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SAR Test Report of Portable Cellular Phone FCC ID: PY7AF042012 Model : Z712a

Date of test: May 31 – June 8, 2006
Date of Report: June 12, 2006

Laboratory: SAR Testing Laboratory Sony Ericsson Mobile Communications, Inc. 7001
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Tested by: Rodney Dixon
Eng. Technician IV, Product Verification Group

Test Responsible: Gerard Hayes *Gerard Hayes 12 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 PY7AF042012 model Z712a 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 PY7AF042012 model Z712a. 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		PY7AF042012 / Z712a			
Serial number		BDX0000QB1		BDX0000QB3	
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}	29.0 dBm +/- 0.7dB
	f_{mid}	32.0 dBm +/- 0.5dB		f_{mid}	30.0 dBm +/- 0.3dB
	f_{high}	32.0 dBm +/- 0.5dB		f_{high}	30.0 dBm +/- 0.5dB
GSM Mode: 1/8 Duty Cycle	f_{low}	32.0 dBm +/- 0.2 dB		f_{low}	29.0 dBm +/- 0.7dB
GPRS Mode: 2/8 Duty Cycle	f_{mid}	32.0 dBm +/- 0.5dB		f_{mid}	30.0 dBm +/- 0.3dB
	f_{high}	32.0 dBm +/- 0.5dB		f_{high}	30.0 dBm +/- 0.5dB
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 $\pm 9.8\%$ (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 21.9-24.8°C, the relative humidity was 37.2%- 42.1 %, 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, 31-May-06	41.77	0.903	24.2
		Recommended Limits	41.50	0.90	20-25
		Measured, 01-June-06	41.84	0.906	24.2
		Recommended Limits	41.50	0.90	20-25
	Body	Measured, 07-June-06	52.85	0.998	22.1
		Recommended Limits	55.20	0.97	20-25
1900	Head	Measured, 31-May-06	38.73	1.461	24.8
		Recommended Limits	40.00	1.40	20-25
		Measured, 01-June-06	38.48	1.454	24.9
		Recommended Limits	40.00	1.40	20-25
		Measured, 02-June-06	38.17	1.443	24.3
		Recommended Limits	40.00	1.40	20-25
	Body	Measured, 06-June-06	50.76	1.52	22.8
		Recommended Limits	53.30	1.52	20-25
		Measured, 08-June-06	50.72	1.56	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 21.9-24.8°C, the relative humidity was 37.2%- 42.1 %, 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 0.000638 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, 31-May-06	8.7	5.6	41.77	0.903	24.2
		Measured, 01-June-06	8.7	5.7	41.84	0.906	24.2
		Recommended Limits	9.50	6.20	41.50	0.90	20-25
	Body	Measured, 07-June-06	9.5	6.2	52.85	0.998	22.1
		Recommended Limits	9.90	6.46	55.20	0.97	20-25
1900	Head	Measured, 31-May-06	42	22.1	38.73	1.46	24.8
		Measured, 01-June-06	40.6	21.4	38.48	1.454	24.9
		Measured, 02-June-06	41.4	21.8	38.17	1.44	24.3
		Recommended Limits	39.70	20.50	40.00	1.40	20-25
	Body	Measured, 06-June-06	41.5	22.3	50.76	1.52	22.8
		Measured, 08-June-06	42.4	22.8	50.72	1.56	22.5
		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 PY7AF042012 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 21.9-24.8°C, the relative humidity was 37.2%- 42.1 %, 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	0.72	0.49	Right head, cheek/touch position, 849 MHz BST-37 battery
1900 GSM	0.89	0.41	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 PY7AF042012 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	0.268	0.187	0.08	0.27	0.19	24.3	24.2
	189 / 837	32.5	0.390	0.274	0.10	0.39	0.27		
	251 / 849	32.5	0.612	0.430	0.04	0.61	0.43		
1900 GSM	512 / 1850	29.5	0.514	0.249	-0.12	0.51	0.25	24.6	24.8
	660/1880	30.3	0.522	0.259	-0.09	0.52	0.26		
	810/1910	30.5	0.548	0.275	-0.04	0.55	0.28		
f (MHz)	Channel/ frequency	Conducted Output Power (dBm) GSM 1:8 Duty Cycle	FCC ID PY7AF042012 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	0.064	0.048	0.03	0.06	0.05	24.4	24.2
	189 / 837	32.5	0.090	0.067	0.01	0.09	0.07		
	251 / 849	32.5	0.142	0.106	0.03	0.14	0.11		
1900 GSM	512 / 1850	29.5	0.036	0.024	-0.19	0.04	0.02	24.8	24.7
	660/1880	30.3	0.039	0.025	-0.06	0.04	0.03		
	810/1910	30.5	0.057	0.037	-0.04	0.06	0.04		

Table 1: SAR measurement results for the portable cellular telephone FCC ID PY7AF042012 model Z712a 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 PY7AF042012 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	128 / 824	32.2	0.307	0.204	0.06	0.31	0.20	23.8	24.0
	189 / 837	32.5	0.447	0.303	0.06	0.45	0.30		
	251 / 849	32.5	0.717	0.492	0.06	0.72	0.49		
Bluetooth On	251 / 849	32.5	0.673	0.472	-0.04	0.67	0.47	23.8	24.0
1900 GSM	512 / 1850	29.5	0.821	0.384	-0.099	0.82	0.38	24.6	24.9
	660/1880	30.3	0.793	0.372	-0.02	0.79	0.37		
	810/1910	30.5	0.736	0.349	-0.05	0.74	0.35		
Bluetooth On	512 / 1850	29.5	0.886	0.407	0.10	0.89	0.41	24.6	24.9
f (MHz)	Channel/ frequency	Conducted Output Power (dBm) GSM 1:8 Duty Cycle	FCC ID PY7AF042012 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	0.076	0.057	0.00	0.08	0.06	24.0	24.1
	189 / 837	32.5	0.107	0.080	0.03	0.11	0.08		
	251 / 849	32.5	0.181	0.135	0.00	0.18	0.14		
1900 GSM	512 / 1850	29.5	0.044	0.029	0.06	0.04	0.03	24.7	24.8
	660/1880	30.3	0.048	0.030	0.19	0.05	0.03		
	810/1910	30.5	0.060	0.039	-0.10	0.06	0.04		

Table 2: SAR measurement results for the portable cellular telephone FCC ID PY7AF042012 model Z712a 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 Table 3 are the maximum SAR values averaged over 1gram 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 21.9-24.8°C, the relative humidity was 37.2%- 42.1 %, 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 accessory was tested for this phone:

-ICE26 Carry Case

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	0.85	0.59	ICE-26 Spacer Carry Accessory, back of phone facing body, 849 MHz, 2:8 Duty Cycle, BST-37 battery, Bluetooth On
1900 GSM	0.60	0.35	ICE-26 Carry Accessory, back of phone facing body, 1910 MHz, 2:8 Duty Cycle BST-37 battery, Bluetooth On



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f (MHz)	Operating Condition	Channel/ frequency	Conduc ted Output Power (dBm)	FCC ID PY7AF042012 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	0.662	0.468	-0.01	0.66	0.47	21.9	22.0
		189 / 837	32.5	0.618	0.438	-0.02	0.62	0.44		
		251 / 849	32.5	0.761	0.532	0.13	0.76	0.53		
Bluetooth On		251 / 849	32.5	0.848	0.594	0.01	0.85	0.59	21.9	22.0
1900 GSM	2:8 Duty Cycle	512 / 1850	29.5	0.350	0.220	-0.04	0.35	0.22	22.2	22.7
		660/1880	30.3	0.412	0.246	-0.11	0.41	0.25		
		810/1910	30.5	0.497	0.288	-0.03	0.50	0.29		
Bluetooth On		810/1910	30.5	0.598	0.349	-0.09	0.60	0.35	22.3	22.5
Front of phone facing body										
800 GSM	2:8 Duty Cycle	128 / 824	32.2	0.152	0.110	-0.01	0.15	0.11	22.0	22.1
		189 / 837	32.5	0.235	0.171	0.02	0.24	0.17		
		251 / 849	32.5	0.309	0.224	-0.02	0.31	0.22		
1900 GSM	2:8 Duty Cycle	512 / 1850	29.5	0.248	0.165	-0.03	0.25	0.17	22.1	22.7
		660/1880	30.3	0.243	0.159	0.04	0.24	0.16		
		810/1910	30.5	0.177	0.117	-0.01	0.18	0.12		

Table 3: SAR measurement results for the portable cellular telephone FCC ID PY7AF042012 model Z712a at maximum output power with Standard Battery BST-37. Measured against the body with carry accessory ICE-26 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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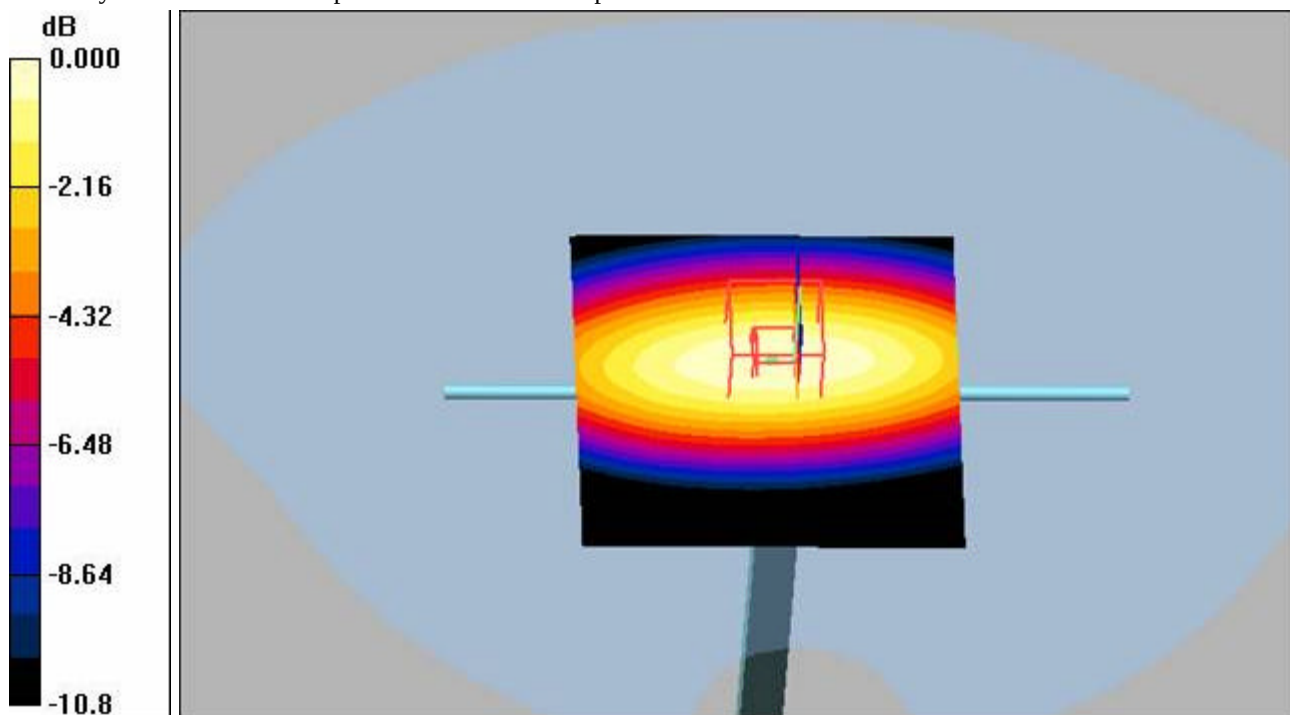
835 MHz SAR Distribution of Validation Dipole Antenna**System Performance Check on May 31, 2006 (Using head tissue).****Validation_835Head_429_1251_31May06_T01**File Name: [Validation_835Head_429_1251_31May06_T01.da4](#)

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: $f = 835 \text{ MHz}$; $s = 0.903 \text{ mho/m}$; $\epsilon_r = 41.8$; $\rho = 1000 \text{ kg/m}^3$

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) = 0.925 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 = 32.8 V/m ; Power Drift = 0.029 dB Peak SAR (extrapolated) = 1.33 W/kg **SAR(1 g) = 0.872 mW/g ; SAR(10 g) = 0.567 mW/g** Maximum value of SAR (measured) = 0.942 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 = 32.8 V/m ; Power Drift = 0.029 dB Peak SAR (extrapolated) = 1.30 W/kg **SAR(1 g) = 0.855 mW/g ; SAR(10 g) = 0.557 mW/g** Maximum value of SAR (measured) = 0.911 mW/g Procedure Notes: Pin: before 99.7 mW / after 99.9 mW Humidity: 41% Ambient Temp: 24.3 C Simulant Temp: 24.2 C 0 dB = 0.911 mW/g



15(73)

Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
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835 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on June 01, 2006 (Using head tissue).

Validation_835Head_429_1251_01June06_T01

File Name: [Validation_835Head_429_1251_01June06_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: $f = 835 \text{ MHz}$; $s = 0.906 \text{ mho/m}$; $\epsilon_r = 41.8$; $\rho = 1000 \text{ kg/m}^3$

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) = 0.935 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 = 32.6 V/m; Power Drift = 0.002 dB

Peak SAR (extrapolated) = 1.33 W/kg

SAR(1 g) = 0.877 mW/g; SAR(10 g) = 0.571 mW/g

Maximum value of SAR (measured) = 0.947 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 = 32.6 V/m; Power Drift = 0.002 dB

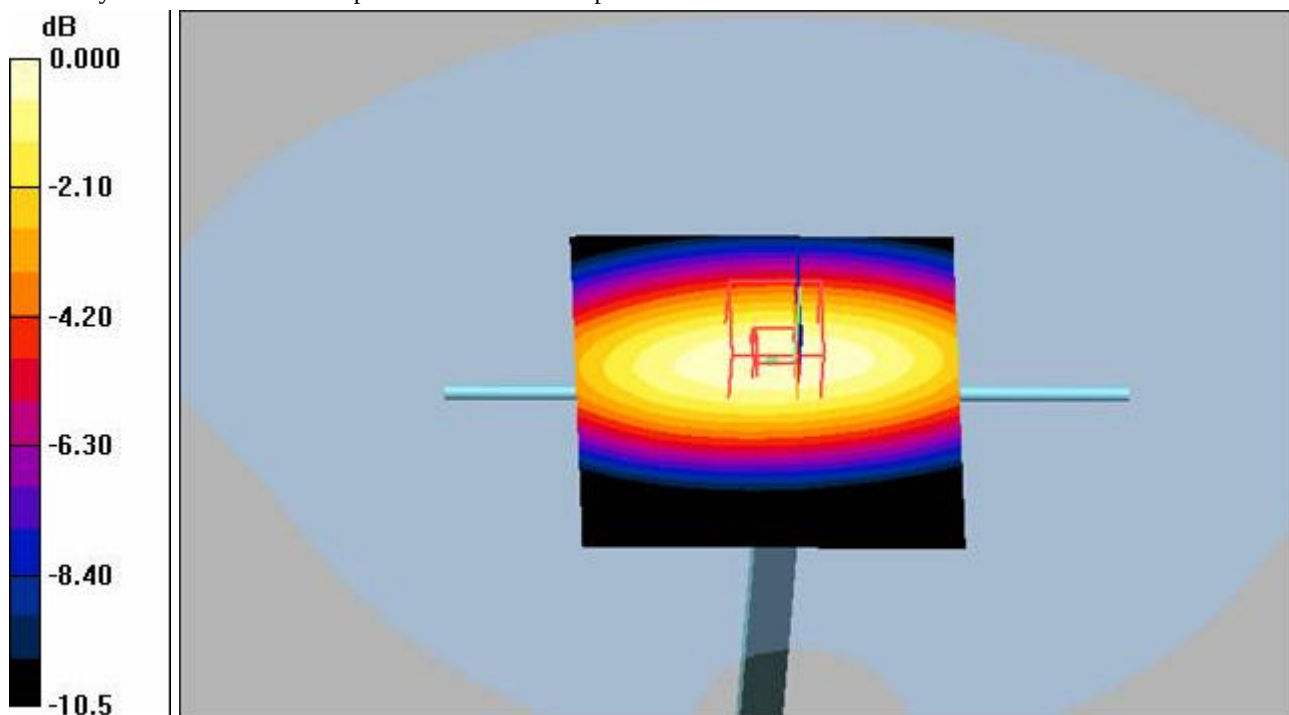
Peak SAR (extrapolated) = 1.32 W/kg

SAR(1 g) = 0.868 mW/g; SAR(10 g) = 0.565 mW/g

Maximum value of SAR (measured) = 0.935 mW/g

Procedure Notes: Pin: before 99.8 mW / after 99.9 mW

Humidity: 41.1% Ambient Temp: 24 C Simulant Temp: 24.2 C



0 dB = 0.935mW/g



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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

835 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on June 07, 2006 (Using body tissue).

Validation_835Body_429_1031_07June06_T01

File Name: [Validation_835Body_429_1031_07June06_T01.da4](#)

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

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

Medium parameters used: $f = 835 \text{ MHz}$; $s = 0.998 \text{ mho/m}$; $\epsilon_r = 52.9$; $\rho = 1000 \text{ kg/m}^3$

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) = 1.03 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 = 33.0 V/m; Power Drift = 0.046 dB

Peak SAR (extrapolated) = 1.40 W/kg

SAR(1 g) = 0.960 mW/g; SAR(10 g) = 0.631 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 = 33.0 V/m; Power Drift = 0.046 dB

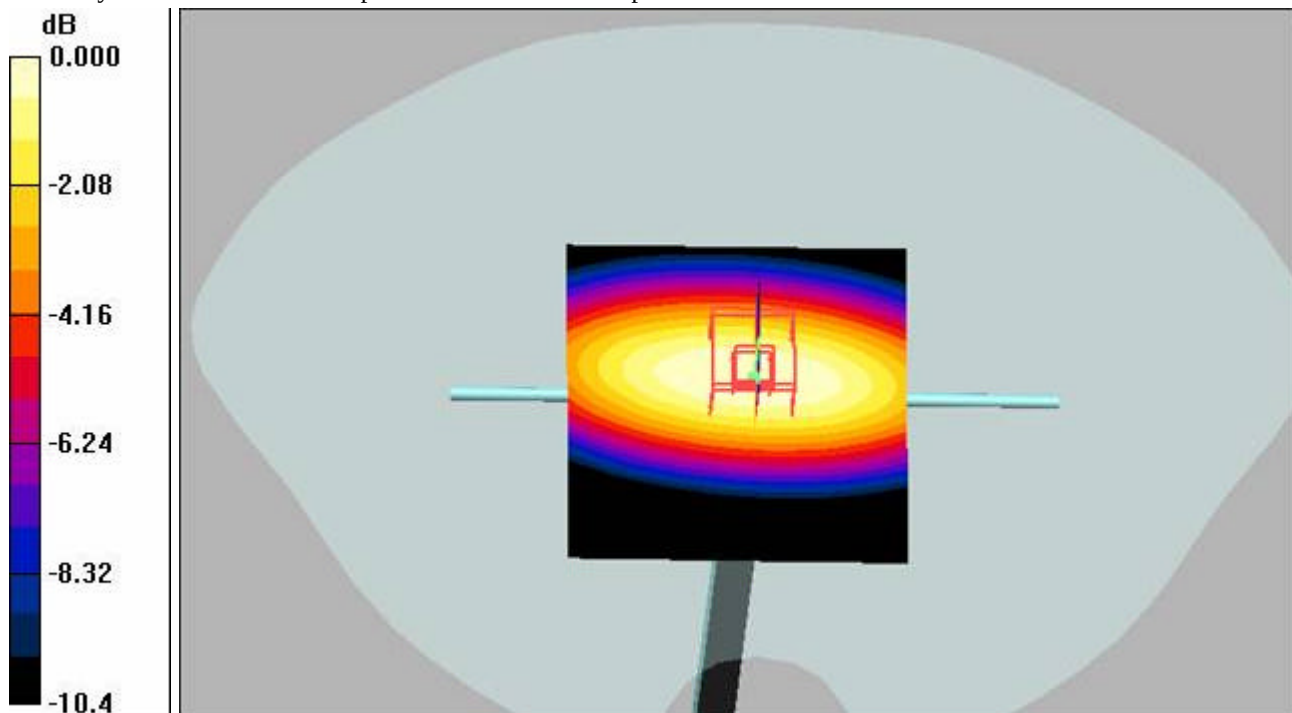
Peak SAR (extrapolated) = 1.39 W/kg

SAR(1 g) = 0.940 mW/g; SAR(10 g) = 0.616 mW/g

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

Procedure Notes: Pin: before 99.6 mW / after 100.3 mW

Humidity - 40.3% Ambient Temp - 21.9 C Simulant Temp - 22.1 C



0 dB = 1.01mW/g



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

1900 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on May 31, 2006 (Using head tissue).

Validation_1900Head_537_1335_31May06_T01

File Name: [Validation_1900Head_537_1335_31May06_T01.da4](#)

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

Probe: ET3DV6 - SN1539 ConvF(4.55, 4.55, 4.55) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $s = 1.46$ 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) = 5.13 mW/g

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

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

Reference Value = 59.2 V/m; Power Drift = -0.003 dB

Peak SAR (extrapolated) = 7.07 W/kg

SAR(1 g) = 4.13 mW/g; SAR(10 g) = 2.18 mW/g

Maximum value of SAR (measured) = 4.66 mW/g

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

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

Reference Value = 59.2 V/m; Power Drift = -0.003 dB

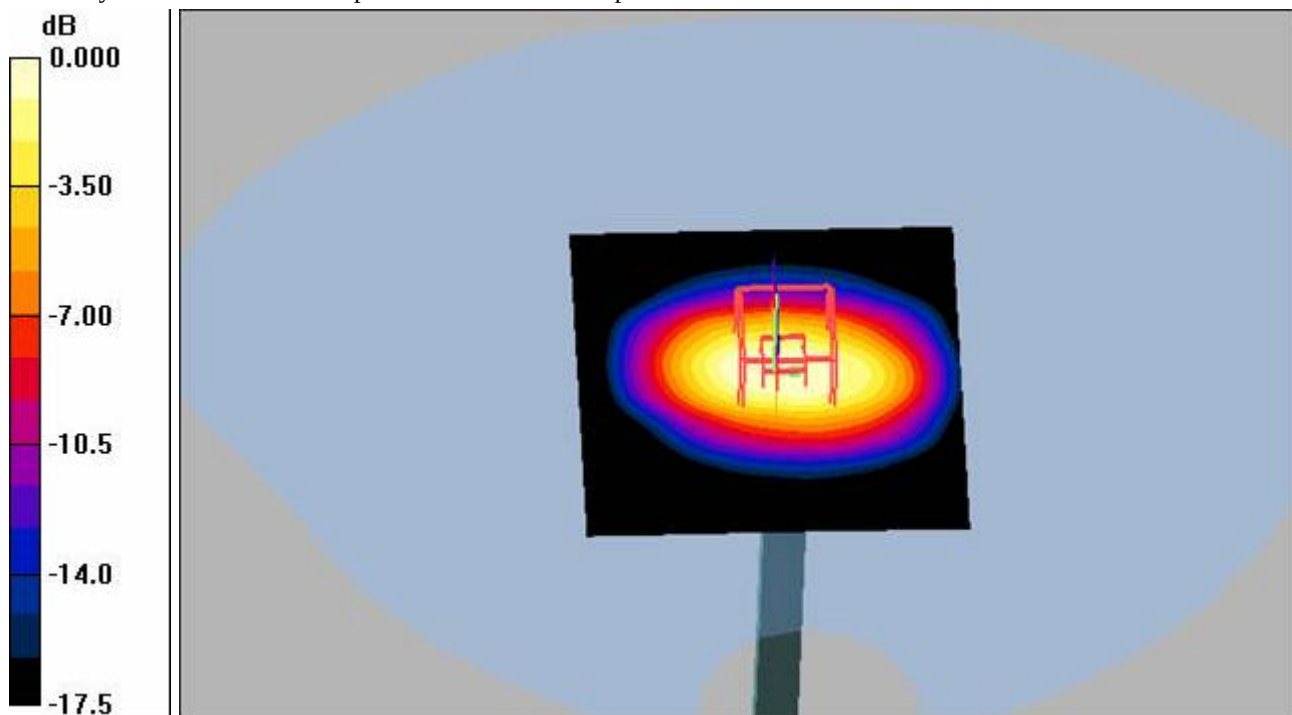
Peak SAR (extrapolated) = 7.25 W/kg

SAR(1 g) = 4.19 mW/g; SAR(10 g) = 2.2 mW/g

Maximum value of SAR (measured) = 4.69 mW/g

Procedure Notes: Pin: before 98.9 mW / after 99.1 mW

Humidity: 37.2% Ambient Temp: 24.6 C Simulant Temp: 24.8 C



0 dB = 4.69mW/g



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

1900 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on June 1, 2006 (Using head tissue).

Validation_1900Head_537_1335_01June06_T01

File Name: [Validation_1900Head_537_1335_01June06_T01.da4](#)

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

Probe: ET3DV6 - SN1539 ConvF(4.55, 4.55, 4.55) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $s = 1.45$ mho/m; $\epsilon_r = 38.5$; $\rho = 1000$ 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) = 4.99 mW/g

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

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

Reference Value = 59.1 V/m; Power Drift = 0.003 dB

Peak SAR (extrapolated) = 6.99 W/kg

SAR(1 g) = 4.09 mW/g; SAR(10 g) = 2.16 mW/g

Maximum value of SAR (measured) = 4.65 mW/g

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

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

Reference Value = 59.1 V/m; Power Drift = 0.003 dB

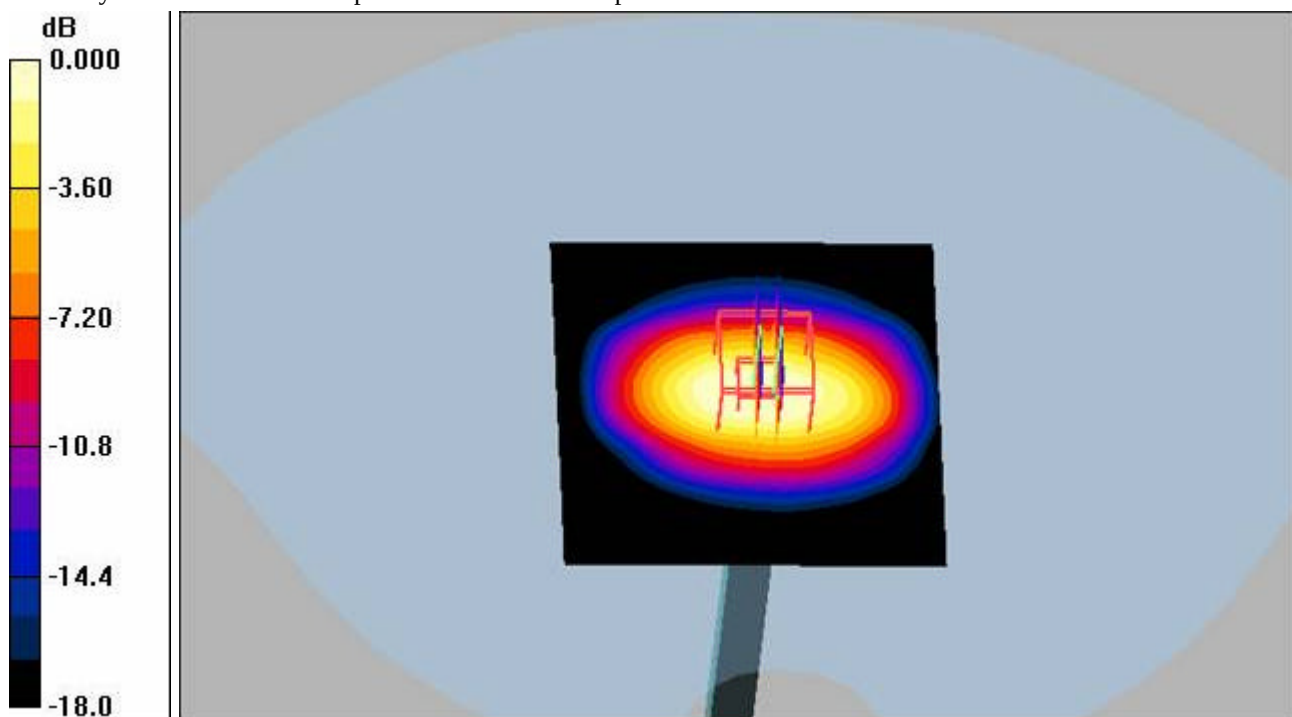
Peak SAR (extrapolated) = 6.88 W/kg

SAR(1 g) = 4.02 mW/g; SAR(10 g) = 2.12 mW/g

Maximum value of SAR (measured) = 4.49 mW/g

Procedure Notes: Pin: before 99.9 mW / after 99.7 mW

Humidity: 38.4% Ambient Temp: 24.6 C Simulant Temp: 24.9 C



0 dB = 4.49mW/g



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
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1900 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on June 2, 2006 (Using head tissue).

Validation_1900Head_537_1335_02June06_T01

File Name: [Validation_1900Head_537_1335_02June06_T01.da4](#)

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

Probe: ET3DV6 - SN1539 ConvF(4.55, 4.55, 4.55) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $s = 1.44$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ 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) = 5.22 mW/g

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

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

Reference Value = 60.5 V/m; Power Drift = 0.005 dB

Peak SAR (extrapolated) = 7.09 W/kg

SAR(1 g) = 4.12 mW/g; SAR(10 g) = 2.16 mW/g

Maximum value of SAR (measured) = 4.67 mW/g

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

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

Reference Value = 60.5 V/m; Power Drift = 0.005 dB

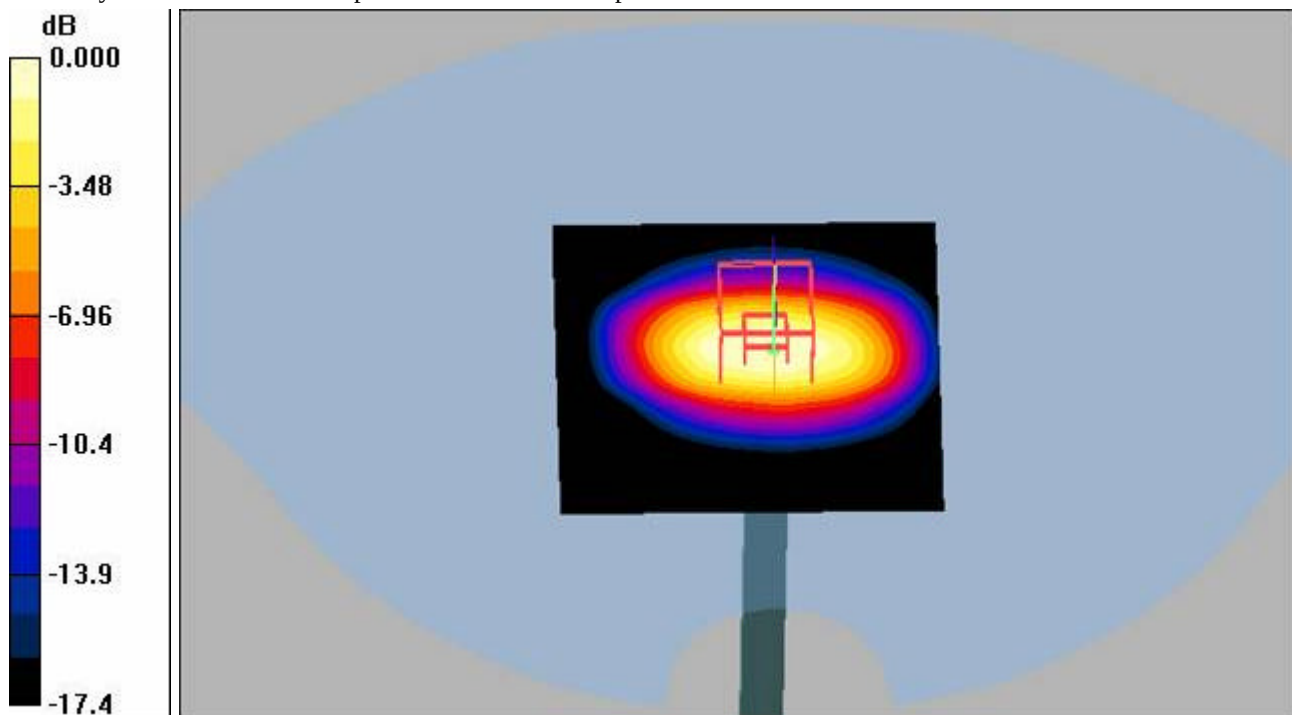
Peak SAR (extrapolated) = 7.08 W/kg

SAR(1 g) = 4.13 mW/g; SAR(10 g) = 2.18 mW/g

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

Procedure Notes: Pin: before 99.9 mW / after 99.4 mW

Humidity: 38.9% Ambient Temp: 24.5 C Simulant Temp: 24.3 C



0 dB = 4.61mW/g



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
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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_06June06_T01

File Name: [Validation_1900Body_537_1020_06June06_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: $f = 1900 \text{ MHz}$; $s = 1.52 \text{ mho/m}$; $\epsilon_r = 50.8$; $\rho = 1000 \text{ kg/m}^3$

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) = 5.47 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 = 59.7 V/m; Power Drift = 0.020 dB

Peak SAR (extrapolated) = 7.04 W/kg

SAR(1 g) = 4.26 mW/g; SAR(10 g) = 2.28 mW/g

Maximum value of SAR (measured) = 4.82 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 = 59.7 V/m; Power Drift = 0.020 dB

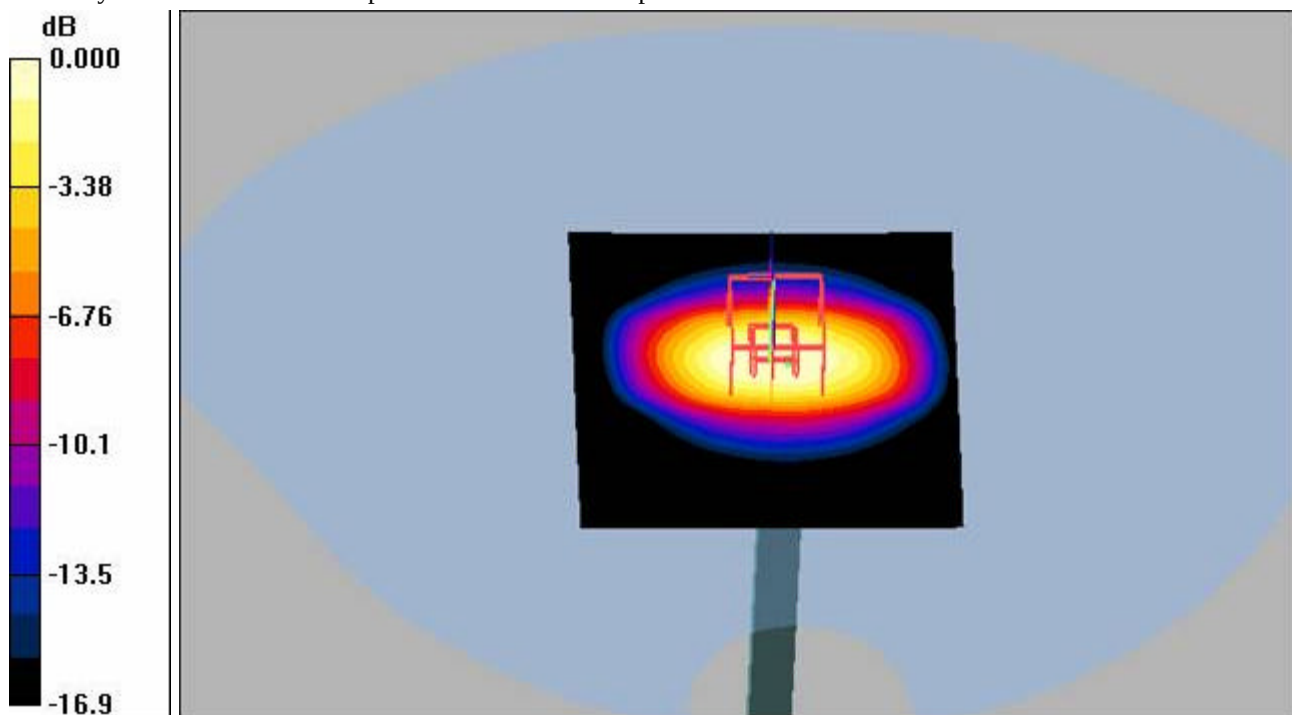
Peak SAR (extrapolated) = 6.94 W/kg

SAR(1 g) = 4.19 mW/g; SAR(10 g) = 2.26 mW/g

Maximum value of SAR (measured) = 4.71 mW/g

Procedure Notes: Pin: before 101.6 mW / after 102.1 mW

Humidity - 39.1 % Ambient Temp - 22.1 C Simulant Temp - 22.8 C



0 dB = 4.71mW/g



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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

1900 MHz SAR Distribution of Validation Dipole Antenna **System Performance Check on June 8, 2005 (Using body tissue).**

Validation_1900Body_537_1020_08June06_T01

File Name: [Validation_1900Body_537_1020_08June06_T01.da4](#)

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

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

Medium parameters used: $f = 1900 \text{ MHz}$; $s = 1.56 \text{ mho/m}$; $\epsilon_r = 50.7$; $\rho = 1000 \text{ kg/m}^3$

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) = 5.32 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 = 57.3 V/m; Power Drift = -0.042 dB

Peak SAR (extrapolated) = 7.03 W/kg

SAR(1 g) = 4.23 mW/g; SAR(10 g) = 2.27 mW/g

Maximum value of SAR (measured) = 4.77 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 = 57.3 V/m; Power Drift = -0.042 dB

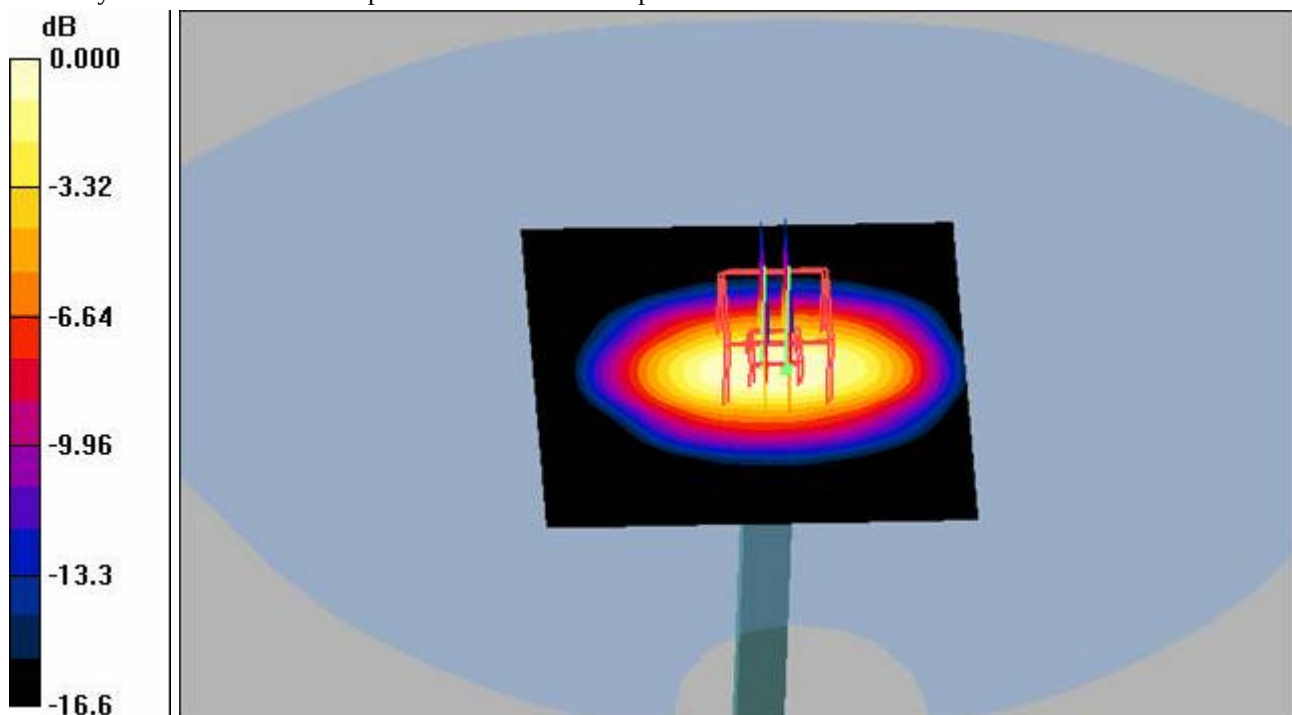
Peak SAR (extrapolated) = 6.99 W/kg

SAR(1 g) = 4.22 mW/g; SAR(10 g) = 2.28 mW/g

Maximum value of SAR (measured) = 4.79 mW/g

Procedure Notes: Pin: before 99.5 mW / after 99.8 mW

Humidity - 42.1 % Ambient Temp - 22.3 C Simulant Temp - 22.5 C



0 dB = 4.79mW/g

APPLICANT: Sony Ericsson Mobile Communications Inc.

FCC ID: **PY7AF042012**



Sony Ericsson

REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01
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Appendix 2

SAR distribution plots for Phantom Head Adjacent Use



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon	No. REP 2006 006 Z712a 01
Approved SEM/CV/PF/P Gerard Hayes	Checked A X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

800 GSM Band: SAR Distribution and Extrapolation of Maximum SAR**Model: Z712a SN: BDX0000QB1 with Standard Battery: BST-37****Right Side, Cheek/Touch Position**

Date/Time: 5/31/2006 3:46:56 PM

File Name: [31May06_Z712a_GSM850_0QB1_RC01.da4](#)**DUT: Z712**

Program Notes: Battery - BST37 Humidity - 39.9% Ambient Temp - 23.8 C Simulant Temp - 24 C

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

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 0.917 \text{ mho/m}$; $\epsilon_r = 41.5$; ?
= 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) = 0.743 mW/g

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

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

Reference Value = 5.61 V/m; Power Drift = 0.056 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.717 mW/g; SAR(10 g) = 0.492 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.784 mW/g

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

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

Reference Value = 5.61 V/m; Power Drift = 0.056 dB

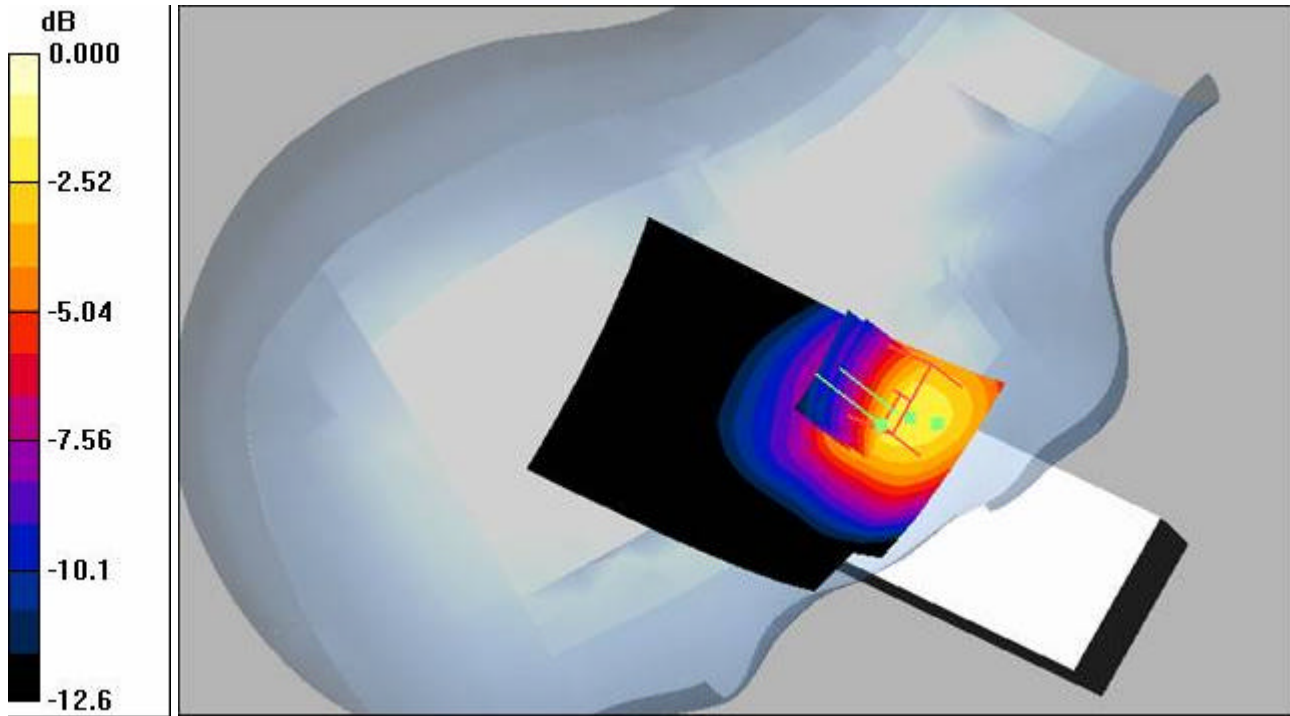
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.12 mW/g



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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc



0 dB = 1.12mW/g

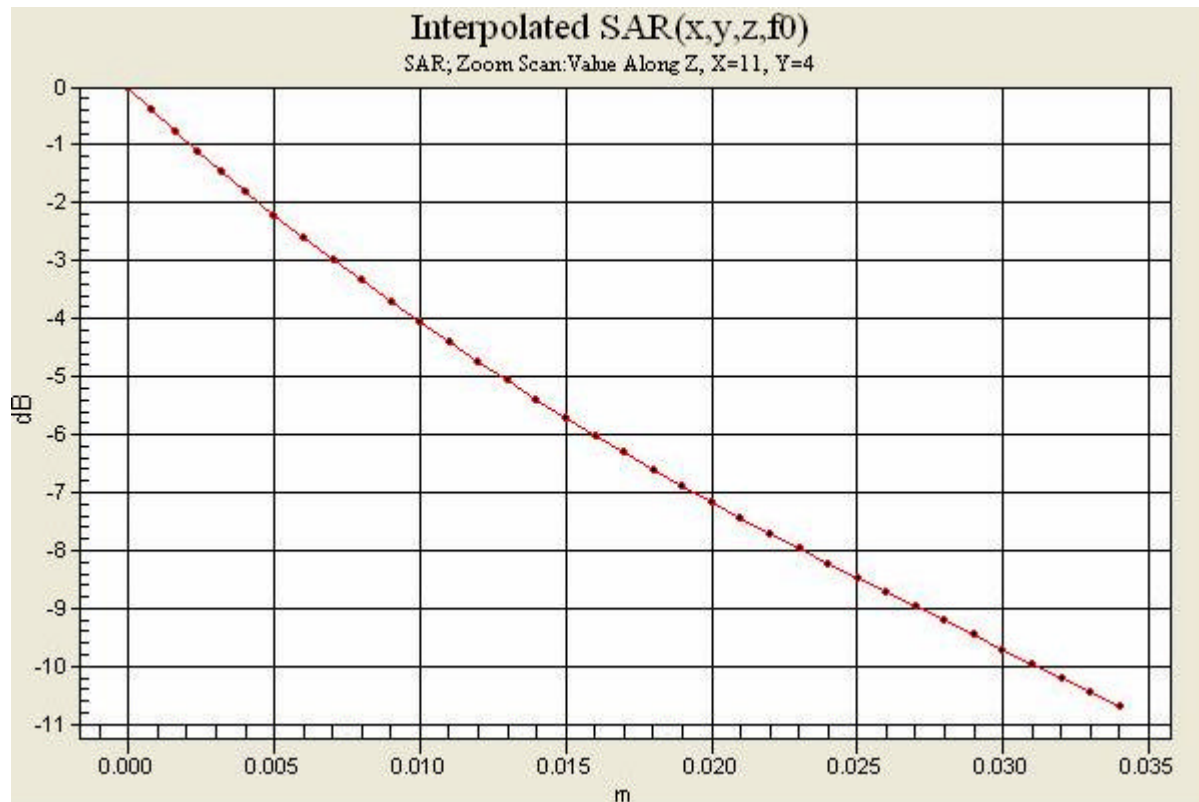


Exhibit 11



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

Model: Z712a SN: BDX0000QB1 with Standard Battery: BST-37**Right Side, Cheek/Tilt Position**

Date/Time: 5/31/2006 3:24:29 PM

File Name: [31May06_Z712a_GSM850_0QB1_RT01.da4](#)**DUT: Z712**

Program Notes: Battery - BST37 Humidity - 40.5% Ambient Temp - 24 C Simulant Temp - 24.1 C

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

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 0.917 \text{ mho/m}$; $\epsilon_r = 41.5$; ?
= 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) = 0.192 mW/g

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

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

Reference Value = 7.19 V/m; Power Drift = 0.004 dB

Peak SAR (extrapolated) = 0.233 W/kg

SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.135 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.193 mW/g

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

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

Reference Value = 7.19 V/m; Power Drift = 0.004 dB

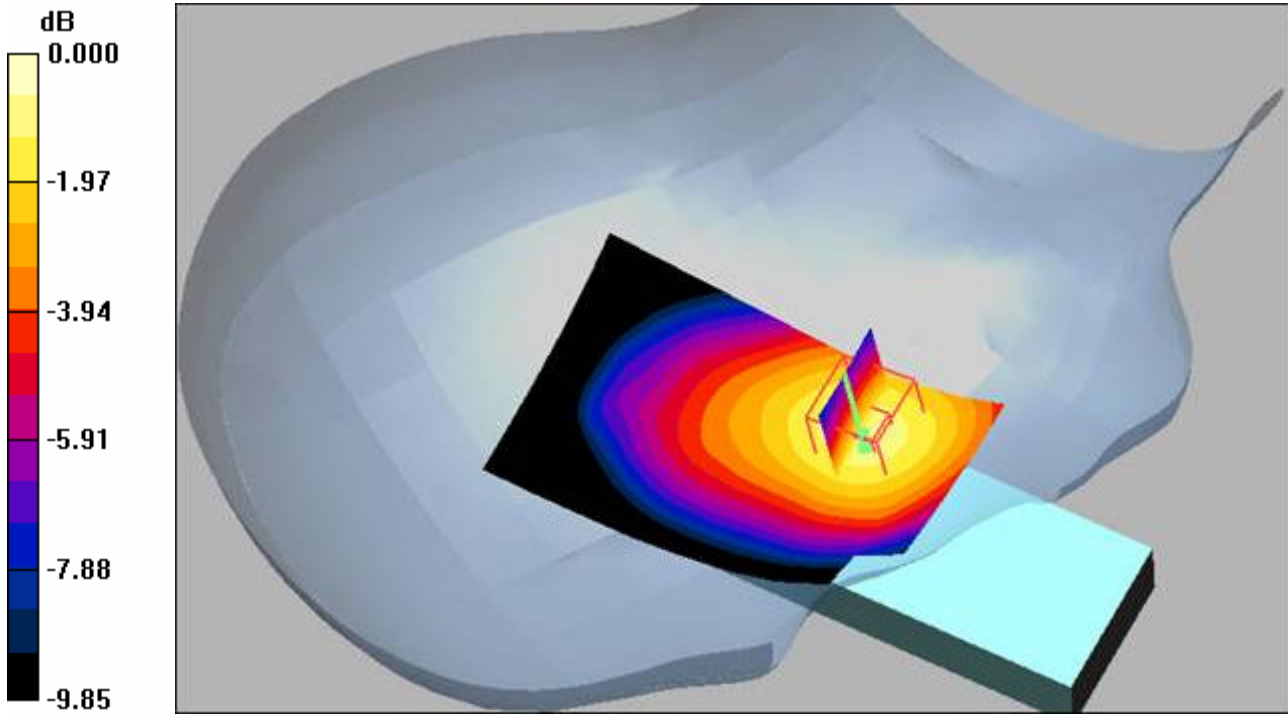
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.233 mW/g



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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc



0 dB = 0.233mW/g

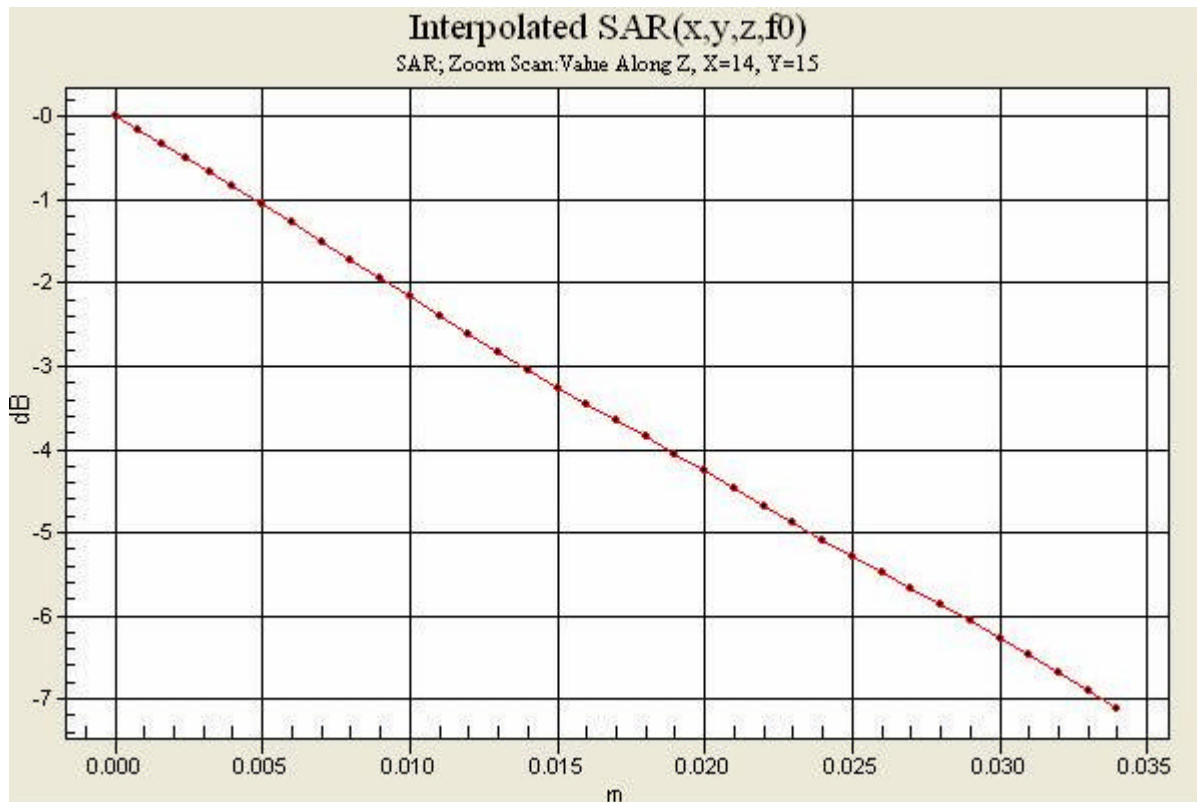


Exhibit 11



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

800 GSM Band: Distribution and Extrapolation of Maximum SAR**Model: Z712a SN: BDX0000QB1 with Standard Battery: BST-37****Left Side, Cheek/Touch Position.**

Date/Time: 5/31/2006 1:04:40 PM

File Name: [31May06_Z712a_GSM850_0QB1_LC01.da4](#)**DUT: Z712**

Program Notes: Battery - BST37 Humidity - 41 % Ambient Temp - 24.3 C Simulant Temp - 24.2 C

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

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 0.917 \text{ mho/m}$; $\epsilon_r = 41.5$; ?
= 1000 kg/m³

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=15mm, dy=15mm

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

Maximum value of SAR (interpolated) = 0.667 mW/g

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

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

Reference Value = 3.44 V/m; Power Drift = 0.044 dB

Peak SAR (extrapolated) = 0.873 W/kg

SAR(1 g) = 0.612 mW/g; SAR(10 g) = 0.430 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.653 mW/g

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

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

Reference Value = 3.44 V/m; Power Drift = 0.044 dB

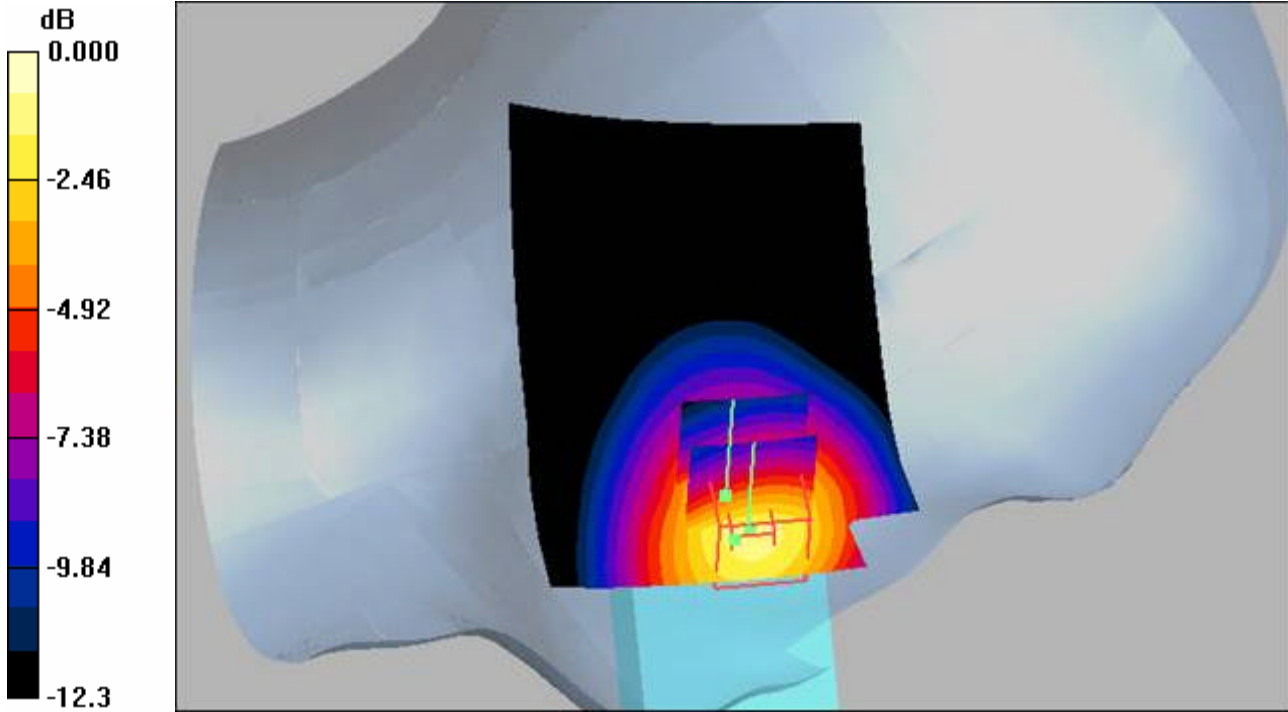
[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



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0 dB = 0.873mW/g

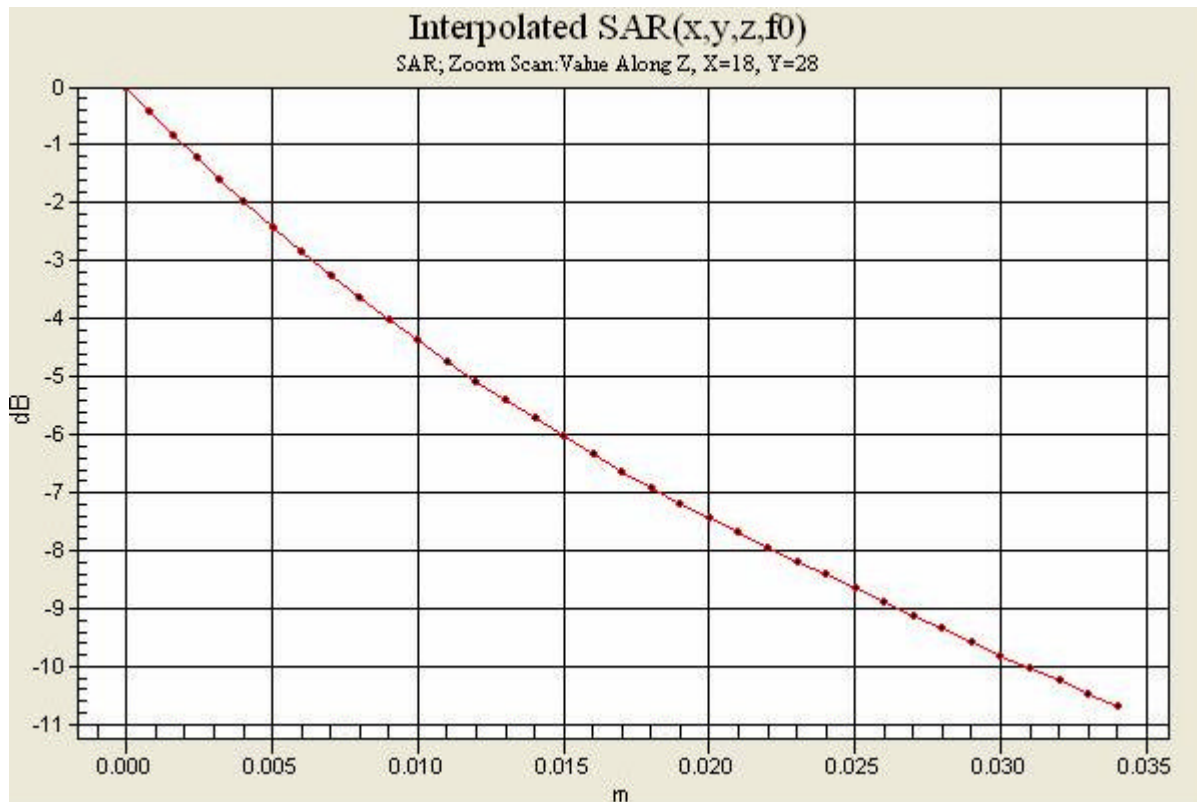


Exhibit 11



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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

800 GSM Band: Distribution and Extrapolation of Maximum SAR**Model: Z712a SN: BDX0000QB1 with Standard Battery: BST-37****Left Side, Tilt Position**

Date/Time: 5/31/2006 1:28:10 PM

File Name: [31May06_Z712a_GSM850_0QB1_LT01.da4](#)**DUT: Z712**

Program Notes: Battery - BST37 Humidity - 40.1 % Ambient Temp - 24.4 C Simulant Temp - 24.2 C

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

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 0.917 \text{ mho/m}$; $\epsilon_r = 41.5$; ?
= 1000 kg/m³

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=15mm, dy=15mm

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

Maximum value of SAR (interpolated) = 0.154 mW/g

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

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

Reference Value = 5.02 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 0.186 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) = 0.149 mW/g

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

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

Reference Value = 5.02 V/m; Power Drift = 0.028 dB

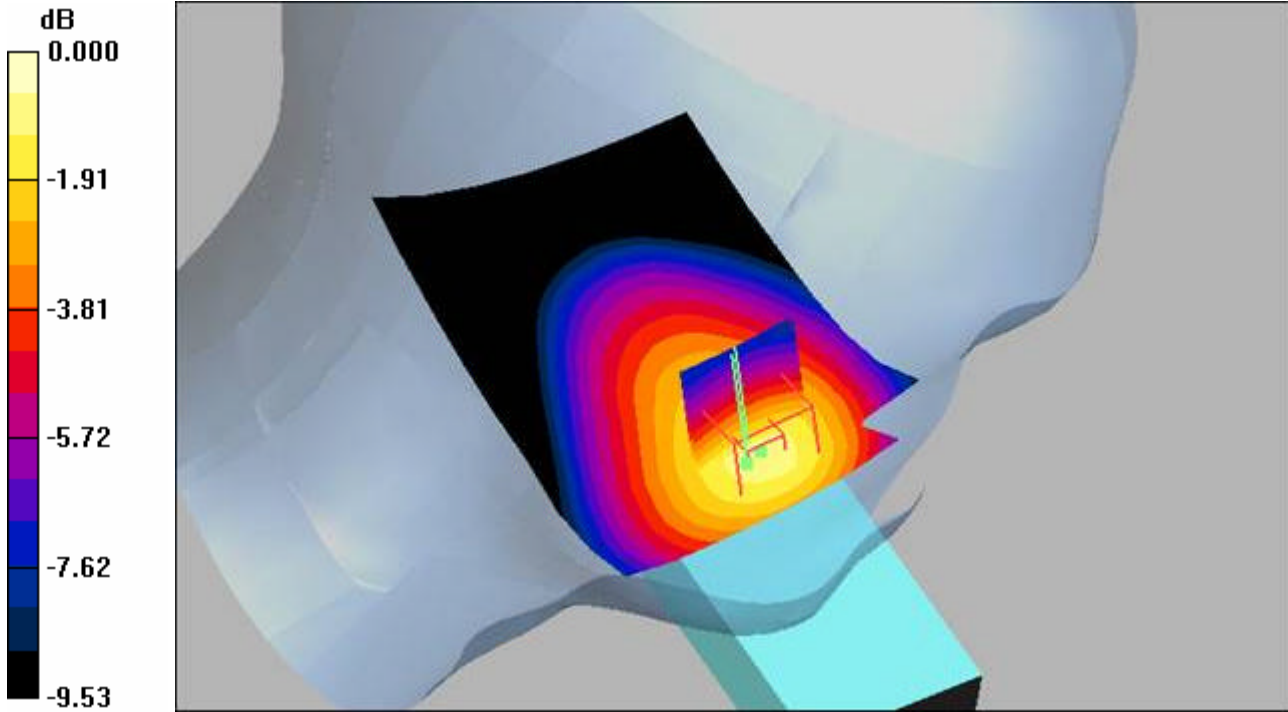
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.186 mW/g



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0 dB = 0.186mW/g

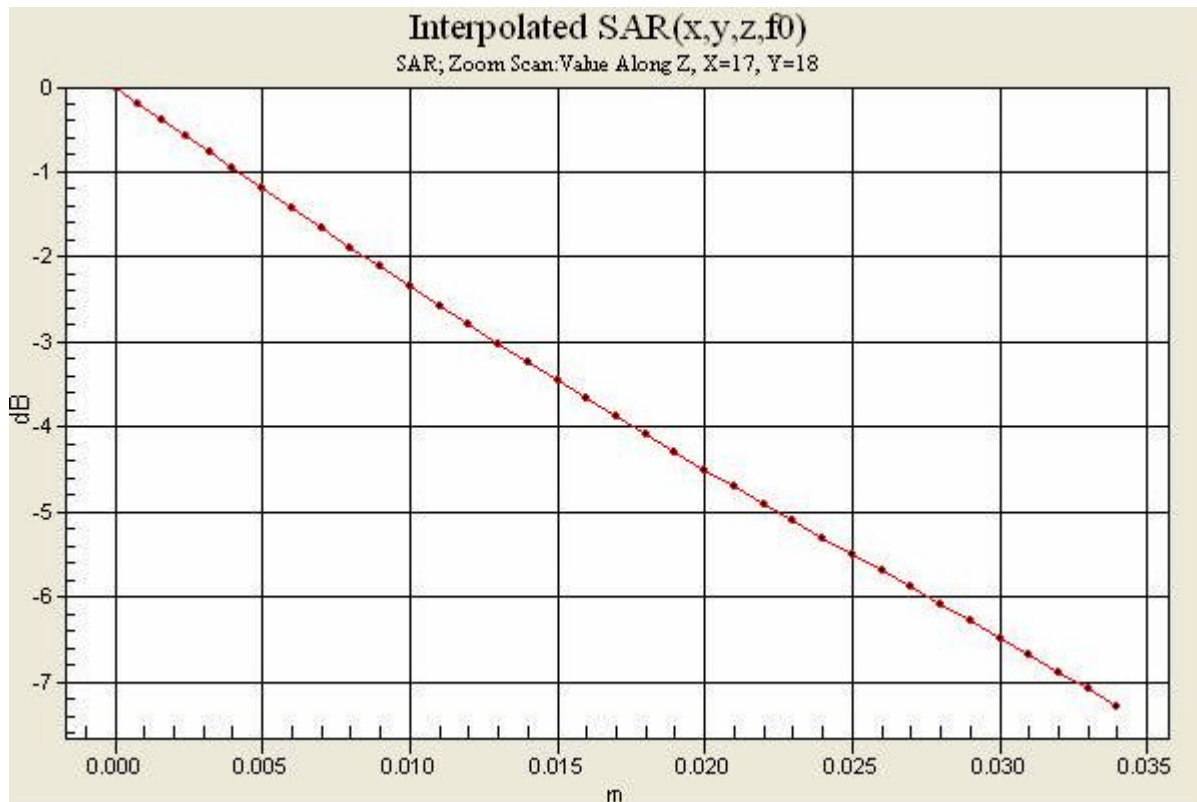


Exhibit 11



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon	No. REP 2006 006 Z712a 01
Approved SEM/CV/PF/P Gerard Hayes	Checked A X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

800 GSM Band: Distribution and Extrapolation of Maximum SAR**Model: Z712a SN: BDX0000QB1 with Standard Battery: BST-37****Right Side, Cheek Position Bluetooth on.**

Date/Time: 5/31/2006 4:56:21 PM

File Name: [31May06_Z712a_GSM850_0QB1_BT_RC01.da4](#)**DUT: Z712**

Program Notes: Battery - BST37 Humidity - 39.9% Ambient Temp - 23.8 C Simulant Temp - 24 C

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

Medium: Head 835/900 MHz Medium parameters used (interpolated): $f = 849 \text{ MHz}$; $s = 0.917 \text{ mho/m}$; $\epsilon_r = 41.5$; ?
= 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) = 0.715 mW/g

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

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

Reference Value = 5.30 V/m; Power Drift = 0.037 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.673 mW/g; SAR(10 g) = 0.472 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

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

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

Reference Value = 5.30 V/m; Power Drift = 0.037 dB

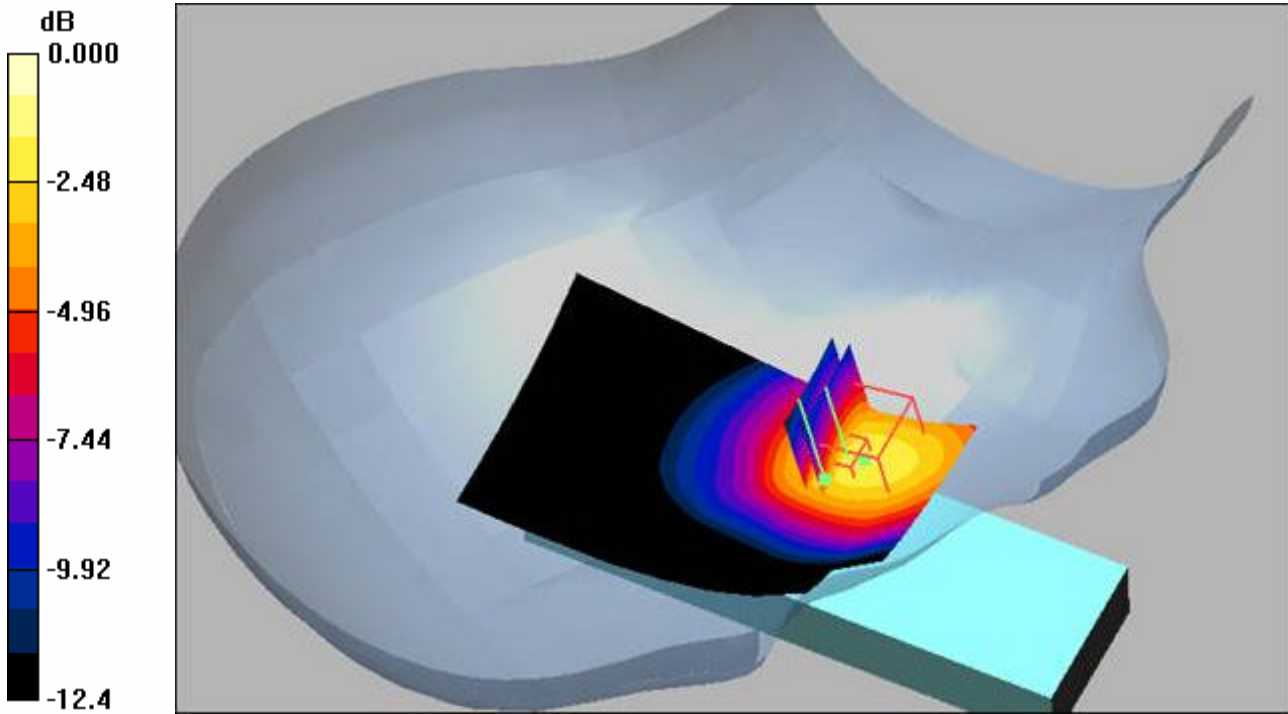
[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



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0 dB = 1.06mW/g

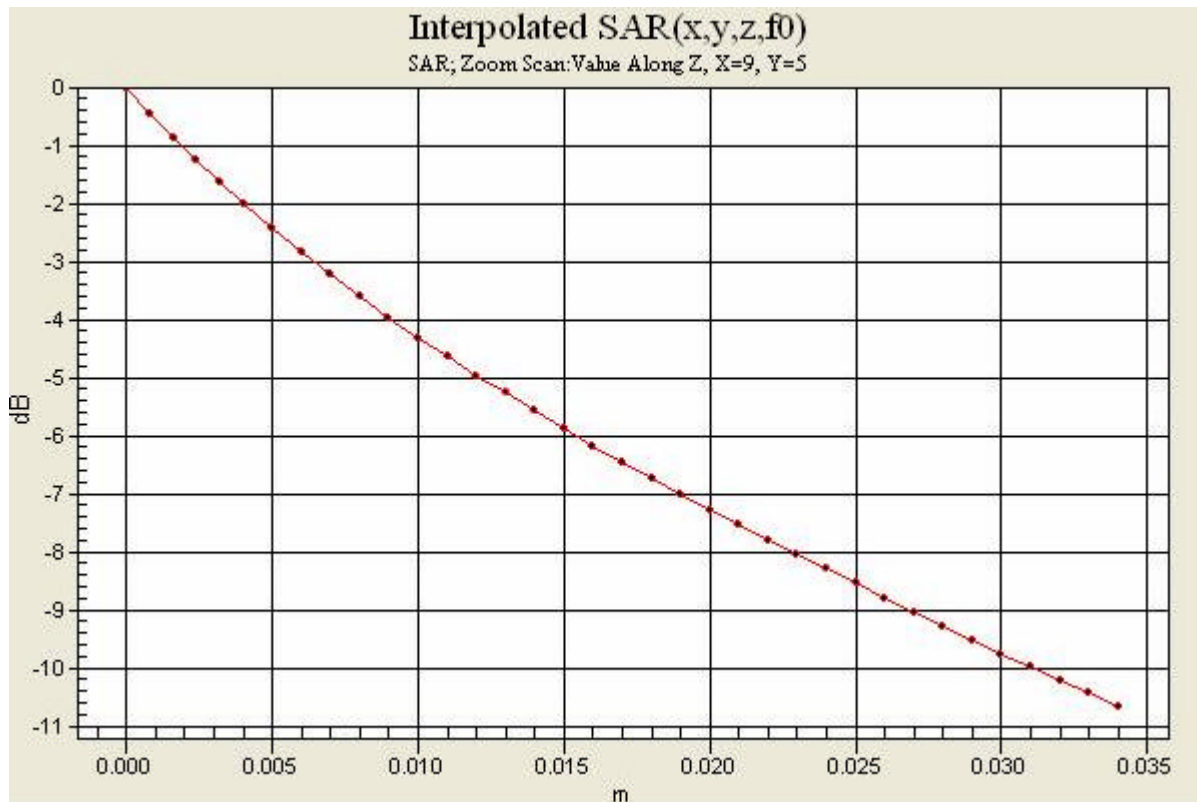


Exhibit 11



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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

1900 GSM Band: Distribution and Extrapolation of Maximum SAR**Model: Z712a SN: BDX0000QB3 with Standard Battery: BST-37****Right Side, Cheek/Touch Position.**

Date/Time: 6/1/2006 8:03:26 AM

File Name: [01June06_Z712a_GSM1900_0QB3_RC01.da4](#)**DUT: Z712**

Program Notes: Battery - BST37 Humidity - 38.4% Ambient Temp - 24.6 C Simulant Tem - 24.9 C

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

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $s = 1.41 \text{ mho/m}$; $\epsilon_r = 38.7$; $\rho = 1000 \text{ kg/m}^3$

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 (51x81x1):Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ [Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.769 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 = 7.77 V/m; Power Drift = -0.099 dB

Peak SAR (extrapolated) = 1.87 W/kg

SAR(1 g) = 0.821 mW/g; SAR(10 g) = 0.384 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.994 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 = 7.77 V/m; Power Drift = -0.099 dB

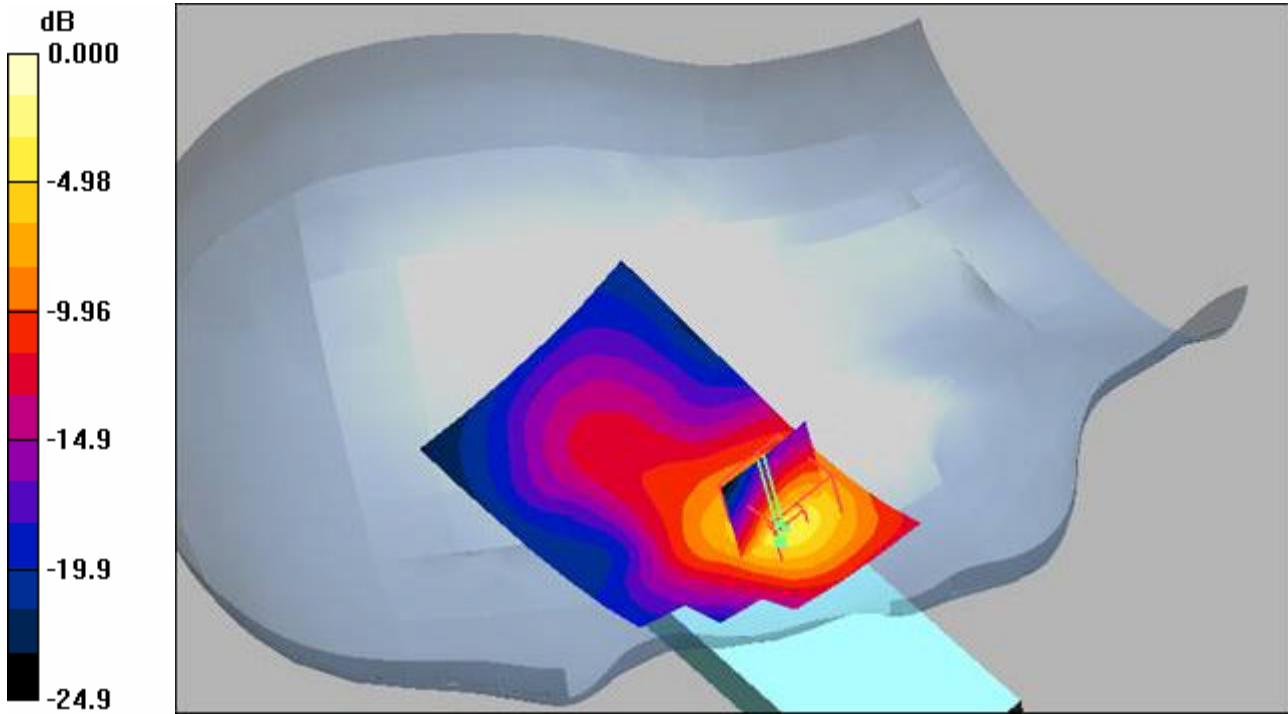
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.87 mW/g



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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
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0 dB = 1.87mW/g

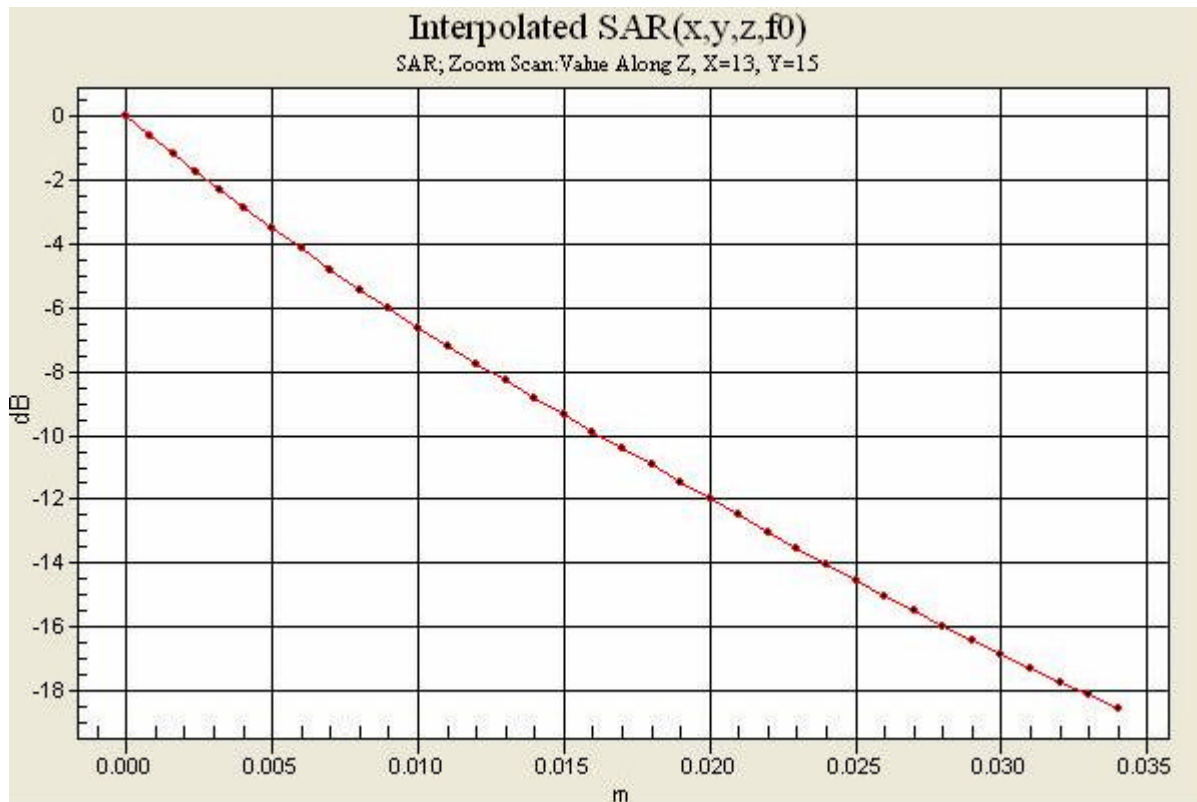


Exhibit 11



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

1900 GSM Band: Distribution and Extrapolation of Maximum SAR**Model: Z712a SN: BDX0000QB3 with Standard Battery: BST-37****Right Side, Tilt Position.**

Date/Time: 5/31/2006 5:35:04 PM

File Name: [31May06_Z712a_GSM1900_0QB3_RT01.da4](#)**DUT: Z712**

Program Notes: Battery - BST37 Humidity - 37.8% Ambient Temp - 24.7 C Simulant Tem - 24.8 C

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

Medium: Head 1800/1900 MHz Medium parameters used: $f = 1910 \text{ MHz}$; $s = 1.47 \text{ mho/m}$; $\epsilon_r = 38.7$; $\rho = 1000 \text{ kg/m}^3$

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 3/Area Scan (61x81x1):Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.069 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 = 6.24 V/m; Power Drift = -0.104 dB

Peak SAR (extrapolated) = 0.087 W/kg

SAR(1 g) = 0.060 mW/g; SAR(10 g) = 0.039 mW/g

Maximum value of SAR (measured) = 0.066 mW/g

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

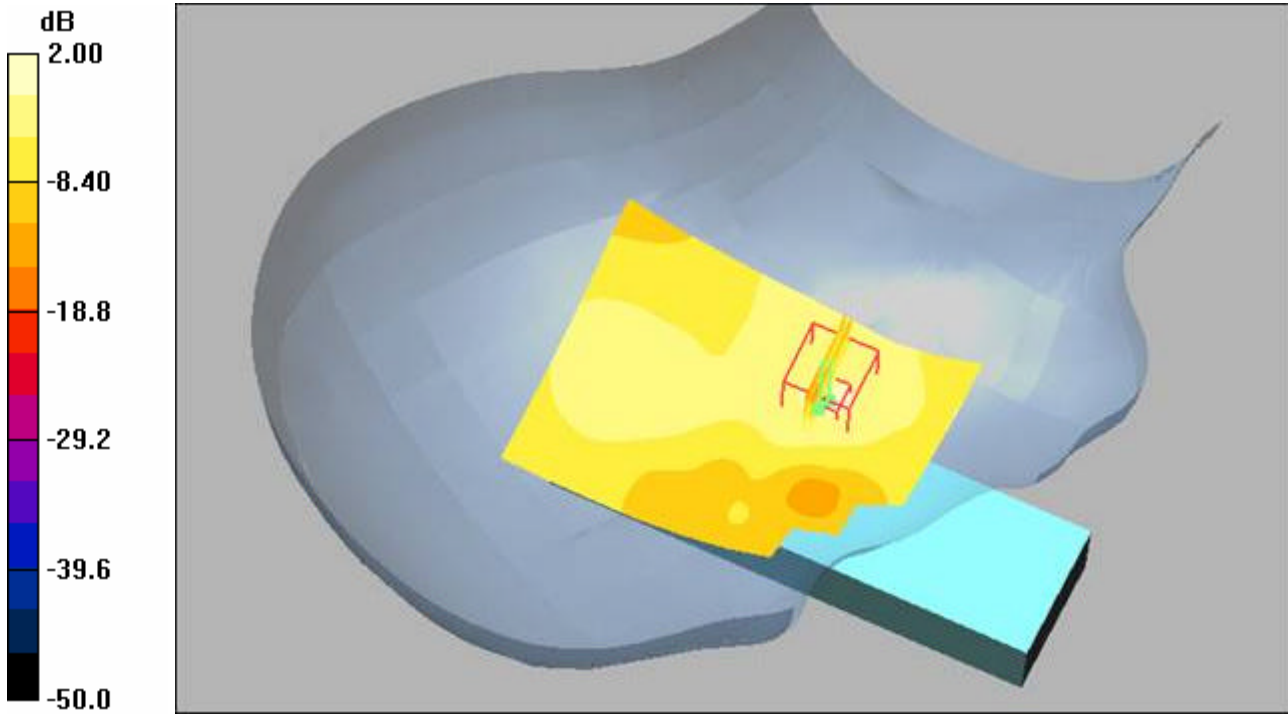
Reference Value = 6.24 V/m; Power Drift = -0.104 dB

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



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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
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0 dB = 0.087mW/g

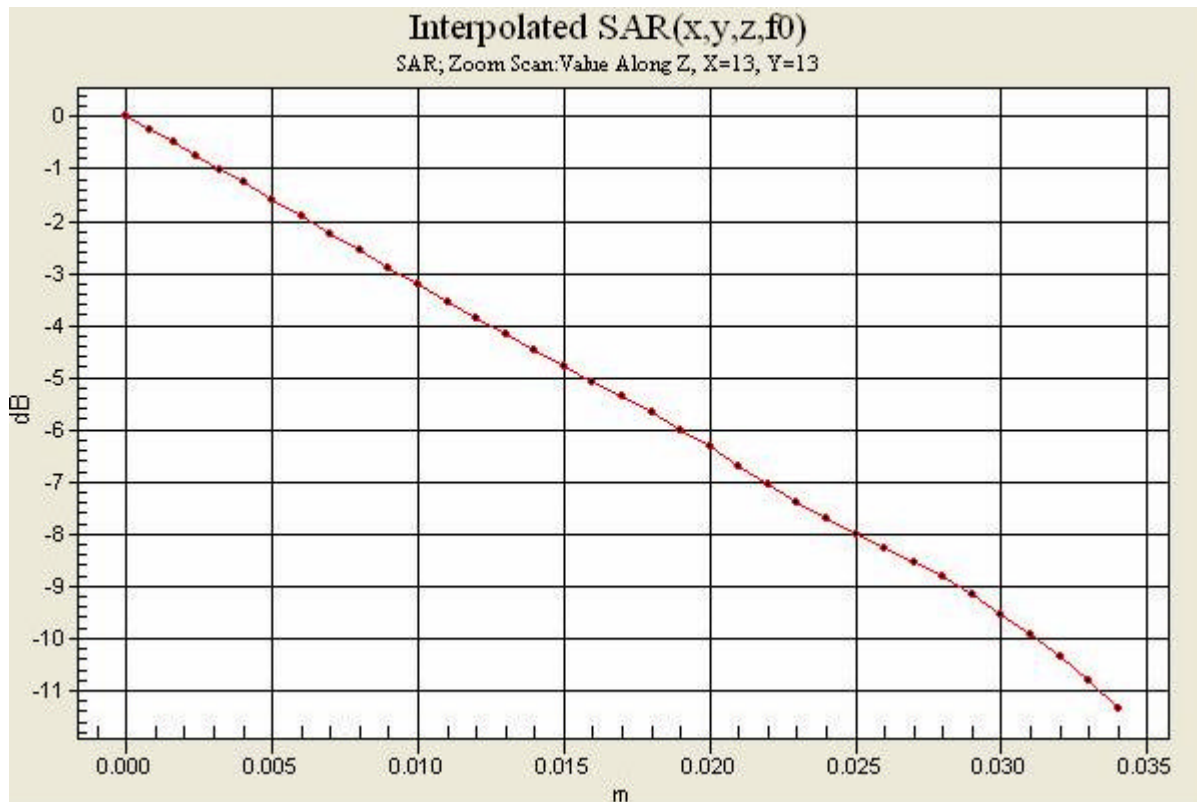


Exhibit 11



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

1900 GSM Band: Distribution and Extrapolation of Maximum SAR**Model: Z712a SN: BDX0000QB3 with Standard Battery: BST-37****Left Side, Cheek/Touch Position.**

Date/Time: 5/31/2006 12:56:25 PM

File Name: [31May06_Z712a_GSM1900_0QB3_LC01.da4](#)**DUT: Z712**

Program Notes: Battery - BST-37 Humidity: 37.2% Ambient Temp: 24.6 C Simulant Temp: 24.8 C

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

Medium: Head 1800/1900 MHz Medium parameters used: $f = 1910 \text{ MHz}$; $s = 1.47 \text{ mho/m}$; $\epsilon_r = 38.7$; $\rho = 1000 \text{ kg/m}^3$

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 (51x81x1):Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.626 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 = 7.06 V/m; Power Drift = -0.036 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.548 mW/g; SAR(10 g) = 0.275 mW/g

Maximum value of SAR (measured) = 0.622 mW/g

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

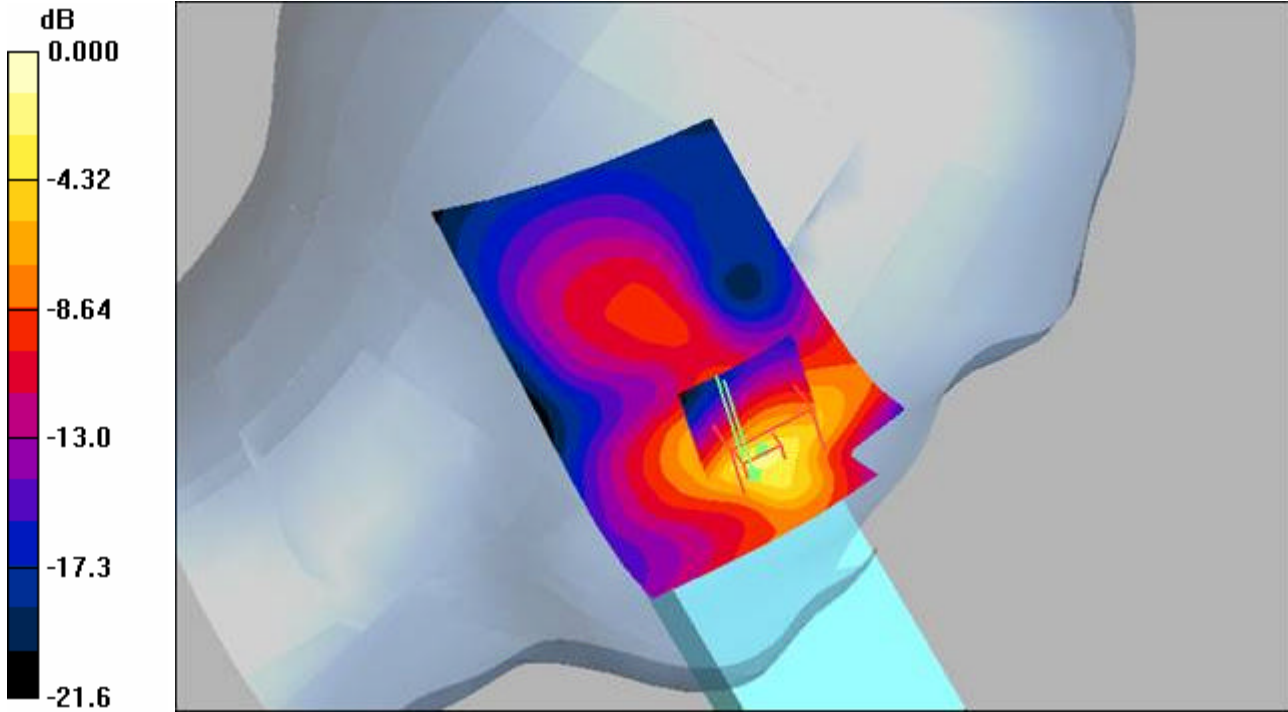
Reference Value = 7.06 V/m; Power Drift = -0.036 dB

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



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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
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0 dB = 1.06mW/g

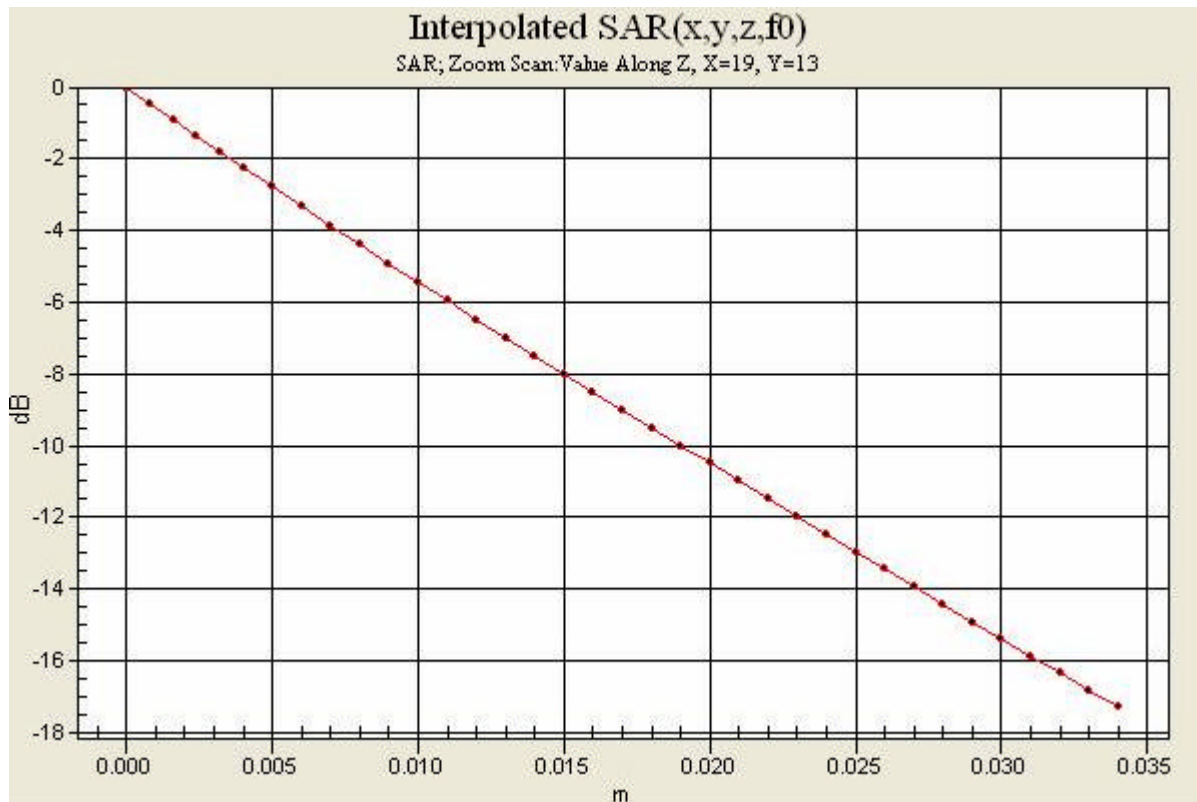


Exhibit 11



REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

1900 GSM Band: Distribution and Extrapolation of Maximum SAR**Model: Z712a SN: BDX0000QB3 with Standard Battery: BST-37****Left Side, Tilt Position.**

Date/Time: 5/31/2006 2:45:07 PM

File Name: [31May06_Z712a_GSM1900_0QB3_LT01.da4](#)**DUT: Z712**

Program Notes: Battery - BST-37 Humidity: 38% Ambient Temp: 24.8 C Simulant Temp: 24.7 C

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

Medium: Head 1800/1900 MHz Medium parameters used: $f = 1910 \text{ MHz}$; $s = 1.47 \text{ mho/m}$; $\epsilon_r = 38.7$; $\rho = 1000 \text{ kg/m}^3$

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 (51x81x1):Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.066 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 = 5.86 V/m; Power Drift = -0.042 dB

Peak SAR (extrapolated) = 0.081 W/kg

SAR(1 g) = 0.057 mW/g; SAR(10 g) = 0.037 mW/g

Maximum value of SAR (measured) = 0.061 mW/g

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

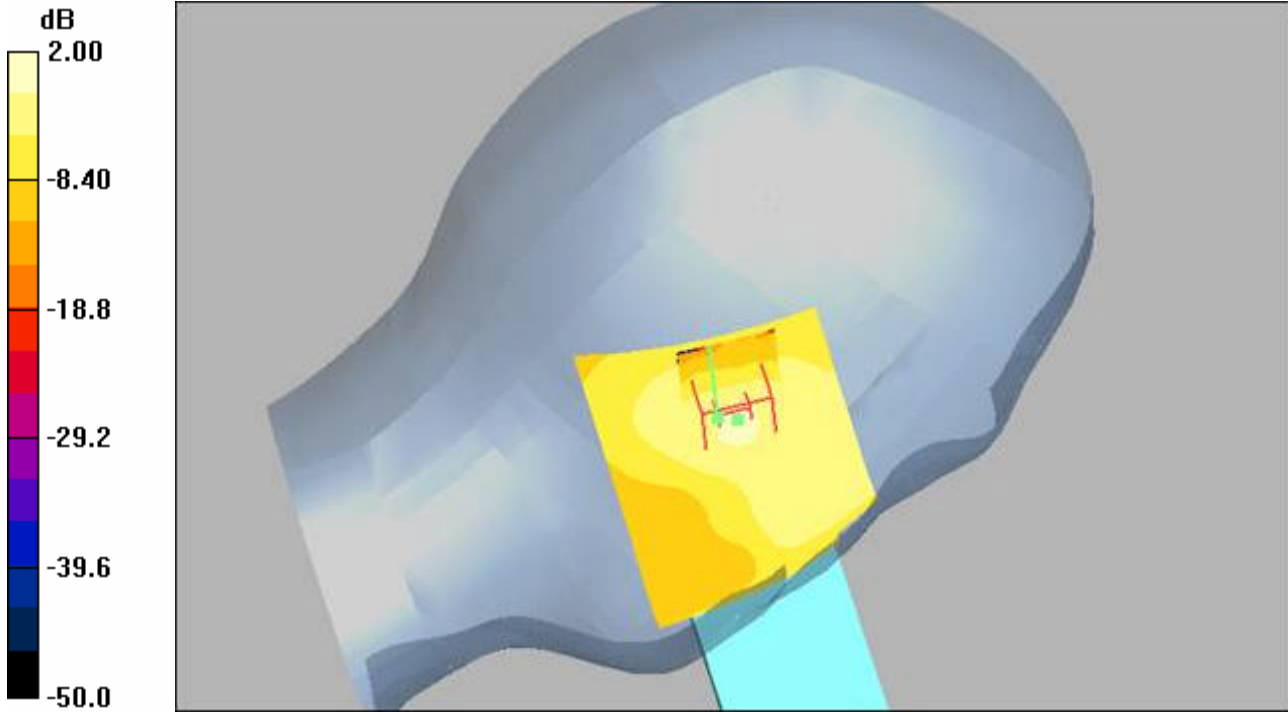
Reference Value = 5.86 V/m; Power Drift = -0.042 dB

Maximum value of SAR (interpolated) = 0.081 mW/g



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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc



0 dB = 0.081mW/g

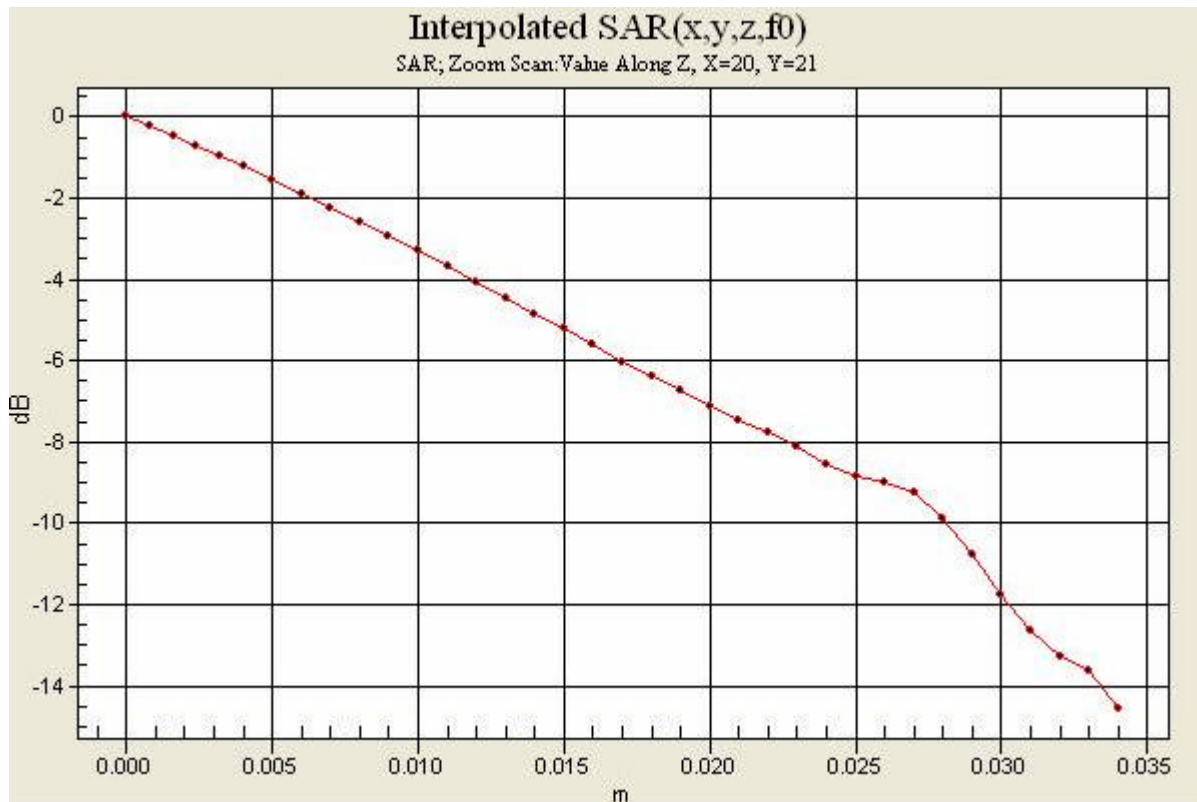


Exhibit 11



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc

1900 GSM Band: Distribution and Extrapolation of Maximum SAR**Model: Z712a SN: BDX0000QB3 with Standard Battery: BST-37****Right Side, Cheek Position. Bluetooth on.**

Date/Time: 6/1/2006 12:10:38 PM

File Name: [01June06_Z712a_GSM1900_0QB3_RC01.da4](#)**DUT: Z712**

Program Notes: Battery - BST37 Humidity - 38.4% Ambient Temp - 24.6 C Simulant Tem - 24.9 C

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

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $s = 1.41 \text{ mho/m}$; $e_r = 38.7$; $\rho = 1000 \text{ kg/m}^3$

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 (51x81x1):Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ [Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.816 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 = 7.73 V/m; Power Drift = 0.100 dB

Peak SAR (extrapolated) = 2.11 W/kg

SAR(1 g) = 0.886 mW/g; SAR(10 g) = 0.407 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.04 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 = 7.73 V/m; Power Drift = 0.100 dB

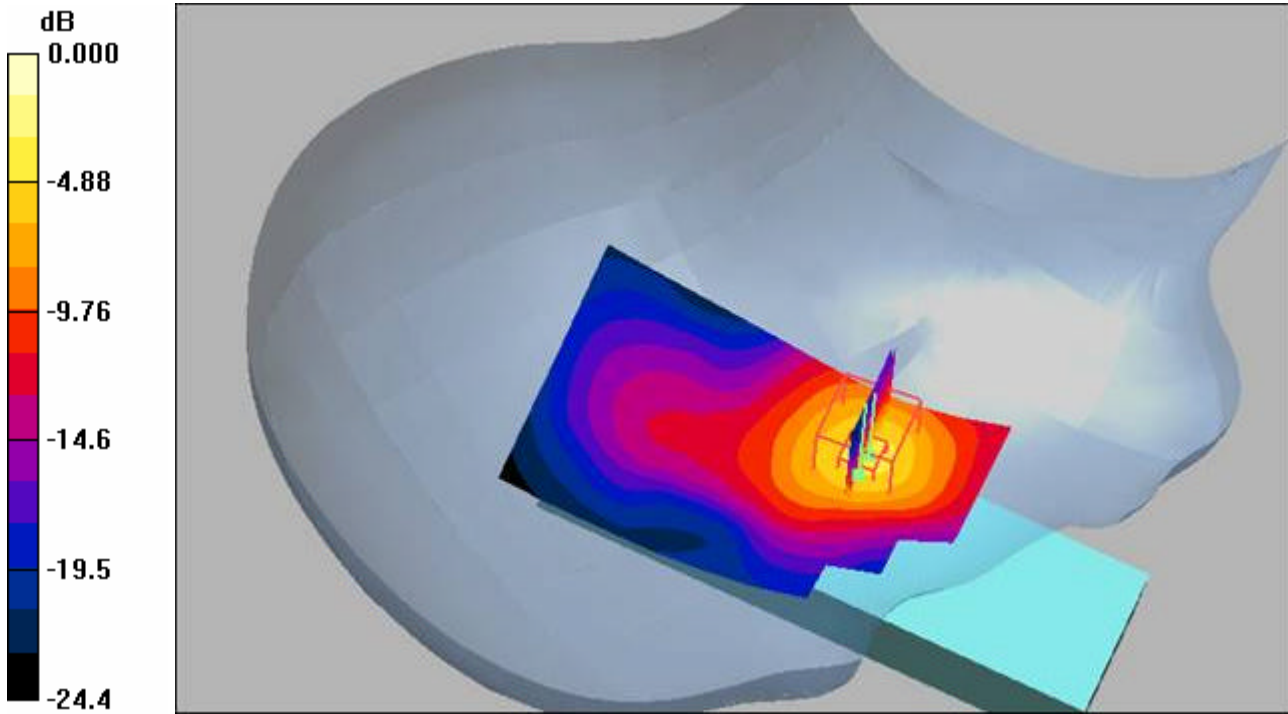
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 2.11 mW/g



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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 006 Z712a 01	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z712A\Final Reports\FCCZ712A.doc



0 dB = 2.11mW/g

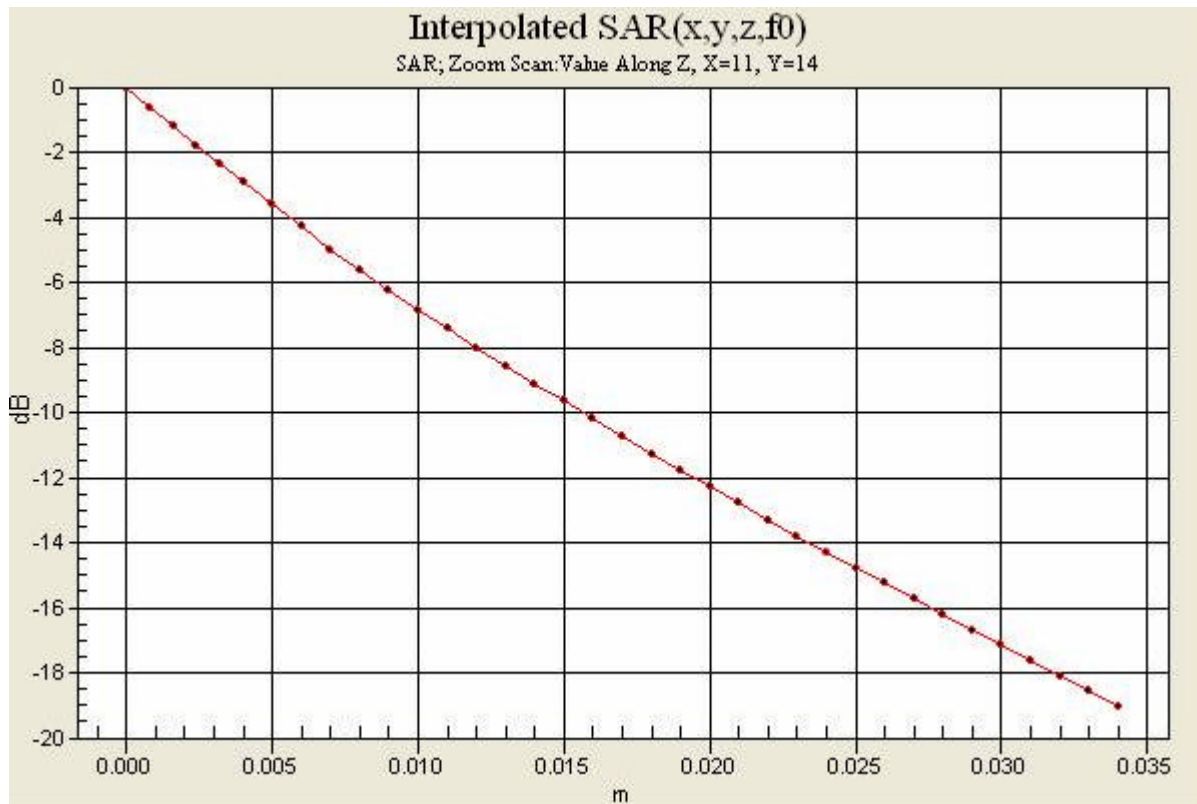


Exhibit 11