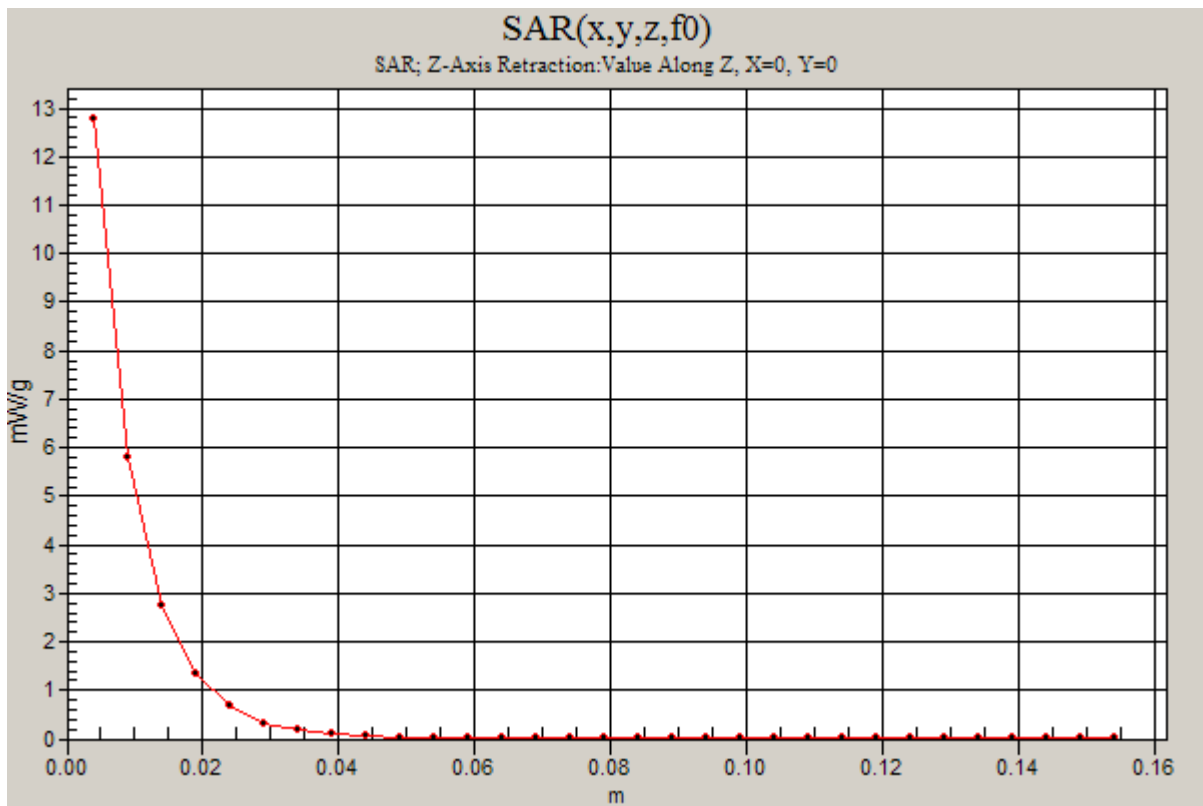
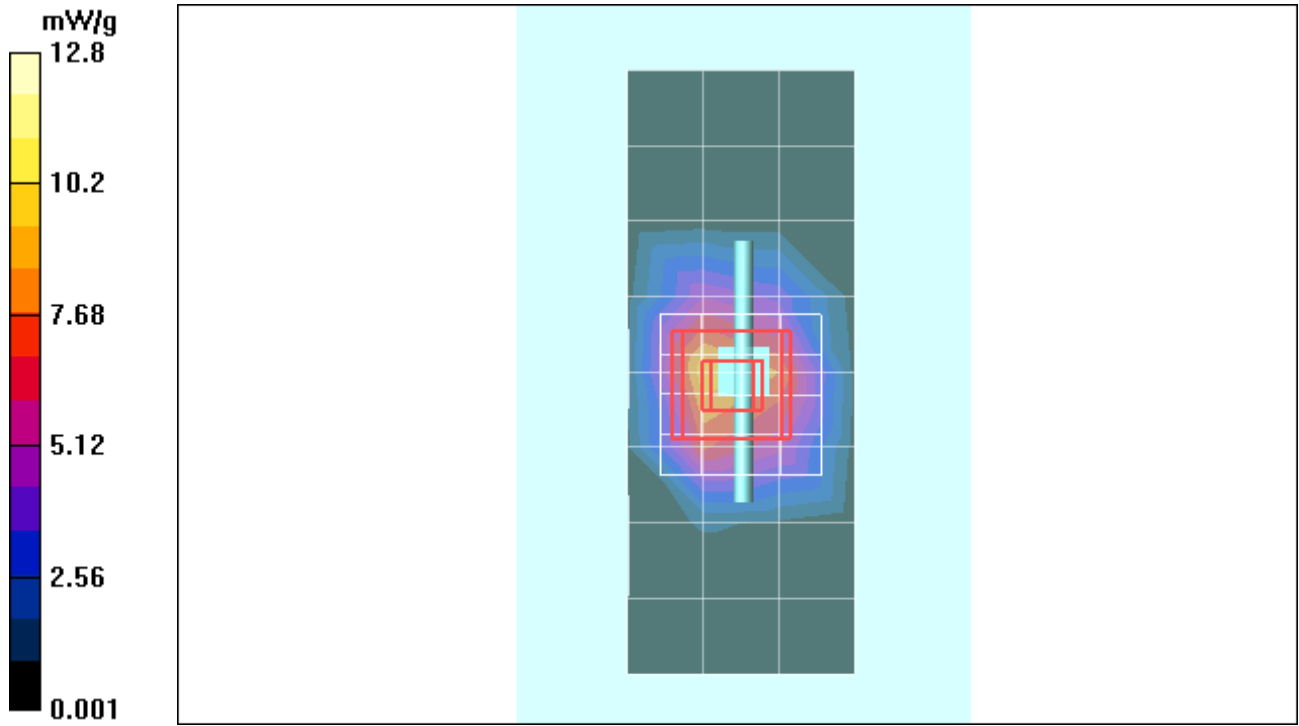
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 82.5 V/m; Power Drift = -0.044 dB; Peak SAR (extrapolated) = 25.6 W/kg

SAR(1 g) = 11.4 mW/g; SAR(10 g) = 5.2 mW/g; Maximum value of SAR (measured) = 11.8 mW/g

Daily SPC Check/Z-Axis Retraction (1x1x31):

Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 12.8 mW/g



Appendix 2

SAR distribution plots for Phantom Head Adjacent Use

Date/Time: 1/8/2009 1:41:07 AM

Test Laboratory: Motorola - GSM 850 Cheek, Slider Extended

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: 5; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5814A; DEVICE POSITION (cheek or rotated): Cheek

Communication System: GSM 850; Frequency: 836.6 MHz; Channel Number: 190; Duty Cycle: 1:8

Medium: Low Freq Head

Medium parameters used: $f = 835$ MHz; $\sigma = 0.91$ mho/m; $\epsilon_r = 40.6$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(6.03, 6.03, 6.03); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Sugar SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1005;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Head Template/Area Scan - Normal (15mm) (7x17x1):

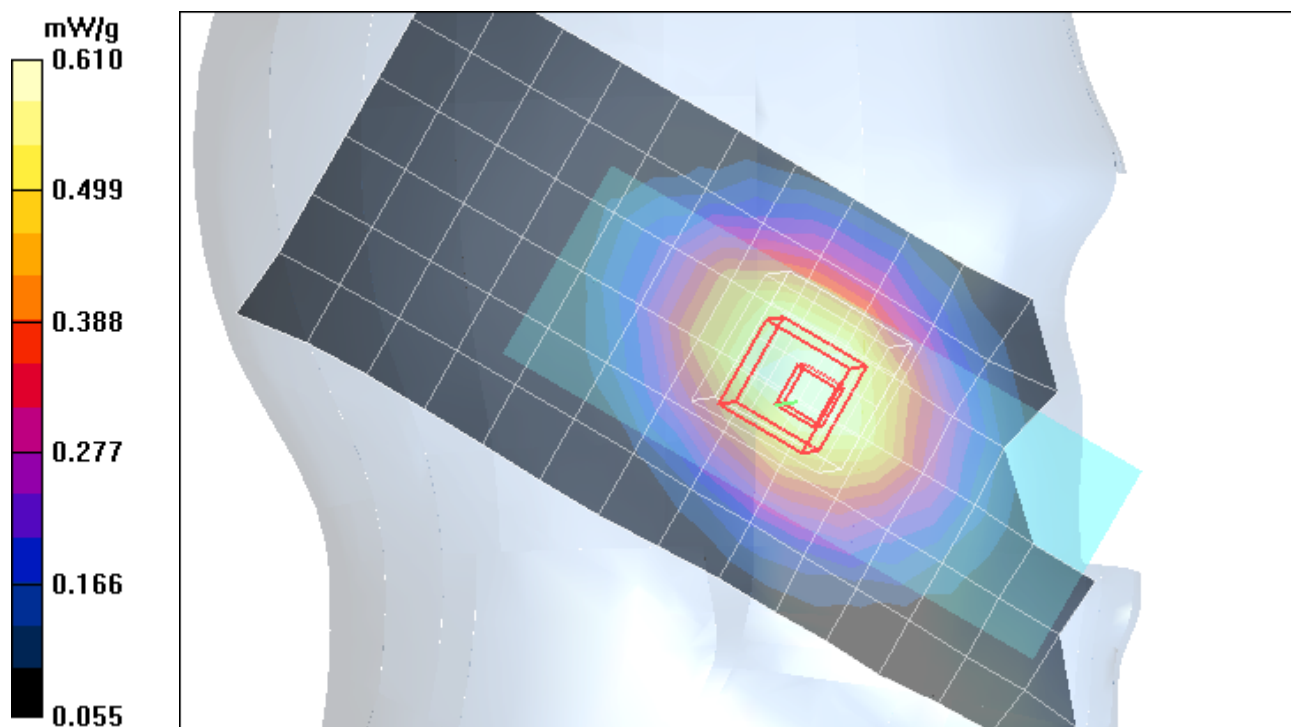
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.615 mW/g

Left Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.7 V/m; Power Drift = -0.176 dB; Peak SAR (extrapolated) = 0.731 W/kg

SAR(1 g) = 0.585 mW/g; SAR(10 g) = 0.433 mW/g; Maximum value of SAR (measured) = 0.610 mW/g



Date/Time: 1/13/2009 10:40:22 AM

Test Laboratory: Motorola - GSM 850 Cheek, Slider Retracted

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: 5; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5814A; (black packaging) DEVICE POSITION: CHEEK

Communication System: GSM 850; Frequency: 848.8 MHz; Channel Number: 251; Duty Cycle: 1:8

Medium: Low Freq Head

Medium parameters used: $f = 835$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(6.03, 6.03, 6.03); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Sugar SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1005;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Head Template/Area Scan - Normal (15mm) (7x17x1):

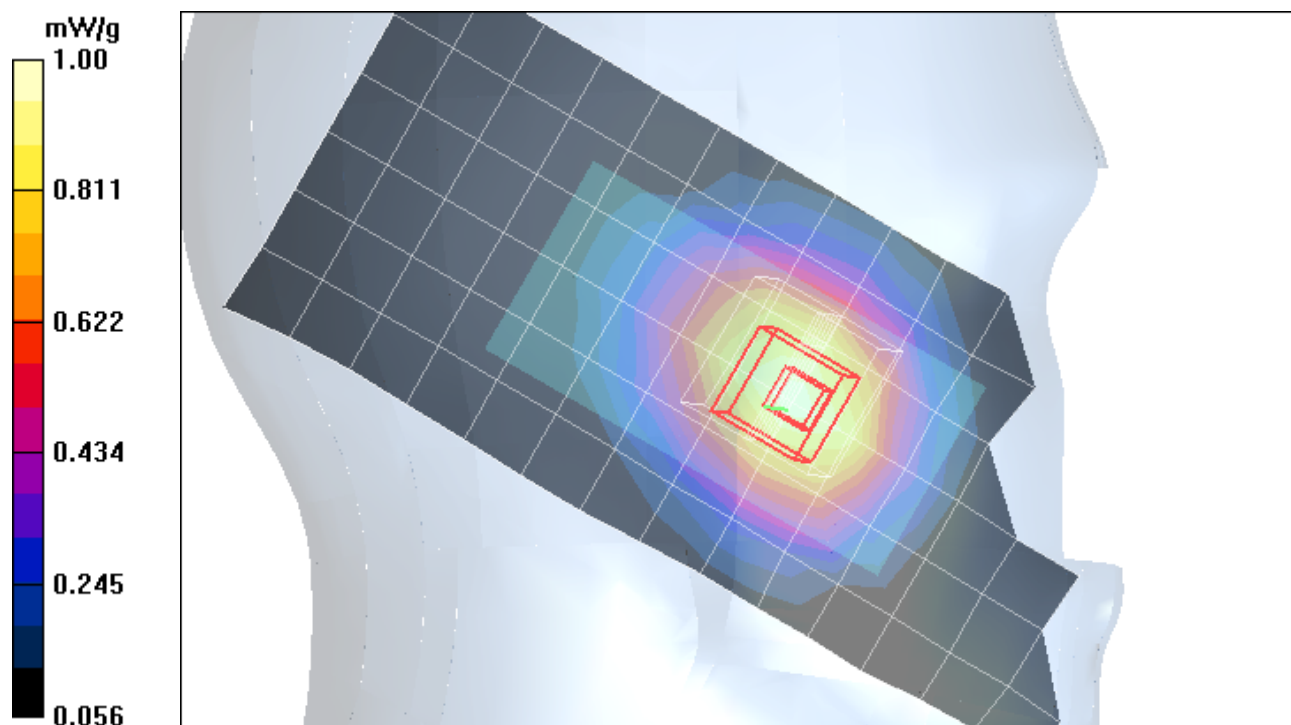
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.997 mW/g

Left Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 31.2 V/m; Power Drift = -0.004 dB; Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.958 mW/g; SAR(10 g) = 0.688 mW/g; Maximum value of SAR (measured) = 1.00 mW/g



Date/Time: 1/9/2009 1:55:31 PM

Test Laboratory: Motorola - GSM 1900 Cheek, Slider Extended

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: 0; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5814A; DEVICE POSITION (cheek or rotated): Cheek

Communication System: GSM 1900; Frequency: 1880 MHz; Channel Number: 661; Duty Cycle: 1:8

Medium: Regular Glycol Head 1750/1880

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Glycol, SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1139;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Head Template/Area Scan - Normal (15mm) (7x17x1):

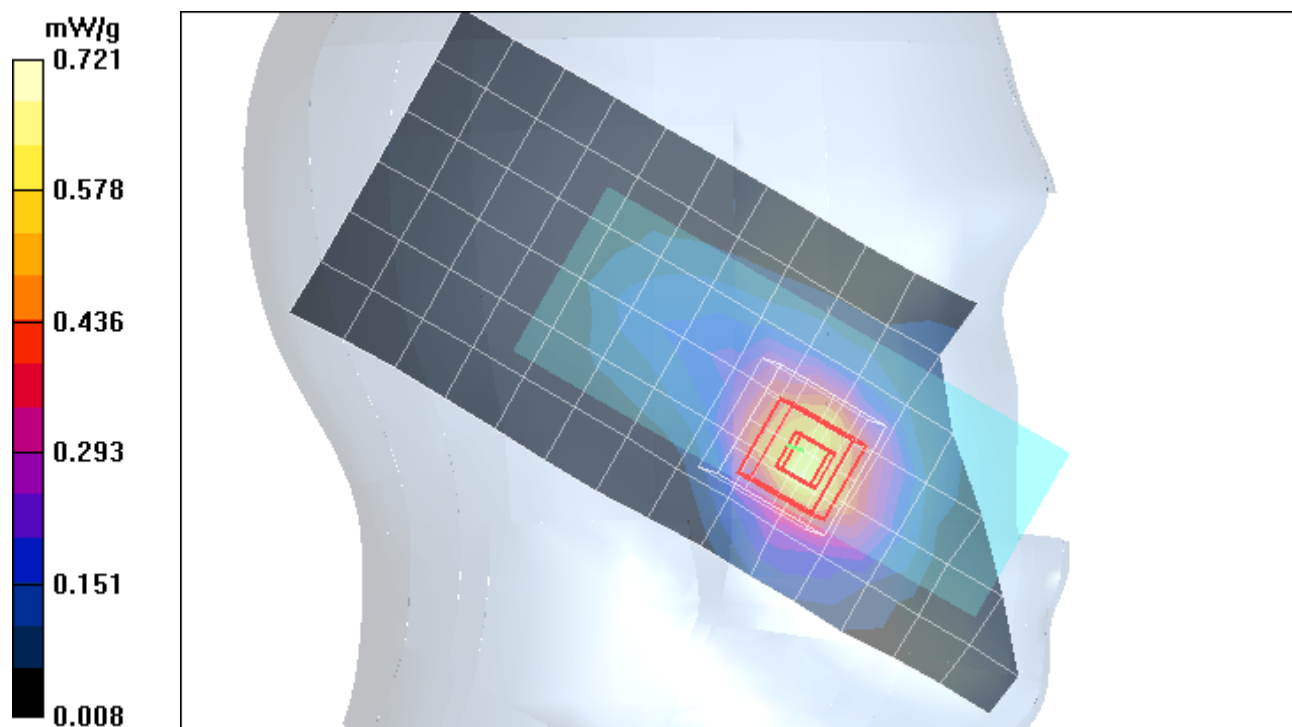
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.642 mW/g

Left Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.1 V/m; Power Drift = -0.052 dB; Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.650 mW/g; SAR(10 g) = 0.369 mW/g; Maximum value of SAR (measured) = 0.721 mW/g



Date/Time: 1/14/2009 5:33:41 PM

Test Laboratory: Motorola - GSM 1900 Cheek, Slider Retracted

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: 0; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5804A; DEVICE POSITION (cheek or rotated): Cheek

Communication System: GSM 1900; Frequency: 1880 MHz; Channel Number: 661; Duty Cycle: 1:8

Medium: Backup Glycol Head 1750/1880

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 38.5$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Glycol, SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1139;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Head Template/Area Scan - Normal (10mm) (10x25x1):

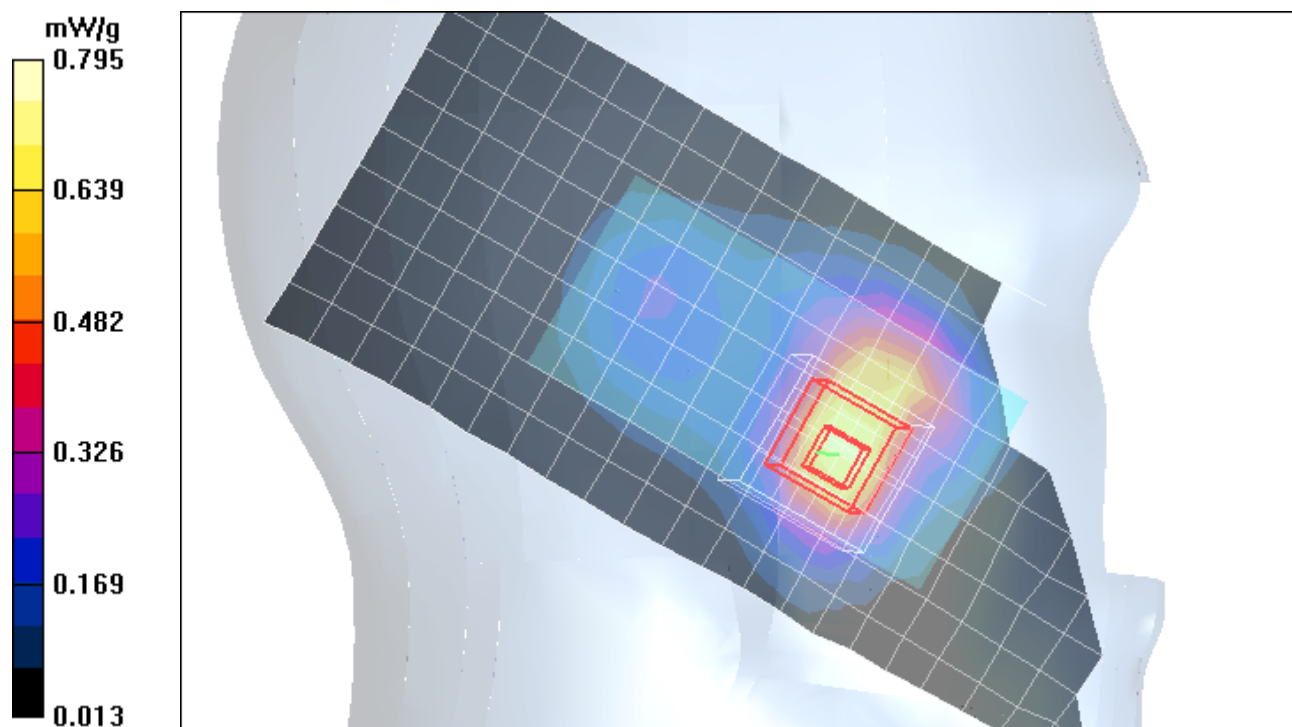
Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.712 mW/g

Left Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.2 V/m; Power Drift = 0.122 dB; Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.709 mW/g; SAR(10 g) = 0.395 mW/g; Maximum value of SAR (measured) = 0.795 mW/g



Date/Time: 1/13/2009 10:16:49 PM

Test Laboratory: Motorola - WCDMA 850 Cheek, Slider Extended

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: All up Bits; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5804A; DEVICE POSITION (cheek or rotated): Cheek

Communication System: 3G-WCDMA 850; Frequency: 836 MHz; Channel Number: 4180; Duty Cycle: 1:1

Medium: Low Freq Head

Medium parameters used: $f = 835$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(6.03, 6.03, 6.03); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Sugar SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1005;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Head Template/Area Scan - Normal (10mm) (10x25x1):

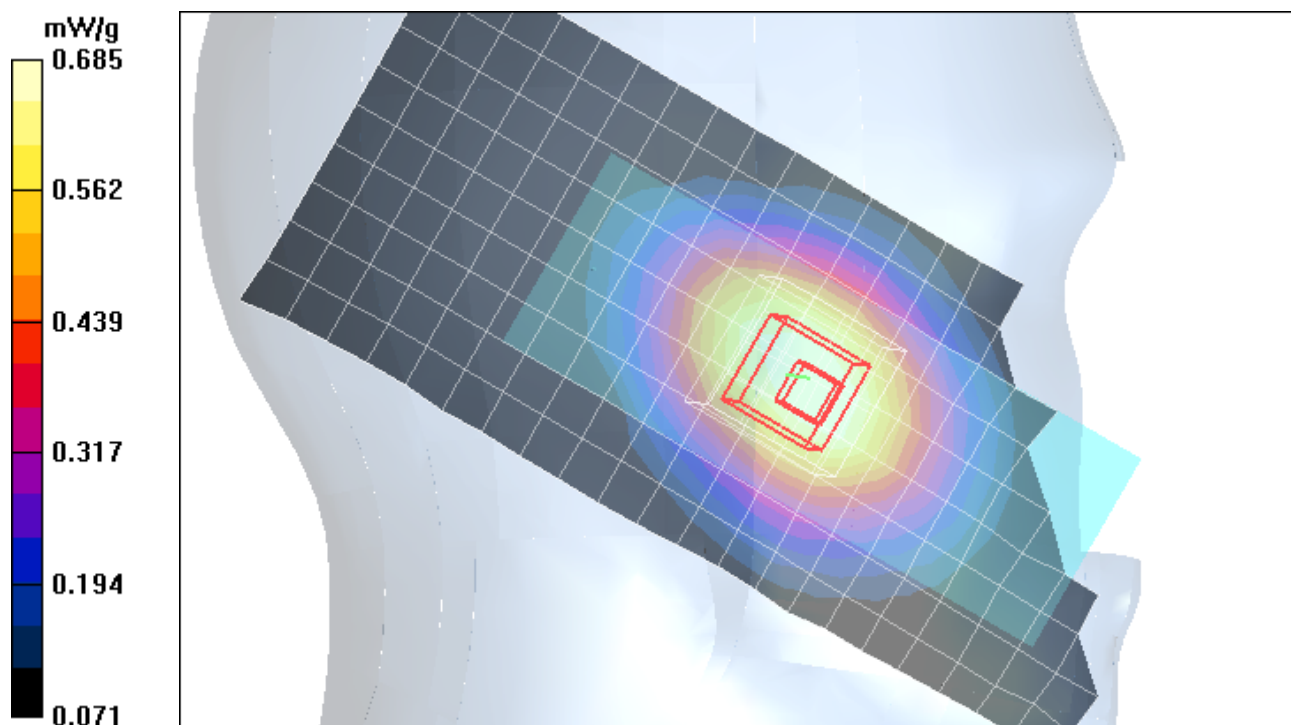
Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.698 mW/g

Left Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.5 V/m; Power Drift = -0.209 dB; Peak SAR (extrapolated) = 0.821 W/kg

SAR(1 g) = 0.655 mW/g; SAR(10 g) = 0.483 mW/g; Maximum value of SAR (measured) = 0.685 mW/g



Date/Time: 1/15/2009 6:20:21 PM

Test Laboratory: Motorola - WCDMA 850 Cheek, Slider Retracted

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: All up Bits; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5814A; DEVICE POSITION (cheek or rotated): Cheek

Communication System: 3G-WCDMA 850; Frequency: 826.4 MHz; Channel Number: 4132; Duty Cycle: 1:1

Medium: Low Freq Head

Medium parameters used: $f = 835$ MHz; $\sigma = 0.91$ mho/m; $\epsilon_r = 40.4$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(6.03, 6.03, 6.03); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Sugar SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1005;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Head Template/Area Scan - Normal (10mm) (10x25x1):

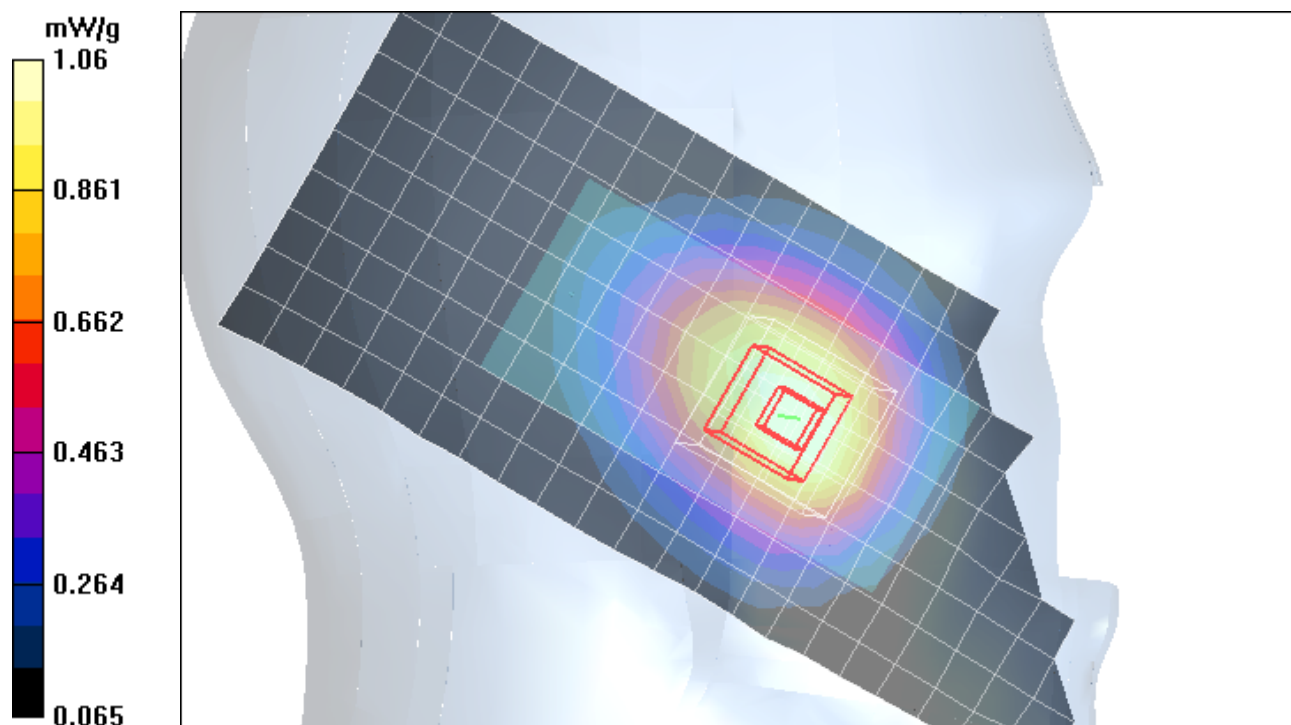
Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.07 mW/g

Left Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.6 V/m; Power Drift = -0.293 dB; Peak SAR (extrapolated) = 1.31 W/kg

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.731 mW/g; Maximum value of SAR (measured) = 1.06 mW/g



Date/Time: 1/12/2009 7:38:12 PM

Test Laboratory: Motorola - WCDMA 1900 Cheek, Slider Extended

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: All up Bits; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5804A; DEVICE POSITION (cheek or rotated): Cheek

Communication System: WCDMA 1900; Frequency: 1852.5 MHz; Channel Number: 9262; Duty Cycle: 1:1

Medium: Backup Glycol Head 1750/1880

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Glycol, SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1139;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Head Template/Area Scan - Normal (15mm) (7x17x1):

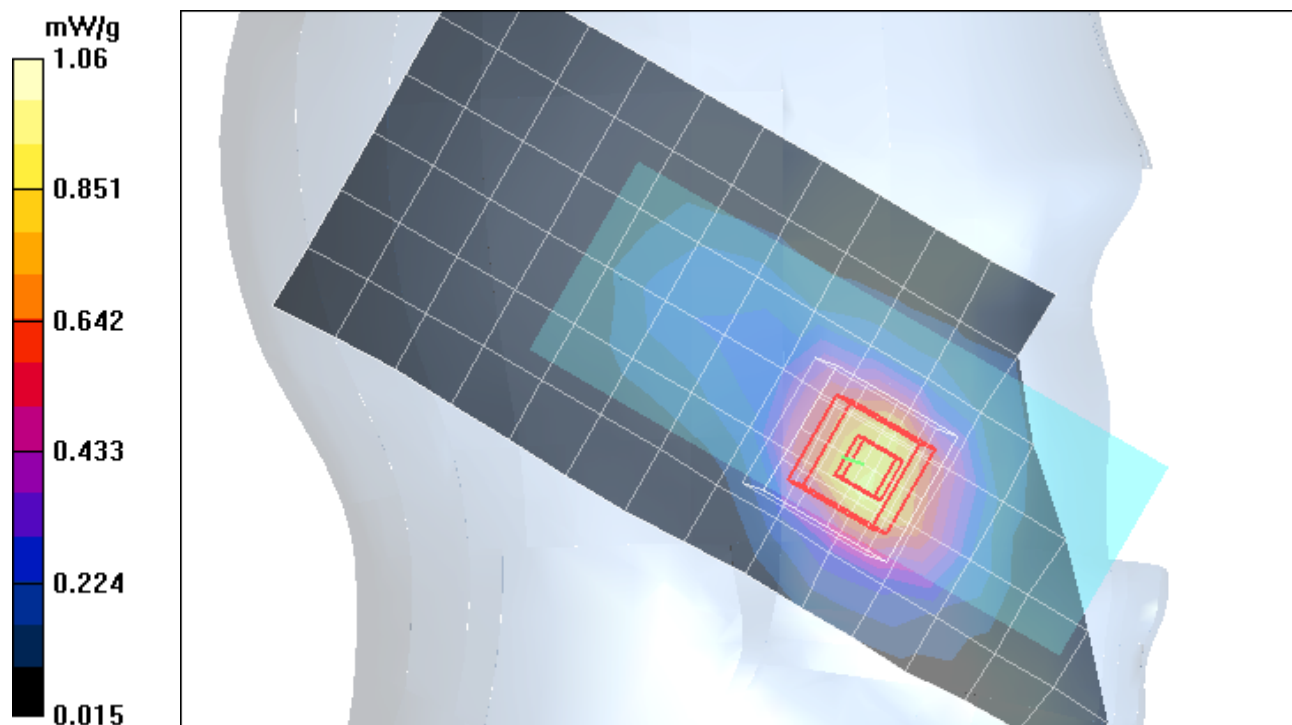
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.894 mW/g

Left Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.7 V/m; Power Drift = 0.085 dB; Peak SAR (extrapolated) = 1.50 W/kg

SAR(1 g) = 0.944 mW/g; SAR(10 g) = 0.541 mW/g; Maximum value of SAR (measured) = 1.06 mW/g



Date/Time: 1/15/2009 12:23:10 PM

Test Laboratory: Motorola - WCDMA 1900 Cheek, Slider Retracted

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: All up Bits; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5814A; DEVICE POSITION: (Cheek or Rotated): CHEEK

Communication System: WCDMA 1900; Frequency: 1852.5 MHz; Channel Number: 9262; Duty Cycle: 1:1

Medium: Backup Glycol Head 1750/1880

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Glycol, SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1139;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Right Head Template/Area Scan - Normal (15mm) (7x17x1):

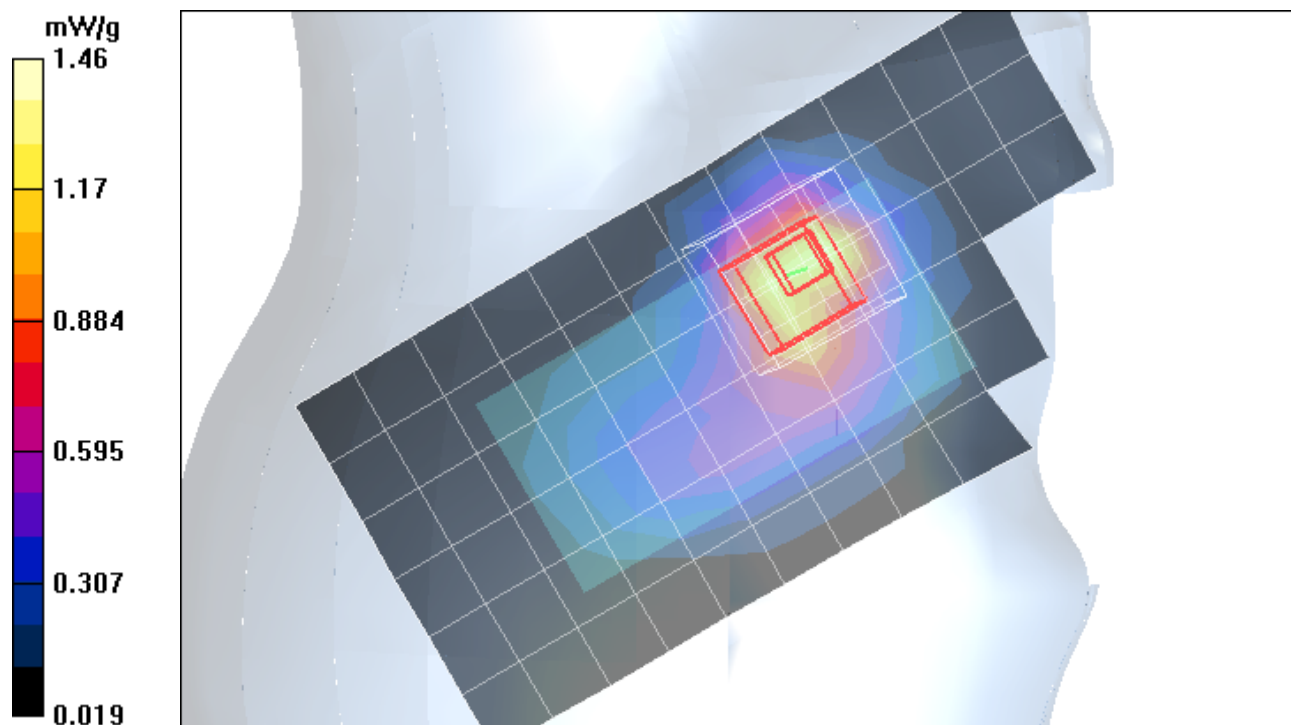
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 1.30 mW/g

Right Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.7 V/m; Power Drift = 0.276 dB; Peak SAR (extrapolated) = 2.38 W/kg

SAR(1 g) = 1.32 mW/g; SAR(10 g) = 0.715 mW/g; Maximum value of SAR (measured) = 1.46 mW/g



Date/Time: 1/7/2009 6:59:00 PM

Test Laboratory: Motorola - GSM 850 Tilted, Slider Extended

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: 5; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5804A; DEVICE POSITION (check or rotated): Tilted

Communication System: GSM 850; Frequency: 836.6 MHz; Channel Number: 190; Duty Cycle: 1:8

Medium: Low Freq Head

Medium parameters used: $f = 835$ MHz; $\sigma = 0.91$ mho/m; $\epsilon_r = 40.6$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(6.03, 6.03, 6.03); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Sugar SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1005;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Head Template/Area Scan - Normal (15mm) (7x17x1):

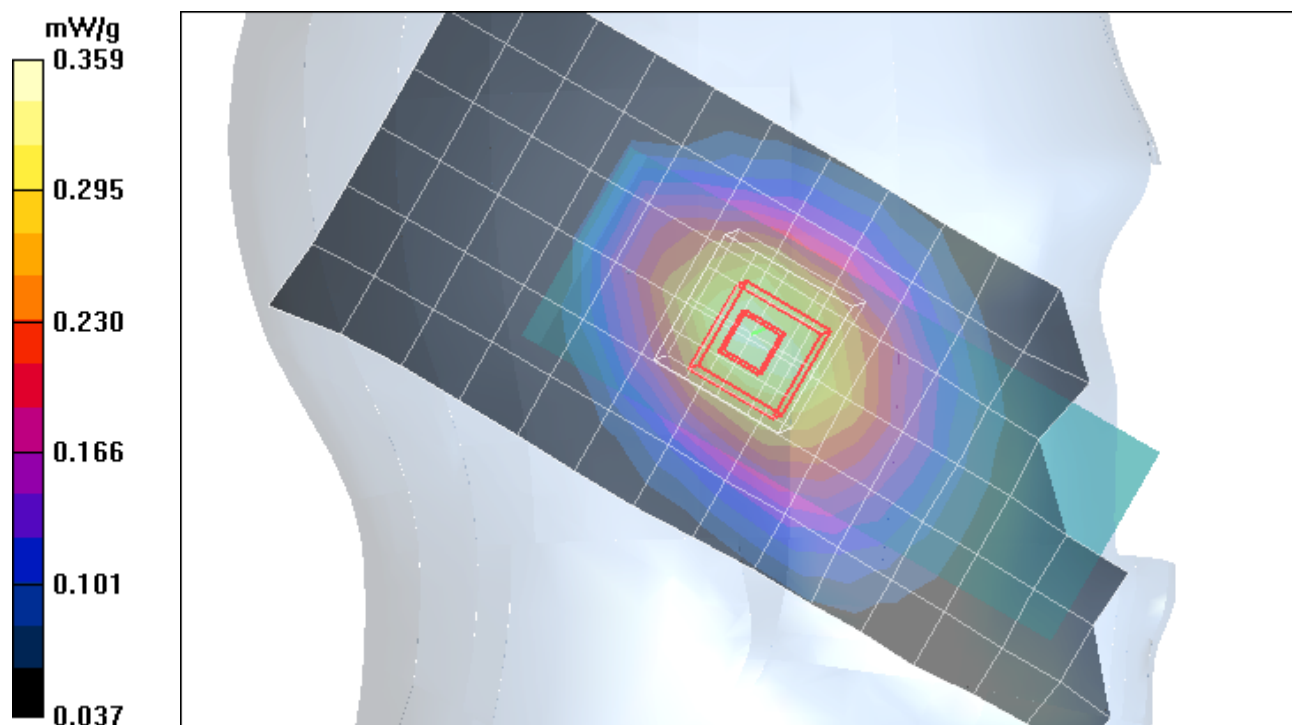
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.348 mW/g

Left Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.7 V/m; Power Drift = 0.113 dB; Peak SAR (extrapolated) = 0.434 W/kg

SAR(1 g) = 0.337 mW/g; SAR(10 g) = 0.244 mW/g; Maximum value of SAR (measured) = 0.359 mW/g



Date/Time: 1/13/2009 11:30:37 AM

Test Laboratory: Motorola - GSM 850 Tilted, Slider Retracted

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: 5; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5814A; DEVICE POSITION (Cheek or Rotated): Tilted

Communication System: GSM 850; Frequency: 836.6 MHz; Channel Number: 190; Duty Cycle: 1:8

Medium: Low Freq Head

Medium parameters used: $f = 835$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(6.03, 6.03, 6.03); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Sugar SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1005;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Head Template/Area Scan - Normal (15mm) (7x17x1):

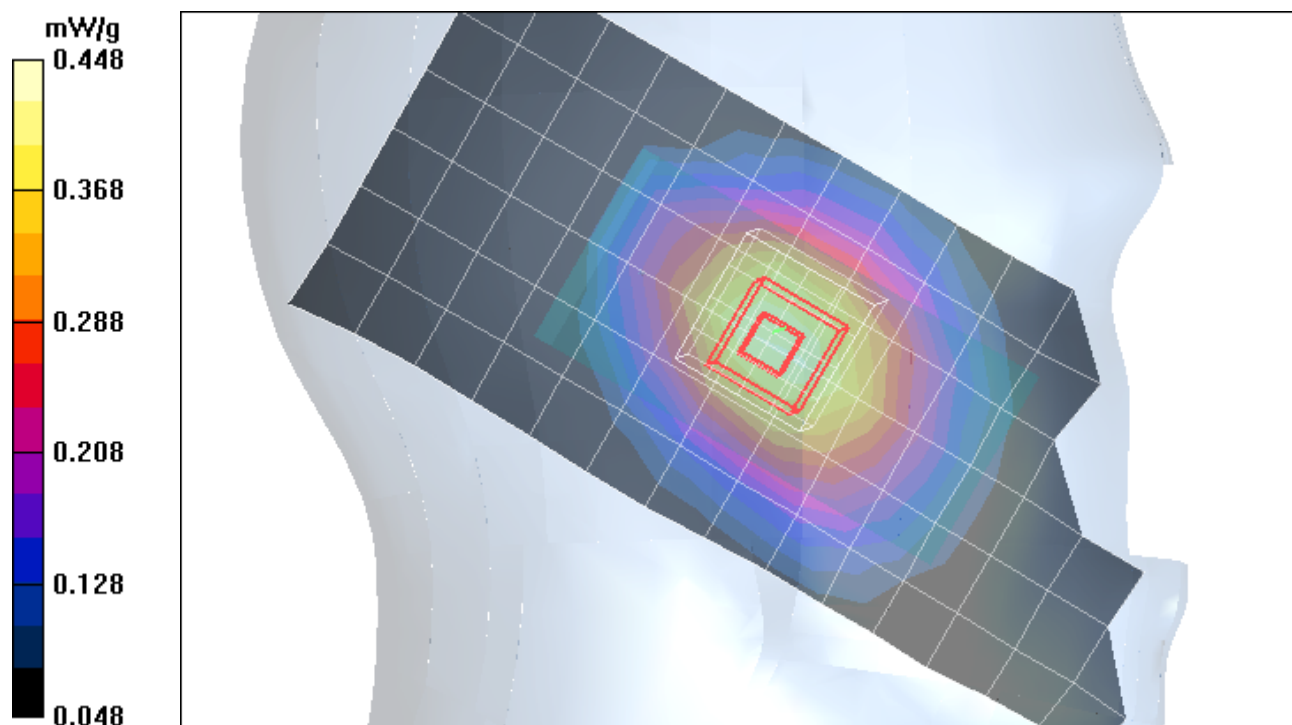
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.426 mW/g

Left Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.7 V/m; Power Drift = 0.138 dB; Peak SAR (extrapolated) = 0.545 W/kg

SAR(1 g) = 0.424 mW/g; SAR(10 g) = 0.308 mW/g; Maximum value of SAR (measured) = 0.448 mW/g



Date/Time: 1/9/2009 3:59:25 PM

Test Laboratory: Motorola - GSM 1900 Tilted, Slider Extended

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: 0; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5814A; DEVICE POSITION (check or rotated): Tilted

Communication System: GSM 1900; Frequency: 1880 MHz; Channel Number: 661; Duty Cycle: 1:8

Medium: Regular Glycol Head 1750/1880

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Glycol, SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1139;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Right Head Template/Area Scan - Normal (15mm) (7x17x1):

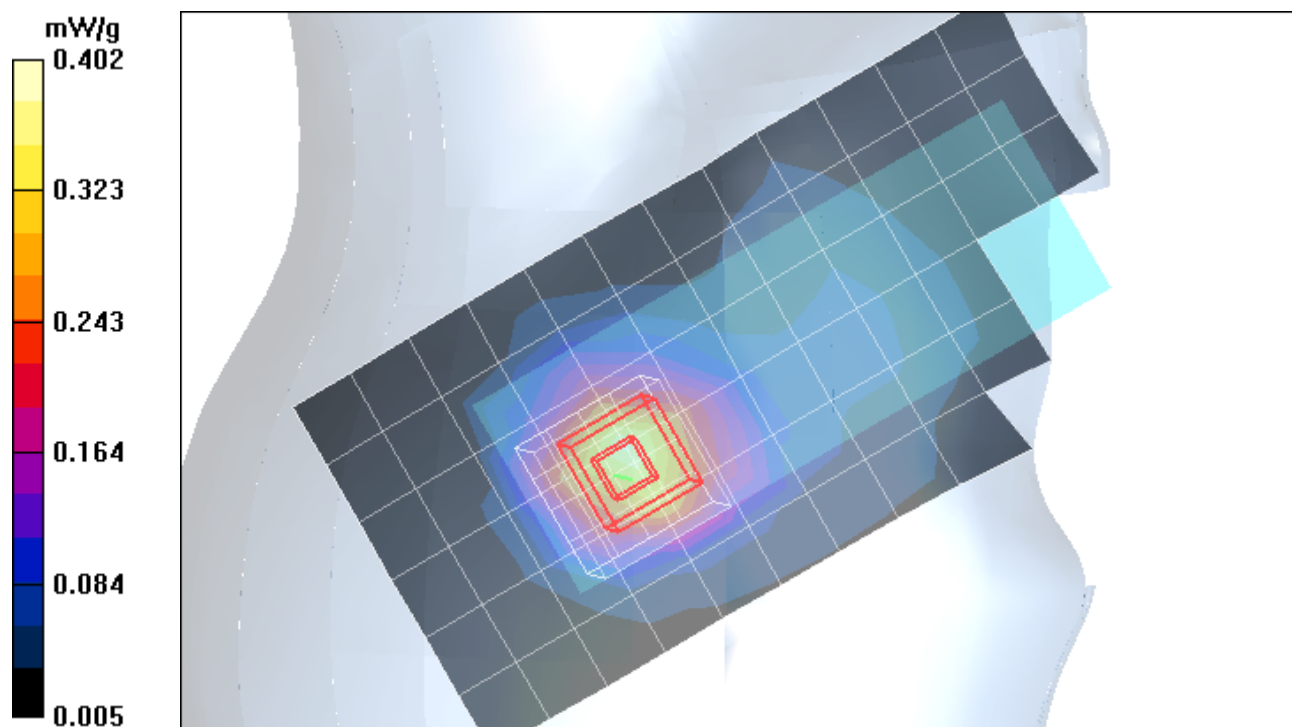
Measurement grid: $dx=15$ mm, $dy=15$ mm; Maximum value of SAR (measured) = 0.388 mW/g

Right Head Template/5x5x7 Zoom Scan (≤ 3 GHz) (5x5x7)/Cube 0:

Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 16.3 V/m; Power Drift = -0.008 dB; Peak SAR (extrapolated) = 0.606 W/kg

SAR(1 g) = 0.373 mW/g; SAR(10 g) = 0.215 mW/g; Maximum value of SAR (measured) = 0.402 mW/g



Date/Time: 1/8/2009 11:12:31 AM

Test Laboratory: Motorola - GSM 1900 Tilted, Slider Retracted

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: 0; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5804A; DEVICE POSITION (check or rotated): Tilted

Communication System: GSM 1900; Frequency: 1880 MHz; Channel Number: 661; Duty Cycle: 1:8

Medium: Regular Glycol Head 1750/1880

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 38.5$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Glycol, SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1139;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Head Template/Area Scan - Normal (15mm) (7x17x1):

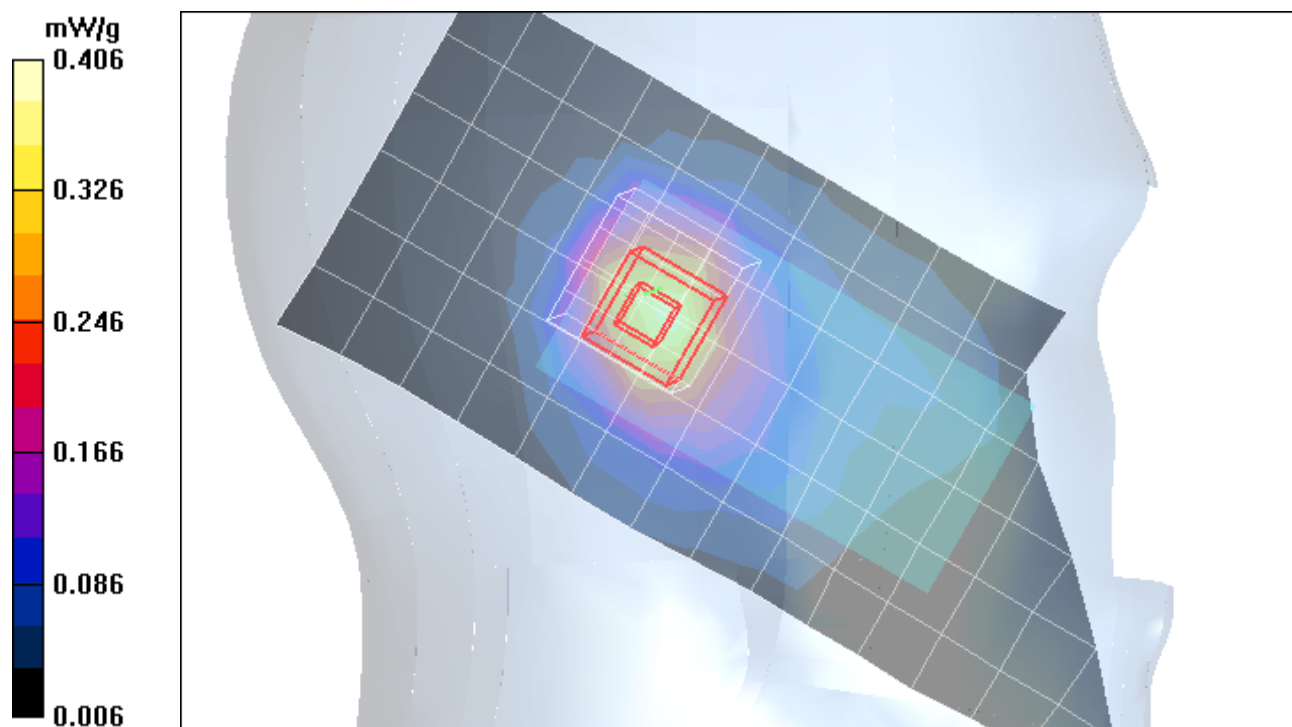
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.381 mW/g

Left Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.0 V/m; Power Drift = 0.133 dB; Peak SAR (extrapolated) = 0.590 W/kg

SAR(1 g) = 0.377 mW/g; SAR(10 g) = 0.223 mW/g; Maximum value of SAR (measured) = 0.406 mW/g



Date/Time: 1/14/2009 1:47:18 AM

Test Laboratory: Motorola - WCDMA 850 Tilted, Slider Extended

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: All up Bits; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5804A; DEVICE POSITION (check or rotated): Tilted

Communication System: 3G-WCDMA 850; Frequency: 836 MHz; Channel Number: 4180; Duty Cycle: 1:1

Medium: Low Freq Head

Medium parameters used: $f = 835$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(6.03, 6.03, 6.03); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Sugar SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1005;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Right Head Template/Area Scan - Normal (10mm) (10x25x1):

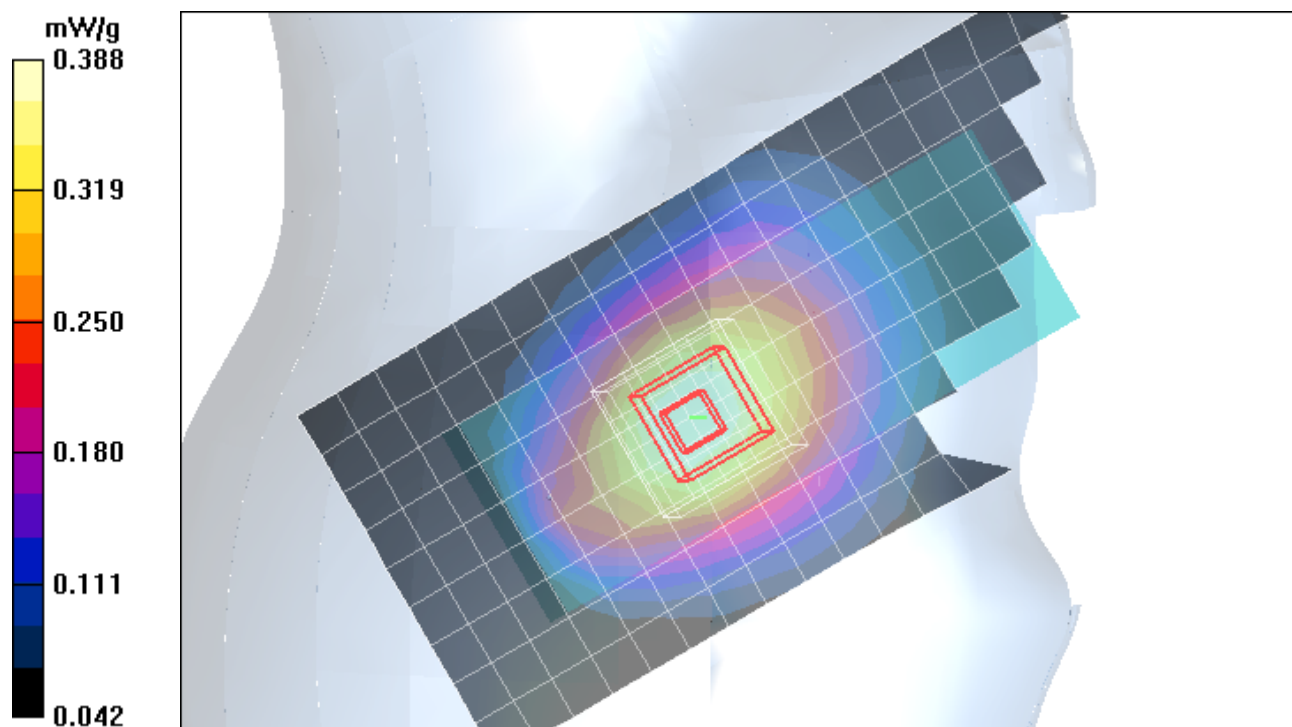
Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.400 mW/g

Right Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.6 V/m; Power Drift = -0.653 dB; Peak SAR (extrapolated) = 0.467 W/kg

SAR(1 g) = 0.364 mW/g; SAR(10 g) = 0.266 mW/g; Maximum value of SAR (measured) = 0.388 mW/g



Date/Time: 1/14/2009 9:25:34 PM

Test Laboratory: Motorola - WCDMA 850 Tilted, Slider Retracted

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: All up Bits; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5814A; DEVICE POSITION (check or rotated): Tilted

Communication System: 3G-WCDMA 850; Frequency: 836 MHz; Channel Number: 4180; Duty Cycle: 1:1

Medium: Low Freq Head

Medium parameters used: $f = 835$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 40.8$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(6.03, 6.03, 6.03); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Sugar SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1005;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Head Template/Area Scan - Normal (10mm) (10x25x1):

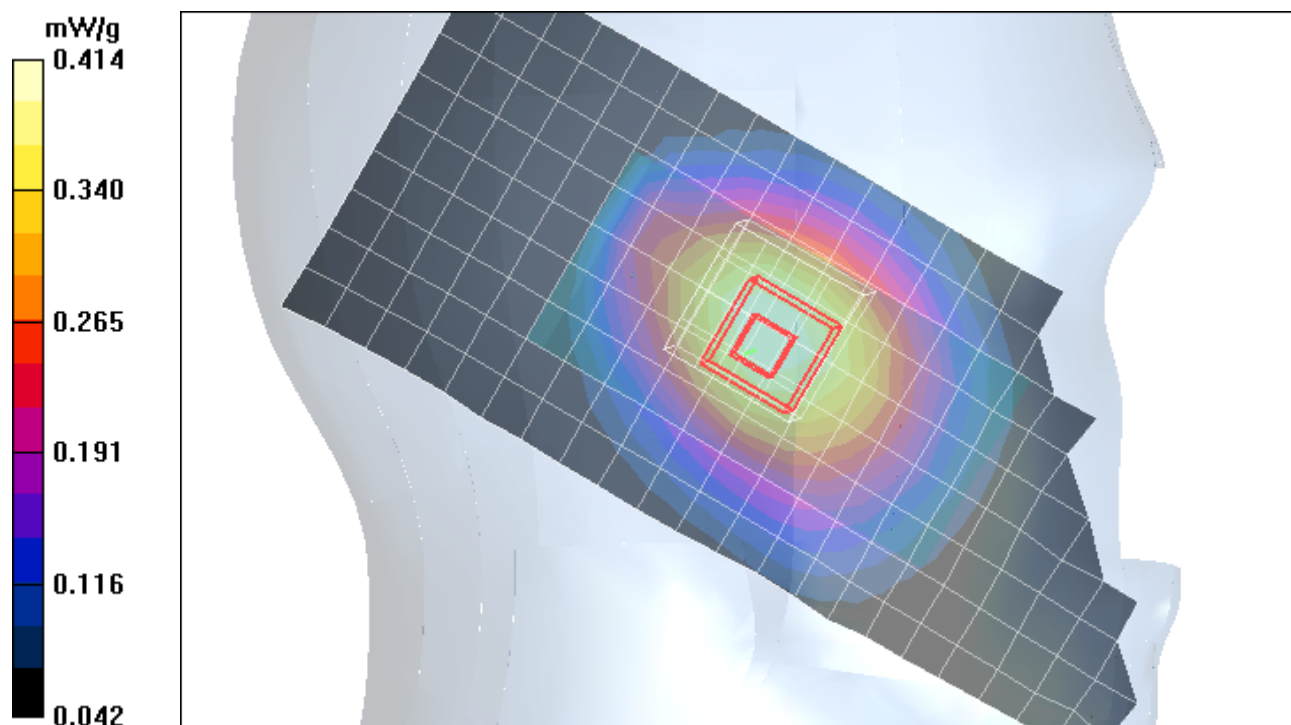
Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.422 mW/g

Left Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.5 V/m; Power Drift = -0.071 dB; Peak SAR (extrapolated) = 0.524 W/kg

SAR(1 g) = 0.400 mW/g; SAR(10 g) = 0.291 mW/g; Maximum value of SAR (measured) = 0.414 mW/g



Date/Time: 1/15/2009 12:46:28 PM

Test Laboratory: Motorola - WCDMA 1900 Tilted, Slider Extended

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: All up Bits; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5814A; DEVICE POSITION: (Cheek or Rotated): Tilted

Communication System: WCDMA 1900; Frequency: 1880 MHz; Channel Number: 9400; Duty Cycle: 1:1

Medium: Backup Glycol Head 1750/1880

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Glycol, SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1139;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Right Head Template/Area Scan - Normal (15mm) (7x17x1):

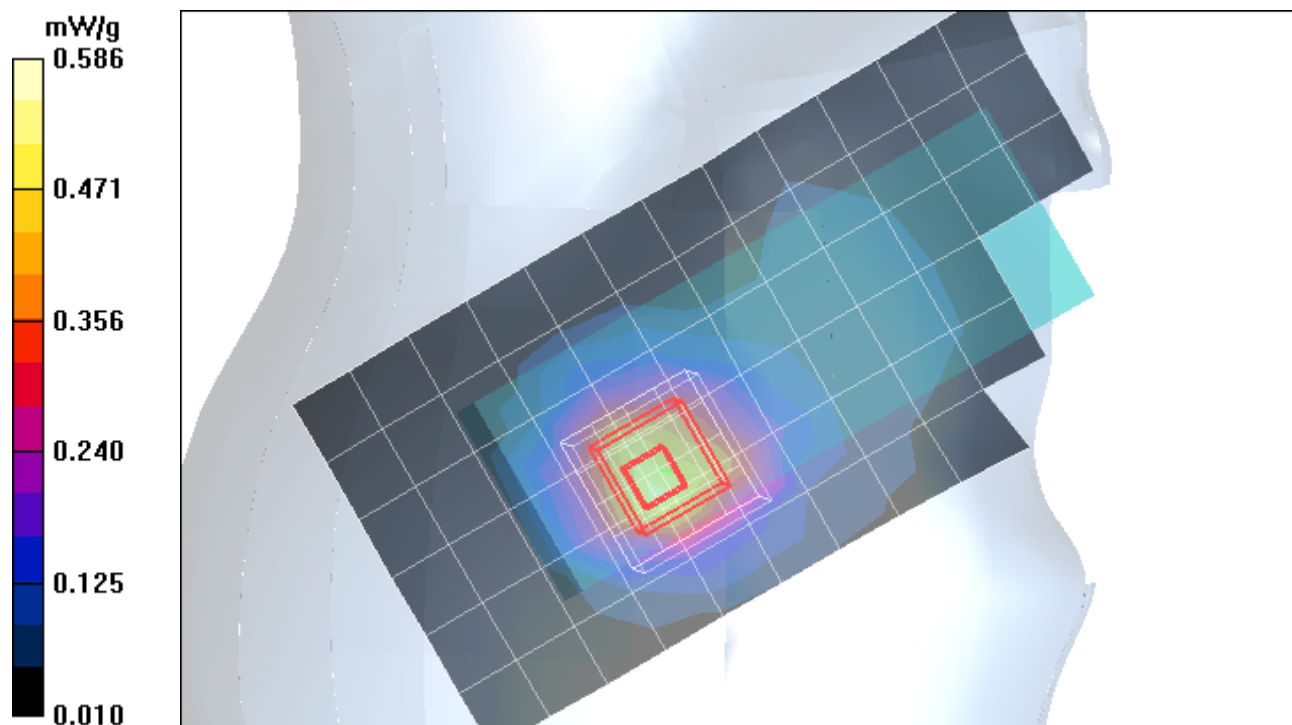
Measurement grid: $dx=15$ mm, $dy=15$ mm; Maximum value of SAR (measured) = 0.538 mW/g

Right Head Template/5x5x7 Zoom Scan (≤ 3 GHz) (5x5x7)/Cube 0:

Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 19.4 V/m; Power Drift = 0.048 dB; Peak SAR (extrapolated) = 0.848 W/kg

SAR(1 g) = 0.538 mW/g; SAR(10 g) = 0.313 mW/g; Maximum value of SAR (measured) = 0.586 mW/g



Date/Time: 1/15/2009 1:12:07 PM

Test Laboratory: Motorola - WCDMA 1900 Tilted, Slider Retracted

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: All up Bits; Antenna Position: Internal; Accessory Model #: N/A

Battery Model #: SNN5814A; DEVICE POSITION: (Cheek or Rotated): Tilted

Communication System: WCDMA 1900; Frequency: 1880 MHz; Channel Number: 9400; Duty Cycle: 1:1

Medium: Backup Glycol Head 1750/1880

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.98, 4.98, 4.98); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Glycol, SAM (extended range), Rev.1 (25-Mar-05); Type: SAM v4.0; Serial: TP-1139;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Right Head Template/Area Scan - Normal (15mm) (7x17x1):

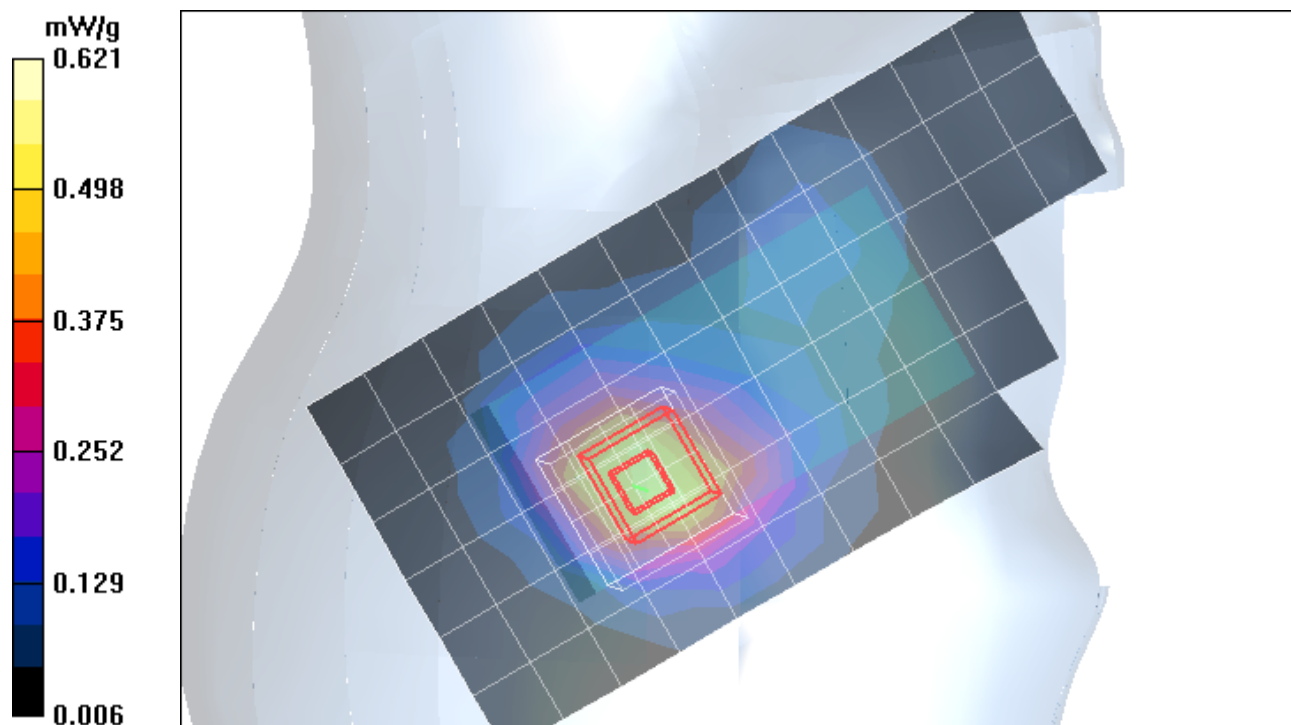
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.536 mW/g

Right Head Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.4 V/m; Power Drift = 0.243 dB; Peak SAR (extrapolated) = 0.893 W/kg

SAR(1 g) = 0.576 mW/g; SAR(10 g) = 0.343 mW/g; Maximum value of SAR (measured) = 0.621 mW/g



Appendix 3

SAR distribution plots for Body Worn Configuration

Date/Time: 1/13/2009 12:17:25 PM

Test Laboratory: Motorola - GSM 850 Body-Worn

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: 5; Antenna Position: Internal; Battery Model #: SNN5804A

Device Position: Body Worn, Back of Phone 15mm away from Phantom

Communication System: GSM 850; Frequency: 836.6 MHz; Channel Number: 190; Duty Cycle: 1:8

Medium: Low Freq Body

Medium parameters used: $f = 835$ MHz; $\sigma = 0.99$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(5.64, 5.64, 5.64); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Section 2, Amy Twin, Rev2 (23-June-04); Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (13x7x1):

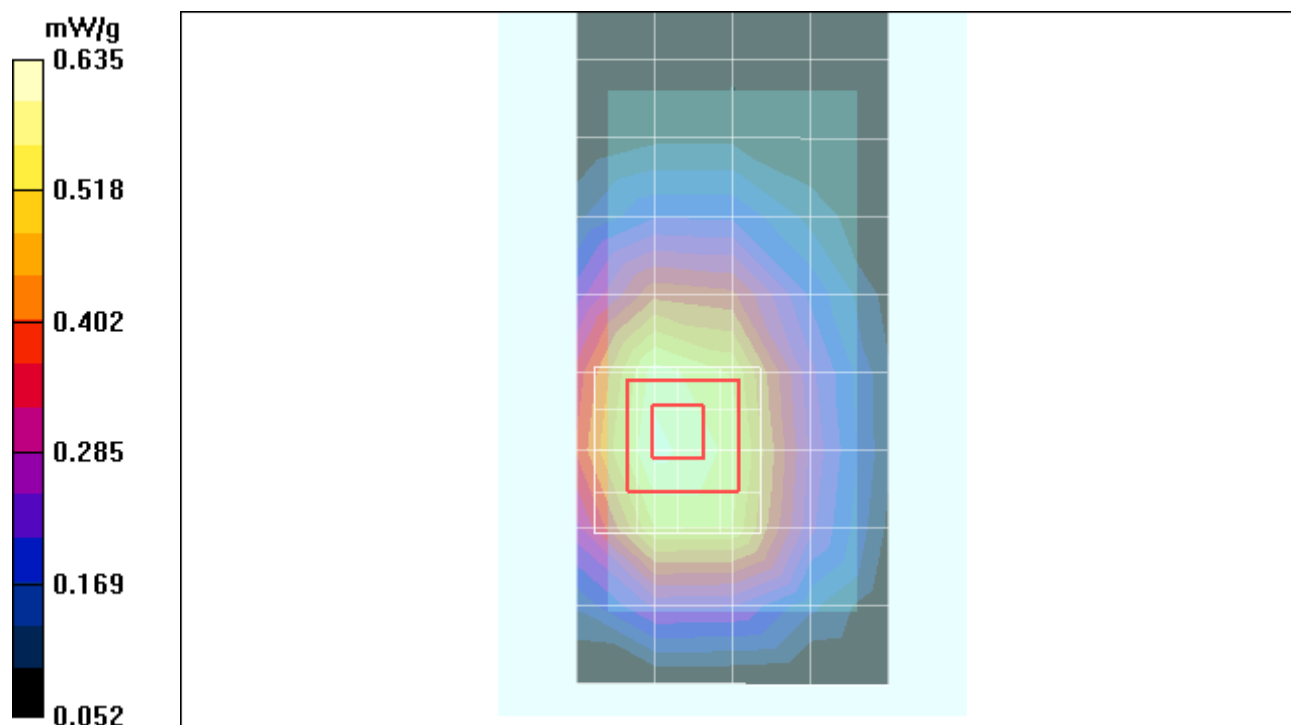
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.611 mW/g

Amy Twin Phone Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.6 V/m; Power Drift = -0.028 dB; Peak SAR (extrapolated) = 0.796 W/kg

SAR(1 g) = 0.600 mW/g; SAR(10 g) = 0.426 mW/g; Maximum value of SAR (measured) = 0.635 mW/g



Date/Time: 1/12/2009 1:09:58 PM

Test Laboratory: Motorola - GSM 1900 Body-Worn

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: 0; Antenna Position: Internal; Battery Model #: SNN5804A

Device Position: Body Worn, Back of Phone 15mm away from Phantom

Communication System: GSM 1900; Frequency: 1880 MHz; Channel Number: 661; Duty Cycle: 1:8

Medium: Regular Glycol Body 1750/1880

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.59$ mho/m; $\epsilon_r = 50.9$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(5.08, 5.08, 5.08); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Section 1, Amy Twin, Rev2 (23-June-04); Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (13x7x1):

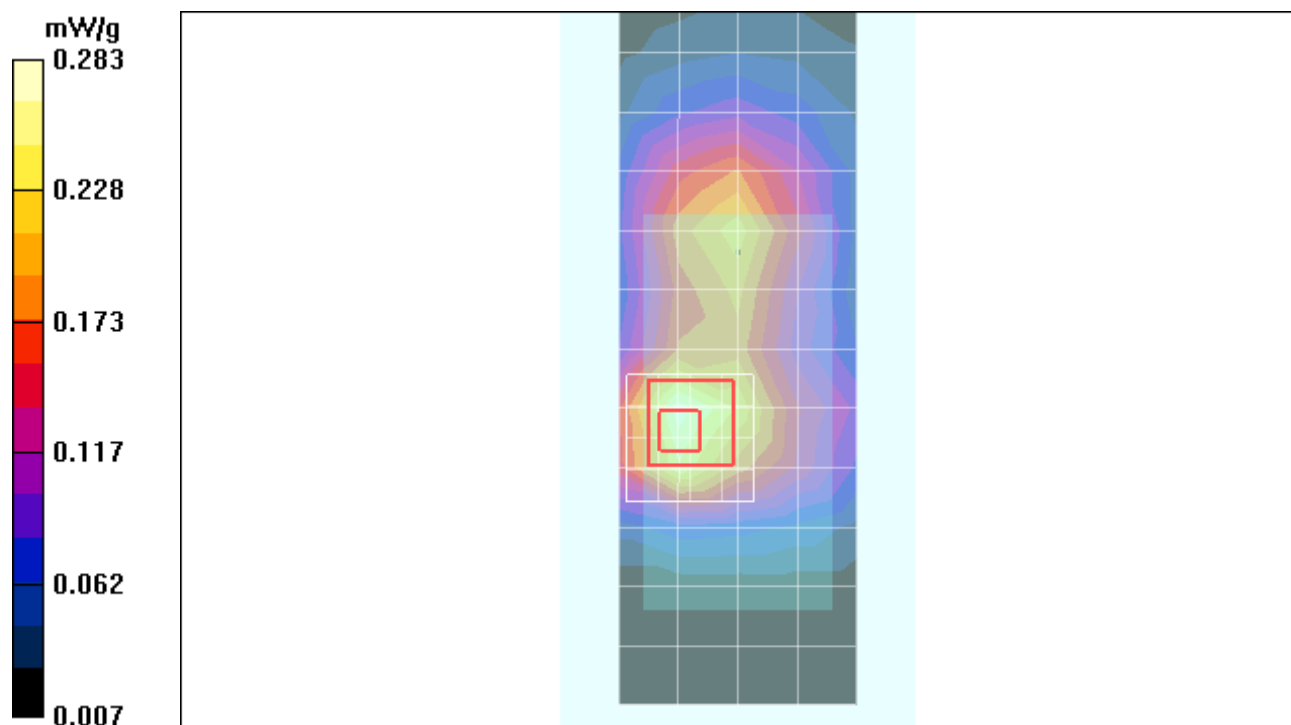
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.277 mW/g

Amy Twin Phone Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.9 V/m; Power Drift = -0.014 dB; Peak SAR (extrapolated) = 0.453 W/kg

SAR(1 g) = 0.268 mW/g; SAR(10 g) = 0.157 mW/g; Maximum value of SAR (measured) = 0.283 mW/g



Date/Time: 1/14/2009 3:19:34 PM

Test Laboratory: Motorola - WCDMA 850 Body-Worn

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: All up Bits; Antenna Position: Internal; Battery Model #: SNN5814A

Device Position: Body Worn, Back of Phone 15mm away from Phantom

Communication System: 3G-WCDMA 850; Frequency: 836 MHz; Channel Number: 4180; Duty Cycle: 1:1

Medium: Low Freq Body

Medium parameters used: $f = 835$ MHz; $\sigma = 1$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(5.64, 5.64, 5.64); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Section 2, Amy Twin, Rev2 (23-June-04); Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (13x7x1):

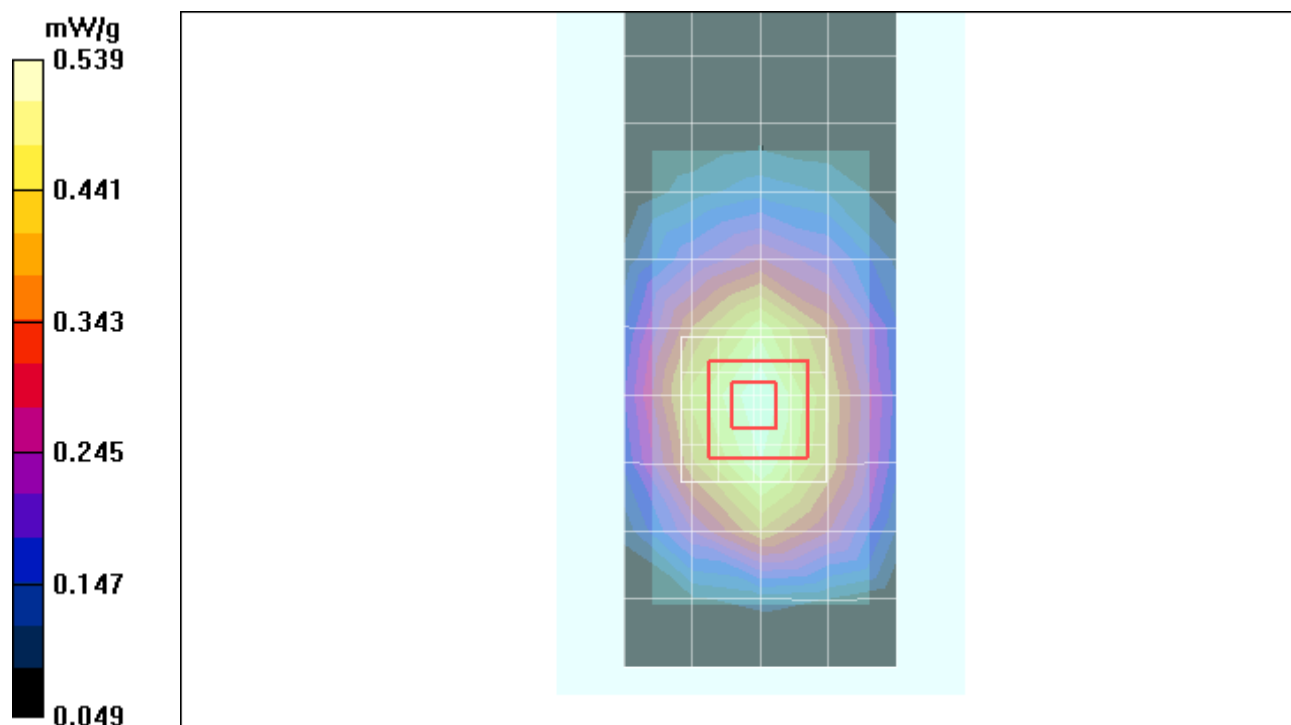
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.542 mW/g

Amy Twin Phone Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.8 V/m; Power Drift = -0.214 dB; Peak SAR (extrapolated) = 0.666 W/kg

SAR(1 g) = 0.500 mW/g; SAR(10 g) = 0.355 mW/g; Maximum value of SAR (measured) = 0.539 mW/g



Date/Time: 1/15/2009 3:34:56 PM

Test Laboratory: Motorola - WCDMA 1900 Body-Worn

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: All up Bits; Antenna Position: Internal; Battery Model #: SNN5814A

Device Position: Body Worn, Back of Phone 15mm away from Phantom

Communication System: WCDMA 1900; Frequency: 1880 MHz; Channel Number: 9400; Duty Cycle: 1:

Medium: Regular Glycol Body 1750/1880

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 51$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(5.08, 5.08, 5.08); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Section 1, Amy Twin, Rev2 (23-June-04); Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Amy Twin Phone Template/Area Scan - Normal Body (15mm) (13x7x1):

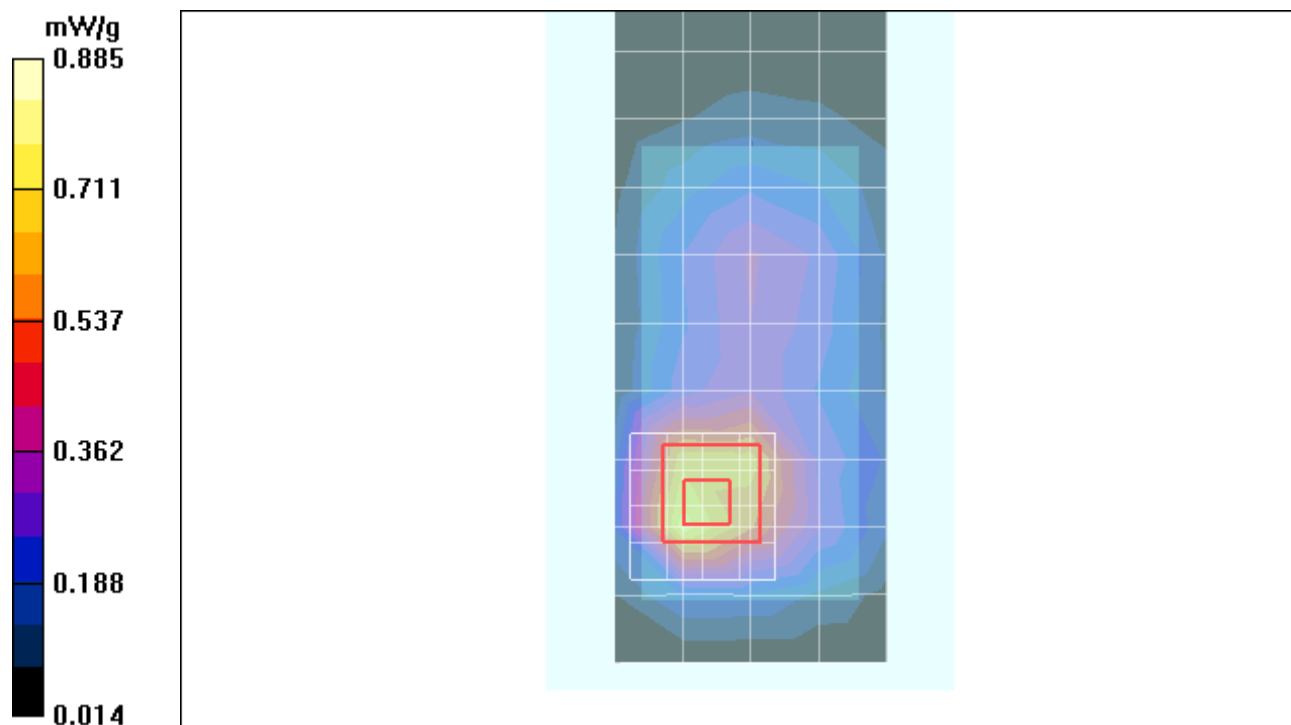
Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.743 mW/g

Amy Twin Phone Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.5 V/m; Power Drift = 0.086 dB; Peak SAR (extrapolated) = 1.40 W/kg

SAR(1 g) = 0.797 mW/g; SAR(10 g) = 0.438 mW/g; Maximum value of SAR (measured) = 0.885 mW/g



Date/Time: 1/20/2009 8:57:33 PM

Test Laboratory: Motorola - Bluetooth Body-Worn

Serial: 356911020000855; FCC ID: IHDT56KP3

Procedure Notes: Pwr Step: N/A; Antenna Position: Internal; Battery Model #: SNN5804A

Device Position: Body Worn, Back of Phone 15mm away from Phantom

Communication System: Bluetooth; Frequency: 2441 MHz; Channel Number: 39; Duty Cycle: 1:1

Medium: 2450 Glycol Body

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.04$ mho/m; $\epsilon_r = 49.6$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: ES3DV3 - SN3124; ConvF(4.19, 4.19, 4.19); Calibrated: 3/17/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn650; Calibrated: 8/13/2008
- Phantom: R1_Section 2, Amy Twin, Rev2 (23-June-04); Type: Amy Twin Flat; Serial: n/a;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Amy Twin Phone Template/Area Scan - Normal Body (10mm) (19x10x1):

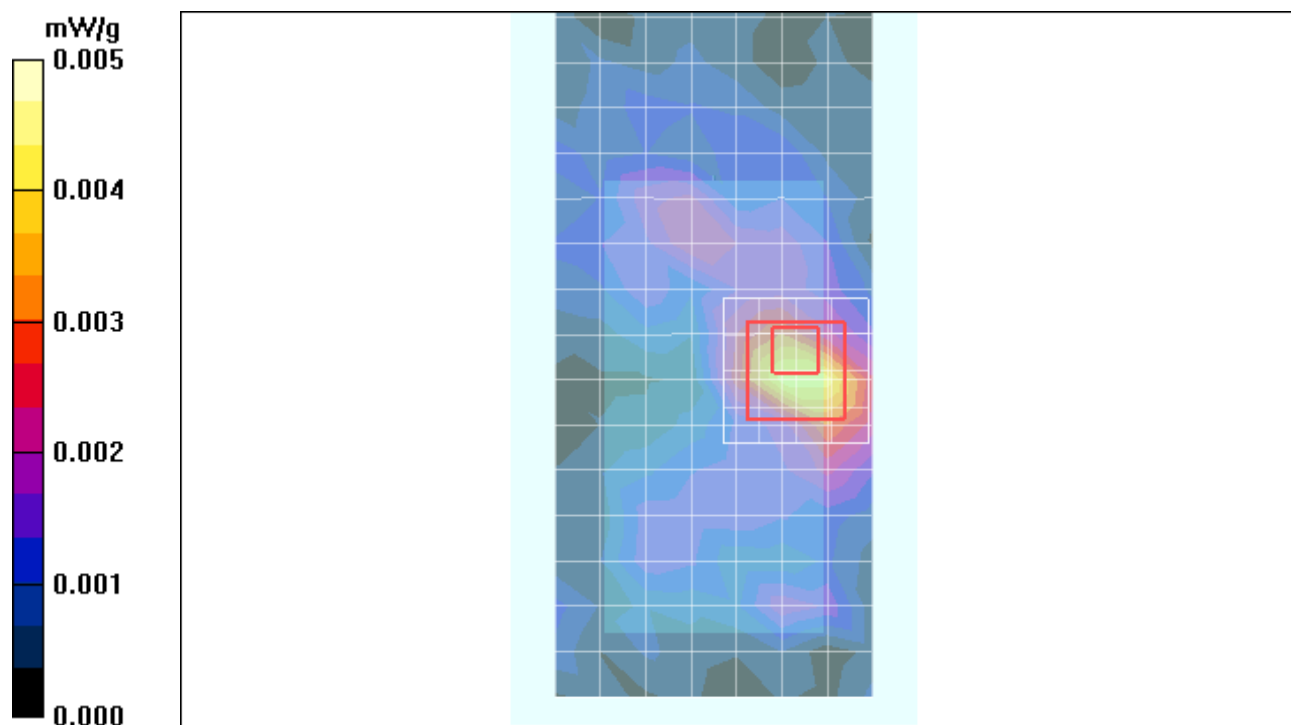
Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.004 mW/g

Amy Twin Phone Template/5x5x7 Zoom Scan (<=3GHz) (5x5x7)/Cube 0:

Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.29 V/m; Power Drift = 0.243 dB; Peak SAR (extrapolated) = 0.011 W/kg

SAR(1 g) = 0.00384 mW/g; SAR(10 g) = 0.0019 mW/g; Maximum value of SAR (measured) = 0.005 mW/g



Appendix 4
Probe Calibration Certificate



Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Motorola MDb**

Certificate No: **ES3-3124_Mar08**

CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3124**

Calibration procedure(s) **QA CAL-01.v6
Calibration procedure for dosimetric E-field probes**

Calibration date: **March 17, 2008**

Condition of the calibrated item **In Tolerance**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	8-Aug-07 (METAS, No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	8-Aug-07 (METAS, No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (SPEAG, No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-07)	In house check: Oct-08

Calibrated by: **Katja Pokovic** **Technical Manager**

Approved by: **Niels Kuster** **Quality Manager**

Signature


Issued: March 17, 2008

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * *frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe ES3DV3

SN:3124

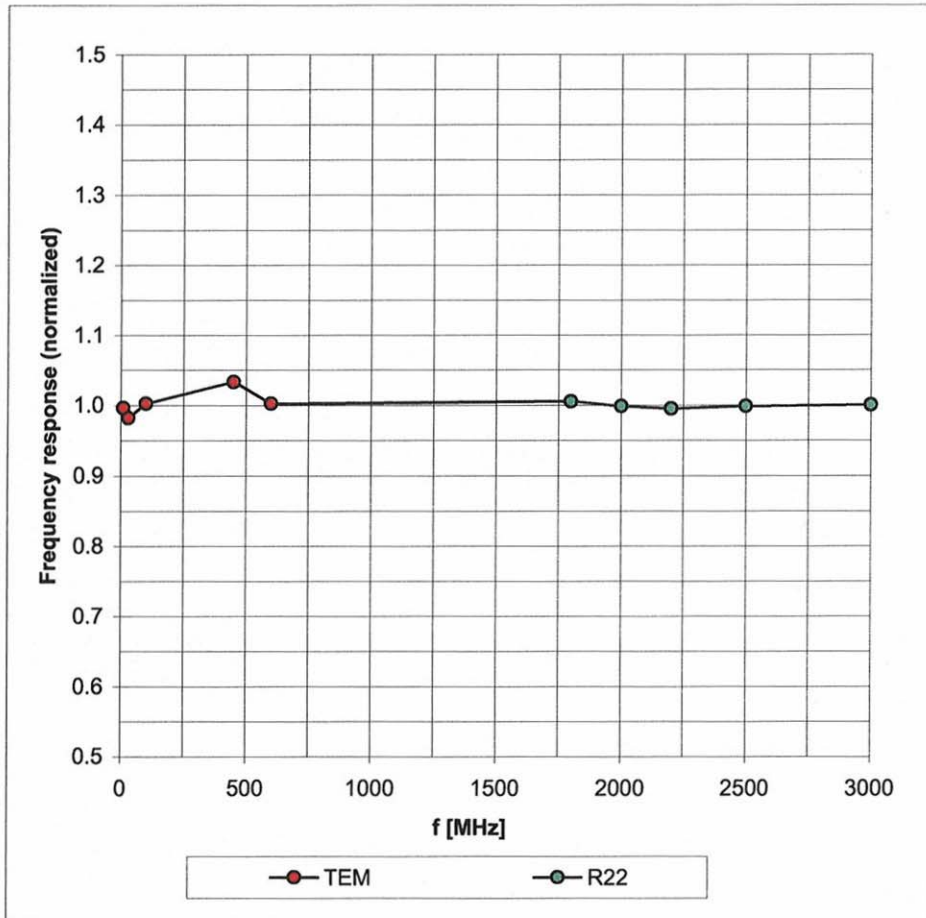
Manufactured:	July 11, 2006
Last calibrated:	March 20, 2007
Recalibrated:	March 17, 2008

Calibrated for DASYS Systems

(Note: non-compatible with DASYS2 system!)

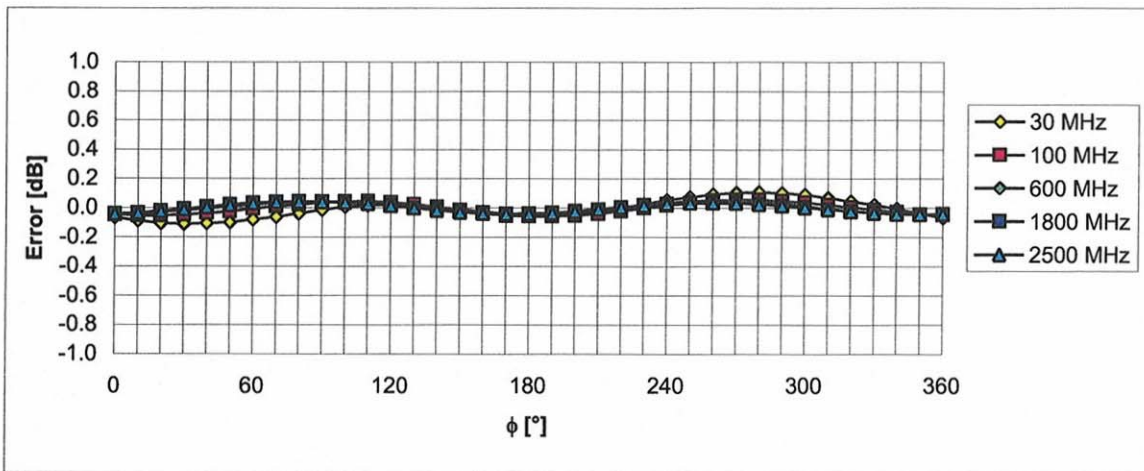
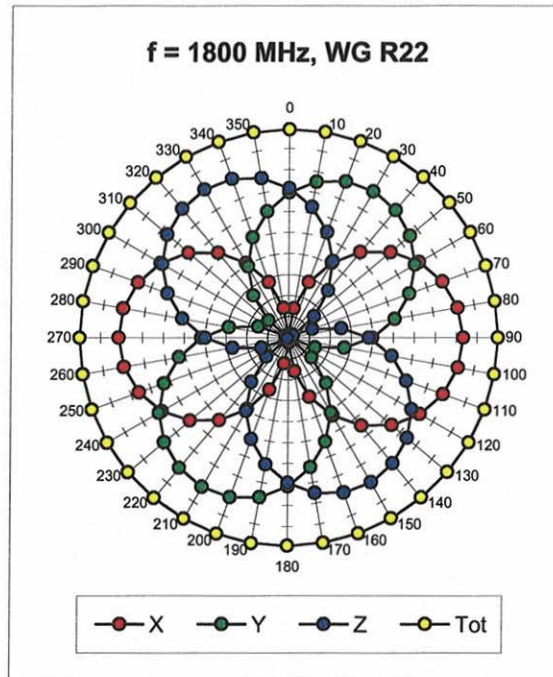
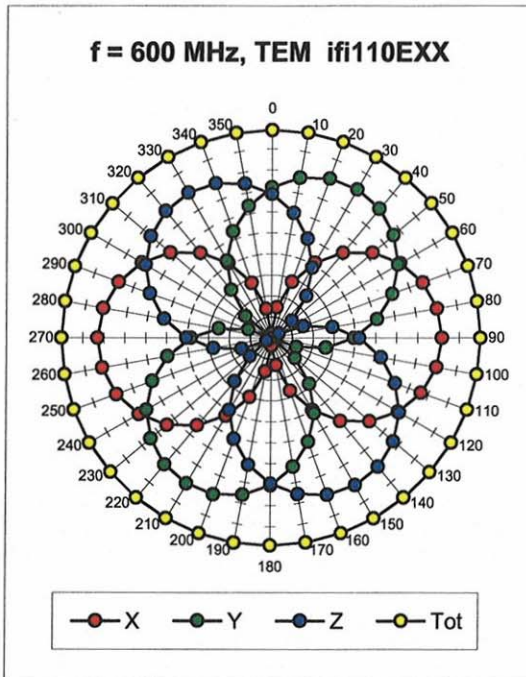
Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



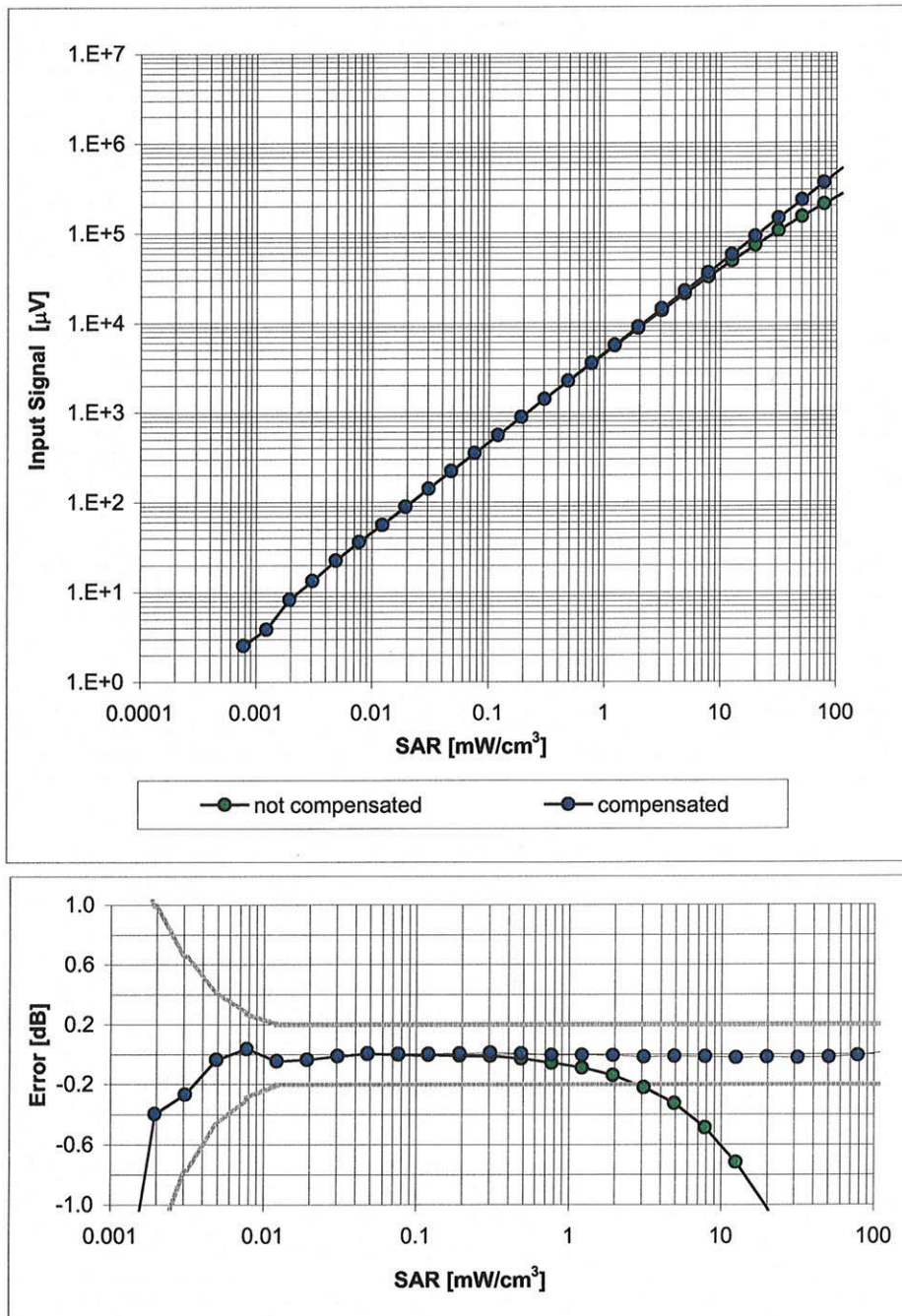
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

Receiving Pattern (ϕ), $\vartheta = 0^\circ$



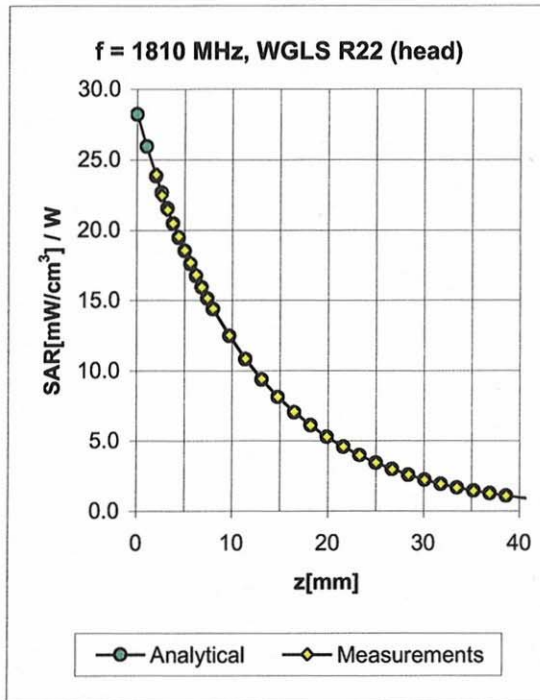
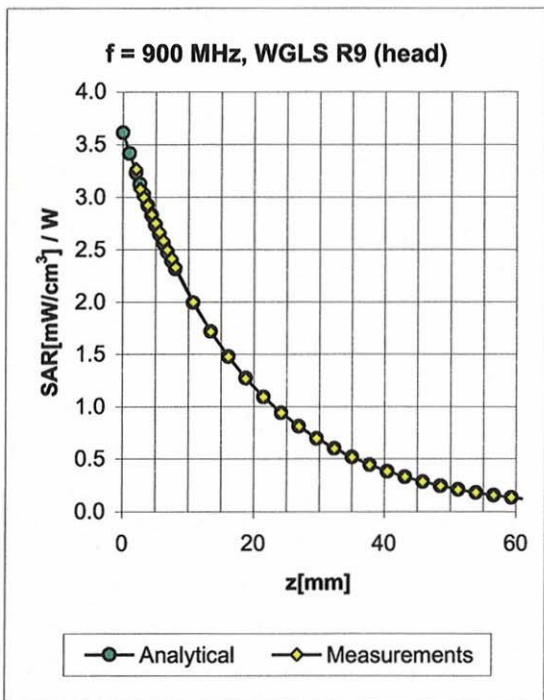
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range $f(\text{SAR}_{\text{head}})$ (Waveguide R22, $f = 1800 \text{ MHz}$)



Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment

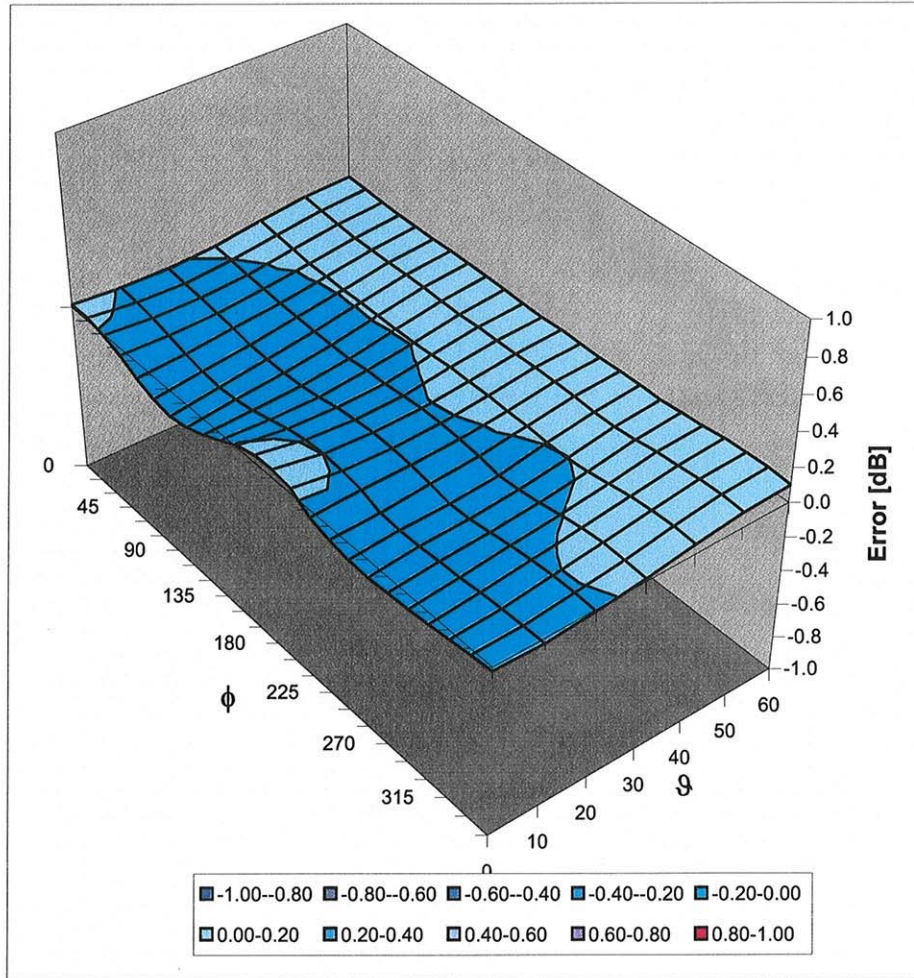


f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.95	1.18	6.03 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.84	1.31	4.98 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.81	1.33	4.80 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.95	1.18	4.51 ± 11.8% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.95	1.20	5.64 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.69	1.44	5.08 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.92	1.22	4.88 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.85	1.26	4.19 ± 11.8% (k=2)

^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

Deviation from Isotropy in HSL

Error (ϕ, θ), $f = 900$ MHz



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

Appendix 5

Measurement Uncertainty Budget

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	$e = f(d,k)$	<i>f</i>	<i>g</i>	$h = c \times f / e$	$i = c \times g / e$	<i>k</i>
Uncertainty Component	IEEE 1528 section	Tol. (\pm %)	Prob Dist	Div.	c_i (1 g)	c_i (10 g)	1 g u_i (\pm %)	10 g u_i (\pm %)	v_i
Measurement System									
Probe Calibration	E.2.1	5.9	N	1.00	1	1	5.9	5.9	∞
Axial Isotropy	E.2.2	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Boundary Effect	E.2.3	1.0	R	1.73	1	1	0.6	0.6	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1.0	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	0.3	N	1.00	1	1	0.3	0.3	∞
Response Time	E.2.7	1.1	R	1.73	1	1	0.6	0.6	∞
Integration Time	E.2.8	1.1	R	1.73	1	1	0.6	0.6	∞
RF Ambient Conditions - Noise	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1	0.0	R	1.73	1	1	0.0	0.0	∞
Probe Positioner Mech. Tolerance	E.6.2	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning w.r.t Phantom	E.6.3	1.4	R	1.73	1	1	0.8	0.8	∞
Max. SAR Evaluation (ext., int., avg.)	E.5	3.4	R	1.73	1	1	2.0	2.0	∞
Test sample Related									
Test Sample Positioning	E.4.2	3.2	N	1.00	1	1	3.2	3.2	29
Device Holder Uncertainty	E.4.1	4.0	N	1.00	1	1	4.0	4.0	8
SAR drift	6.6.2	5.0	R	1.73	1	1	2.9	2.9	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	E.3.1	4.0	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity (target)	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measurement)	E.3.3	3.3	N	1.00	0.64	0.43	2.1	1.4	∞
Liquid Permittivity (target)	E.3.2	5.0	R	1.73	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (measurement)	E.3.3	1.9	N	1.00	0.6	0.49	1.1	0.9	∞
Combined Standard Uncertainty			RSS				11.1	10.8	411
Expanded Uncertainty (95% CONFIDENCE LEVEL)			$k=2$				22.2	21.6	

Appendix 6

Dipole Characterization Certificate

Certification of System Performance Check Targets

Based on WI-0396

-Historical Data-

900MHz	
Reference Target:	10.9 (W/kg)
Measurement Uncertainty (k=1):	9.0%
Measurement Period:	18-April-07 to 14-April-08
# of tests performed:	1,125
Grand Average:	11.29 (W/kg)
% Delta (Average - Reference Target)	3.6%
Is % Delta <= Expanded Measurement Uncertainty (k=2)?	Yes
Accept/Reject Average as new system performance check target?	<u>ACCEPT</u>
<u>Applies to Dipole SN's:</u> 55, 69, 77, 78, 79, 80, 91, 92, 93, 94, 95, 96, 97, 1d034, 1d035	

-New System Performance Check Targets- per WI-0396

(based on analysis of historical data)

Frequency	SAR Target (W/kg)	Permittivity	Conductivity (S/m)
900MHz	11.29	41.5 ± 5%	0.97 ± 5%

-Approvals-

Submitted by: Date:

Signed: 

Comments:

Approved by: Date:

Signed: 

Comments:

Certification of System Performance Check Targets

Based on WI-0396

-Historical Data-

1800MHz	
Reference Target:	38.4 (W/kg)
Measurement Uncertainty (k=1):	9.0%
Measurement Period:	18-April-07 to 14-April-08
# of tests performed:	1,028
Grand Average:	37.7 (W/kg)
% Delta (Average - Reference Target)	-1.7%
Is % Delta <= Expanded Measurement Uncertainty (k=2)?	Yes
Accept/Reject <u>Average</u> as new system performance check target?	ACCEPT
<u>Applies to Dipole SN's:</u> 246tr, 250tr, 251tr, 259tr, 263tr, 271tr, 272tr, 276tr, 277tr, 279tr, 280tr, 281tr, 283tr, 284tr, 2d128, 2d129	

-New System Performance Check Targets- per WI-0396

(based on analysis of historical data)

Frequency	SAR Target (W/kg)	Permittivity	Conductivity (S/m)
1800MHz	37.7	40.0 ± 5%	1.40 ± 5%

-Approvals-

Submitted by: Date:

Signed: 

Comments:

Approved by: Date:

Signed: 

Comments:

Certification of System Performance Check Targets

Based on WI-0396

-Historical Data-

2450MHz	
Reference Target:	52.4 (W/kg)
Measurement Uncertainty (k=1):	9.0%
Measurement Period:	18-April-07 to 14-April-08
# of tests performed:	77
Grand Average:	56.5 (W/kg)
% Delta (Average - IEEE1528 Target)	7.8%
Is % Delta <= Expanded Measurement Uncertainty (k=2)?	Yes
Accept/Reject <u>Average</u> as new system performance check target?	ACCEPT
<u>Applies to Dipole SN's:</u> 740, 766, 767, 788, 789	

-New System Performance Check Targets- per WI-0396
 (based on analysis of historical data)

Frequency	SAR Target (W/kg)	Permittivity	Conductivity (S/m)
2450MHz	56.5	39.2 ± 5%	1.80 ± 5%

-Approvals-

Submitted by: Date:

Signed: 

Comments:

Approved by: Date:

Signed: 

Comments:

END OF REPORT