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SAR Test Report of Portable Cellular Phone FCC ID: PY7AF042011 Model : W712a

Date of test: June 11 – June 14, 2006
Date of Report: June 27, 2006

Laboratory: SAR Testing Laboratory Sony Ericsson Mobile Communications, Inc. 7001
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Test Responsible: Gerard Hayes *Gerard Hayes 27 June 2006*
 Technical Manager

Accreditation: This laboratory is accredited to ISO/IEC 17025-1999 to perform the following
 electromagnetic exposure tests:
 Specific Absorption Rate (SAR)
 Dielectric parameters
 RF power measurement



On the following types of products:
 Wireless communications devices. A2LA certificate #1650-01

Statement of Compliance: Sony Ericsson Mobile Communications, Inc declares under its sole responsibility that portable cellular telephone FCC ID PY7AF042011 model W712a 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). It also declares that the product was tested in accordance with the appropriate measurement standards, guidelines and recommended practices. Any deviations from these standards, guidelines and recommended practices are noted below:

(none)

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This test report shall not be reproduced except in full, without written approval of the laboratory.

The results and statements contained herein relate only to the items tested. The names of individuals involved may be mentioned only in connection with the statements or results from this report.

Sony Ericsson Mobile Communications encourages all feedback, both positive and negative, on this test report.



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1. Introduction

The Sony Ericsson SAR Laboratory has performed measurements of the maximum potential exposure to the user of portable cellular phone FCC ID PY7AF042011 model W712a. The Specific Absorption Rate (SAR) of this product was measured. The applicable RF safety guidelines and the SAR measurement specifications used for the test are described in [1].

2. Description of the Device Under Test

2.1 Antenna description

Type	External Stub	
Location	Hinge area	
Dimensions	Width	7 (diameter) mm
	Height	15mm
Configuration	Monopole	

2.2 Device description

FCC ID Number / Device Model		PY7AF042011 / W712a			
Serial number		BDX0000NEX		BDX0000NCZ	
Mode(s) of Operation		GSM 800		GSM 1900	
Modulation Mode(s)		TDMA		TDMA	
Transmitting Frequency Rang(s)		824-849 MHz		1850-1910 MHz	
Calibration Frequency (f_{low} , f_{mid} , f_{high})		f_{low}		f_{mid}	
Target Value and Factory Tolerance Window for Maximum Output Power Setting	f_{low}	32.0 dBm +/- 0.2 dB	f_{low}	29.9 dBm +/- 0.2 dB	
	f_{mid}	32.0 dBm +/- 0.3dB	f_{mid}	30.0 dBm +/- 0.2 dB	
	f_{high}	32.0 dBm +/- 0.4dB	f_{high}	30.0 dBm +/- 0.2 dB	
GSM Mode: 1/8 Duty Cycle					
GPRS Mode: 2/8 Duty Cycle	f_{low}	32.0 dBm +/- 0.2 dB	f_{low}	29.9 dBm +/- 0.2 dB	
	f_{mid}	32.0 dBm +/- 0.3 dB	f_{mid}	30.0 dBm +/- 0.2 dB	
	f_{high}	32.0 dBm +/- 0.4 dB	f_{high}	30.0 dBm +/- 0.2 dB	
EPRS Mode: 2/8 Duty Cycle, 8-PSK	f_{low}	27.0 dBm +/- 1.0 dB	f_{low}	26.0 dBm +/- 1.2 dB	
	f_{mid}	27.0 dBm +/- 1.2 dB	f_{mid}	26.0 dBm +/- 1.0 dB	
	f_{high}	27.0 dBm +/- 1.2 dB	f_{high}	26.0 dBm +/- 1.2 dB	

Production Unit or Identical Prototype (47 CFR §2.908)	Identical Prototype
Device Category	Portable
RF Exposure Limits	General Population / Uncontrolled



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3. Test Equipment Used

3.1 Dosimetric System

The Sony Ericsson SAR Laboratory utilizes Dosimetric Assessment Systems (Dasy4™) manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. The overall RSS uncertainty of the measurement system is $\pm 9.7\%$ (K=1) with an expanded uncertainty of $\pm 19.5\%$ (K=2) for Dasy4™. The measurement uncertainty budget is given in Appendix 5 for both systems. The list of calibrated equipment used for the measurements is shown in the following table.

Description	Serial Number	Cal Due Date
DASY3 DAE V1	345	10-Nov-2006
DASY3 DAE V1	416	10-Nov-2006
E-Field Probe ETDV6	1583	22-Nov-2006
E-Field Probe ETDV6	1539	22-Nov-2006
Dipole Validation Kit, DV835V2	429	21-Nov-2006
Dipole Validation Kit, DV1900V2	537	15-Nov-2006
S.A.M. Phantom used for 835MHz (Head)	1251	
S.A.M. Phantom used for 835MHz (Body)	1031	
S.A.M. Phantom used for 1900MHz (Head)	1335	
S.A.M. Phantom used for 1900MHz (Body)	1020	

3.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3537A01598	August 30, 2006
Power Meter 437B	3125U16382	December 5, 2006
Power Meter 437B	3110A05257	March 28, 2007
Power Sensor - 8482H	2704A06235	December 30, 2006
Power Sensor - 8482H	MY41090239	March 28, 2007
Dielectric Probe Kit HP85070B	US33020390	April 4, 2007
Digital Thermometer 61220-601 And Probe (61220-604)	350078	November 9, 2006
Digital Hygrometer/ Thermometer	21242911	November 9, 2006
HP RF Amplifier 8347A	3307A1069	May 16, 2007



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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 the dielectric probe kit. These values, along with the temperature of the simulated tissue are shown in the table below. 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 [1]. During all of the tests represented in this report, the ambient temperature of the laboratory was in the range 22.1-23.2°C, the relative humidity was 39.9%- 44.3 %, and the liquid depth above the ear and body reference points was more than 15.0 cm for all the cases. It is seen that the following measured parameters are satisfactory for compliance testing.

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			ϵ_r	σ (S/m)	Simulated Tissue Temp (°C)
835	Head	Measured, 11-June-06	41.23	0.899	22.7
		Measured, 12-June-06	41.09	0.898	22.5
		Recommended Limits	41.50	0.90	20-25
	Body	Measured, 14-June-06	52.75	0.997	22
		Recommended Limits	55.20	0.97	20-25
1900	Head	Measured, 11-June-06	38.74	1.471	23.1
		Measured, 12-June-06	38.84	1.471	22.4
		Recommended Limits	40.00	1.40	20-25
	Body	Measured, 13-June-06	51.52	1.52	22.7
		Recommended Limits	53.30	1.52	20-25

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

Ingredient	800/900 MHz Head 900MHz Body	800MHz Body	1800/1900 MHz Head 1800MHz Body	1900MHz Body
Sugar	57.99%	56.00%	--	--
DGBE	--	--	44.92%	30.82%
Water	39.72%	41.76%	54.90%	68.89%
Salt	1.18%	0.76%	0.18%	0.29%
HEC	0.92%	1.21%	--	--
Bact.	0.19%	0.27%	--	--



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5. System Accuracy Verification

A system accuracy verification of the DASY4TM 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 see if the measured SAR was within +/- 10% from the target SAR indicated on the dipole certification sheet. These tests were done at 835MHz/900MHz and/or 1800MHz/1900MHz. These frequencies are within 100MHz of the mid-band frequency of the test device, according to [1]. The test was conducted on the same days as the measurement of the DUT. The results from the system accuracy verification are displayed in the table below (SAR values are normalized to 1W forward power delivered to the dipole). During all of the tests represented in this report, the ambient temperature of the laboratory was in the range 22.1-23.2°C, the relative humidity was 39.9%- 44.3 %, and the liquid depth above the ear and body reference points was more than 15.0 cm for all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values. The SAR distributions are shown in Appendix 1.

Daily, prior to conducting tests, measurements were made with the RF sources powered off to determine the system noise level. The highest system noise was 0.00099 W/kg, which is below the recommended limit in [1].

f (MHz)	Tissue Type	Description	SAR (W/kg) 1g / 10g		Dielectric Parameters		Tissue Temp (°C)
					e _r	s (S/m)	
835	Head	Measured, 11-June-06	9.0	5.9	41.23	0.899	22.7
		Measured, 12-June-06	8.8	5.7	41.09	0.898	22.5
		Recommended Limits	9.50	6.20	41.50	0.90	20-25
	Body	Measured, 14-June-06	9.5	6.3	52.75	0.997	22
		Recommended Limits	9.90	6.46	55.20	0.97	20-25
1900	Head	Measured, 11-June-06	42.2	22.1	38.74	1.471	23.1
		Measured, 12-June-06	42.4	22.2	38.84	1.471	22.4
		Recommended Limits	39.70	20.50	40.00	1.40	20-25
	Body	Measured, 13-June-06	41	22.1	51.52	1.52	22.7
		Recommended Limits	40.50	20.89	53.30	1.52	20-25



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6. Test Results

For head measurements (with a 1/8 GSM duty cycle), the sample was operated using test software that allows the control of the transmitter. For body measurements (2/8 EGPRS duty cycle), the test sample was operated using a base station simulator that allows control of the transmitter using the signally software installed on the handset. For the purposes of these tests, the unit is commanded to set to the proper channel, transmitter power level and transmit mode of operation. The phone was tested in the configurations stipulated in [1,2]. The phone was positioned into these configurations using the positioner supplied with the DASY SAR measurement system.

The Cellular Phone FCC ID PY7AF042011 has the following battery option:
BKB 193 203 (BST-37) Standard Lithium Polymer Battery

The phone was placed in the SAR measurement system with a fully charged battery.

6.1 Head Adjacent Test Results

The SAR results shown in Tables 1 and 2 are maximum SAR values averaged over 1 gram and 10 grams of phantom tissue. Also shown are the measured conducted output powers, the temperature of the test facility during the test, the temperature of the simulated tissue, the measured drift, and the extrapolated SAR. The extrapolated SAR corresponds to the measured SAR scaled to the maximum conducted output power.

During all of the tests represented in this report, the ambient temperature of the laboratory was in the range 22.1-23.2°C, the relative humidity was 39.9%- 44.3 %, and the liquid depth above the ear and body reference points was more than 15.0 cm for all the cases. The SAR measurements were performed using the SAM phantoms listed in section 3.1.

The test conditions indicated as bold numbers in the following table are included in Appendix 2. All other test conditions measured lower SAR values than those included.

Summary of Maximum Extrapolated SAR Results : Head Adjacent			
Frequency	Extrapolated SAR (W/kg)		Test Configuration
	1 g	10 g	
800 GSM	0.67	0.45	Right head, cheek/touch position, 849 MHz BST-37 battery
1900 GSM	0.91	0.42	Right head, cheek/touch position, 1850 MHz BST-37 battery, Bluetooth on



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f (MHz)	Channel/ frequency	Conducted Output Power (dBm) GSM 1:8 Duty Cycle	FCC ID PY7AF042011 with Standard Battery BST-37							
			Left Head (Cheek / Touch Position) Stub Antenna							
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambient Temp (°C)	Simulant Temp (°C)	
800 GSM	128 / 824	32.2	0.248	0.172	-0.18	0.25	0.17	22.5	22.7	
	189 / 837	32.3	0.357	0.248	0.09	0.36	0.25			
	251 / 849	32.3	0.561	0.391	0.00	0.56	0.39			
1900 GSM	512 / 1850	30.0	0.574	0.283	0.16	0.57	0.28	23.2	23.1	
	660/1880	30.2	0.523	0.256	-0.10	0.52	0.26			
	810/1910	30.5	0.481	0.237	0.03	0.48	0.24			
f (MHz)	Channel/ frequency	Conducted Output Power (dBm) GSM 1:8 Duty Cycle	FCC ID PY7AF042011 with Standard Battery BST-37							
			Left Head (15° Tilt Position) Stub Antenna							
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambient Temp (°C)	Simulant Temp (°C)	
800 GSM	128 / 824	32.2	0.077	0.058	-0.02	0.08	0.06	22.6	22.7	
	189 / 837	32.3	0.099	0.074	0.03	0.10	0.07			
	251 / 849	32.3	0.144	0.107	0.00	0.14	0.11			
1900 GSM	512 / 1850	30.0	0.044	0.030	-0.04	0.04	0.03	23.2	23	
	660/1880	30.2	0.043	0.029	0.01	0.04	0.03			
	810/1910	30.5	0.059	0.038	-0.07	0.06	0.04			

Table 1: SAR measurement results for the portable cellular telephone FCC ID PY7AF042011 model W712a at maximum output power with Standard Battery BST-37. Measured against the left head .



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f (MHz)	Channel/ frequency	Conducted Output Power (dBm) GSM 1:8 Duty Cycle	FCC ID PY7AF042011 with Standard Battery BST-37						
			Right Head (Cheek / Touch Position) Stub Antenna						
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambient Temp (°C)	Simulate Temp (°C)
800 GSM Bluetooth On	128 / 824	32.2	0.310	0.201	0.03	0.31	0.20	22.7	22.5
	189 / 837	32.3	0.429	0.284	0.02	0.43	0.28		
	251 / 849	32.3	0.667	0.445	-0.02	0.67	0.45		
	251 / 849	32.3	0.65	0.44	0.03	0.65	0.44	22.7	22.5
1900 GSM Bluetooth On	512 / 1850	30.0	0.903	0.417	-0.056	0.90	0.42	22.3	22.4
	660/1880	30.2	0.817	0.376	-0.10	0.82	0.38		
	810/1910	30.5	0.729	0.340	-0.03	0.73	0.34		
	512 / 1850	30.0	0.91	0.42	0.0	0.91	0.42	22.4	22.4
f (MHz)	Channel/ frequency	Conducted Output Power (dBm) GSM 1:8 Duty Cycle	FCC ID PY7AF042011 with Standard Battery BST-37						
			Right Head (15° Tilt Position) Stub Antenna						
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambient Temp (°C)	Simulate Temp (°C)
800 GSM	128 / 824	32.2	0.078	0.059	-0.03	0.08	0.06	22.6	22.5
	189 / 837	32.3	0.098	0.074	-0.03	0.10	0.07		
	251 / 849	32.3	0.142	0.106	-0.01	0.14	0.11		
1900 GSM	512 / 1850	30.0	0.054	0.034	-0.04	0.05	0.03	22.4	22.4
	660/1880	30.2	0.054	0.034	-0.15	0.05	0.03		
	810/1910	30.5	0.063	0.041	-0.06	0.06	0.04		

Table 2: SAR measurement results for the portable cellular telephone FCC ID PY7AF042011 model W712a at maximum output power with Standard Battery BST-37. Measured against the right head .



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6.2 Body-Worn Test Results

The SAR results shown in Tables 3 and 4 are the maximum SAR values averaged over 1 gram and 10 grams of phantom tissue. Also shown are the measured conducted output powers, the temperature of the test facility during the test, the temperature of the simulated tissue after the test, the measured drift and the extrapolated SAR. The extrapolated SAR corresponds to the measured SAR scaled to the maximum conducted output power. During all of the tests represented in this report, the ambient temperature of the laboratory was in the range 22.1-23.2°C, the relative humidity was 39.9%- 44.3 % and the liquid depth above the ear and body reference points was more than 15.0 cm for all the cases.

A “flat” phantom was used for the body-worn tests. This “flat” phantom corresponds to the flat portion of the SAM phantom. The same device holder described in section 6 was used for positioning the phone. The cellular phone was tested with a headset (HBP-20) connected to the device for all body-worn SAR measurements.

The following body-worn accessories were tested for this phone:

ICE-26 Carry Case
IAC-60

A full data set output of the test conditions with the highest SAR values from the DASY™ measurement system is included as Appendix 3. These test conditions included are indicated as bold numbers in the following tables. All other test conditions measured lower SAR values than those included.

Summary of Maximum Extrapolated SAR Results: Body-worn			
Frequency	Extrapolated SAR (W/kg)		Test Configuration
	1 g	10 g	
800 GSM	0.92	0.64	ICE-26 Carry Accessory, back of phone facing body, 849 MHz, 2:8 Duty Cycle, BST-37 battery
1900 GSM	0.54	0.31	ICE-26 Carry Accessory, back of phone facing body, 1910 MHz, 2:8 Duty Cycle BST-37 battery



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f (MHz)	Operating Condition	Channel/ frequency	Conduc ted Output Power (dBm)	FCC ID PY7AF042011 with Standard Battery BST-37						
				Body Worn Carry Accessory: ICE-26 Carry Case						
				Back of phone facing body w/ Stub Antenna						
				Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g	Ambient Temp (°C)	Simulate Temp (°C)		
Back of phone facing body										
800 GSM	2:8 Duty Cycle	128 / 824	32.2	0.734	0.512	-0.03	0.73	0.51	22.1	22
		189 / 837	32.3	0.759	0.529	0.02	0.76	0.53		
		251 / 849	32.3	0.919	0.638	0.02	0.92	0.64		
Bluetooth On		251 / 849	32.3	0.82	0.57	-0.01	0.82	0.57	22.3	22.1
1900 GSM	2:8 Duty Cycle	512 / 1850	30.0	0.449	0.280	-0.06	0.45	0.28	22.8	22.7
		660/1880	30.2	0.470	0.284	-0.03	0.47	0.28		
		810/1910	30.5	0.536	0.314	0.00	0.54	0.31		
Bluetooth On		810/1910	30.5	0.41	0.24	-0.03	0.41	0.24	22.7	22.6
Front of phone facing body										
800 GSM	2:8 Duty Cycle	128 / 824	32.2	0.163	0.119	-0.02	0.16	0.12	22.1	22.1
		189 / 837	32.3	0.237	0.172	0.03	0.24	0.17		
		251 / 849	32.3	0.286	0.207	0.06	0.29	0.21		
1900 GSM	2:8 Duty Cycle	512 / 1850	30.0	0.279	0.186	-0.01	0.28	0.19	22.5	22.6
		660/1880	30.2	0.257	0.167	-0.14	0.26	0.17		
		810/1910	30.5	0.225	0.145	-0.19	0.23	0.15		

Table 3: SAR measurement results for the portable cellular telephone FCC ID PY7AF042011 model W712a at maximum output power with Standard Battery BST-37. Measured against the body with carry accessory ICE-26 w/Stub Antenna.

f (MHz)	Operating Condition	Channel/ frequency	Conduc ted Output Power (dBm)	FCC ID PY7AF042011 with Standard Battery BST-37						
				Body Worn Carry Accessory: IAC-60 Carry Case						
				Back of phone facing body w/ Stub Antenna						
				Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g	Ambient Temp (°C)	Simulate Temp (°C)		
Back of phone facing body										
800 GSM	2:8 Duty Cycle	128 / 824	32.2	0.486	0.341	-0.04	0.49	0.34	22.3	22.1
		189 / 837	32.3	0.591	0.418	-0.03	0.59	0.42		
		251 / 849	32.3	0.677	0.473	0.03	0.68	0.47		
1900 GSM	2:8 Duty Cycle	512 / 1850	30.0	0.408	0.267	-0.05	0.41	0.27	22.7	22.6
		660/1880	30.2	0.329	0.207	0.01	0.33	0.21		
		810/1910	30.5	0.437	0.261	-0.02	0.44	0.26		

Table 4: SAR measurement results for the portable cellular telephone FCC ID PY7AF042011 model W712a at maximum output power with Standard Battery BST-37. Measured against the body with carry accessory IAC-60 w/Stub Antenna.



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References

- [1] FCC, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields: Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions," Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01).
- [2] IEEE, "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques," Std 1528-200X, Draft 6.5 – August 20, 2001.

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Appendix 1**SAR distribution comparison for the system accuracy verification**



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835 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on June 11, 2006 (Using head tissue).

Validation_835Head_429_1251_11June06_T01

File Name: [Validation_835Head_429_1251_11June06_T01.da4](#)

Phantom: SAM with CRP (Low Band Head) Phantom section: Flat Section

Probe: ET3DV6 - SN1583ConvF(6.82, 6.82, 6.82) Duty Cycle: 1:1 Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $s = 0.9 \text{ mho/m}$; $\epsilon_r = 41.2$; $\rho = 1000 \text{ kg/m}^3$

Measurement Standard: DASy4 (High Precision Assessment)

Dipole at 10 mm/Area Scan (61x61x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.975 mW/g

Dipole at 10 mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 34.0 V/m; Power Drift = -0.006 dB

Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 0.912 mW/g; SAR(10 g) = 0.594 mW/g

Maximum value of SAR (measured) = 0.980 mW/g

Dipole at 10 mm/Zoom Scan 2 (9x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 34.0 V/m; Power Drift = -0.006 dB

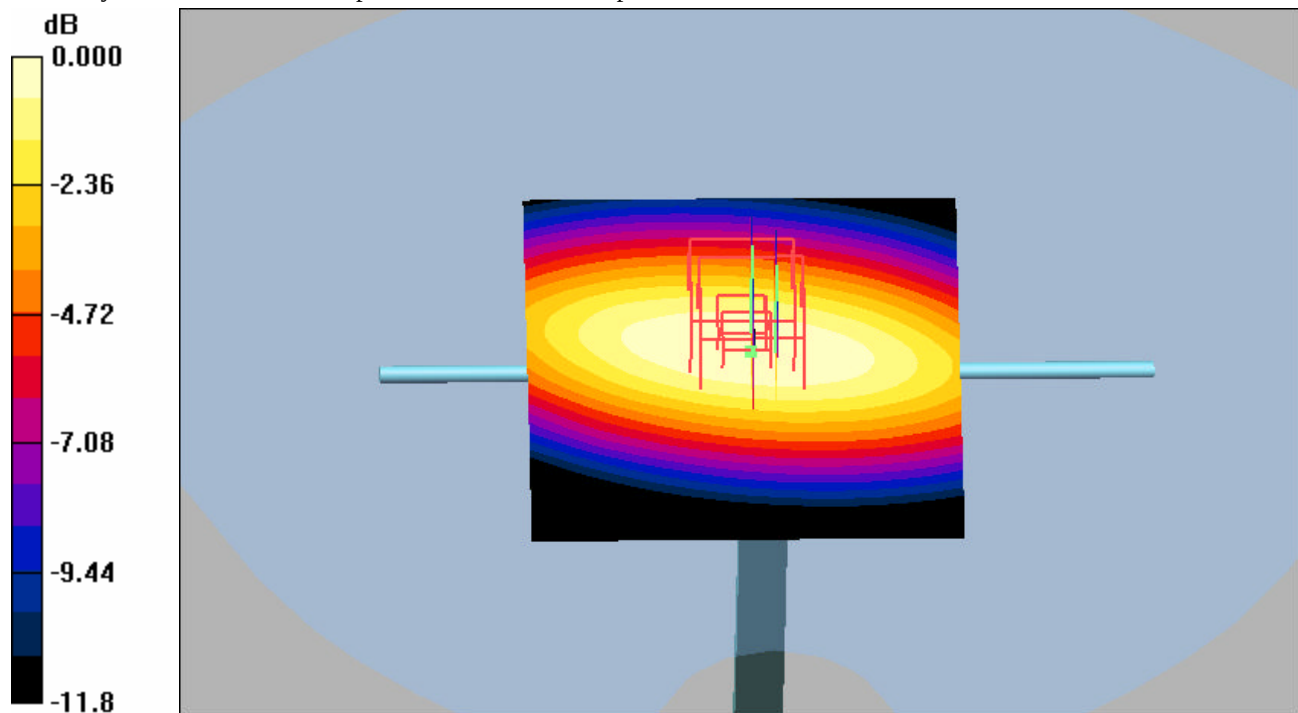
Peak SAR (extrapolated) = 1.36 W/kg

SAR(1 g) = 0.889 mW/g; SAR(10 g) = 0.579 mW/g

Maximum value of SAR (measured) = 0.958 mW/g

Procedure Notes: Pin: before 100.1 mW / after 100.3 mW

Humidity: 43.4% Ambient Temp: 22.5 C Simulant Temp: 22.7 C



0 dB = 0.958mW/g



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835 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on June 12, 2006 (Using head tissue).

Validation_835Head_429_1251_12June06_T01

File Name: [Validation_835Head_429_1251_12June06_T01.da4](#)

Phantom: SAM with CRP (Low Band Head) Phantom section: Flat Section

Probe: ET3DV6 - SN1583ConvF(6.82, 6.82, 6.82) Duty Cycle: 1:1 Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $s = 0.898 \text{ mho/m}$; $\epsilon_r = 41.1$; $\rho = 1000 \text{ kg/m}^3$

Measurement Standard: DASY4 (High Precision Assessment)

Dipole at 10 mm/Area Scan (61x61x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.944 mW/g

Dipole at 10 mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 33.3 V/m ; Power Drift = 0.012 dB

Peak SAR (extrapolated) = 1.32 W/kg

SAR(1 g) = 0.879 mW/g ; SAR(10 g) = 0.572 mW/g

Maximum value of SAR (measured) = 0.946 mW/g

Dipole at 10 mm/Zoom Scan 2 (9x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

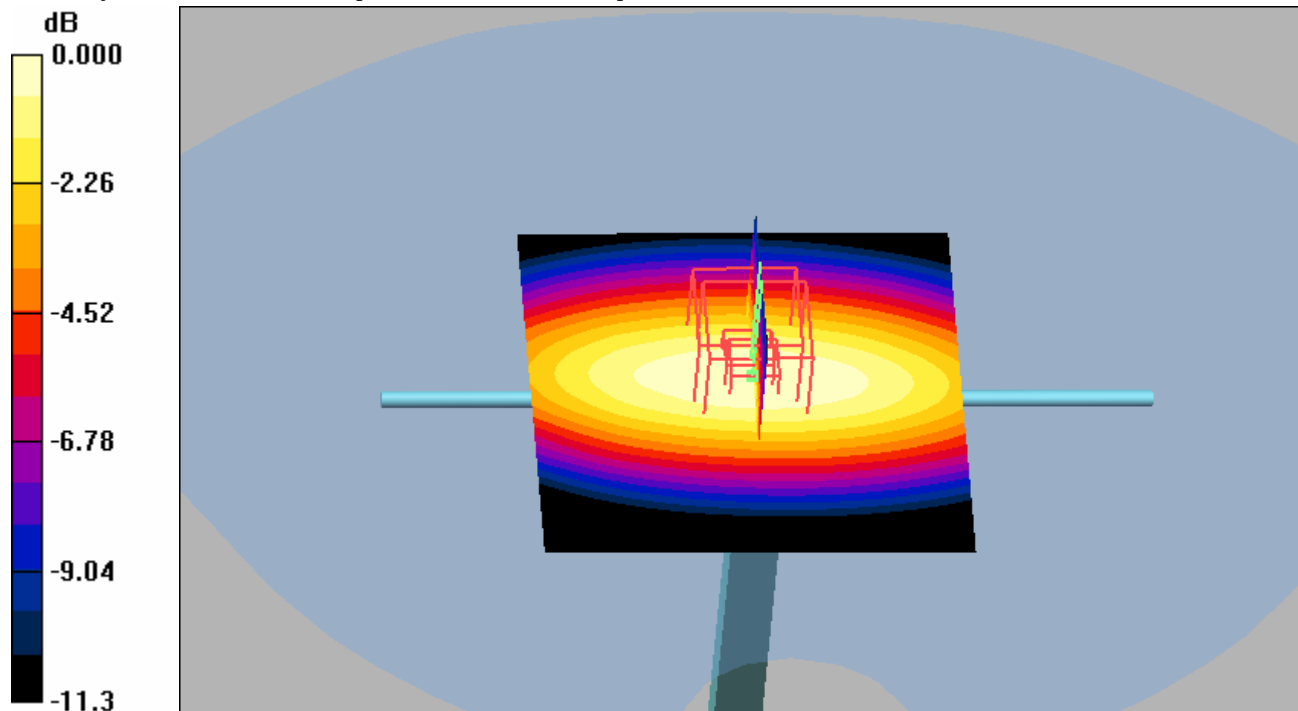
Reference Value = 33.3 V/m ; Power Drift = 0.012 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.885 mW/g ; SAR(10 g) = 0.576 mW/g

Procedure Notes: Pin: before 100.2 mW / after 100.3 mW

Humidity: 42.6% Ambient Temp: 22.7 C Simulant Temp: 22.5 C



0 dB = 0.946 mW/g



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835 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on June 14, 2006 (Using body tissue).

Validation_835Body_429_1031_14June06_T01

File Name: [Validation_835Body_429_1031_14June06_T01.da4](#)

Phantom: SAM with CRP (Low Band Body) Phantom section: Flat Section

Probe: ET3DV6 - SN1583ConvF(6.53, 6.53, 6.53) Duty Cycle: 1:1 Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $s = 0.997 \text{ mho/m}$; $\epsilon_r = 52.8$; $\rho = 1000 \text{ kg/m}^3$

Measurement Standard: DASY4 (High Precision Assessment)

Dipole at 10 mm/Area Scan (61x61x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.04 mW/g

Dipole at 10 mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 33.4 V/m ; Power Drift = 0.009 dB

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.963 mW/g ; SAR(10 g) = 0.632 mW/g

Maximum value of SAR (measured) = 1.04 mW/g

Dipole at 10 mm/Zoom Scan 2 (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 33.4 V/m ; Power Drift = 0.009 dB

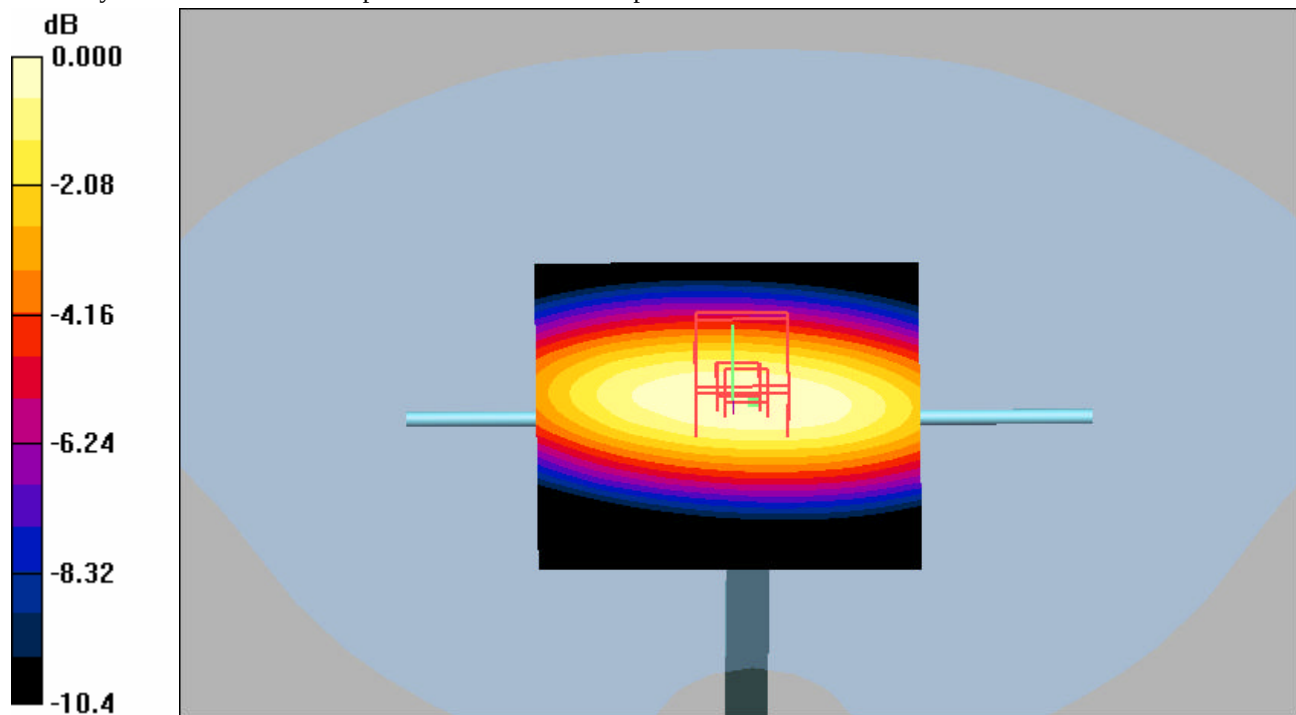
Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 0.939 mW/g ; SAR(10 g) = 0.616 mW/g

Maximum value of SAR (measured) = 1.01 mW/g

Procedure Notes: Pin: before 99.7 mW / after 99.8 mW

Humidity - 41.6% Ambient Temp - 22.1 C Simulant Temp - 22 C



0 dB = 1.01 mW/g



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1900 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on June 11, 2006 (Using head tissue).

Validation_1900Head_537_1335_11June06_T01

File Name: [Validation_1900Head_537_1335_11June06_T01.da4](#)

Phantom: SAM with CRP (High Band Head) Phantom section: Flat Section

Probe: ET3DV6 - SN1539ConvF(4.55, 4.55, 4.55) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $s = 1.47$ mho/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Measurement Standard: DASY4 (High Precision Assessment)

Dipole at 10 mm/Area Scan (61x61x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 5.38 mW/g

Dipole at 10 mm/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 60.6 V/m; Power Drift = -0.032 dB

Peak SAR (extrapolated) = 7.31 W/kg

SAR(1 g) = 4.26 mW/g; SAR(10 g) = 2.24 mW/g

Maximum value of SAR (measured) = 4.80 mW/g

Dipole at 10 mm/Zoom Scan 2 (7x9x7)/Cube 0:

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

Reference Value = 60.6 V/m; Power Drift = -0.032 dB

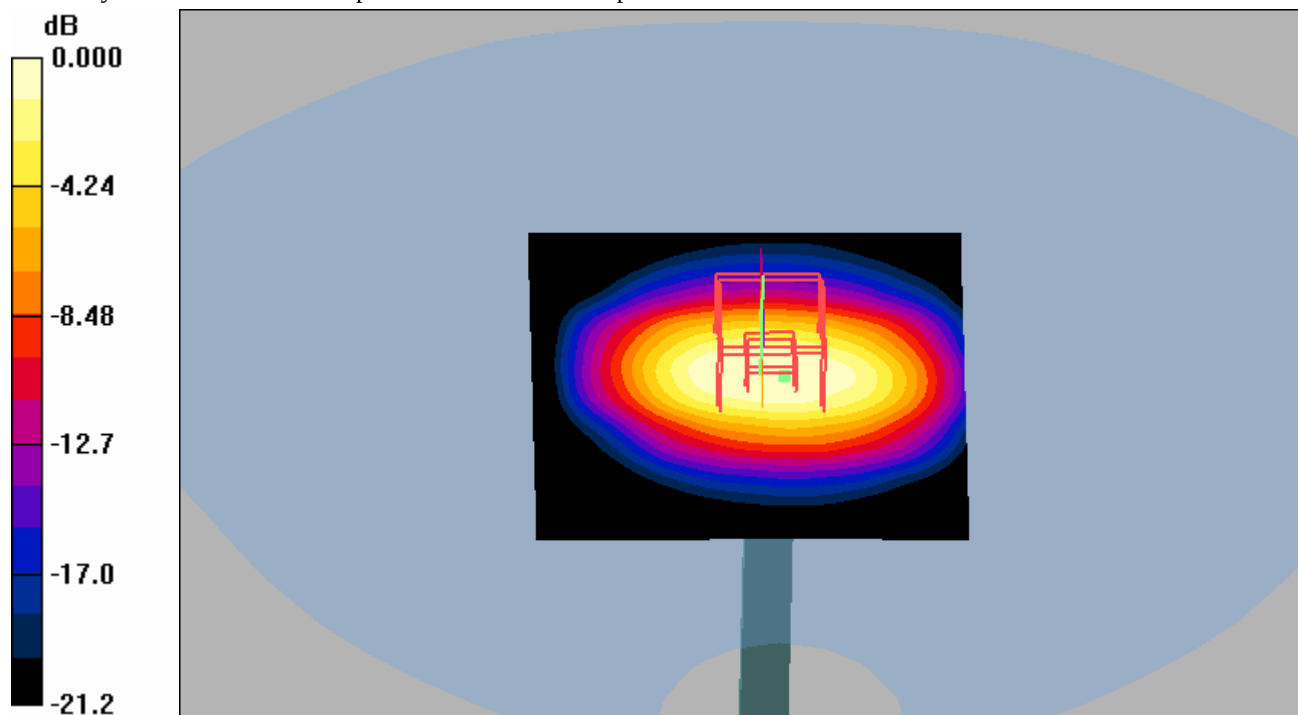
Peak SAR (extrapolated) = 7.37 W/kg

SAR(1 g) = 4.21 mW/g; SAR(10 g) = 2.2 mW/g

Maximum value of SAR (measured) = 4.61 mW/g

Procedure Notes: Pin: before 100.4 mW / after 100.1 mW

Humidity: 39.9% Ambient Temp: 23.2 C Simulant Temp: 23.1 C



0 dB = 4.61mW/g



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1900 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on June 12, 2006 (Using head tissue).

Validation_1900Head_537_1335_12June06_T01

File Name: [Validation_1900Head_537_1335_12June06_T01.da4](#)

Phantom: SAM with CRP (High Band Head) Phantom section: Flat Section

Probe: ET3DV6 - SN1539ConvF(4.55, 4.55, 4.55) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $s = 1.47$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Measurement Standard: DASY4 (High Precision Assessment)

Dipole at 10 mm/Area Scan (61x61x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 5.36 mW/g

Dipole at 10 mm/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 61.0 V/m; Power Drift = 0.008 dB

Peak SAR (extrapolated) = 7.40 W/kg

SAR(1 g) = 4.27 mW/g; SAR(10 g) = 2.24 mW/g

Maximum value of SAR (measured) = 4.82 mW/g

Dipole at 10 mm/Zoom Scan 2 (7x9x7)/Cube 0:

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

Reference Value = 61.0 V/m; Power Drift = 0.008 dB

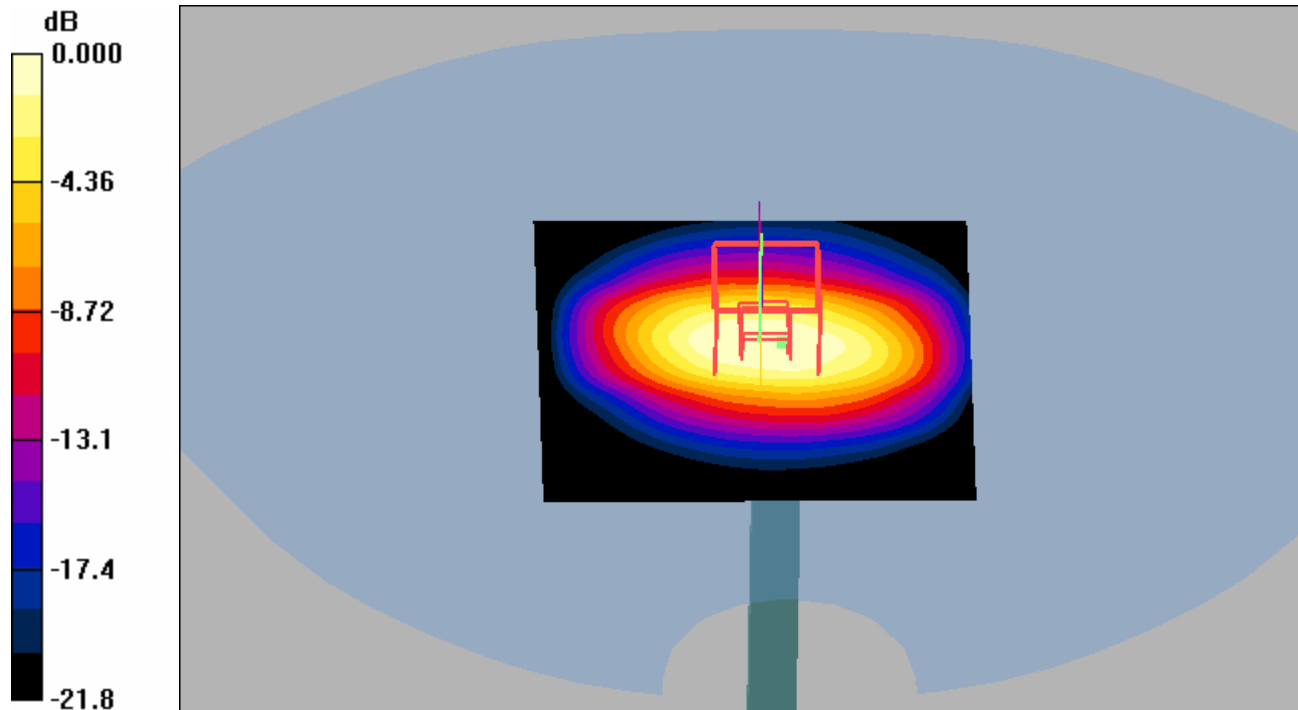
Peak SAR (extrapolated) = 7.41 W/kg

SAR(1 g) = 4.23 mW/g; SAR(10 g) = 2.21 mW/g

Maximum value of SAR (measured) = 4.75 mW/g

Procedure Notes: Pin: before 100.4 mW / after 100.3 mW

Humidity: 42.2% Ambient Temp: 22.1 C Simulant Temp: 22.4 C



0 dB = 4.75mW/g



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1900 MHz SAR Distribution of Validation Dipole Antenna

System Performance Check on June 6, 2005 (Using body tissue).**Validation_1900Body_537_1020_13June06_T01**File Name: [Validation_1900Body_537_1020_13June06_T01.da4](#)

Phantom: SAM with CRP (High Band Body) Phantom section: Flat Section

Probe: ET3DV6 - SN1583ConvF(4.46, 4.46, 4.46) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $s = 1.52$ mho/m; $\epsilon_r = 51.5$; $\rho = 1000$ kg/m³

Measurement Standard: DASY4 (High Precision Assessment)

Dipole at 10 mm/Area Scan (61x61x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 5.09 mW/g

Dipole at 10 mm/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 57.9 V/m; Power Drift = 0.002 dB

Peak SAR (extrapolated) = 6.80 W/kg

SAR(1 g) = 4.08 mW/g; SAR(10 g) = 2.2 mW/g

Maximum value of SAR (measured) = 4.60 mW/g

Dipole at 10 mm/Zoom Scan 2 (7x7x7)/Cube 0:

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

Reference Value = 57.9 V/m; Power Drift = 0.002 dB

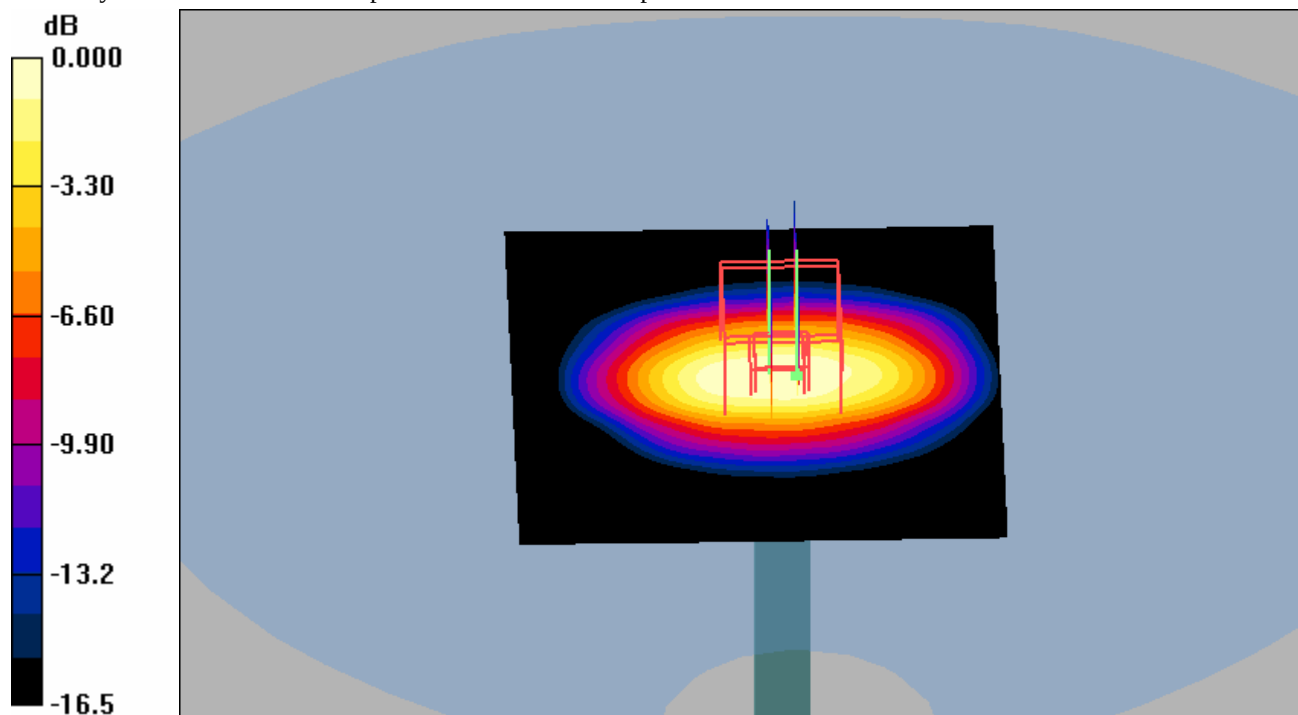
Peak SAR (extrapolated) = 6.82 W/kg

SAR(1 g) = 4.11 mW/g; SAR(10 g) = 2.21 mW/g

Maximum value of SAR (measured) = 4.64 mW/g

Procedure Notes: Pin: before 99.5 mW / after 100.1 mW

Humidity - 40.7 % Ambient Temp - 22.8 C Simulant Temp - 22.7 C



0 dB = 4.64mW/g

**Sony Ericsson**

REPORT

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Appendix 2**SAR distribution plots for Phantom Head Adjacent Use**



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800 GSM Band: SAR Distribution and Extrapolation of Maximum SAR**Model: W712a SN: BDX0000NEX with Standard Battery: BST-37****Right Side, Cheek/Touch Position**

Date/Time: 6/12/2006 8:32:26 AM

File Name: [12June06_W712a_GSM850_0NEX_RC01.da4](#)**DUT: W712**

Program Notes: Battery - BST37 Humidity - 42.6% Ambient Temp - 22.7 C Simulant Temp - 22.5 C

Communication System: GSM 850; Frequency: 849 MHz; Duty Cycle: 1:8.3

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 0.911 \text{ mho/m}$; $\epsilon_r = 40.9$; ?
= 1000 kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.82, 6.82, 6.82); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (51x81x1):

Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.731 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 6.82 V/m; Power Drift = -0.024 dB

Peak SAR (extrapolated) = 1.09 W/kg

SAR(1 g) = 0.667 mW/g; SAR(10 g) = 0.445 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.743 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:

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

Reference Value = 6.82 V/m; Power Drift = -0.024 dB

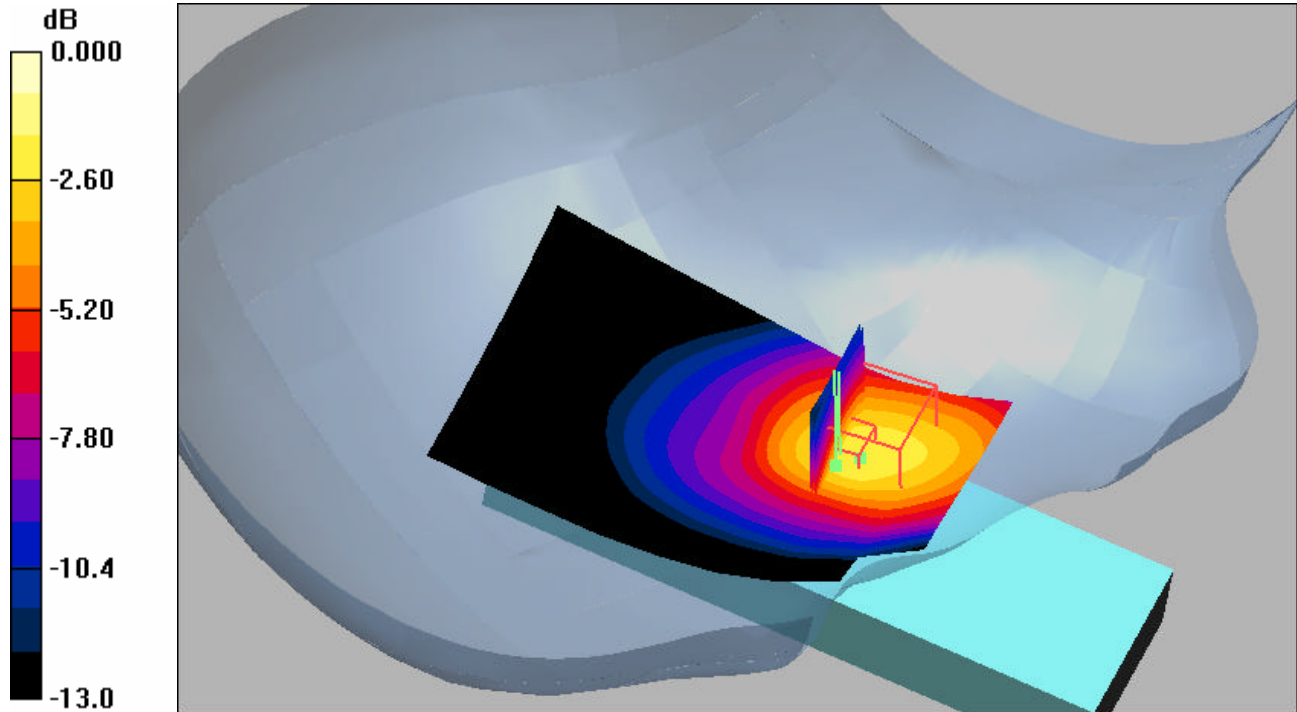
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.09 mW/g

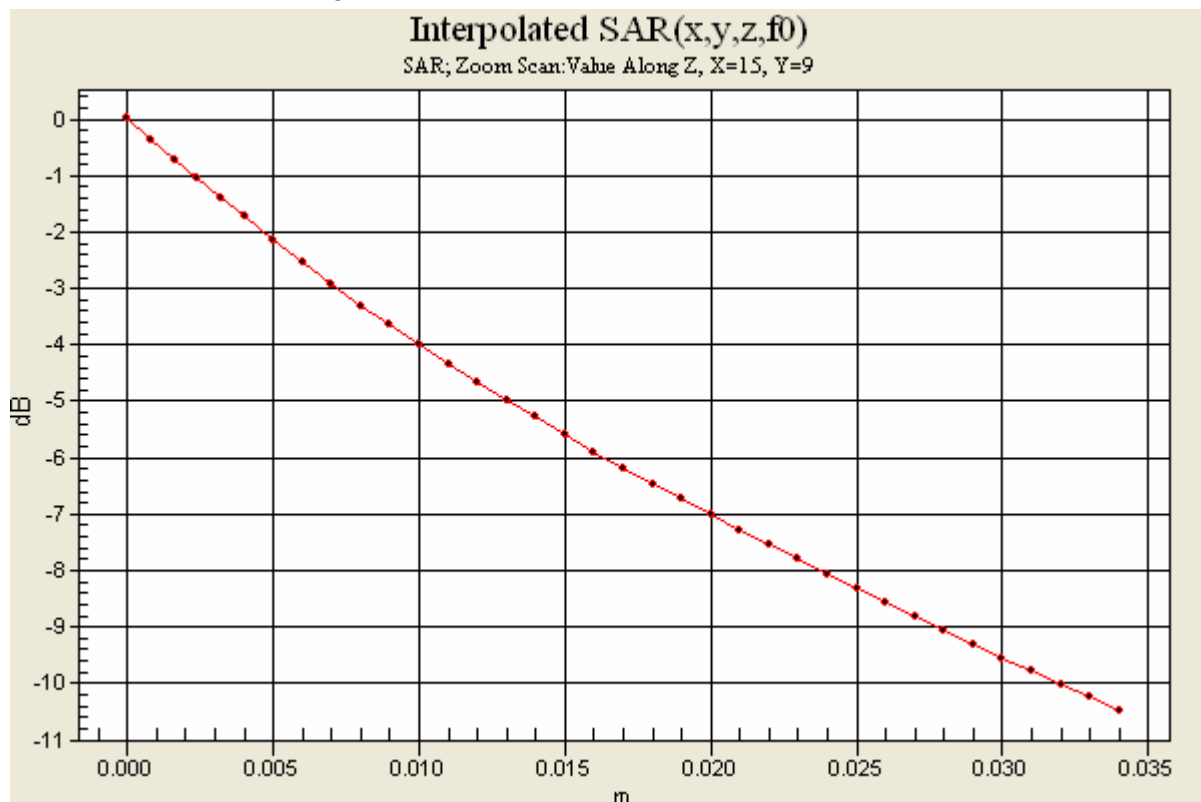


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0 dB = 1.09mW/g





Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 007 W712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\W712A\Final Reports\FCCW712A.doc

800 GSM Band: SAR Distribution and Extrapolation of Maximum SAR**Model: W712a SN: BDX0000NEX with Standard Battery: BST-37****Right Side, Cheek/Tilt Position**

Date/Time: 6/12/2006 8:54:17 AM

File Name: [12June06_W712a_GSM850_0NEX_RT01.da4](#)**DUT: W712**

Program Notes: Battery - BST37 Humidity - 41.9% Ambient Temp - 22.6 C Simulant Temp - 22.5 C

Communication System: GSM 850; Frequency: 849 MHz; Duty Cycle: 1:8.3

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 0.911 \text{ mho/m}$; $\epsilon_r = 40.9$; ?
= 1000 kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.82, 6.82, 6.82); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (51x81x1):

Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.149 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 8.44 V/m; Power Drift = -0.006 dB

Peak SAR (extrapolated) = 0.182 W/kg

SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.106 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.148 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:

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

Reference Value = 8.44 V/m; Power Drift = -0.006 dB

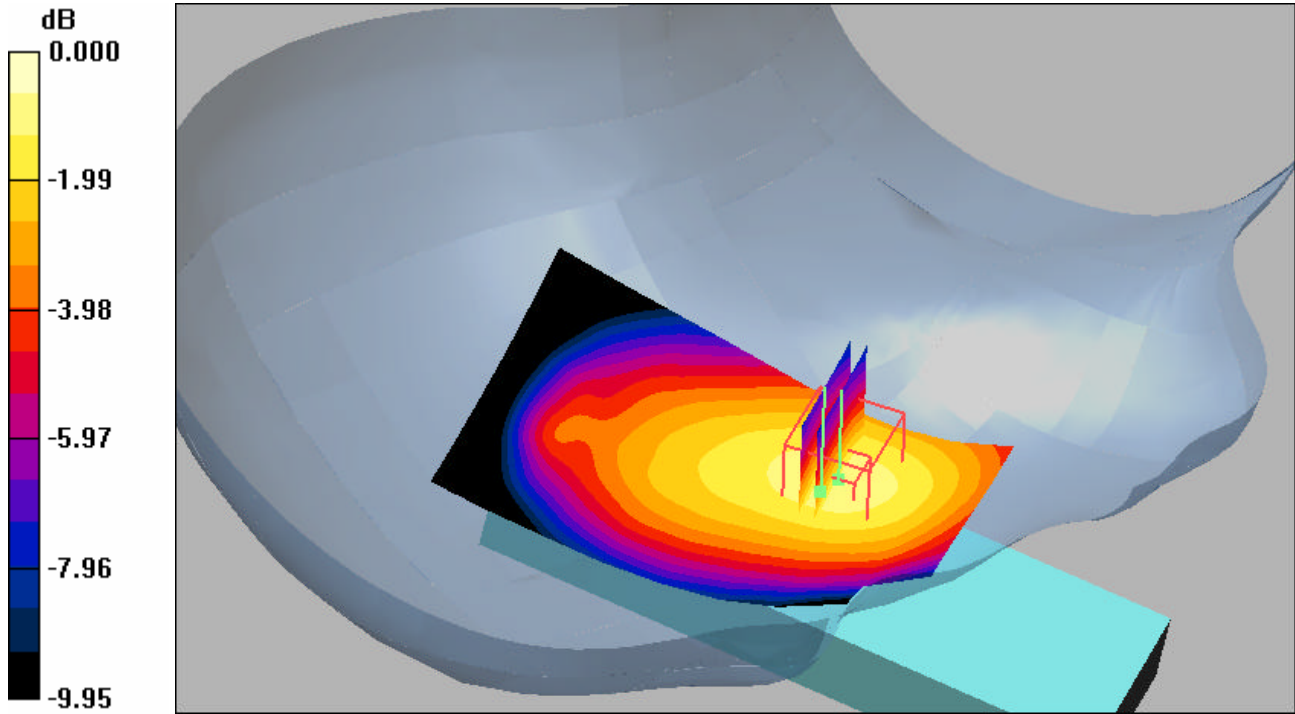
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.182 mW/g

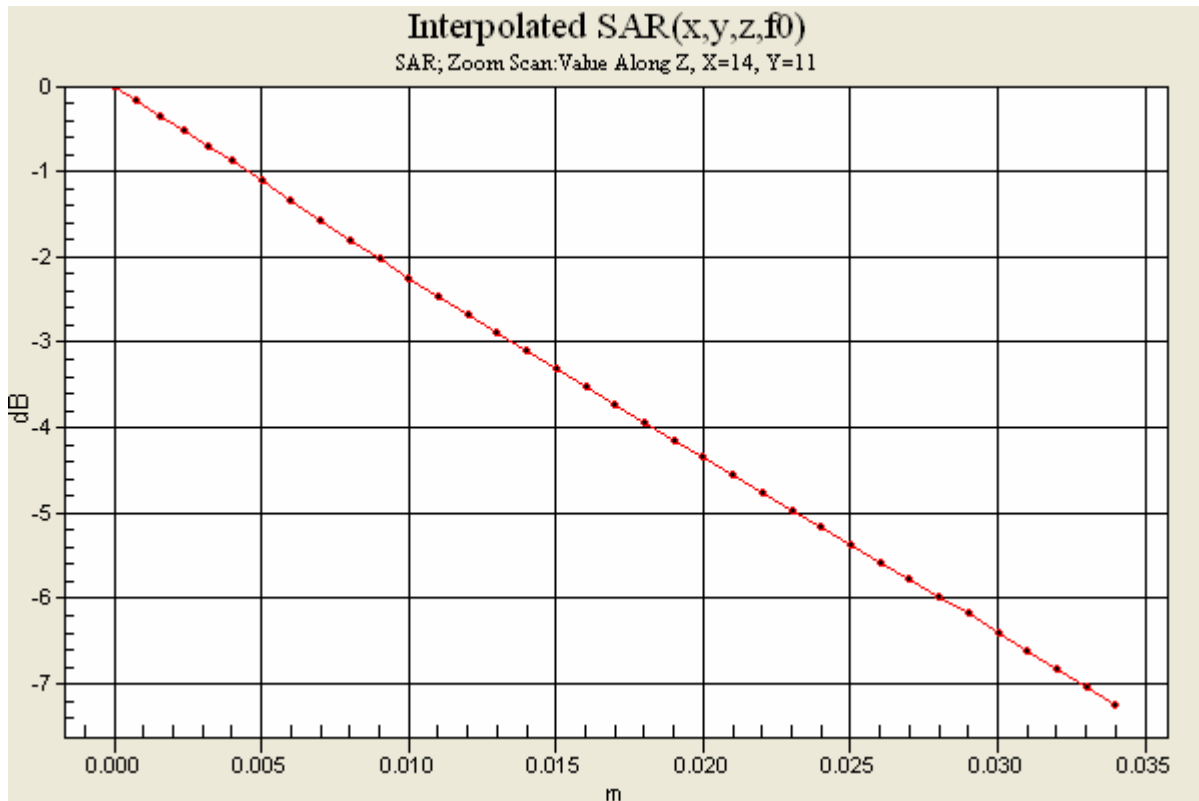


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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 007 W712a 01	
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0 dB = 0.182mW/g





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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\W712A\Final Reports\FCCW712A.doc

800 GSM Band: Distribution and Extrapolation of Maximum SAR**Model: W712a SN: BDX0000NEX with Standard Battery: BST-37****Left Side, Cheek/Touch Position.**

Date/Time: 6/11/2006 1:39:54 PM

File Name: [11June06_W712a_GSM850_0NEX_LC01.da4](#)**DUT: W712**

Program Notes: Battery - BST37 Humidity - 43.4 % Ambient Temp - 22.5 C Simulant Temp - 22.7 C

Communication System: GSM 850; Frequency: 849 MHz; Duty Cycle: 1:8.3

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 0.915 \text{ mho/m}$; $\epsilon_r = 41$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.82, 6.82, 6.82); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (61x81x1):Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ [Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.605 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.94 V/m; Power Drift = 0.003 dB

Peak SAR (extrapolated) = 0.805 W/kg

SAR(1 g) = 0.561 mW/g; SAR(10 g) = 0.391 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.596 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

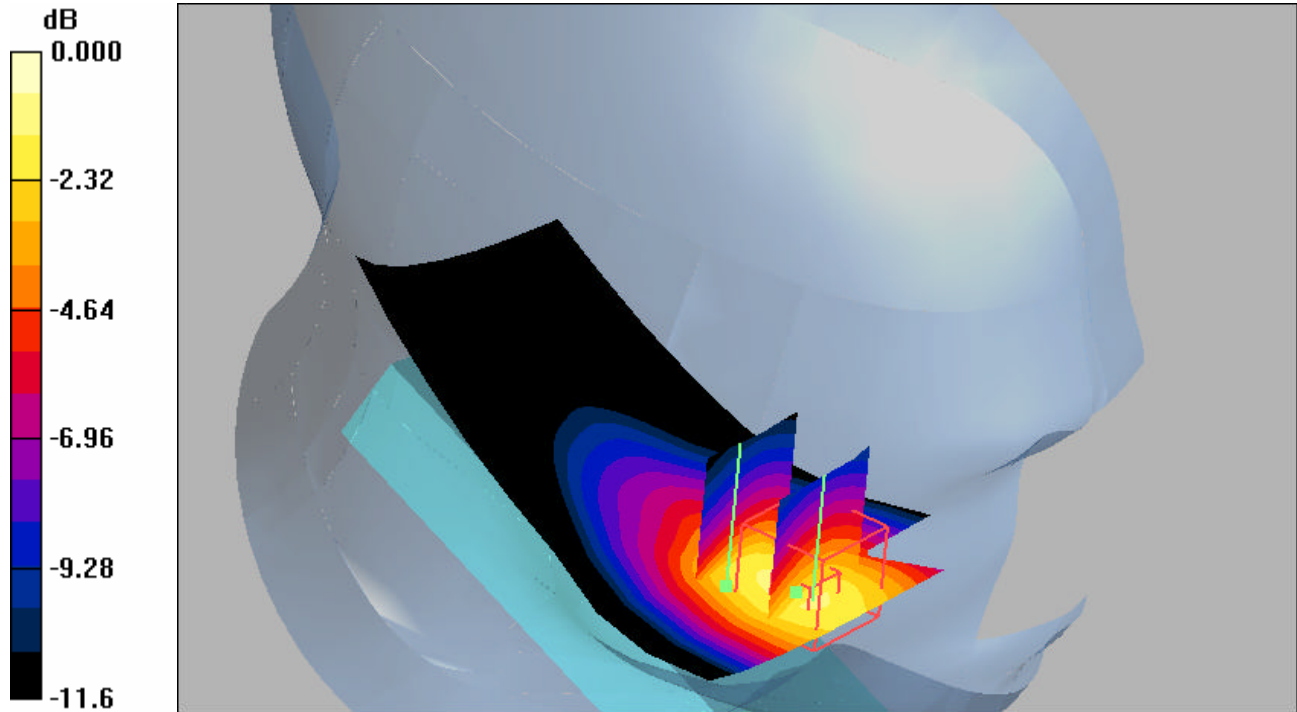
Reference Value = 4.94 V/m; Power Drift = 0.003 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

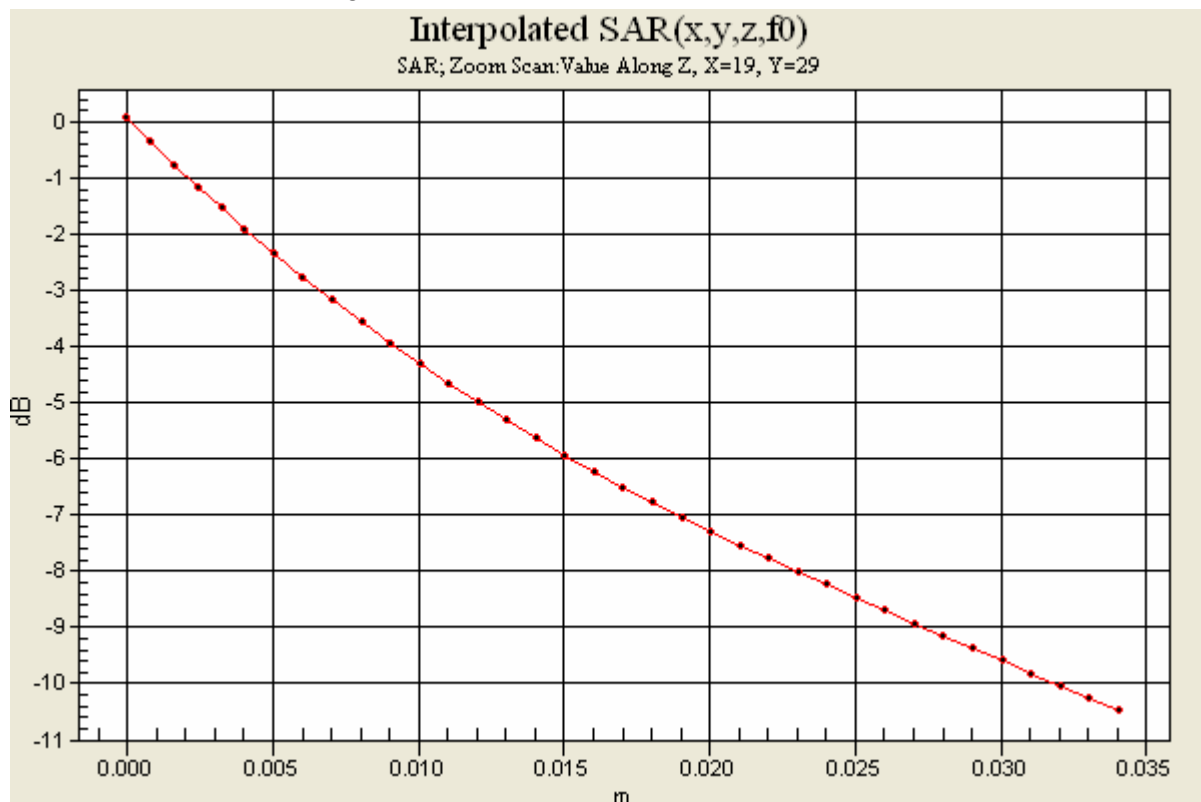
Maximum value of SAR (interpolated) = 0.805 mW/g



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 007 W712a 01	
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0 dB = 0.805mW/g





Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 007 W712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\W712A\Final Reports\FCCW712A.doc

800 GSM Band: Distribution and Extrapolation of Maximum SAR**Model: W712a SN: BDX0000NEX with Standard Battery: BST-37****Left Side, Tilt Position**

Date/Time: 6/11/2006 2:02:34 PM

File Name: [11June06_W712a_GSM850_ONEX_LT01.da4](#)**DUT: W712**

Program Notes: Battery - BST37 Humidity - 40.4 % Ambient Temp - 23.2 C Simulant Temp - 23 C

Communication System: GSM 850; Frequency: 849 MHz; Duty Cycle: 1:8.3

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 0.915 \text{ mho/m}$; $\epsilon_r = 41$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.82, 6.82, 6.82); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (61x81x1):Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ [Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.153 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.70 V/m; Power Drift = 0.000 dB

Peak SAR (extrapolated) = 0.188 W/kg

SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.107 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.151 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

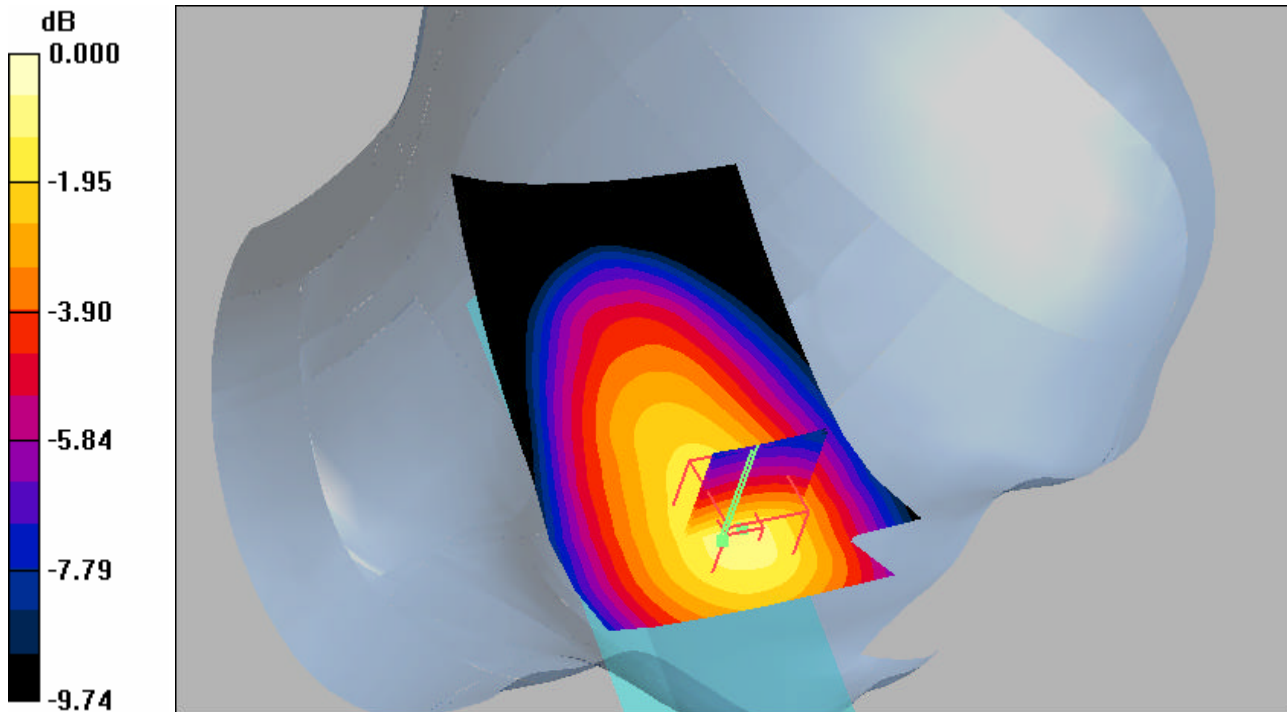
Reference Value = 6.70 V/m; Power Drift = 0.000 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

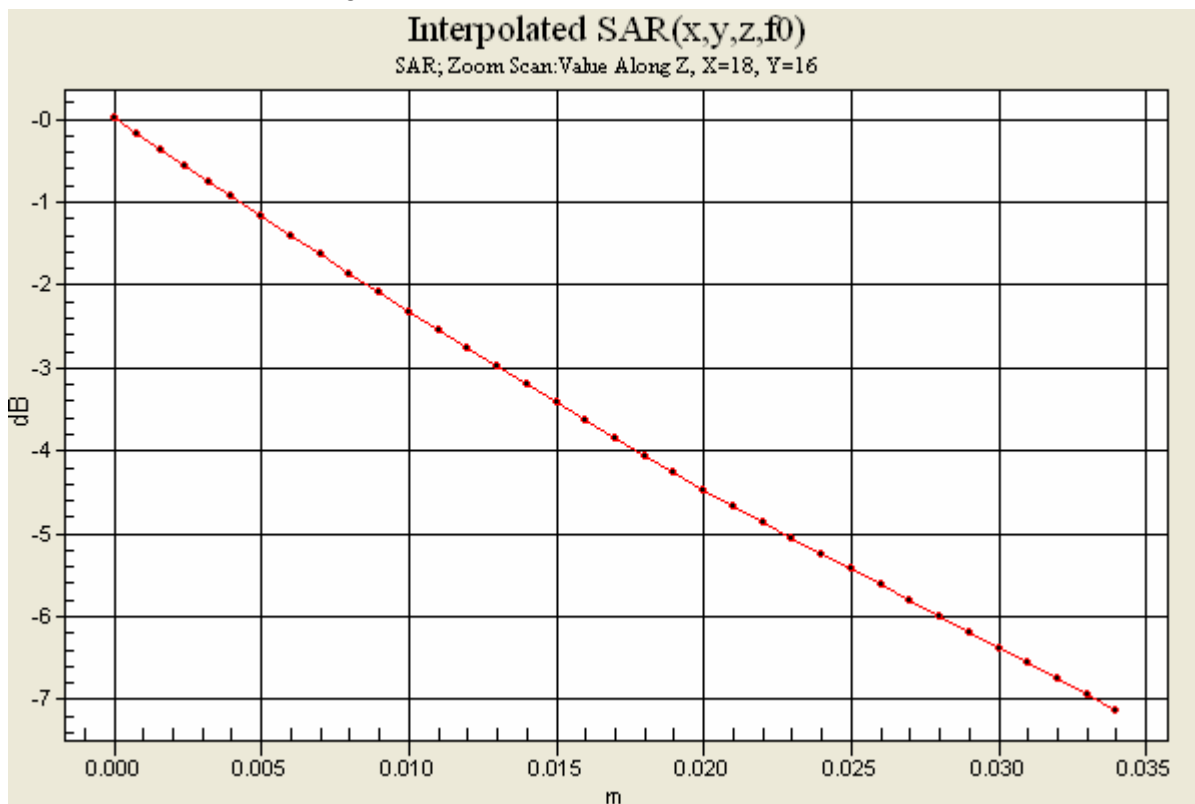
Maximum value of SAR (interpolated) = 0.188 mW/g



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0 dB = 0.188mW/g





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800 GSM Band: Distribution and Extrapolation of Maximum SAR**Model: W712a SN: BDX0000NEX with Standard Battery: BST-37****Right Side, Cheek Position Bluetooth on.**

Date/Time: 6/12/2006 10:01:13 AM

File Name: [12June06_W712a_GSM850_0NEX_BT_RC01.da4](#)**DUT: W712**

Program Notes: Battery - BST37 Humidity - 42.6% Ambient Temp - 22.7 C Simulant Temp - 22.5 C

Communication System: GSM 850; Frequency: 849 MHz; Duty Cycle: 1:8.3

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 0.911 \text{ mho/m}$; $\epsilon_r = 40.9$; ?
= 1000 kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.82, 6.82, 6.82); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (51x81x1):

Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.710 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 6.74 V/m; Power Drift = 0.025 dB

Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.647 mW/g; SAR(10 g) = 0.435 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.721 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:

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

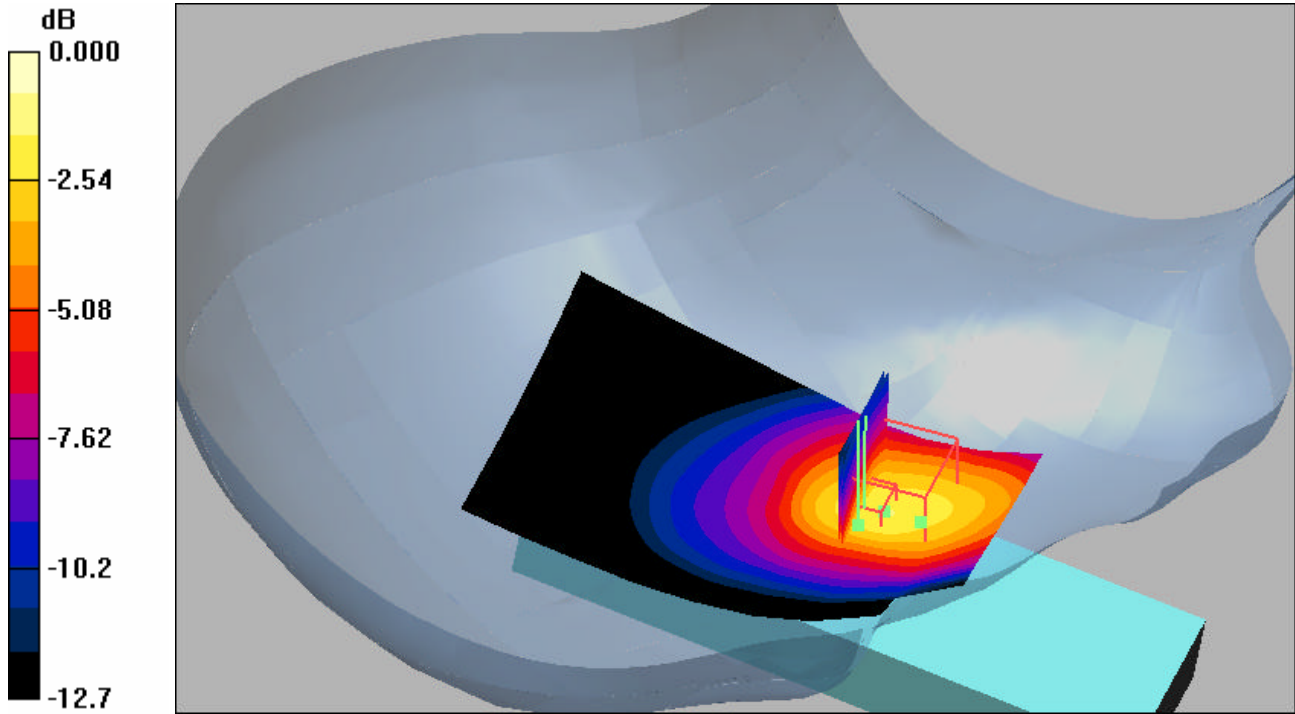
Reference Value = 6.74 V/m; Power Drift = 0.025 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

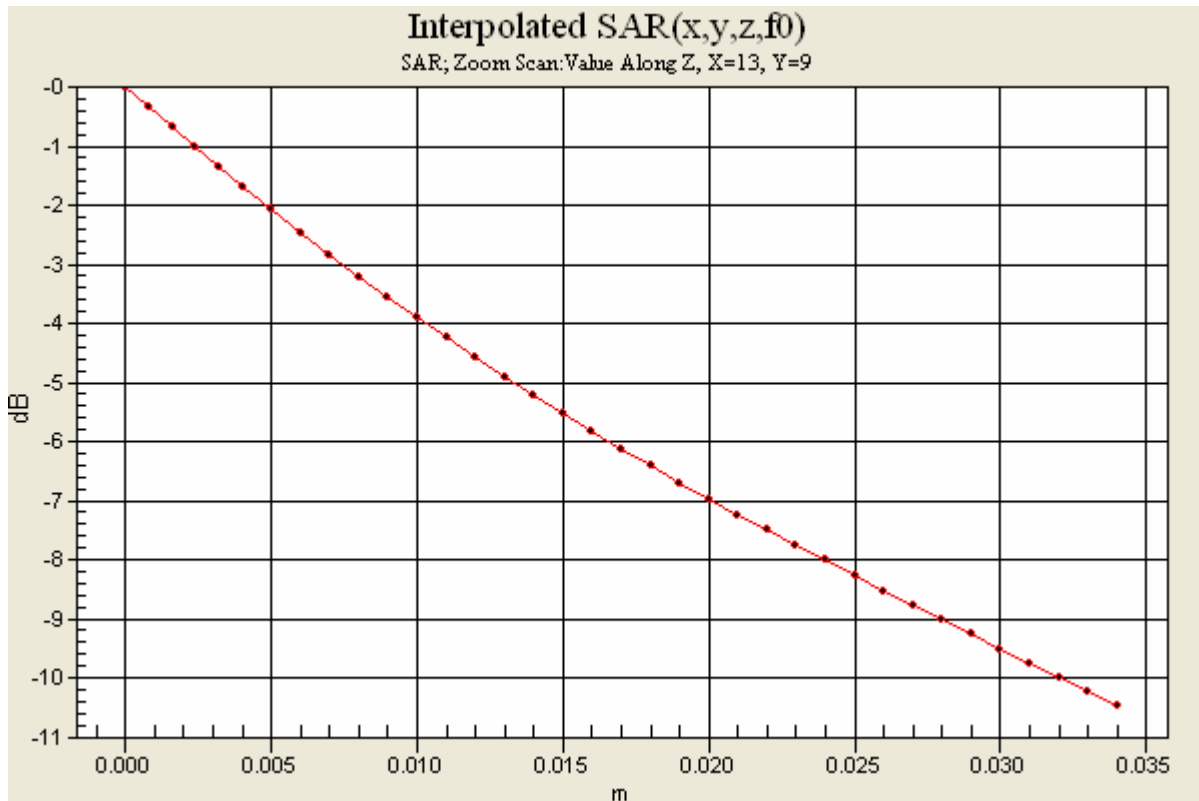
Maximum value of SAR (interpolated) = 1.04 mW/g



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0 dB = 1.04mW/g





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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR
Model: W712a SN: BDX0000NCZ with Standard Battery: BST-37
Right Side, Cheek/Touch Position.**

Date/Time: 6/12/2006 10:38:10 AM

File Name: [12June06_W712a_GSM1900_0NCZ_RC01.da4](#)

DUT: W712

Program Notes: Battery - BST37 Humidity - 41.3% Ambient Temp - 22.3 C Simulant Tem - 22.4 C

Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $s = 1.42 \text{ mho/m}$; $\epsilon_r = 39$;
 $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(4.55, 4.55, 4.55); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn345; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure/Area Scan (101x121x1):

Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.979 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.12 V/m; Power Drift = -0.056 dB

Peak SAR (extrapolated) = 2.19 W/kg

SAR(1 g) = 0.903 mW/g; SAR(10 g) = 0.417 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.08 mW/g

Unnamed procedure/Zoom Scan (31x31x36)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.12 V/m; Power Drift = -0.056 dB

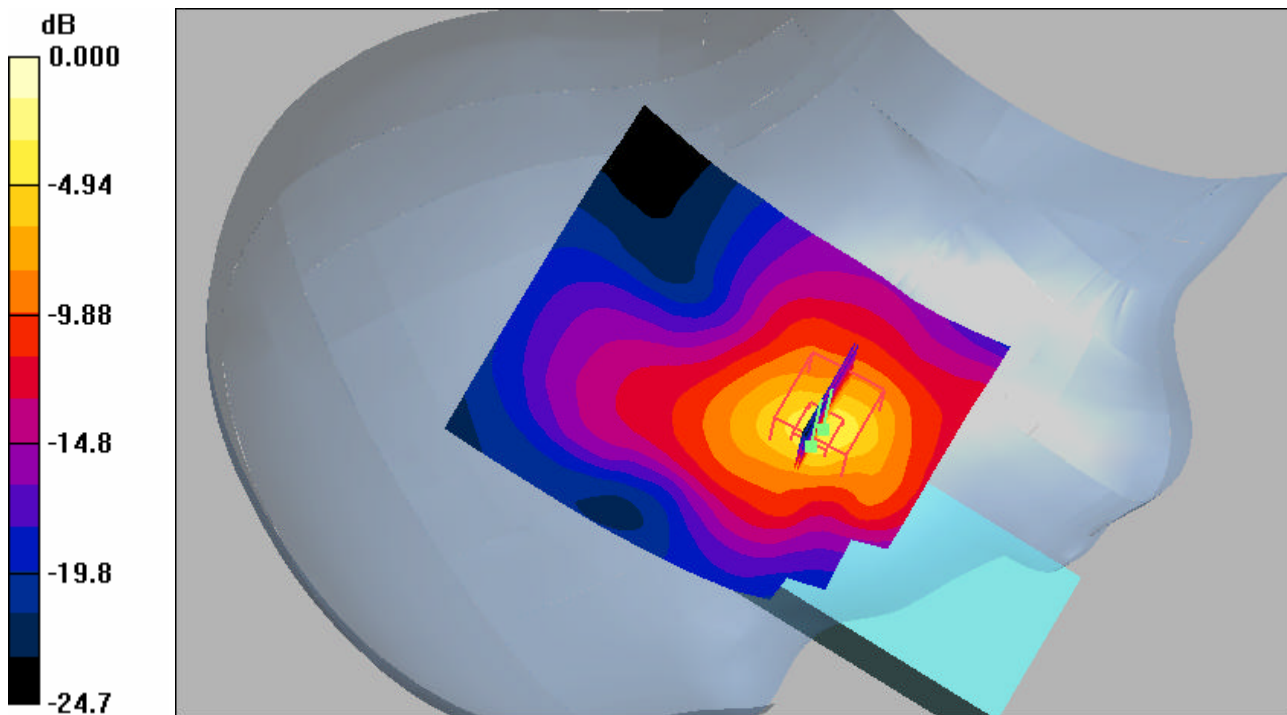
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 2.19 mW/g

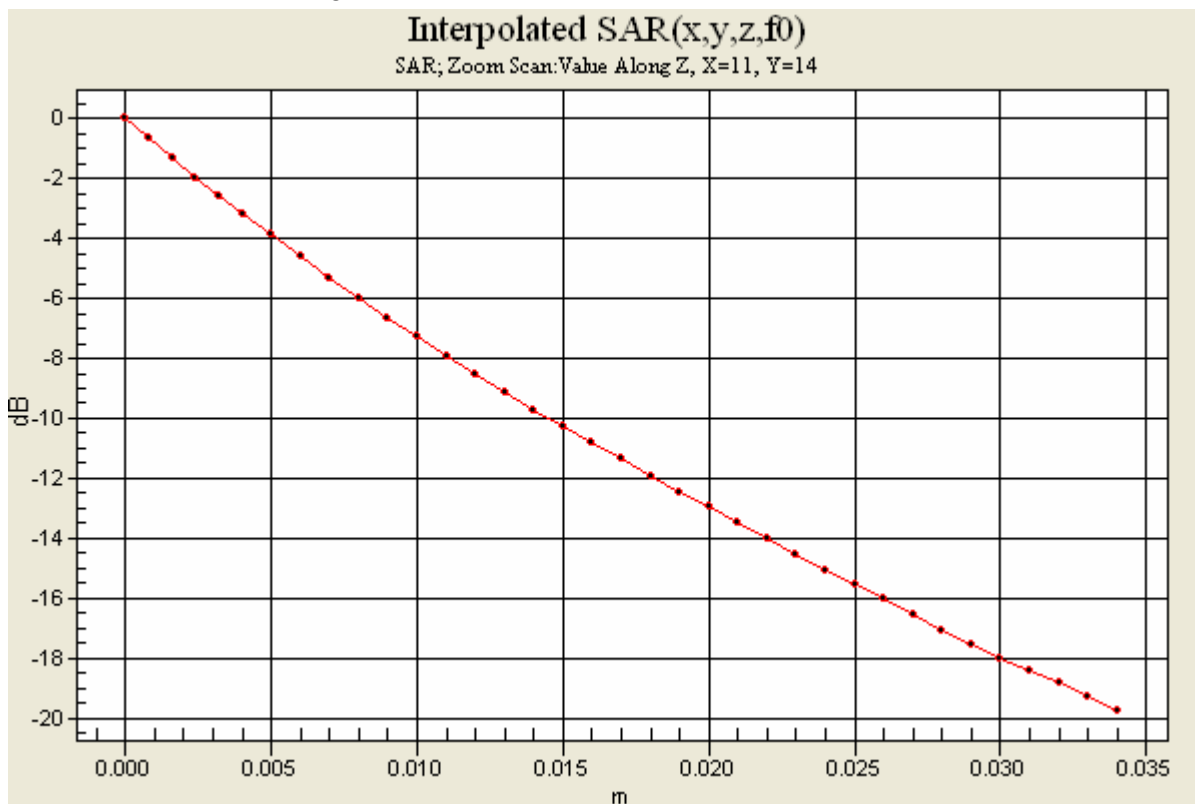


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0 dB = 2.19mW/g





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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR
Model: W712a SN: BDX0000NCZ with Standard Battery: BST-37
Right Side, Tilt Position.**

Date/Time: 6/12/2006 3:16:00 PM

File Name: [12June06_W712a_GSM1900_0NCZ_RT01.da4](#)

DUT: W712

Program Notes: Battery - BST37 Humidity - 40.8% Ambient Temp - 22.4 C Simulant Tem - 22.4 C

Communication System: DCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium: Head 1800/1900 MHz Medium parameters used: $f = 1910$ MHz; $s = 1.48$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(4.55, 4.55, 4.55); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn345; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (101x121x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (interpolated) = 0.068 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 5.27 V/m; Power Drift = -0.059 dB

Peak SAR (extrapolated) = 0.091 W/kg

SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.041 mW/g

Maximum value of SAR (measured) = 0.068 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:

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

Reference Value = 5.27 V/m; Power Drift = -0.059 dB

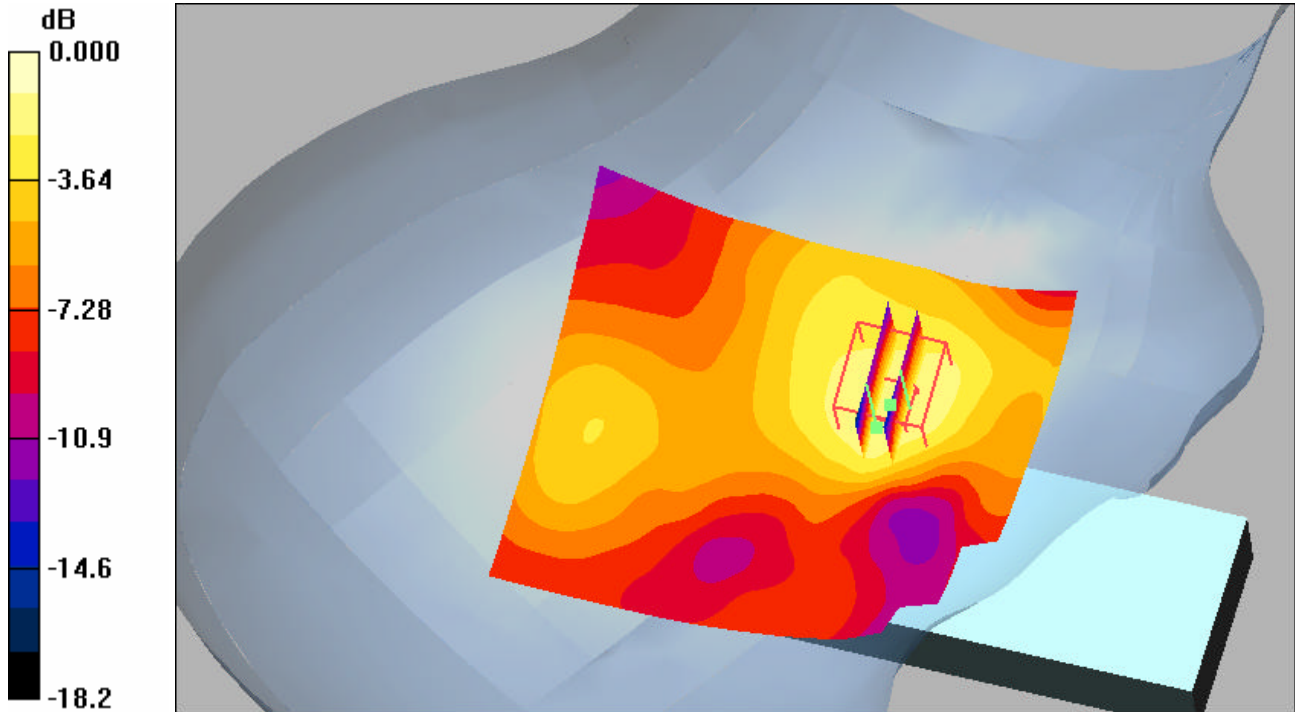
Maximum value of SAR (interpolated) = 0.091 mW/g



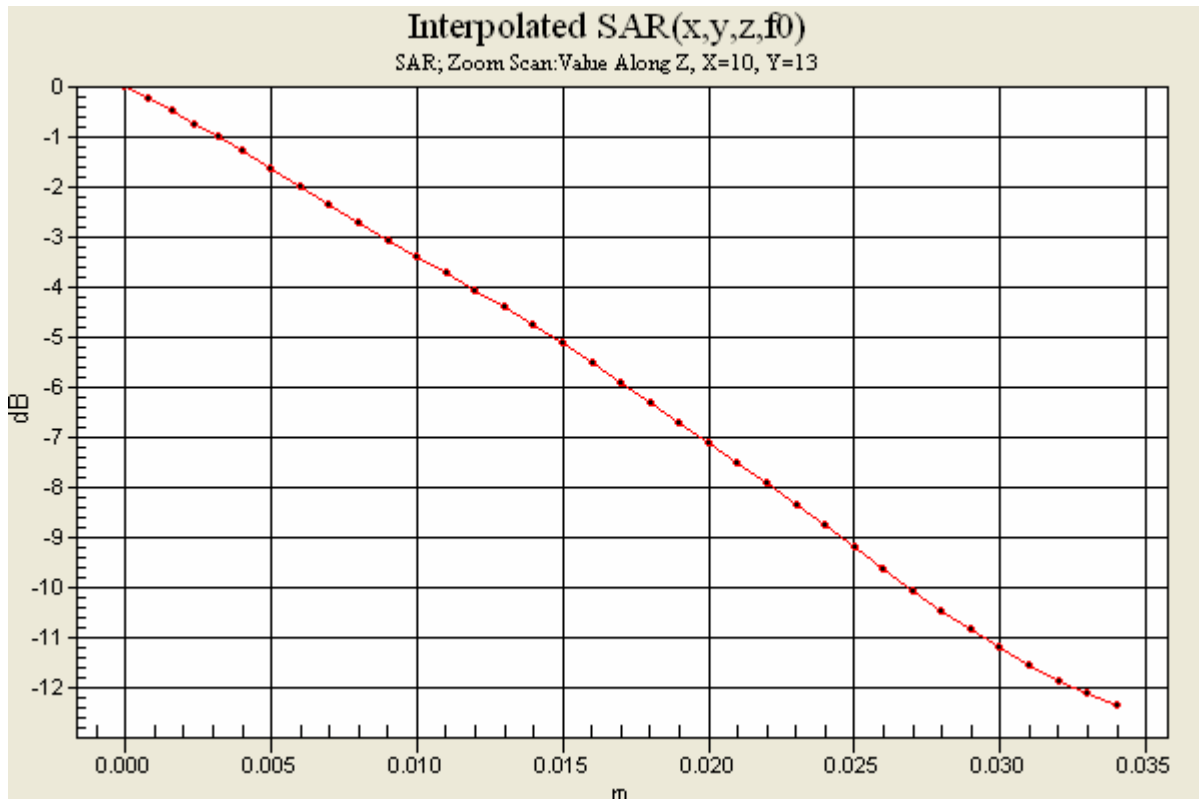
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0 dB = 0.091mW/g





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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR
Model: W712a SN: BDX0000NCZ with Standard Battery: BST-37
Left Side, Cheek/Touch Position.**

Date/Time: 6/11/2006 1:42:51 PM

File Name: [11June06_W712a_GSM1900_0NCZ_LC01.da4](#)

DUT: W712

Program Notes: Battery - BST-37 Humidity: 39.9% Ambient Temp: 23.2 C Simulant Temp: 23.1 C

Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $s = 1.42 \text{ mho/m}$; $e_r = 38.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(4.55, 4.55, 4.55); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn345; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure/Area Scan (51x81x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.626 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.57 V/m; Power Drift = 0.160 dB

Peak SAR (extrapolated) = 1.21 W/kg

SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.283 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.660 mW/g

Unnamed procedure/Zoom Scan (31x31x36)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

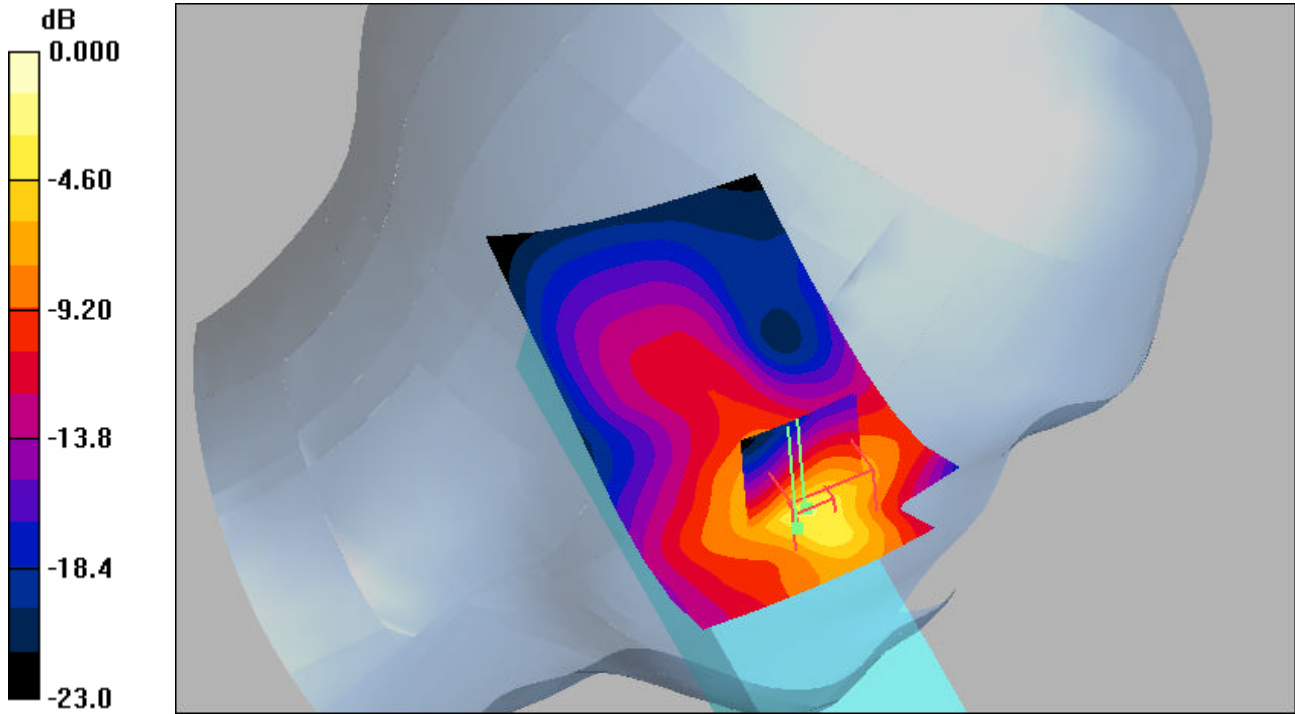
Reference Value = 5.57 V/m; Power Drift = 0.160 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

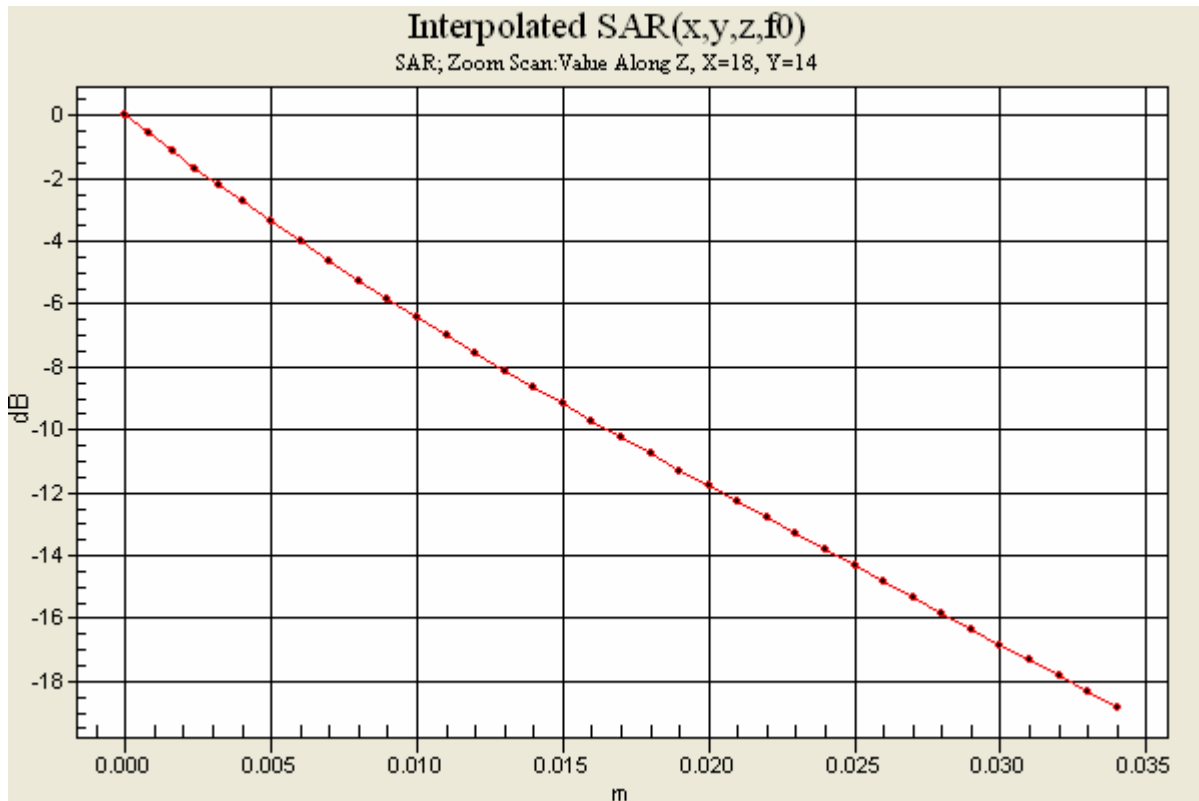
Maximum value of SAR (interpolated) = 1.21 mW/g



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0 dB = 1.21mW/g





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1900 GSM Band: Distribution and Extrapolation of Maximum SAR**Model: W712a SN: BDX0000NCZ with Standard Battery: BST-37****Left Side, Tilt Position.**

Date/Time: 6/12/2006 9:24:34 AM

File Name: [12June06_W712a_GSM1900_0NCZ_LT01.da4](#)**DUT: W712**

Program Notes: Battery - BST-37 Humidity: 42.2% Ambient Temp: 22.1 C Simulant Temp: 22.4 C

Communication System: DCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium: Head 1800/1900 MHz Medium parameters used: $f = 1910 \text{ MHz}$; $s = 1.48 \text{ mho/m}$; $\epsilon_r = 38.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(4.55, 4.55, 4.55); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn345; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (81x121x1):Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 0.065 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.97 V/m; Power Drift = -0.070 dB

Peak SAR (extrapolated) = 0.087 W/kg

SAR(1 g) = 0.059 mW/g; SAR(10 g) = 0.038 mW/g

Maximum value of SAR (measured) = 0.063 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

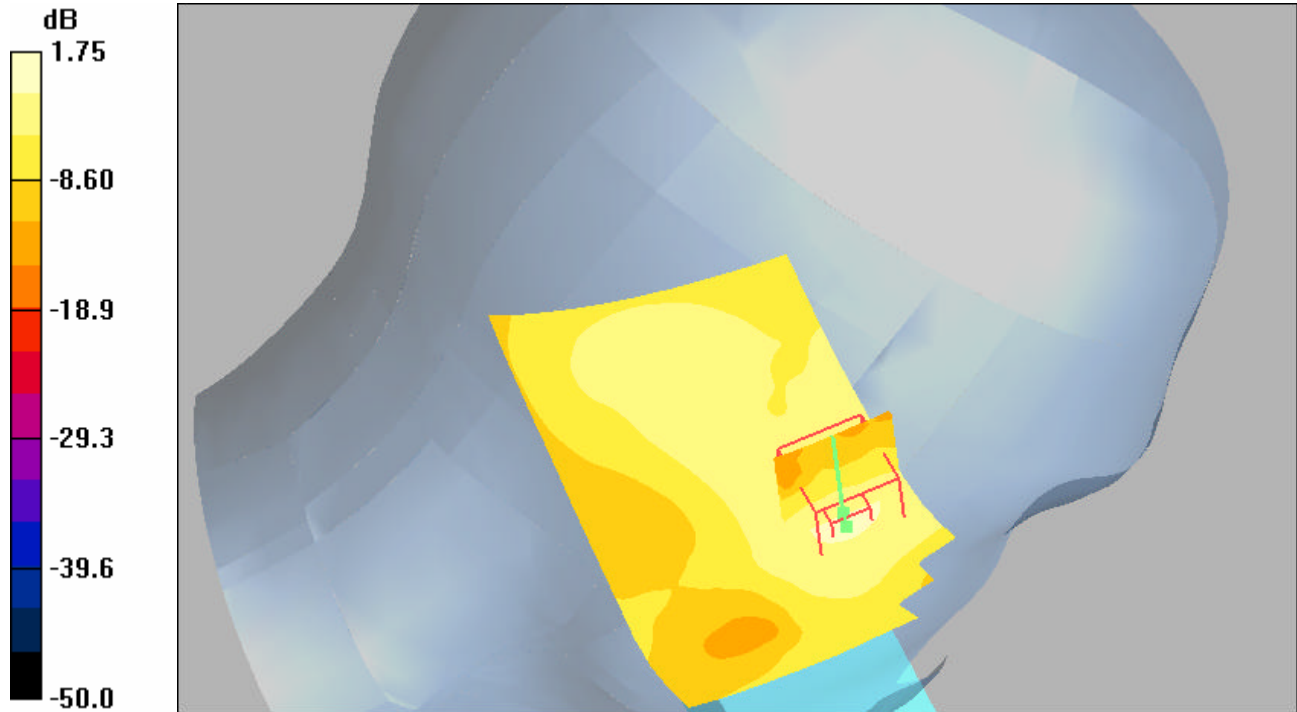
Reference Value = 5.97 V/m; Power Drift = -0.070 dB

Maximum value of SAR (interpolated) = 0.087 mW/g

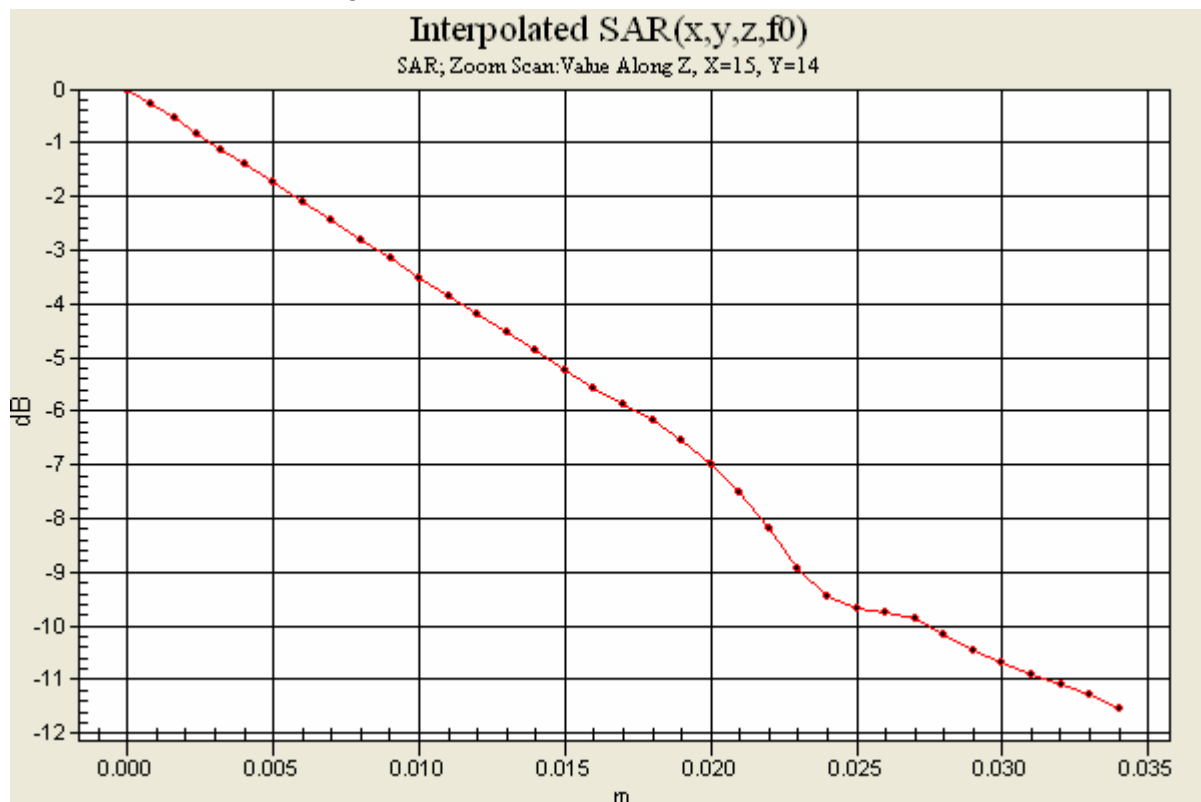


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0 dB = 0.087mW/g





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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\W712A\Final Reports\FCCW712A.doc

**1900 GSM Band: Distribution and Extrapolation of Maximum SAR
Model: W712a SN: BDX0000NCZ with Standard Battery: BST-37
Right Side, Cheek Position. Bluetooth on.**

Date/Time: 6/13/2006 10:46:23 AM

File Name: [12June06_W712a_GSM1900_0NCZ_BT_RC01.da4](#)

DUT: W712

Program Notes: Battery - BST37 Humidity - 40.8% Ambient Temp - 22.4 C Simulant Tem - 22.4 C

Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $s = 1.42 \text{ mho/m}$; $\epsilon_r = 39$;
 $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(4.55, 4.55, 4.55); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn345; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure/Area Scan (101x121x1):

Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.964 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.24 V/m; Power Drift = -0.003 dB

Peak SAR (extrapolated) = 2.21 W/kg

SAR(1 g) = 0.908 mW/g; SAR(10 g) = 0.418 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.06 mW/g

Unnamed procedure/Zoom Scan (31x31x36)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

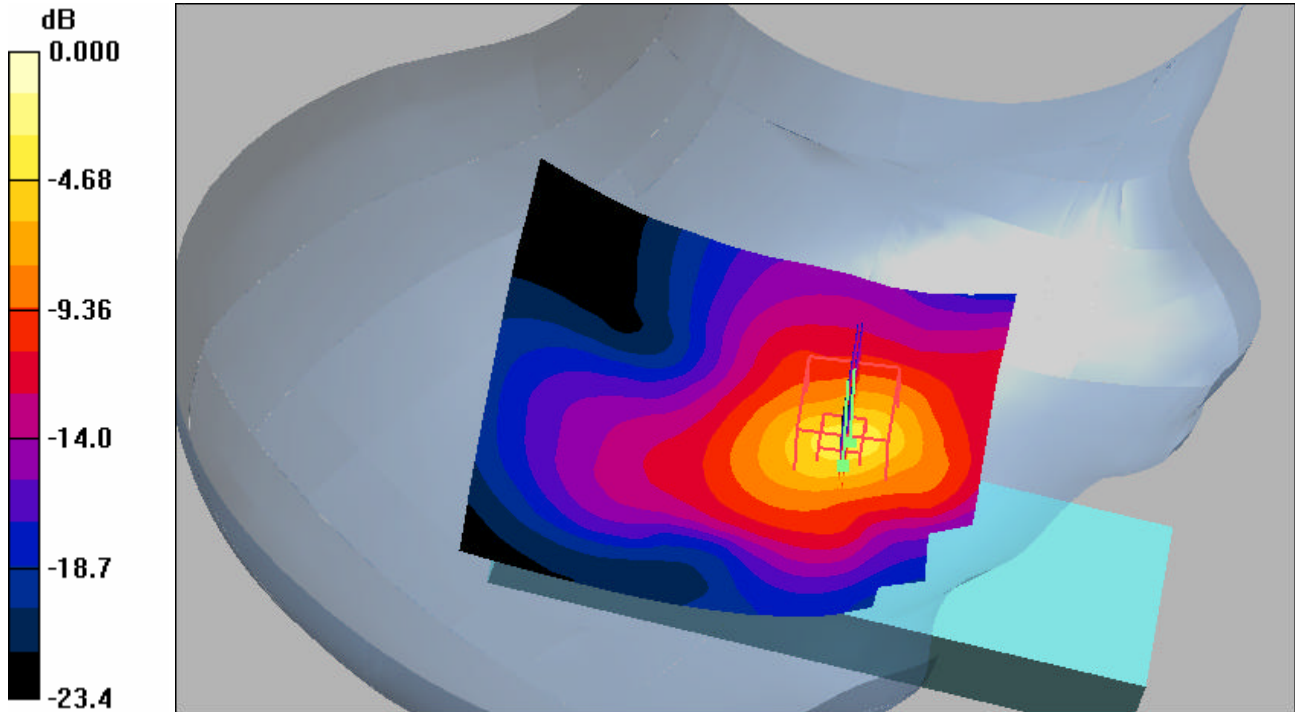
Reference Value = 7.24 V/m; Power Drift = -0.003 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

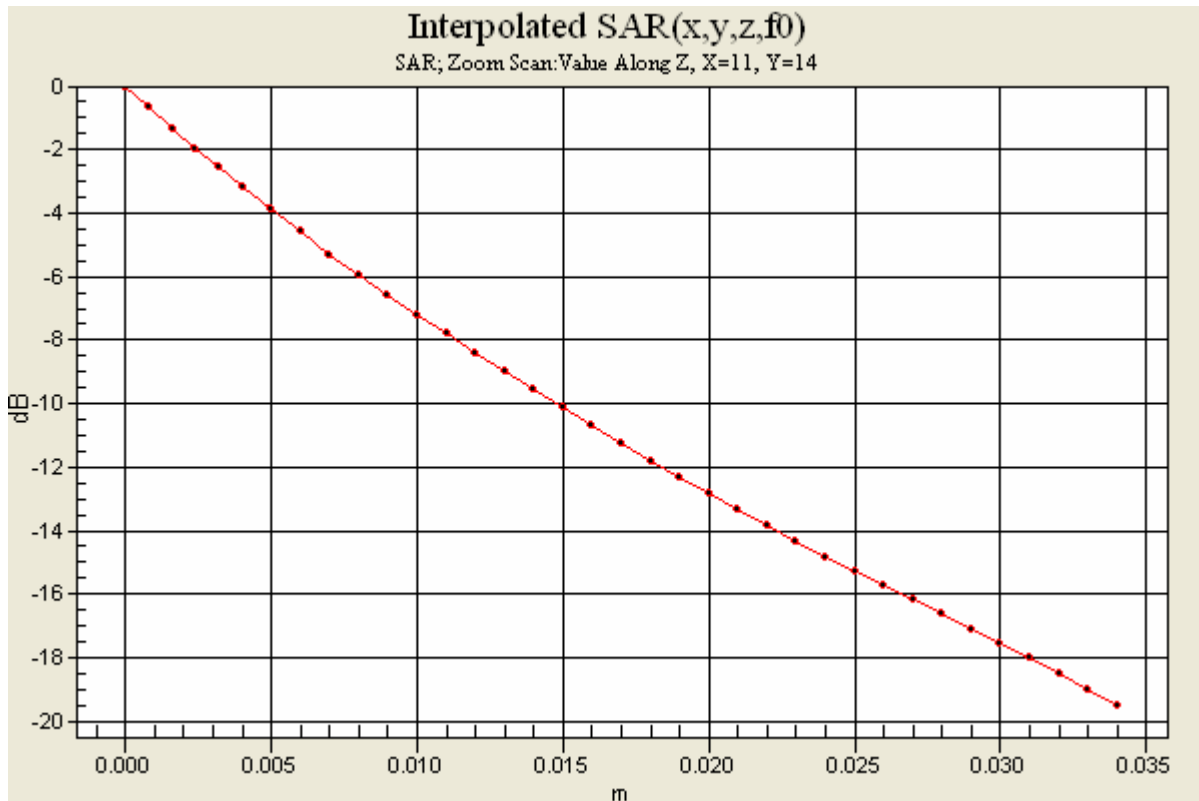
Maximum value of SAR (interpolated) = 2.21 mW/g



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0 dB = 2.21mW/g



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Appendix 3

SAR distribution plots for Body Worn Configuration



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 007 W712a 01	
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Distribution of maximum SAR in 800 GSM band. Measured with back of device facing the body using the ICE-26 Carry Case (Standard Battery, BST-37)

Date/Time: 6/14/2006 7:31:08 AM

File Name: [14June06_W712a_GSM835_ONEX_ICE26_BB01.da4](#)

DUT: W712 body

Program Notes: Battery - BST37 Humidity - 41.6% Ambient Temp - 22.1 C Simulant Temp - 22 C

Communication System: GSM 850 multi-slot Body; Frequency: 849 MHz; Duty Cycle: 1:4.15

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 1.01 \text{ mho/m}$; $e_r = 52.6$; ?
= 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.53, 6.53, 6.53); Calibrated: 11/22/2005

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn416; Calibrated: 11/10/2005

- Phantom: SAM with CRP (Low Band Body); Type: SAM; Serial: TP: 1031

- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (71x121x1):

Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.998 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 23.2 V/m; Power Drift = 0.017 dB

Peak SAR (extrapolated) = 1.28 W/kg

SAR(1 g) = 0.919 mW/g; SAR(10 g) = 0.638 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.987 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:

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

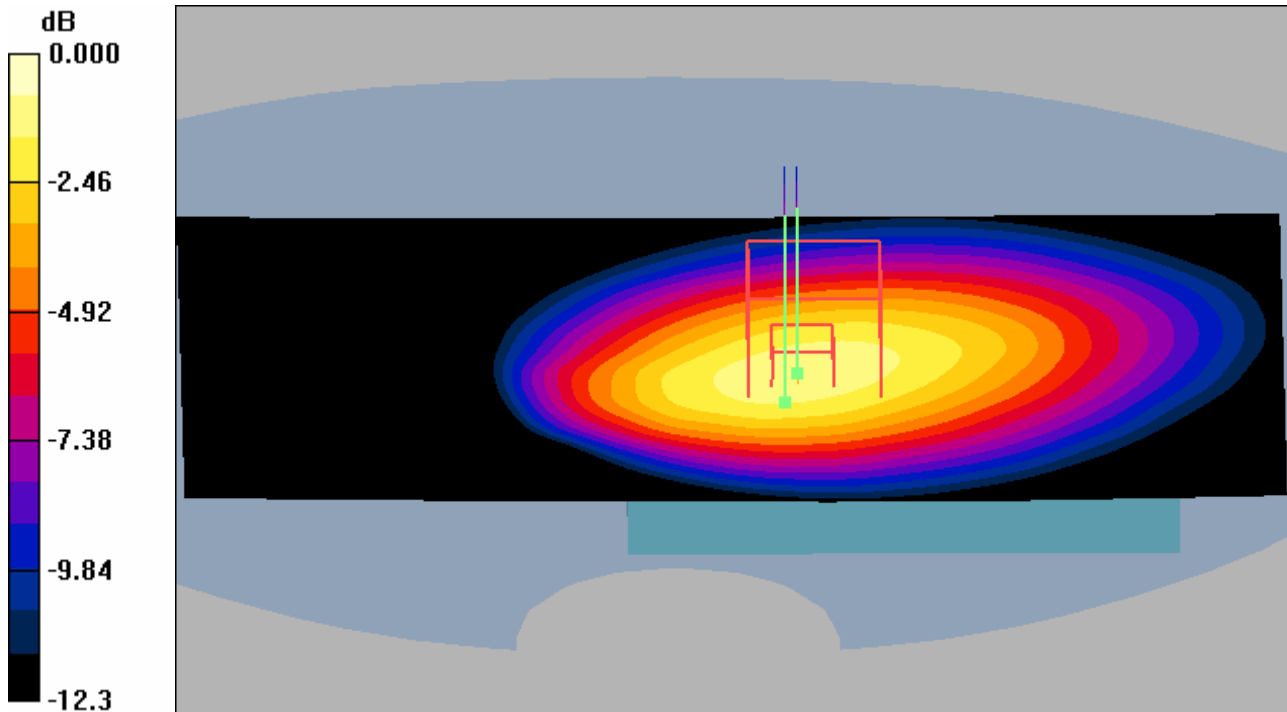
Reference Value = 23.2 V/m; Power Drift = 0.017 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

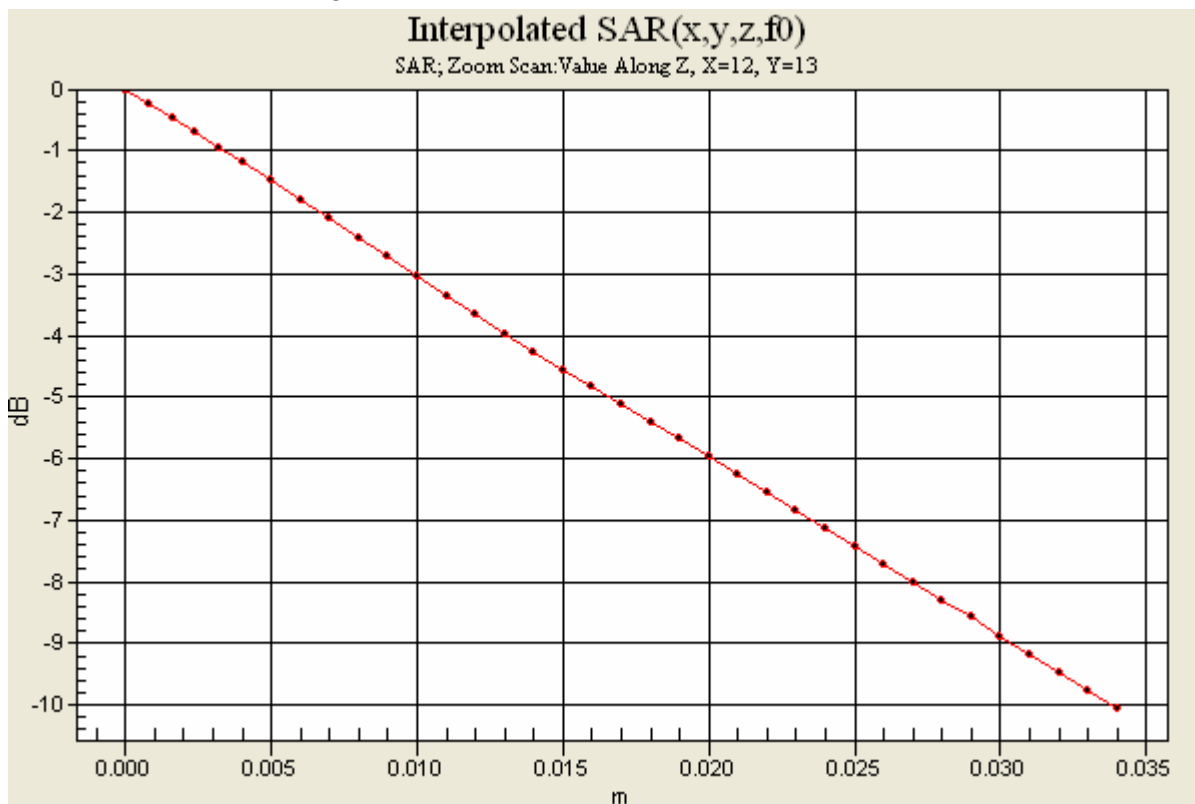
Maximum value of SAR (interpolated) = 1.28 mW/g



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0 dB = 1.28mW/g





Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 007 W712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\W712A\Final Reports\FCCW712A.doc

Distribution of maximum SAR in 800 GSM band. Measured with front of device facing the body using the ICE-26 Carry Case (Standard Battery, BST-37)

Date/Time: 6/14/2006 9:38:58 AM

File Name: [14June06_W712a_GSM835_ONEX_ICE26_BF01.da4](#)

DUT: W712 body

Program Notes: Battery - BST37 Humidity - 41.1% Ambient Temp - 22.1 C Simulant Temp - 22.1 C

Communication System: GSM 850 multi-slot Body; Frequency: 849 MHz; Duty Cycle: 1:4.15

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 1.01 \text{ mho/m}$; $\epsilon_r = 52.6$; ?
= 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.53, 6.53, 6.53); Calibrated: 11/22/2005

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn416; Calibrated: 11/10/2005

- Phantom: SAM with CRP (Low Band Body); Type: SAM; Serial: TP: 1031

- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (71x121x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.307 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.1 V/m; Power Drift = 0.056 dB

Peak SAR (extrapolated) = 0.384 W/kg

SAR(1 g) = 0.286 mW/g; SAR(10 g) = 0.207 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.302 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.1 V/m; Power Drift = 0.056 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.384 mW/g

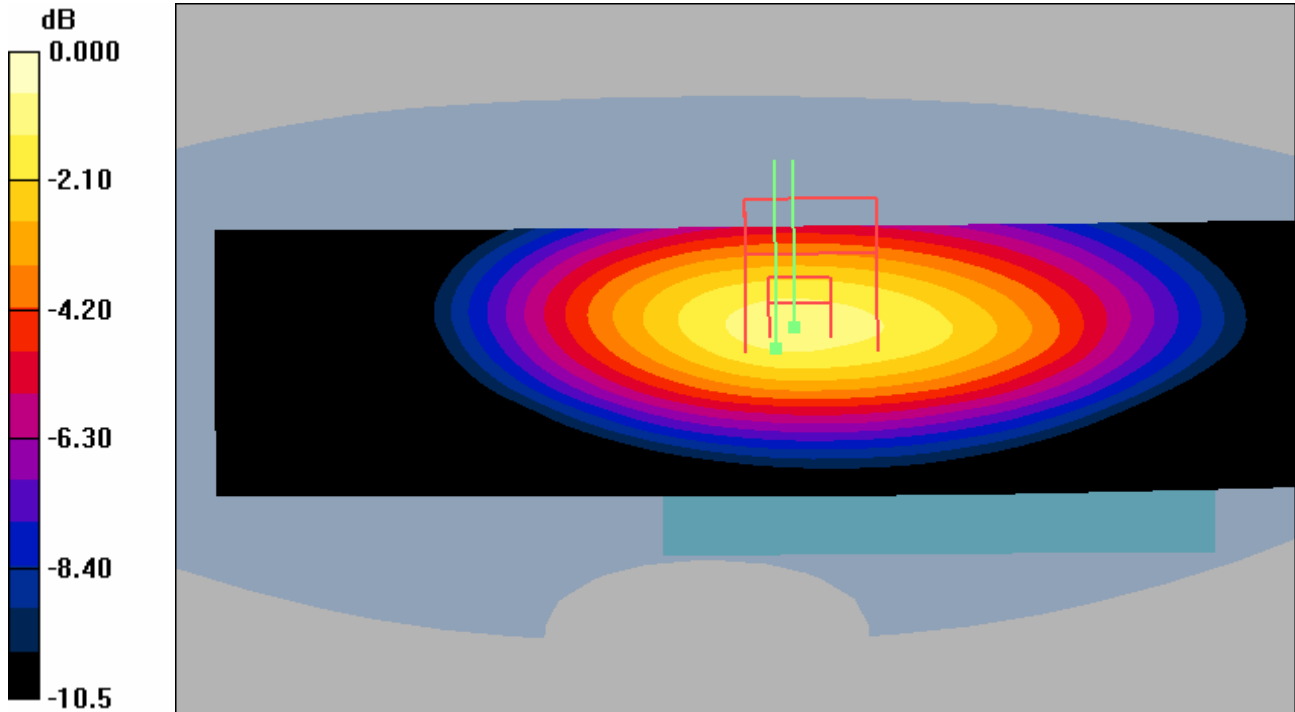


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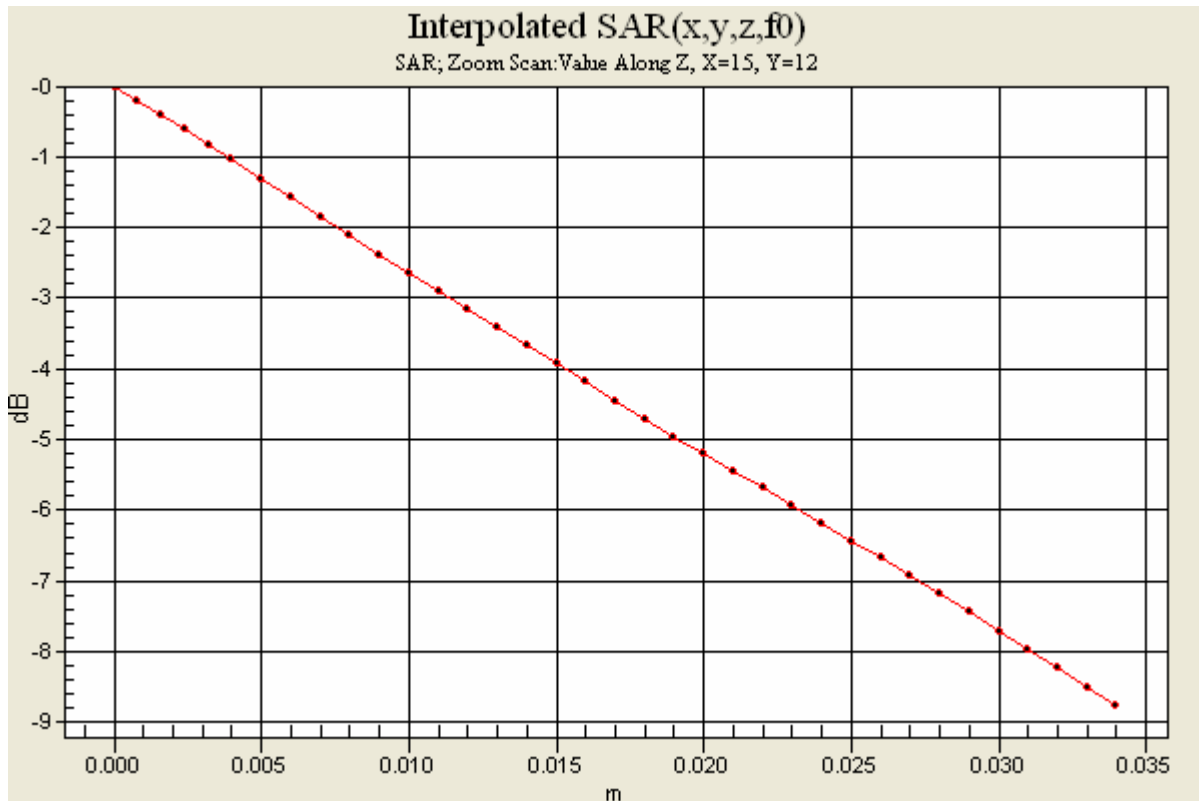
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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 007 W712a 01	
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0 dB = 0.384mW/g





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Distribution of maximum SAR in 800 GSM band. Measured with back of device facing the body using the ICE-26 Carry Case (Standard Battery, BST-37) Bluetooth on.

Date/Time: 6/14/2006 11:18:20 AM

File Name: [14June06_W712a_GSM835_0NEX_ICE26_BT_BB01.da4](#)

DUT: W712 body

Program Notes: Battery - BST37 Humidity - 41.3% Ambient Temp - 22.3 C Simulant Temp - 22.1 C

Communication System: GSM 850 multi-slot Body; Frequency: 849 MHz; Duty Cycle: 1:4.15

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 1.01 \text{ mho/m}$; $\epsilon_r = 52.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.53, 6.53, 6.53); Calibrated: 11/22/2005

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn416; Calibrated: 11/10/2005

- Phantom: SAM with CRP (Low Band Body); Type: SAM; Serial: TP: 1031

- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (71x121x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.873 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.3 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.817 mW/g; SAR(10 g) = 0.566 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.873 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.3 V/m; Power Drift = -0.012 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.13 mW/g

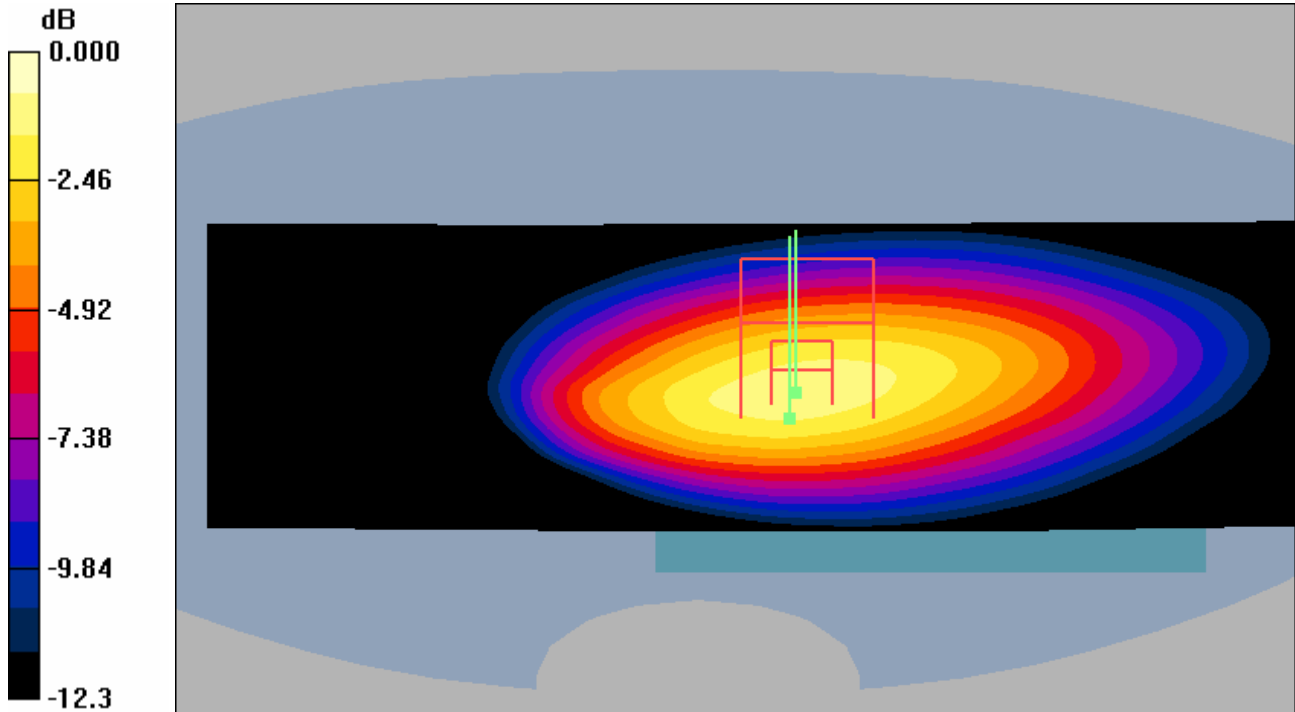


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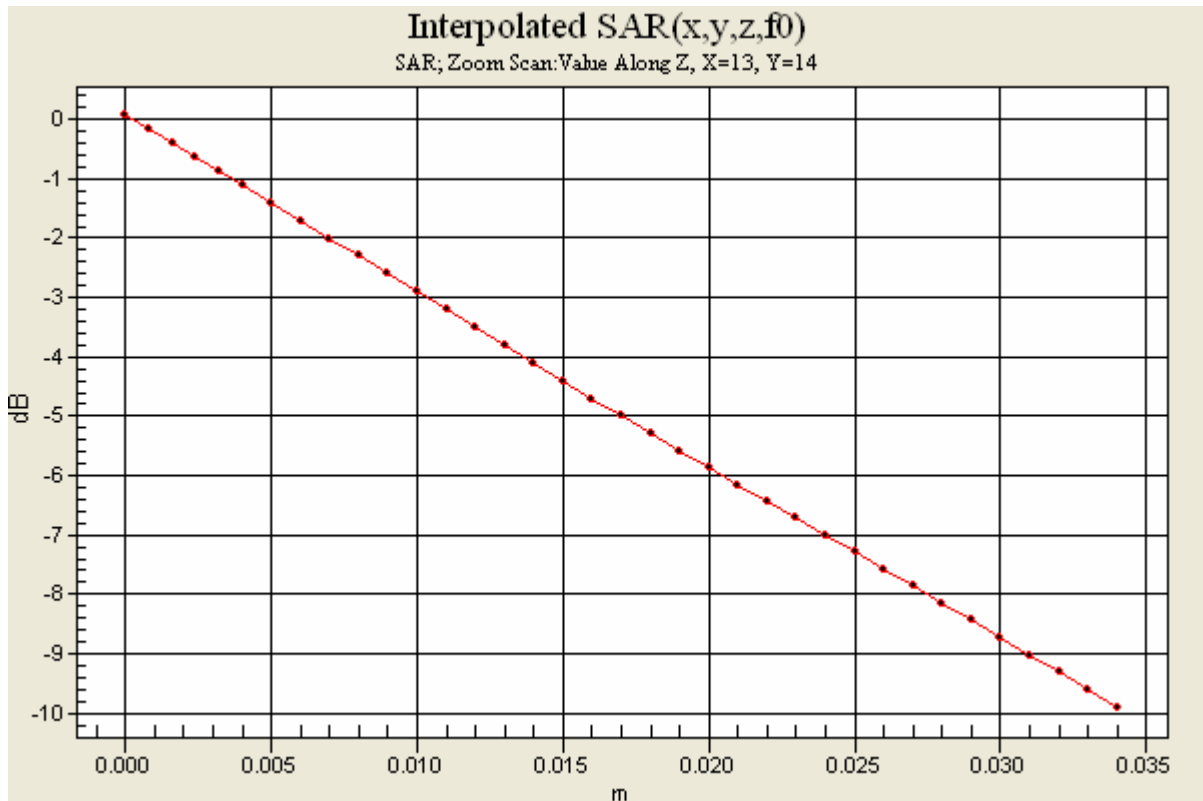
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0 dB = 1.13mW/g





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Distribution of maximum SAR in 800 GSM band. Measured with back of device facing the body using the IAC-60 Carry Case (Standard Battery, BST-37)

Date/Time: 6/14/2006 10:03:23 AM

File Name: [14June06_W712a_GSM835_ONEX_IAC60_BB01.da4](#)

DUT: W712 body

Program Notes: Battery - BST37 Humidity - 41.3% Ambient Temp - 22.3 C Simulant Temp - 22.1 C

Communication System: GSM 850 multi-slot Body; Frequency: 849 MHz; Duty Cycle: 1:4.15

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 1.01 \text{ mho/m}$; $\epsilon_r = 52.6$; ?
= 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.53, 6.53, 6.53); Calibrated: 11/22/2005

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn416; Calibrated: 11/10/2005

- Phantom: SAM with CRP (Low Band Body); Type: SAM; Serial: TP: 1031

- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (71x121x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.734 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 23.0 V/m; Power Drift = 0.029 dB

Peak SAR (extrapolated) = 0.939 W/kg

SAR(1 g) = 0.677 mW/g; SAR(10 g) = 0.473 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.718 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 23.0 V/m; Power Drift = 0.029 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

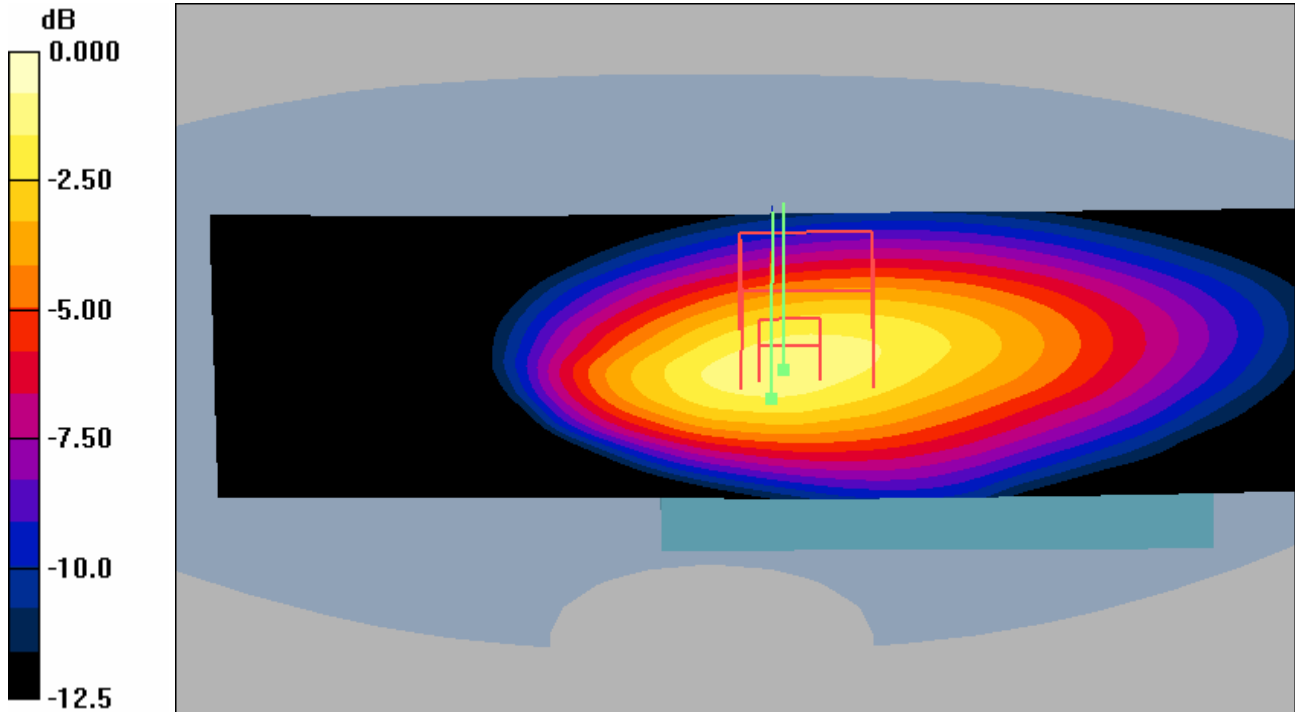
Maximum value of SAR (interpolated) = 0.939 mW/g



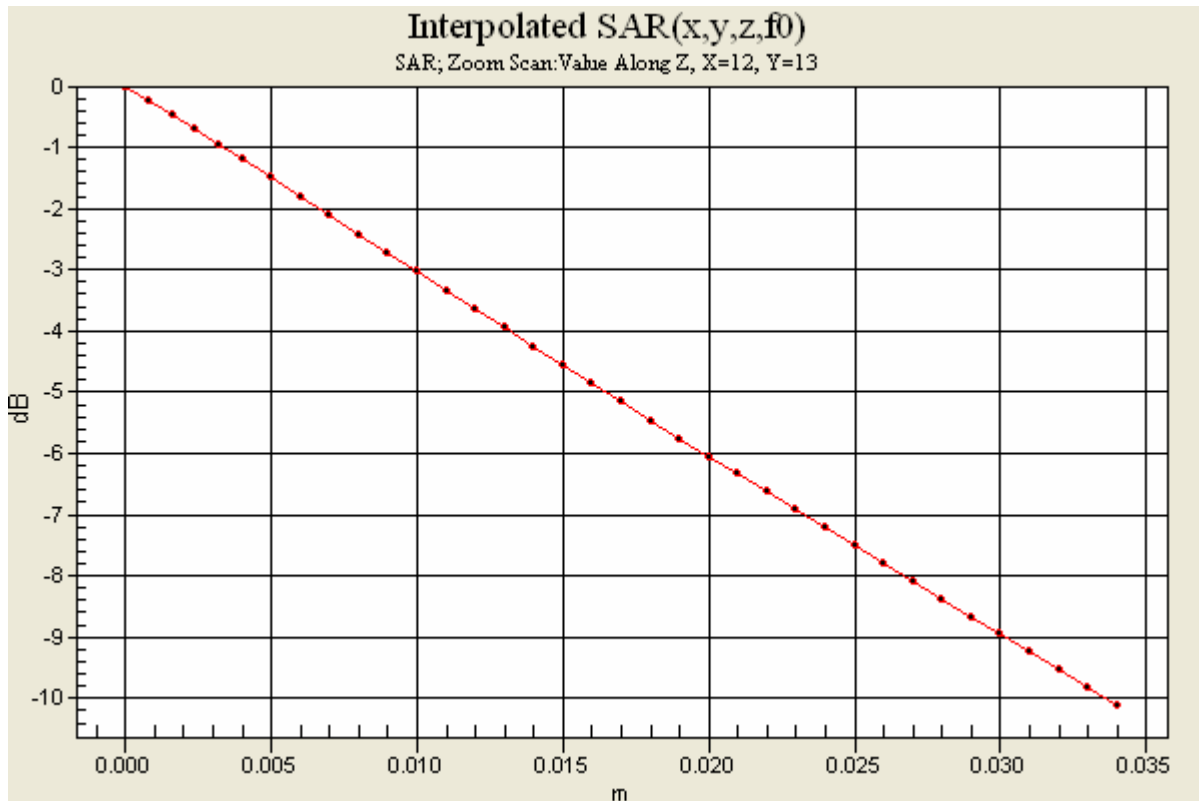
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0 dB = 0.939mW/g





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Distribution of maximum SAR in 1900 GSM band. Measured with back of device facing the body using the ICE-26 Carry Case (Standard Battery, BST-37)

Date/Time: 6/13/2006 1:46:17 PM

File Name: [13June06_W712a_GSM1900_ONCZ_ICE26_BB01.da4](#)

DUT: W712 body

Program Notes: Battery - BST37 Humidity - 40.7 % Ambient Temp - 22.8 C Simulant Temp - 22.7 C

Communication System: DCS 1900 Body; Frequency: 1909.8 MHz; Duty Cycle: 1:4.15

Medium: Head 1800/1900 MHz Medium parameters used: $f = 1910 \text{ MHz}$; $s = 1.53 \text{ mho/m}$; $\epsilon_r = 51.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(4.46, 4.46, 4.46); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Body); Type: SAM; Serial: TP: 1020
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (71x121x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.601 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.3 V/m; Power Drift = -0.002 dB

Peak SAR (extrapolated) = 0.873 W/kg

SAR(1 g) = 0.536 mW/g; SAR(10 g) = 0.314 mW/g

Maximum value of SAR (measured) = 0.592 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

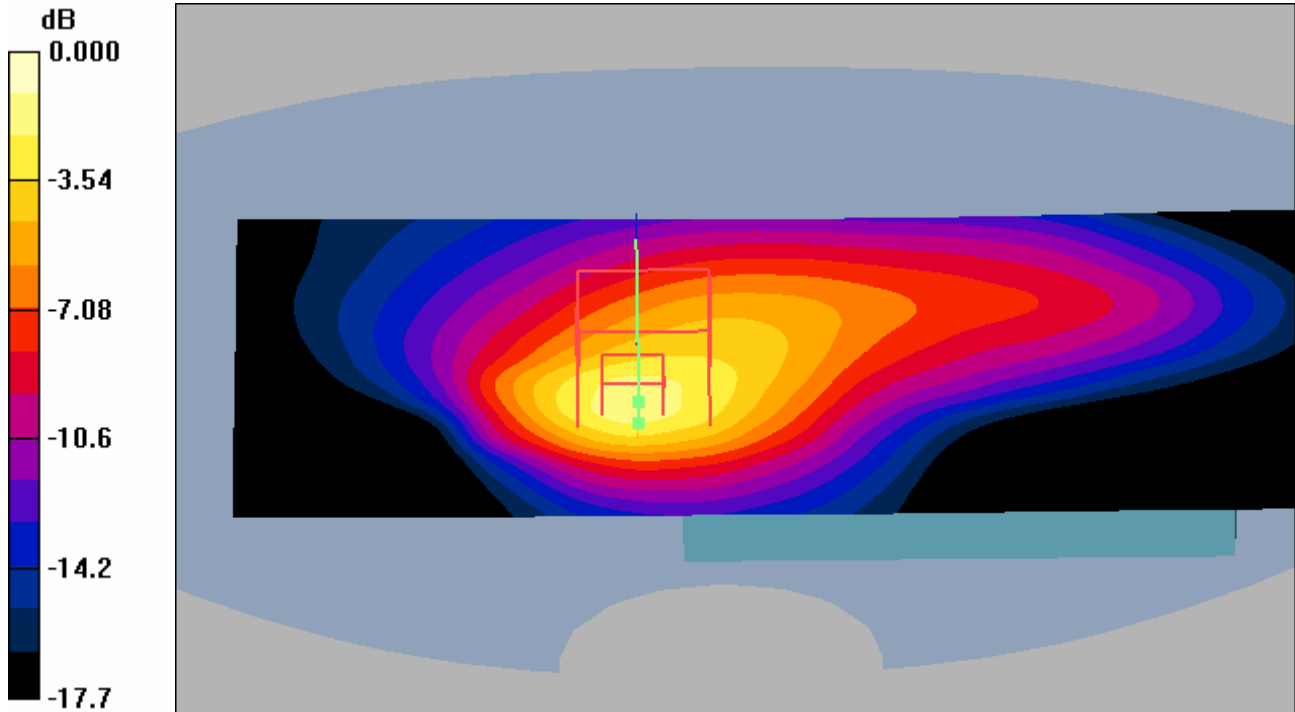
Reference Value = 16.3 V/m; Power Drift = -0.002 dB

Maximum value of SAR (interpolated) = 0.873 mW/g

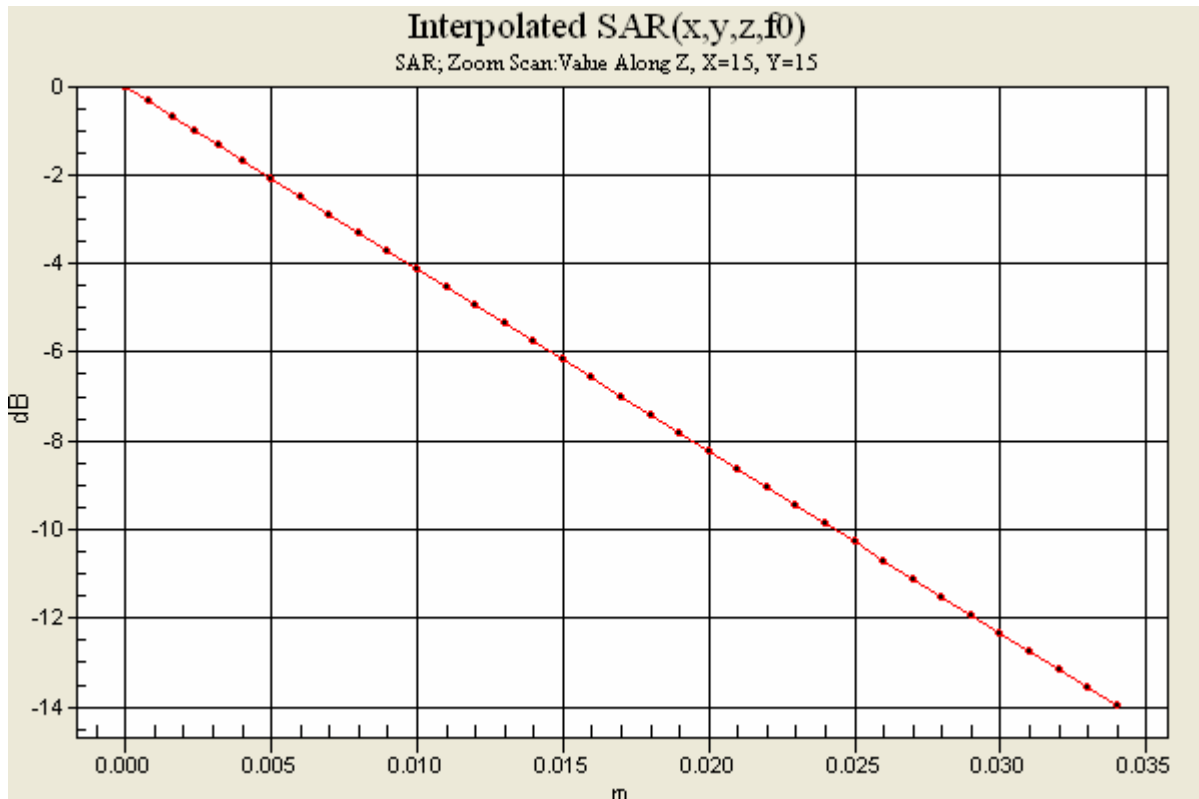


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0 dB = 0.873mW/g





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Distribution of maximum SAR in 1900 GSM band. Measured with front of device facing the body using the ICE-26 Carry Case (Standard Battery, BST-37)

Date/Time: 6/13/2006 11:42:35 AM

File Name: [13June06_W712a_GSM1900_ONCZ_ICE26_BF01.da4](#)

DUT: W712 body

Program Notes: Battery - BST37 Humidity - 41.3 % Ambient Temp - 22.5 C Simulant Temp - 22.6 C

Communication System: DCS 1900 Body; Frequency: 1850.2 MHz; Duty Cycle: 1:4.15

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $s = 1.47 \text{ mho/m}$; $\epsilon_r = 51.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(4.46, 4.46, 4.46); Calibrated: 11/22/2005

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn416; Calibrated: 11/10/2005

- Phantom: SAM with CRP (High Band Body); Type: SAM; Serial: TP: 1020

- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure/Area Scan (71x121x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.297 mW/g

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.9 V/m; Power Drift = -0.013 dB

Peak SAR (extrapolated) = 0.385 W/kg

SAR(1 g) = 0.279 mW/g; SAR(10 g) = 0.186 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.298 mW/g

Unnamed procedure/Zoom Scan (31x31x36)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.9 V/m; Power Drift = -0.013 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

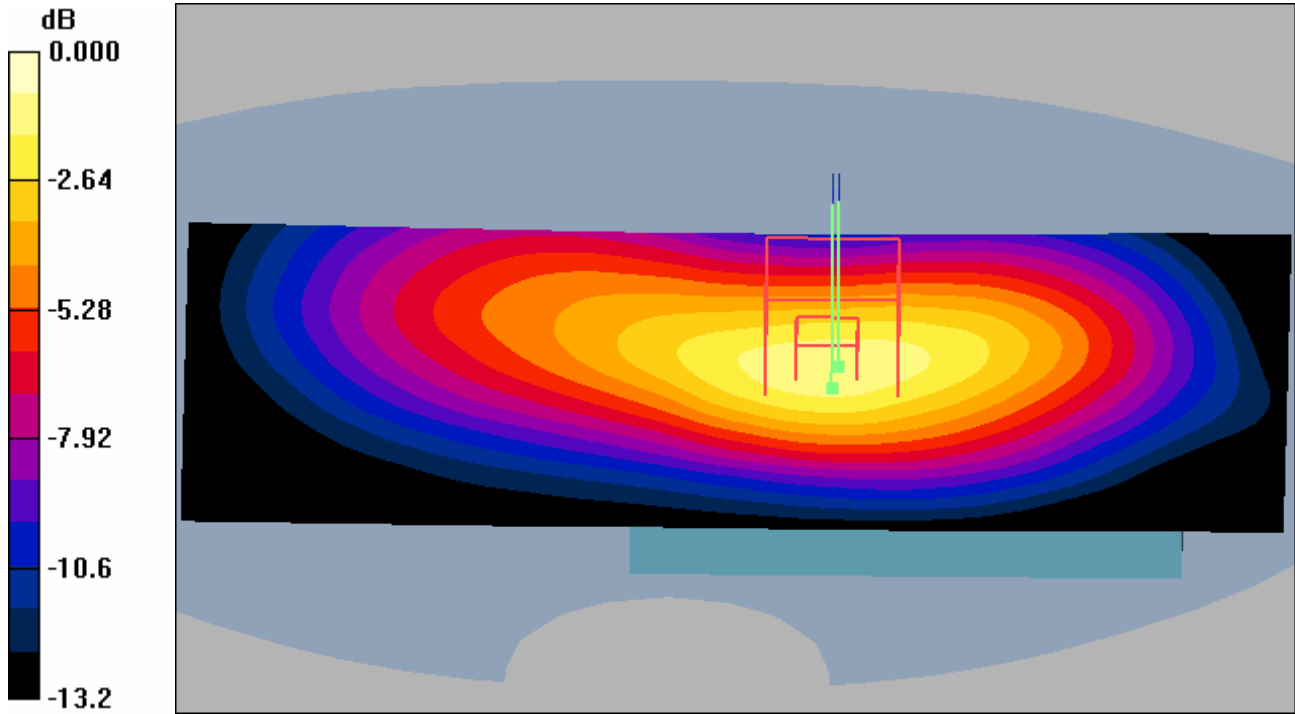
Maximum value of SAR (interpolated) = 0.385 mW/g



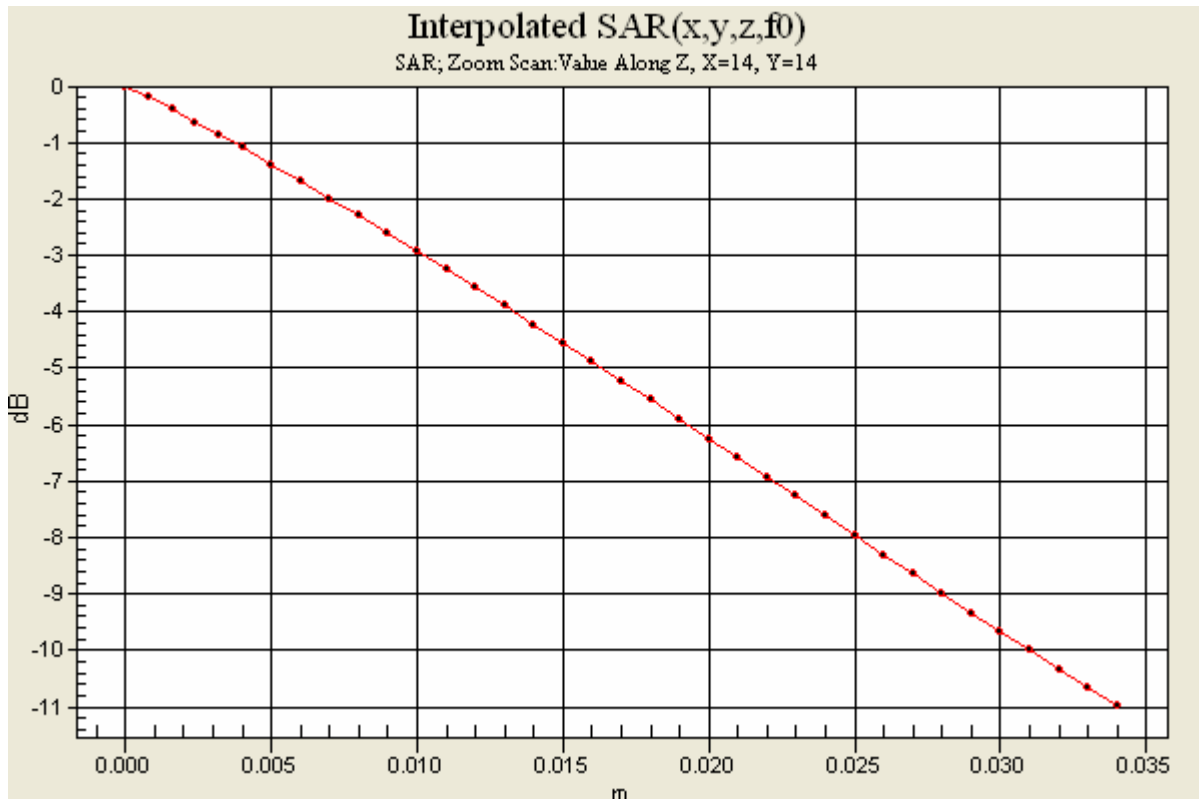
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0 dB = 0.385mW/g





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Distribution of maximum SAR in 1900 GSM band. Measured with back of device facing the body using the ICE-26 Carry Case (Standard Battery, BST-37) Bluetooth on.

Date/Time: 6/13/2006 4:53:55 PM

File Name: [13June06 W712a GSM1900 0NCZ ICE26 BT BB01.da4](#)

DUT: W712 body

Program Notes: Battery - BST37 Humidity - 41.1 % Ambient Temp - 22.7 C Simulant Temp - 22.6 C

Communication System: DCS 1900 Body; Frequency: 1909.8 MHz; Duty Cycle: 1:4.15

Medium: Head 1800/1900 MHz Medium parameters used: $f = 1910 \text{ MHz}$; $s = 1.53 \text{ mho/m}$; $\epsilon_r = 51.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(4.46, 4.46, 4.46); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Body); Type: SAM; Serial: TP: 1020
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (111x181x1):

Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 0.436 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.2 V/m; Power Drift = -0.031 dB

Peak SAR (extrapolated) = 0.663 W/kg

SAR(1 g) = 0.410 mW/g; SAR(10 g) = 0.241 mW/g

Maximum value of SAR (measured) = 0.447 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:

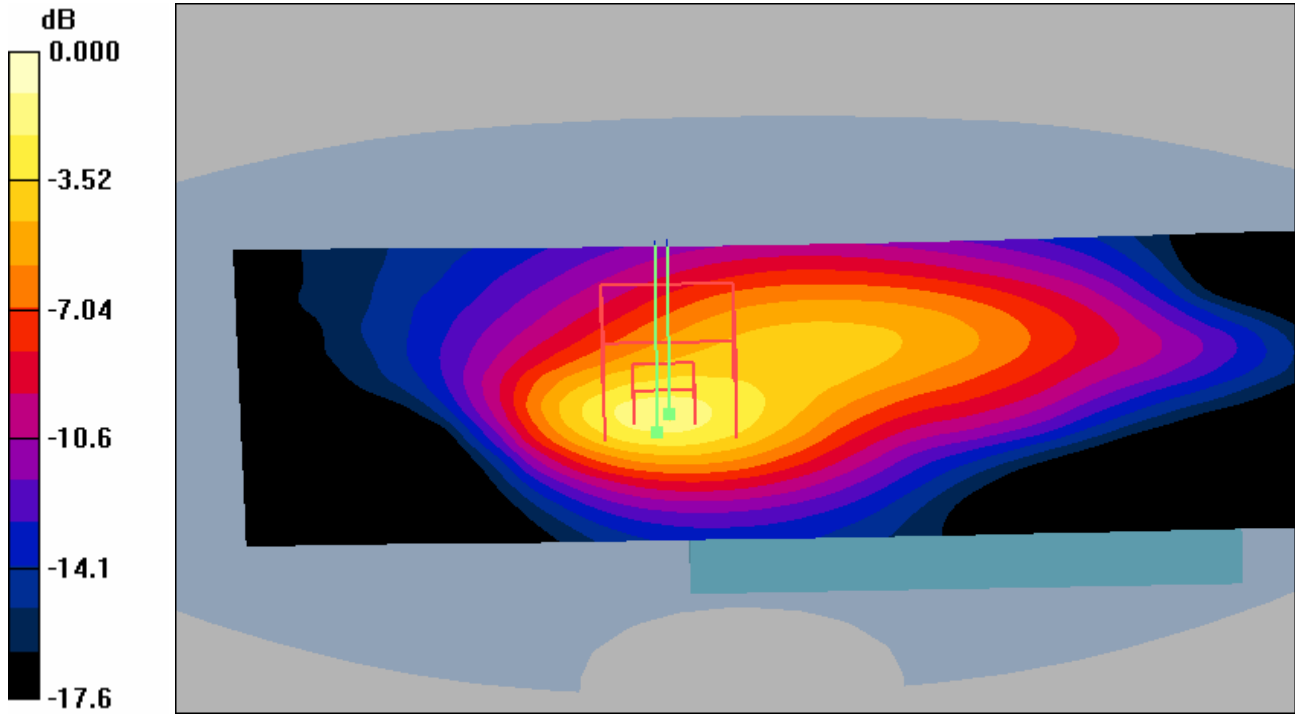
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.2 V/m; Power Drift = -0.031 dB

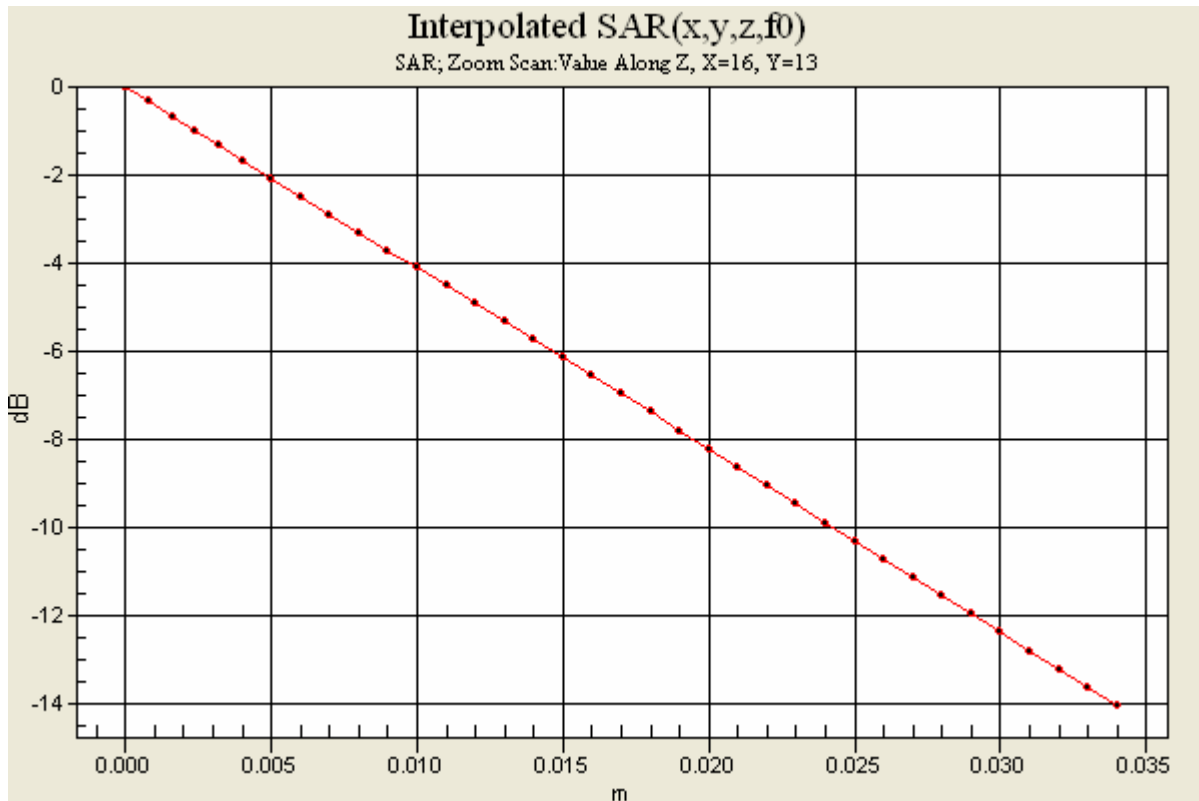
Maximum value of SAR (interpolated) = 0.663 mW/g



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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\W712A\Final Reports\FCCW712A.doc



0 dB = 0.663mW/g





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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\W712A\Final Reports\FCCW712A.doc

Distribution of maximum SAR in 1900 GSM band. Measured with back of device facing the body using the IAE-60 Carry Case (Standard Battery, BST-37)

Date/Time: 6/13/2006 3:53:48 PM

File Name: [13June06_W712a_GSM1900_0NCZ_IAE60_BB01.da4](#)

DUT: W712 body

Program Notes: Battery - BST37 Humidity - 41.1 % Ambient Temp - 22.7 C Simulant Temp - 22.6 C

Communication System: DCS 1900 Body; Frequency: 1909.8 MHz; Duty Cycle: 1:4.15

Medium: Head 1800/1900 MHz Medium parameters used: $f = 1910 \text{ MHz}$; $s = 1.53 \text{ mho/m}$; $e_r = 51.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(4.46, 4.46, 4.46); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Body); Type: SAM; Serial: TP: 1020
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

Unnamed procedure 3/Area Scan (111x181x1):

Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 0.484 mW/g

Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.0 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.703 W/kg

SAR(1 g) = 0.437 mW/g; SAR(10 g) = 0.261 mW/g

Maximum value of SAR (measured) = 0.480 mW/g

Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.0 V/m; Power Drift = -0.016 dB

Maximum value of SAR (interpolated) = 0.703 mW/g

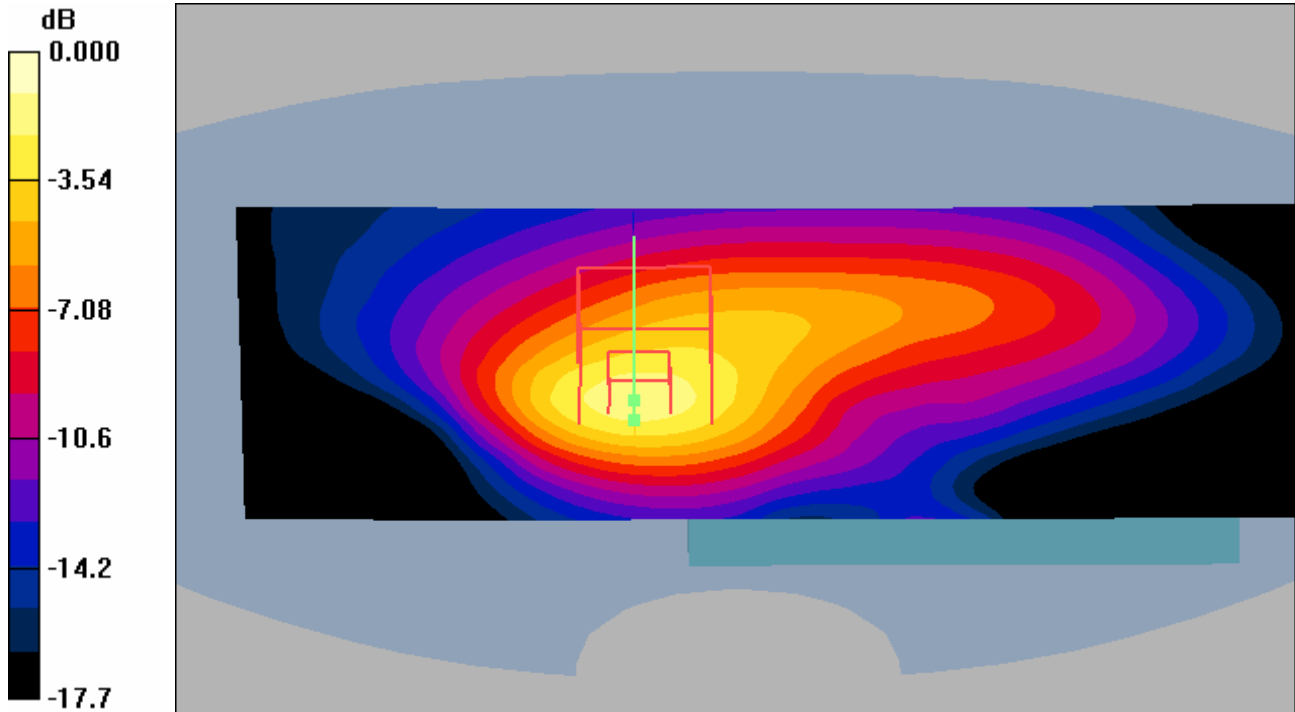


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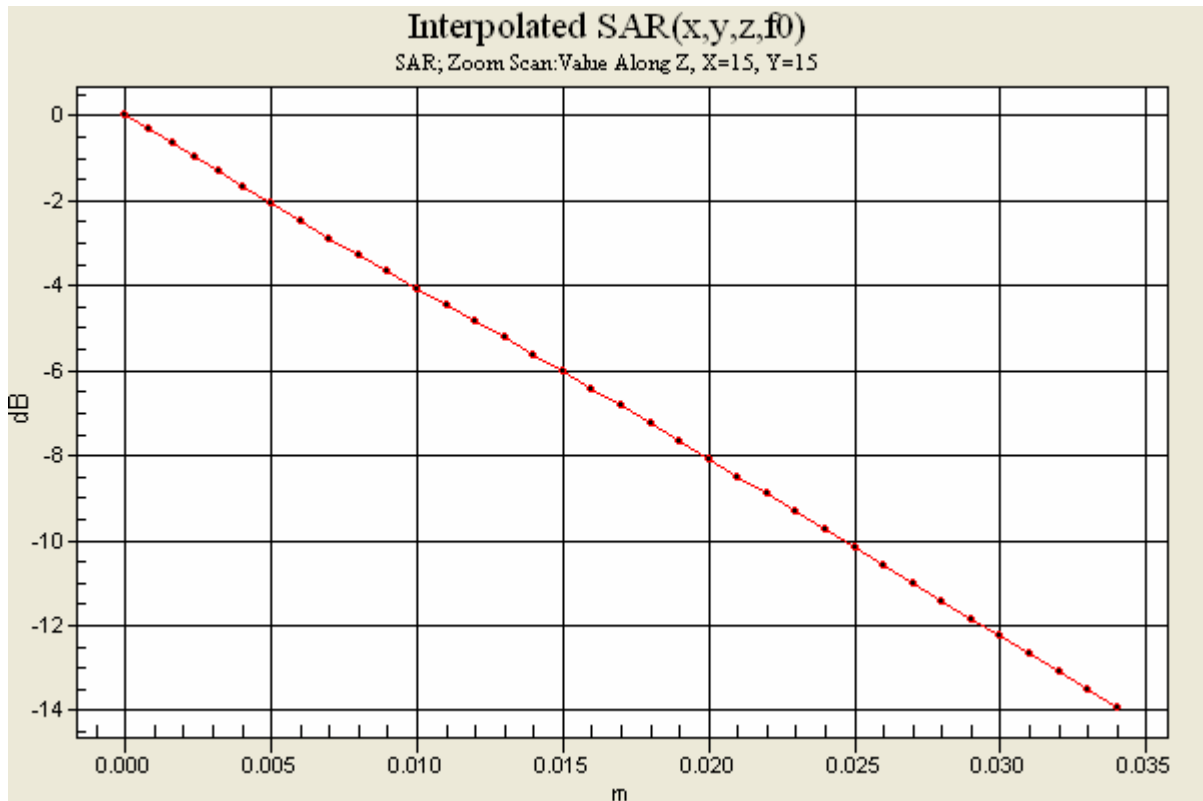
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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 007 W712a 01	
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0 dB = 0.703mW/g



APPLICANT: Sony Ericsson Mobile Communications Inc.

FCC ID: **PY7AF042011**



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Appendix 4

Probe Calibration Certificates



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 007 W712a 01
Approved SEM/CV/PF/P Gerard Hayes	Checked	A X:\SAR Chamber\FCC reports\W712A\Final Reports\FCCW712A.doc

ET3DV6 SN:1539

November 22, 2005

DASY - Parameters of Probe: ET3DV6 SN:1539**Sensitivity in Free Space^A****Diode Compression^B**

NormX	1.36 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	89 mV
NormY	1.27 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	89 mV
NormZ	1.39 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	89 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect**TSL 900 MHz Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{be} [%]	Without Correction Algorithm	8.8	4.7
SAR _{be} [%]	With Correction Algorithm	0.1	0.3

TSL 1750 MHz Typical SAR gradient: 10 % per mm

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{be} [%]	Without Correction Algorithm	13.0	8.4
SAR _{be} [%]	With Correction Algorithm	0.8	0.0

Sensor OffsetProbe Tip to Sensor Center **2.7 mm**

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Page 8).^B Numerical linearization parameter; uncertainty not required.

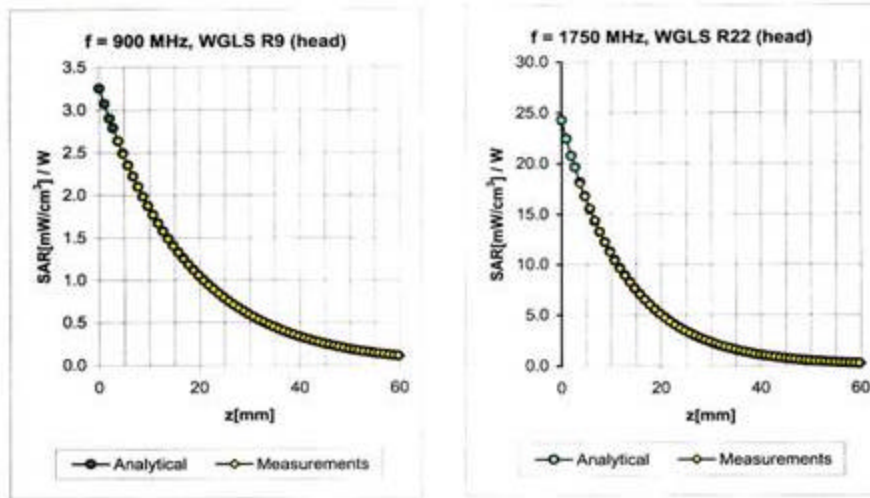


Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 007 W712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\W712A\Final Reports\FCCW712A.doc

ET3DV6 SN:1539

November 22, 2005

Conversion Factor Assessment



f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.63	1.80	5.99 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.54	1.93	5.86 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.66	2.19	4.76 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.64	2.43	4.55 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.81	2.04	4.06 ± 11.8% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.56	1.99	5.88 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.53	2.08	5.63 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.65	2.48	4.21 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.66	2.48	4.12 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	1.18	1.35	4.06 ± 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.



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ET3DV6 SN:1583

November 22, 2005

DASY - Parameters of Probe: ET3DV6 SN:1583**Sensitivity in Free Space^A****Diode Compression^B**

NormX	1.81 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	93 mV
NormY	2.03 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	93 mV
NormZ	1.98 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	93 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect**TSL 900 MHz Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{oe} [%]	Without Correction Algorithm	7.7	4.3
SAR _{oe} [%]	With Correction Algorithm	0.0	0.2

TSL 1750 MHz Typical SAR gradient: 10 % per mm

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{oe} [%]	Without Correction Algorithm	12.1	8.3
SAR _{oe} [%]	With Correction Algorithm	0.7	0.2

Sensor Offset

Probe Tip to Sensor Center 2.7 mm

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Page 8).^B Numerical linearization parameter: uncertainty not required.

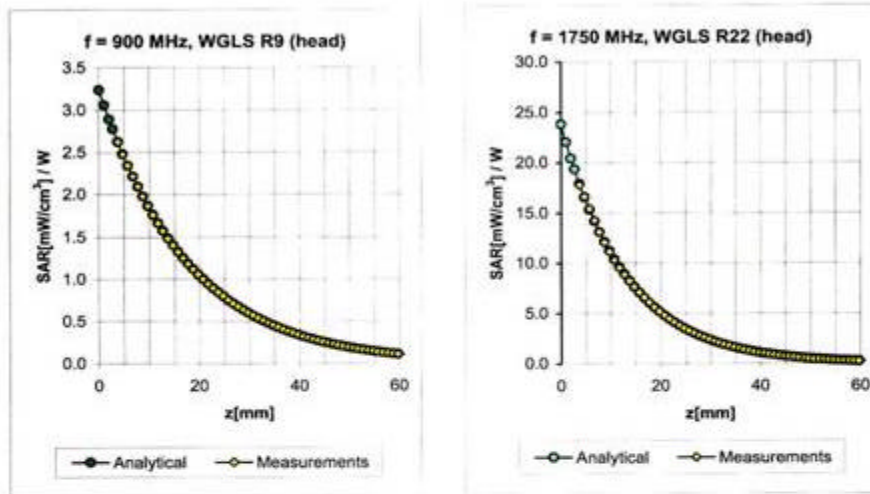


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Conversion Factor Assessment



f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.50	1.81	6.82 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.48	1.93	6.51 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.54	2.38	5.07 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.52	2.62	4.93 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.62	2.26	4.31 ± 11.8% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.44	2.07	6.53 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.44	2.14	6.35 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.52	2.78	4.60 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.53	2.81	4.46 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.69	1.93	4.22 ± 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.

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Appendix 5**Measurement Uncertainty Budget**



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Table 1: Uncertainty Budget for System Performance Check (Dipole & flat phantom) DASY4 System

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e = f(d,k)</i>	<i>f</i>	<i>g</i>	<i>h = c x f / e</i>	<i>i = c x g / e</i>	<i>k</i>
Uncertainty Component	Sec.	Tol. (± %)	Prob. Dist.	Div.	<i>c_i</i> (1-g)	<i>c_i</i> (10-g)	1-g <i>u_i</i> (±%)	10-g <i>u_i</i> (±%)	<i>v_i</i>
Measurement System									
Probe Calibration (<i>k</i> =1)	E2.1	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Axial Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Hemispherical Isotropy	E.2.2	1.0	R	1.73	1	1	0.6	0.6	∞
Boundary Effect	E.2.3	4.7	R	1.73	1	1	2.7	2.7	∞
Linearity	E.2.4	1.0	R	1.73	1	1	0.6	0.6	∞
System Detection Limits	E.2.5	1.0	N	1	1	1	1.0	1.0	∞
Readout Electronics	E.2.6	0.8	R	1.73	1	1	0.5	0.5	∞
Response Time	E.2.7	2.6	R	1.73	1	1	1.5	1.5	∞
Integration Time	E.2.8	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance (corresponds to the mechanical constraints of the robot)	E.6.2	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning with respect to Phantom Shell	E.6.3	2.9	R	1.73	1	1	1.7	1.7	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1	1	0.6	0.6	∞
Dipole									
Dipole Axis to Liquid Distance	8, E.4.2	1.0	R	1.73	1	1	0.6	0.6	∞
Input Power and SAR Drift Measurement	8, 6.6.2	5.0	R	1.73	1	1	2.9	2.9	∞
Phantom and Tissue Parameters									
Phantom Uncertainty - shell thickness tolerance	E.3.1	4.0	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity - deviation from target values (5)	E.3.2	4.3	R	1.73	0.64	0.43	1.59	1.07	∞



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Liquid Conductivity - measurement uncertainty (6)	E.3.3	6.20	R	1.73	0.64	0.43	2.29	1.54	∞
Liquid Permittivity - deviation from target values (5)	E.3.2	3.7	R	1.73	0.6	0.49	1.28	1.05	∞
Liquid Permittivity - measurement uncertainty (6)	E.3.3	6.08	R	1.73	0.6	0.49	2.11	1.72	∞
Combined Standard Uncertainty			RSS				9.37	9.03	
Expanded Uncertainty (95% C.L.)							18.74	18.05	



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Table 2: Uncertainty Budget for the Device Under Test with DASY4 System

a	b	c	d	$e = f(d,k)$	f	g	$h = c \times f / e$	$i = c \times g / e$	k
Uncertainty Component	Sec.	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 ($k=1$)	E2.1	4.8	N	1	1	1	4.8	4.8	∞
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	1.0	N	1	1	1	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1	1	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1	1	1.5	1.5	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance (corresponds to the mechanical constraints of the robot)	E.6.2	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning with respect to Phantom Shell	E.6.3	2.9	R	1.73	1	1	1.7	1.7	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1	1	0.6	0.6	∞
Test sample Related									
Test Sample Positioning	E.4.2	1.8	N	1	1	1	1.8	1.8	4
Device Holder Uncertainty	E.4.1	3.6	R	1.73	1	1	2.1	2.1	4
Output Power Variation - SAR drift measurement (4)	6.6.2	5.0	R	1.73	1	1	2.9	2.9	∞
Phantom and Tissue Parameters									



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Phantom Uncertainty (shape and thickness tolerances)	E.3.1	4.0	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity - deviation from target values (5)	E.3.2	4.3	R	1.73	0.64	0.43	1.6	1.1	∞
Liquid Conductivity - measurement uncertainty (6)	E.3.3	6.20	R	1.73	0.64	0.43	2.3	1.5	∞
Liquid Permittivity - deviation from target values (5)	E.3.2	3.7	R	1.73	0.6	0.49	1.3	1.0	∞
Liquid Permittivity - measurement uncertainty (6)	E.3.3	6.08	R	1.73	0.6	0.49	2.1	1.7	∞
Combined Standard Uncertainty			RSS				9.7	9.4	
Expanded Uncertainty (95% CONFIDENCE LEVEL)			K=2				19.5	18.8	



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Table 3a. Values for e'

Uncertainty Component	Tolerance ($\pm\%$)	Probability Distribution	Divisor	c_i	Standard Uncertainty ($\pm\%$)	v_i or v_{eff}
Repeatability (n repeats)	0.97	N	1	1	0.97	4
Network analyzer uncertainty sources	8.38	R	1.73	1	4.83	∞
Dielectric Error Sources	5.93	R	1.73	1	3.42	∞
Combined standard uncertainty					6.08	

Table 3b. Values for s

Uncertainty Component	Tolerance ($\pm\%$)	Probability Distribution	Divisor	c_i	Standard Uncertainty ($\pm\%$)	v_i or v_{eff}
Repeatability (n repeats)	1.85	N	1	1	1.85	4
Network analyzer uncertainty sources	8.38	R	1.73	1	4.83	∞
Dielectric Error Sources	5.93	R	1.73	1	3.42	∞
Combined standard uncertainty					6.20	

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Appendix 6

Photographs of the Device Under Test



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a. Front open



b. Back open



c. Side open

View of Device (Open)



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a. Front



b. Back

View of Device (Closed)



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View of Hands-free Accessory

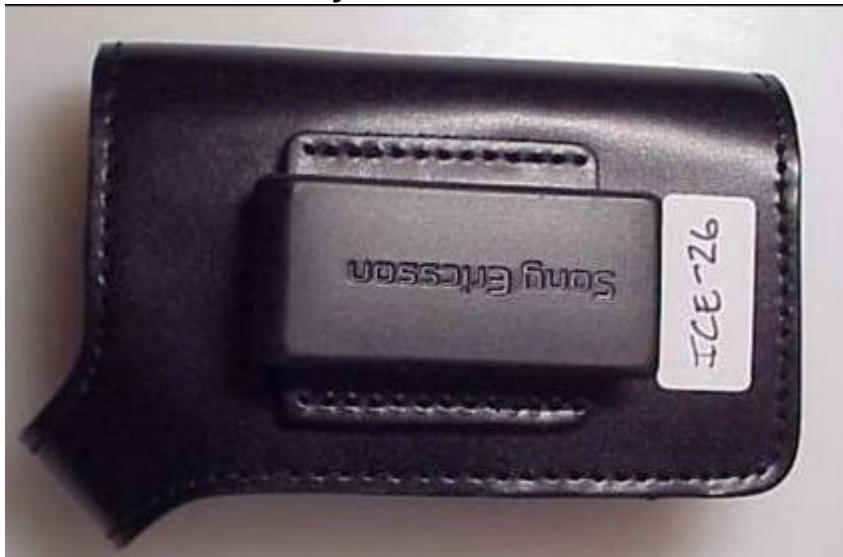


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ICE-26 Carry Case Front View



ICE-26 Carry Case Back View



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IAC-60 Carry Case View



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Position of device against head phantom using the “cheek” position



Position of device against head phantom using the “tilt” position



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Position of device against body phantom with ICE26 in front position.



Position of device against body phantom with ICE26 in back position.



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Position of device against body phantom with IAC60 in back position.