



Sony Ericsson

REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B


## Exhibit 11: SAR Test Report of Portable Cellular Phone FCC ID: PY7A3880017 Model: W518A

**Date of test:** January 22 – January 29, 2009

**Date of Report:** February 13, 2009

**Laboratory:** SAR Testing Laboratory Sony Ericsson Mobile Communications, Inc. 7001  
Development Drive, P.O. Box 13969, Research Triangle Park, NC, 27709, USA

**Tested by:** Rodney Dixon  
Eng. Technician IV, Global Type Approval

**Test Responsible:** Gerard Hayes   
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

**A2LA Certificate  
#1650-01**

On the following types of products: Wireless communications devices.

**Statement of  
Compliance:**

Sony Ericsson Mobile Communications, Inc declares under its sole responsibility that portable cellular telephone FCC ID PY7A3880017 model W518A 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 PY7A3880017 model W518A. 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	Monopole	
Location	Chin Cover	
Dimensions	Width	46.0 mm
	Length	14.0 mm

### 2.2 Device description

FCC ID Number / Device Model	PY7A3880017 / W518A	
SEMC Type Number / IC Number	AAD-3880017-BV / 4170B-A3880017	
Hardware Revision #	AP2.1	
Software Revision #	R1DA017	
Battery Option(s)	1200-3243.1 (BST-39)	
Mode(s) of Operation Transmitting Frequency Range	Serial number of Device Tested	
	GSM/GPRS/EDGE 824-849 MHz	BX900GKHST
	GSM/GPRS/EDGE 1850-1910 MHz	BX900GK155
	UMTS/HSDPA Band V ( 824-849 MHz)	BX900GK155
	UMTS/HSDPA Band II (1850-1910 MHz)	BX900GK13T
Production Unit or Identical Prototype (47 CFR §2.908)	Identical Prototype	
Device Category	Portable	
RF Exposure Limits	General Population / Uncontrolled	

GSM  Factory Target Maximum Output Power    Calibration Frequency ( $f_{low}$ , $f_{mid}$ , $f_{high}$ ) Duty Cycle		850 MHz	1900 MHz
	$f_{low}$	33.0 dBm	31.0 dBm
	$f_{mid}$	33.0 dBm	31.0 dBm
	$f_{high}$	33.0 dBm	31.0 dBm
	$f_{low}$ , $f_{mid}$ , $f_{high}$	$f_{low}$ , $f_{mid}$ , $f_{high}$	$f_{low}$ , $f_{mid}$ , $f_{high}$
	1/8	1/8	1/8



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**Device description (continued)**

<b>GPRS</b>		<b>850 MHz</b>	<b>1900 MHz</b>
	<b>Factory Target Maximum Output Power</b>	$f_{low}$ 30.0 dBm	28.0 dBm
		$f_{mid}$ 30.0 dBm	28.0 dBm
		$f_{high}$ 30.0 dBm	28.0 dBm
	<b>Calibration Frequency (<math>f_{low}</math>, <math>f_{mid}</math>, <math>f_{high}</math>)</b>	$f_{low}$ , $f_{mid}$ , $f_{high}$	$f_{low}$ , $f_{mid}$ , $f_{high}$
	<b>Duty Cycle</b>	1/4	1/4
<b>EGPRS</b>		<b>850 MHz</b>	<b>1900 MHz</b>
	<b>Factory Target Maximum Output Power</b>	$f_{low}$ 27.5 dBm	26.5 dBm
		$f_{mid}$ 27.5 dBm	26.5 dBm
		$f_{high}$ 27.5 dBm	26.5 dBm
	<b>Calibration Frequency (<math>f_{low}</math>, <math>f_{mid}</math>, <math>f_{high}</math>)</b>	$f_{low}$ , $f_{mid}$ , $f_{high}$	$f_{low}$ , $f_{mid}$ , $f_{high}$
	<b>Duty Cycle</b>	1/4	1/4
<b>W-CDMA (Circuit Switched, UMTS Mode)</b>		<b>850 MHz Band V</b>	
	<b>Factory Target Maximum Output Power</b>	$f_{low}$ 23.0 dBm	
		$f_{mid}$ 23.0 dBm	
		$f_{high}$ 23.0 dBm	
	<b>Calibration Frequency (<math>f_{low}</math>, <math>f_{mid}</math>, <math>f_{high}</math>)</b>	$f_{low}$ , $f_{mid}$ , $f_{high}$	
	<b>Duty Cycle</b>	1/1	



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### 3. Test Equipment Used

#### 3.1 Dosimetric System

The Sony Ericsson SAR Laboratory utilizes Dosimetric Assessment Systems (Dasy4™) for adjacent to head and body-worn measurements 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 the system. 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	Oct-31-2009
DASY3 DAE V1	417	Nov-07-2009
DASY3 DAE V1	432	May-13-2009
E-Field Probe ETDV6	1538	May-19-2009
E-Field Probe ETDV6	1583	Nov-17-2009
E-Field Probe ETDV6	1586	May-19-2009
Dipole Validation Kit, DV835V2	429	Nov-03-2009
Dipole Validation Kit, DV1900V2	537	Nov-04-2009
S.A.M. Phantom used for 835MHz (Head)	1023/1251	
S.A.M. Phantom used for 835MHz (Body)	1031	
S.A.M. Phantom used for 900MHz (Head and Body)	1023/1251	
S.A.M. Phantom used for 1800MHz (Head and Body)	1054/1335	
S.A.M. Phantom used for 1900MHz (Head)	1054/1335	
S.A.M. Phantom used for 1900MHz (Body)	1020	

#### 3.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3443U00433	February 01, 2010
Power Meter 437B	3125U16382	December 04, 2009
Power Meter 437B	3125U16190	May 05, 2009
Power Sensor - 8482H	MY41090241	June 14, 2009
Power Sensor - 8482H	3318A09268	July 02, 2009
Dielectric Probe Kit HP85070B	US33020256	Sept. 11, 2009
Digital Thermometer 61220-601 And Probe (61220-604)	350078	December 10, 2009
Digital Hygrometer/ Thermometer	230355187	March 03, 2009
HP RF Amplifier 8347A	3307A1069	May 07, 2009



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#### 4. Electrical parameters of the tissue simulating liquid

Prior to conducting SAR measurements, the relative permittivity,  $\epsilon_r$ , and the conductivity,  $\sigma$ , 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]. The ambient temperature of the laboratory was maintained within the desired range and the liquid depth above the ear reference points was above 15.0 cm in all the cases. It is seen that the measured parameters are satisfactory for compliance testing.

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			$\epsilon_r$	$\sigma$ (S/m)	Simulated Tissue Temp ( $^{\circ}\text{C}$ )
835	Head	January 27, 2009	41.2	0.8899	22.4
		January 28, 2009	42.76	0.9273	22.4
		Recommended Limits	41.5	0.9	20-25
	Body	January 23, 2009	55.93	0.9417	22.6
		January 29, 2009	56.08	0.9478	21.2
		Recommended Limits	55.2	0.97	20-25
1900	Head	January 22, 2009	38.42	1.448	23
		January 23, 2009	39.51	1.465	22.4
		January 27, 2009	39.12	1.402	21.7
		Recommended Limits	40	1.4	20-25
	Body	January 25, 2009	51.27	1.542	21.7
		January 26, 2009	50.77	1.514	21.7
		Recommended Limits	53.3	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 DASY4 was performed using the measurement equipment listed in Section 3.1. The daily system accuracy verification occurs within the flat section of the SAM phantom.

A SAR measurement was performed to see if the measured SAR was within +/- 10% from the numerical target SAR values indicated in the standards. 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). The ambient temperature of the laboratory was maintained within the desired range and the liquid depth above the ear reference points was above 15.0 cm in all the cases.

It is seen in the following table that the system is operating within its specification, as the results are within acceptable tolerance of the reference values. The SAR distributions for each dipole measurement are shown in Appendix 1.

<i>f</i> (MHz)	Tissue Type	Date Measured	SAR (W/kg)		Dielectric Parameters		Tissue Temp (°C)
			1g	10g	$\epsilon_r$	$\sigma$ (S/m)	
835	Head	Jan-27-09	9.46	6.21	41.2	0.89	22.4
		Jan-28-09	9.94	6.50	42.76	0.93	22.4
		<b>Recommended Limits</b>	<b>9.50</b>	<b>6.20</b>	<b>41.50</b>	<b>0.90</b>	<b>20-25</b>
	Body	Jan-23-09	10.18	6.71	55.93	0.94	22.6
		Jan-29-09	9.65	6.48	56.08	0.95	21.2
		<b>Recommended Limits</b>	<b>9.90</b>	<b>6.46</b>	<b>55.20</b>	<b>0.97</b>	<b>20-25</b>
1900	Head	Jan-22-09	41.92	21.86	38.42	1.45	23
		Jan-23-09	42.25	21.90	39.51	1.47	22.4
		Jan-27-09	40.98	21.41	39.12	1.40	21.7
		Jan-28-09	37.57	19.71	38.69	1.41	21.7
		<b>Recommended Limits</b>	<b>39.7</b>	<b>20.5</b>	<b>40</b>	<b>1.4</b>	<b>20-25</b>
	Body	Jan-25-09	38.59	20.20	51.27	1.54	21.7
		Jan-26-09	40.65	21.26	50.77	1.51	21.7
		<b>Recommended Limits</b>	<b>40.5</b>	<b>20.89</b>	<b>53.3</b>	<b>1.52</b>	<b>20-25</b>

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 0.00031 W/kg, which is below the recommended limit in [1].



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## 6.0 Test Results

For all measurements, the test sample was operated using a base station simulator (CMU-200) that allows control of the transmitter using the signally software that is installed on the phone. 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 DASY4 SAR measurement system.

### HSDPA Considerations

As per TCB/FCC guidance, the conducted power of the device was confirmed in two UMTS circuit switched modes (RMC and Voice) and four HSDPA modes. A CMU-200 was used to establish the call processing and modulation settings and an RF power meter was used for the measurements. For all HSDPA measurements, the following settings were applied:

$$H\text{-SET3 QPSK, CQI feedback} = 2\text{msec, } \Delta\text{ACK} = \Delta\text{NACK} = \Delta\text{CQI} = 8$$

The results (including relevant CMU modulation settings) are presented in the Table 6.0. As seen in the table, the conducted power measurements for the HSDPA modes were equal or below the circuit switched modes for each frequency/channel.

**Table 6.0: Conducted Power Summary for UMTS - HSDPA Modes**

Band II					1852.4	1880	1907.6
	Settings			Frequency (MHz):			
	$\beta_c$	$\beta_d$	$\Delta\text{HS}$	max (dBm)			
CS-RMC	8	15	-	measured (dBm)	23.1	23.1	23.1
CS-Voice	8	15	-	measured (dBm)	23.1	23.1	23.1
HSDPA - 1	2	15	8	measured (dBm)	22.2	22.1	22.2
HSDPA - 2	12	15	8	measured (dBm)	22.2	22.1	21.9
HSDPA - 3	15	8	8	measured (dBm)	21.0	21.2	21.0
HSDPA - 4	15	4	8	measured (dBm)	23.1	23.1	23.1
Band V					826.4	835	846.6
	Settings			Frequency (MHz):			
	$\beta_c$	$\beta_d$	$\Delta\text{HS}$	max (dBm)			
CS-RMC	8	15	-	measured (dBm)	23.1	23.0	23.0
CS-Voice	8	15	-	measured (dBm)	23.0	22.9	22.9
HSDPA - 1	2	15	8	measured (dBm)	21.8	21.7	21.6
HSDPA - 2	12	15	8	measured (dBm)	21.6	21.7	21.5
HSDPA - 3	15	8	8	measured (dBm)	20.7	20.8	20.7
HSDPA - 4	15	4	8	measured (dBm)	23.1	23.0	23.0





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For head measurements, the units were measured in the following voice modes which correspond to the operating conditions with the highest conducted power:

GSM with a 1/8 duty cycle  
UMTS (circuit switched) with RMC=12.2,  $\beta_c=8$ , and  $\beta_d=15$

In all configurations, tests were conducted with Bluetooth functionality turned off.

For body measurements, the units were measured in the following data modes which correspond to the operating conditions with the highest conducted power:

E/GPRS (Multislot, Class 10) with a 1/4 duty cycle  
UMTS (circuit switched) with RMC=12.2,  $\beta_c=8$ , and  $\beta_d=15$

#### **Simultaneous Transmitter (i.e. Bluetooth) Considerations**

Since the measured SAR values are below 1.2 W/kg in all test cases and the conducted Bluetooth power is 6mW, simultaneous SAR evaluation and stand-alone Bluetooth SAR evaluation are not required.



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## 6.1 Head Adjacent Test Results

The SAR results shown in Tables 1 through 4 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.

The ambient temperature of the laboratory was maintained within the desired the range and the liquid depth above the ear reference points was above 15.0 cm in all the cases.

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



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f(MHz)	Channel/ frequency	Conducted Output Power (dBm)	Left Head (Cheek / Touch Position)						
		GSM 1:8 Duty Cycle	Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambient Temp (°C)	Simulate Temp (°C)
800 GSM	128 / 824	33	0.47	0.35	-0.10	0.47	0.35	22.5	22.4
	189 / 837	32.9	0.51	0.38	-0.02	0.51	0.38		
	251 / 849	33	0.69	0.51	-0.11	0.69	0.51		
1900 GSM	512 / 1850	31	0.40	0.26	-0.14	0.40	0.26	22.7	23
	660/1880	30.9	0.46	0.28	-0.17	0.46	0.28		
	810/1910	30.9	0.41	0.26	-0.18	0.41	0.26		
f(MHz)	Channel/ frequency	Conducted Output Power (dBm)	Left Head (15° Tilt Position)						
		GSM 1:8 Duty Cycle	Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambient Temp (°C)	Simulate Temp (°C)
800 GSM	128 / 824	33	0.25	0.19	-0.06	0.25	0.19	22.5	22.4
	189 / 837	32.9	0.25	0.19	0.02	0.25	0.19		
	251 / 849	33	0.33	0.24	-0.02	0.33	0.24		
1900 GSM	512 / 1850	31	0.18	0.11	0.15	0.18	0.11	22.7	23
	660/1880	30.9	0.21	0.13	0.17	0.21	0.13		
	810/1910	30.9	0.25	0.15	0.17	0.25	0.15		

**Table 1: SAR measurement results for the portable cellular telephone FCC ID PY7A3880017 model W518A at maximum output power with Standard Battery BST-39. Measured closed against the left head in GSM mode.**



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f(MHz)	Channel/ frequency	Conducted Output Power (dBm)	Right Head (Cheek / Touch Position)						
		GSM 1:8 Duty Cycle	Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambient Temp (°C)	Simulate Temp (°C)
800 GSM	128 / 824	33	0.49	0.31	-0.09	0.49	0.31	22	22.3
	189 / 837	32.9	0.58	0.37	-0.06	0.58	0.37		
	251 / 849	33	0.68	0.43	-0.05	0.68	0.43		
1900 GSM	512 / 1850	31	0.54	0.34	-0.13	0.54	0.34	22.3	22.8
	660/1880	30.9	0.52	0.33	-0.05	0.52	0.33		
	810/1910	30.9	0.53	0.33	-0.12	0.53	0.33		
f(MHz)	Channel/ frequency	Conducted Output Power (dBm)	Right Head (15° Tilt Position)						
		GSM 1:8 Duty Cycle	Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambient Temp (°C)	Simulate Temp (°C)
800 GSM	128 / 824	33	0.27	0.20	0.02	0.27	0.20	22	22.3
	189 / 837	32.9	0.28	0.20	0.05	0.28	0.20		
	251 / 849	33	0.32	0.24	0.01	0.32	0.24		
1900 GSM	512 / 1850	31	0.18	0.11	0.18	0.18	0.11	22.3	22.8
	660/1880	30.9	0.19	0.12	0.12	0.19	0.12		
	810/1910	30.9	0.19	0.11	0.07	0.19	0.11		

**Table 2: SAR measurement results for the portable cellular telephone FCC ID PY7A3880017 model W518A at maximum output power with Standard Battery BST-39. Measured closed against the right head in GSM mode.**



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f(MHz)	Channel/ frequency	Conducted Output Power (dBm)	UMTS Left Head Position (Cheek / Touch Position)						
		UMTS Duty Cycle	Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambient Temp (°C)	Simulate Temp (°C)
Band V	4133/826.6	22.9	0.507	0.377	0.02	0.51	0.38	22.5	22.4
	4175/835	22.9	0.517	0.38	0.07	0.52	0.38		
	4232/846.4	23	0.51	0.376	0.04	0.51	0.38		
Band II	9263/1852.6	22.9	0.599	0.369	0.12	0.61	0.38	22.7	22.4
	9400/1880	22.9	0.622	0.374	0.20	0.64	0.38		
	9537/1907.4	22.9	0.682	0.403	-0.10	0.70	0.41		
f(MHz)	Channel/ frequency	Conducted Output Power (dBm)	UMTS Left Head Position (15° Tilt Position)						
		UMTS Duty Cycle	Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambient Temp (°C)	Simulate Temp (°C)
Band V	4133/826.6	22.9	0.376	0.277	0.00	0.38	0.28	22.5	22.4
	4175/835	22.9	0.311	0.227	0.03	0.31	0.23		
	4232/846.4	23	0.304	0.222	0.03	0.30	0.22		
Band II	9263/1852.6	22.9	0.219	0.13	0.08	0.22	0.13	22.7	22.4
	9400/1880	22.9	0.265	0.157	0.01	0.27	0.16		
	9537/1907.4	22.9	0.319	0.188	0.00	0.33	0.19		

**Table 3: UMTS SAR measurement results for the portable cellular telephone FCC ID PY7A3880017 model W518A at maximum output power with Standard Battery BST-39. Measured closed against the left head in UMTS mode.**



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f(MHz)	Channel/ frequency	Conducted Output Power (dBm)	UMTS Right Head Position (Cheek / Touch Position)						
		UMTS Duty Cycle	Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambient Temp (°C)	Simulate Temp (°C)
Band V	4133/826.6	22.9	0.53	0.34	0.13	0.53	0.34	22.3	22.3
	4175/835	22.9	0.53	0.34	-0.03	0.53	0.34		
	4232/846.4	23	0.50	0.31	0.01	0.50	0.31		
Band II	9263/1852.6	22.9	0.64	0.41	0.04	0.65	0.42	22.6	22.4
	9400/1880	22.9	0.64	0.41	0.10	0.65	0.42		
	9537/1907.4	22.9	0.71	0.44	-0.08	0.73	0.45		
f(MHz)	Channel/ frequency	Conducted Output Power (dBm)	UMTS Right Head Position (15° Tilt Position)						
		UMTS Duty Cycle	Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambient Temp (°C)	Simulate Temp (°C)
Band V	4133/826.6	22.9	0.34	0.25	0.00	0.34	0.25	22.3	22.3
	4175/835	22.9	0.30	0.22	0.00	0.30	0.22		
	4232/846.4	23	0.30	0.22	-0.01	0.30	0.22		
Band II	9263/1852.6	22.9	0.23	0.14	-0.06	0.23	0.14	22.6	22.4
	9400/1880	22.9	0.27	0.17	0.06	0.28	0.17		
	9537/1907.4	22.9	0.32	0.19	0.00	0.32	0.19		

**Table 4: UMTS SAR measurement results for the portable cellular telephone FCC ID PY7A3880017 model W518A at maximum output power with Standard Battery BST-39. Measured closed against the right head in UMTS mode.**



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## 6.2 Body-Worn Test Results

The SAR results shown in Tables 5 and 6 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.

A “flat” phantom was used for the body-worn tests. This “flat” phantom corresponds to the flat portion of the SAM phantom.

The ambient temperature of the laboratory was maintained within the desired the range and the liquid depth above the ear reference points was above 15.0 cm in all the cases.

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:

-15 mm spacer

A full data set output of the test conditions with the highest SAR values 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.



Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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f(MHz)	Operating Condition	Channel/ frequency	Conducted Output Power (dBm)	Body Worn						
				15mm SPACER						
				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	29.9	0.48	0.32	-0.04	0.48	0.32	23	22.6
		189 / 837	29.9	0.52	0.34	-0.03	0.52	0.34		
		251 / 849	30	0.54	0.36	0.01	0.54	0.36		
	1:8 Duty Cycle	128 / 824	33	0.36	0.24	-0.07	0.36	0.24	23	22.6
1900 GSM	2:8 Duty Cycle	512 / 1850	28	0.42	0.25	-0.03	0.42	0.25	22.1	21.7
		660/1880	27.8	0.60	0.35	-0.10	0.60	0.35		
		810/1910	27.8	0.62	0.36	0.03	0.62	0.36		
	1:8 Duty Cycle	810/1910	30.9	0.39	0.21	0.04	0.39	0.21	0.39	0.21
Front of phone facing body										
800 GSM	2:8 Duty Cycle	128 / 824	29.9	0.38	0.26	-0.01	0.38	0.26	23	22.6
		189 / 837	29.9	0.42	0.29	0.06	0.42	0.29		
		251 / 849	30	0.44	0.30	0.01	0.44	0.30		
1900 GSM	2:8 Duty Cycle	512 / 1850	28	0.18	0.16	-0.02	0.18	0.16	22	21.7
		660/1880	27.8	0.18	0.11	-0.01	0.18	0.11		
		810/1910	27.8	0.21	0.13	0.08	0.21	0.13		

**Table 5: SAR measurement results for the portable cellular telephone FCC ID PY7A3880017 model W518A at maximum output power with Standard Battery BST-39. Measured with GSM/GPRS Mode.**





Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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f(MHz)	Operating Condition	Channel/ frequency	Conducted Output Power (dBm)	UMTS Body Worn Carry Accessory: 15mm SPACER Back of phone facing body						
				Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g	Ambient Temp (°C)	Simulate Temp (°C)		
Back of phone facing body										
Band V		4133/826.6	22.9	0.22	0.15	-0.01	0.22	0.15	21.6	21.2
		4175/835	22.9	0.31	0.21	0.07	0.31	0.21		
		4232/846.4	23	0.23	0.15	-0.08	0.23	0.15		
Band II		9263/1852.6	22.9	0.78	0.45	-0.07	0.80	0.46	22.1	21.7
		9400/1880	22.9	0.83	0.48	0.07	0.85	0.49		
		9537/1907.4	22.9	0.77	0.44	-0.13	0.79	0.45		
Front of phone facing body										
Band V		4133/826.6	22.9	0.08	0.06	0.01	0.08	0.06	21.6	21.2
		4175/835	22.9	0.09	0.07	0.03	0.09	0.07		
		4232/846.4	23	0.06	0.05	0.01	0.06	0.05		
Band II		9263/1852.6	22.9	0.22	0.14	-0.05	0.22	0.14	22.1	21.7
		9400/1880	22.9	0.24	0.15	-0.02	0.25	0.16		
		9537/1907.4	22.9	0.21	0.13	0.01	0.22	0.14		

**Table 6: UMTS SAR measurement results for the portable cellular telephone FCC ID PY7A3880017 model W518A at maximum output power with Standard Battery BST-39. Measured against the body with UMTS/HSDPA Modes.**

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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] IEC 62209-1, "Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures – Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz) ", First Edition 2005-02.
- [3] 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 1528-2003, June 2003.

APPLICANT: Sony Ericsson Mobile Communications Inc.

FCC ID: **PY7A3880017**



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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 .****Validation 835Body 429 1031 23Jan09 T01**File Name: [Validation 835Body 429 1031 23Jan09 T01.da4](#)

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

Probe: ET3DV6 - SN1586ConvF(6.25, 6.25, 6.25) Duty Cycle: 1:1 Frequency: 835 MHz

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.942 \text{ mho/m}$ ;  $\epsilon_r = 55.9$ ;  $\rho = 1000 \text{ kg/m}^3$ 

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) = 1.01 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 = 34.7 V/m; Power Drift = 0.087 dB

Peak SAR (extrapolated) = 1.35 W/kg

**SAR(1 g) = 0.959 mW/g; SAR(10 g) = 0.634 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 = 34.7 V/m; Power Drift = 0.087 dB

Peak SAR (extrapolated) = 1.51 W/kg

**SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.703 mW/g**

Maximum value of SAR (measured) = 1.16 mW/g

Procedure Notes: Pin: before 99.4 mW / after 100 mW

Humidity - 37.2 % Ambient Temp - 23 C Simulant Temp - 22.6 C

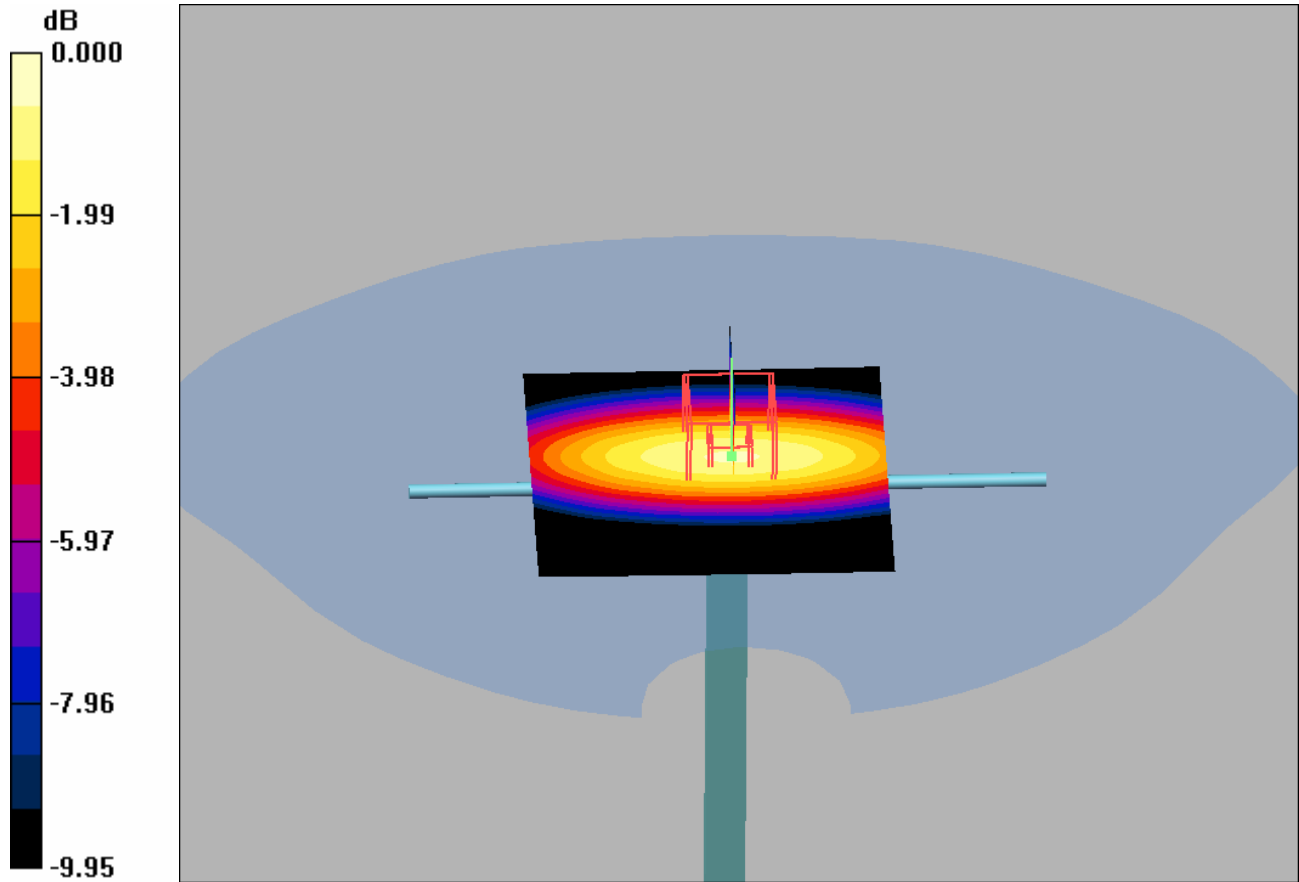


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0 dB = 1.16mW/g



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**835 MHz SAR Distribution of Validation Dipole Antenna****System Performance Check.****Validation 835Body 429 1031 29Jan09 T01**File Name: [Validation 835Body 429 1031 29Jan09 T01.da4](#)

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

Probe: ET3DV6 - SN1586ConvF(6.25, 6.25, 6.25) Duty Cycle: 1:1 Frequency: 835 MHz

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.948 \text{ mho/m}$ ;  $\epsilon_r = 56.1$ ;  $\rho = 1000 \text{ kg/m}^3$ 

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) = 0.977 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 = 33.7 V/m; Power Drift = 0.080 dB

Peak SAR (extrapolated) = 1.24 W/kg

**SAR(1 g) = 0.914 mW/g; SAR(10 g) = 0.614 mW/g**

Maximum value of SAR (measured) = 0.989 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 = 33.7 V/m; Power Drift = 0.080 dB

Peak SAR (extrapolated) = 1.36 W/kg

**SAR(1 g) = 0.999 mW/g; SAR(10 g) = 0.671 mW/g**

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

Procedure Notes: Pin: before 99.2 mW / after 99 mW

Humidity - 41.3 % Ambient Temp - 21.6 C Simulant Temp - 21.2 C

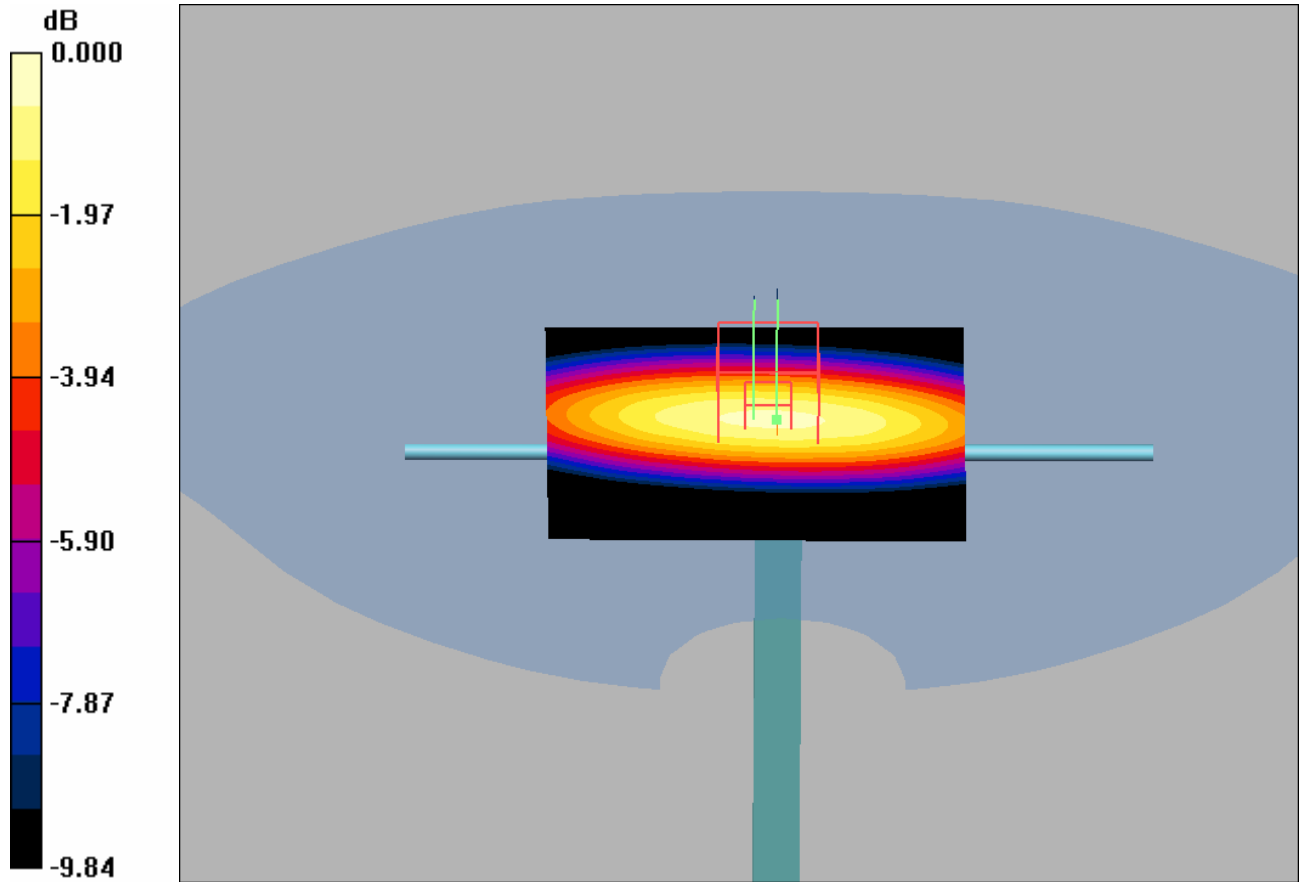


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0 dB = 1.09mW/g



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**835 MHz SAR Distribution of Validation Dipole Antenna****System Performance Check.****Validation 835Head 429 1023 27Jan09 T01**File Name: [Validation 835Head 429 1023 27Jan09 T01.da4](#)

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

Probe: ET3DV6 - SN1583ConvF(6.48, 6.48, 6.48) Duty Cycle: 1:1 Frequency: 835 MHz

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.89 \text{ mho/m}$ ;  $\epsilon_r = 41.2$ ;  $\rho = 1000 \text{ kg/m}^3$ 

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) = 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 = 35.3 V/m; Power Drift = 0.030 dB

Peak SAR (extrapolated) = 1.40 W/kg

**SAR(1 g) = 0.958 mW/g; SAR(10 g) = 0.628 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 = 35.3 V/m; Power Drift = 0.030 dB

Peak SAR (extrapolated) = 1.35 W/kg

**SAR(1 g) = 0.932 mW/g; SAR(10 g) = 0.613 mW/g**

Maximum value of SAR (measured) = 1.00 mW/g

Procedure Notes: Pin: before 99.4 mW / after 100.4 mW

Humidity - 41.2 % Ambient Temp - 22.5 C Simulant Temp - 22.4 C



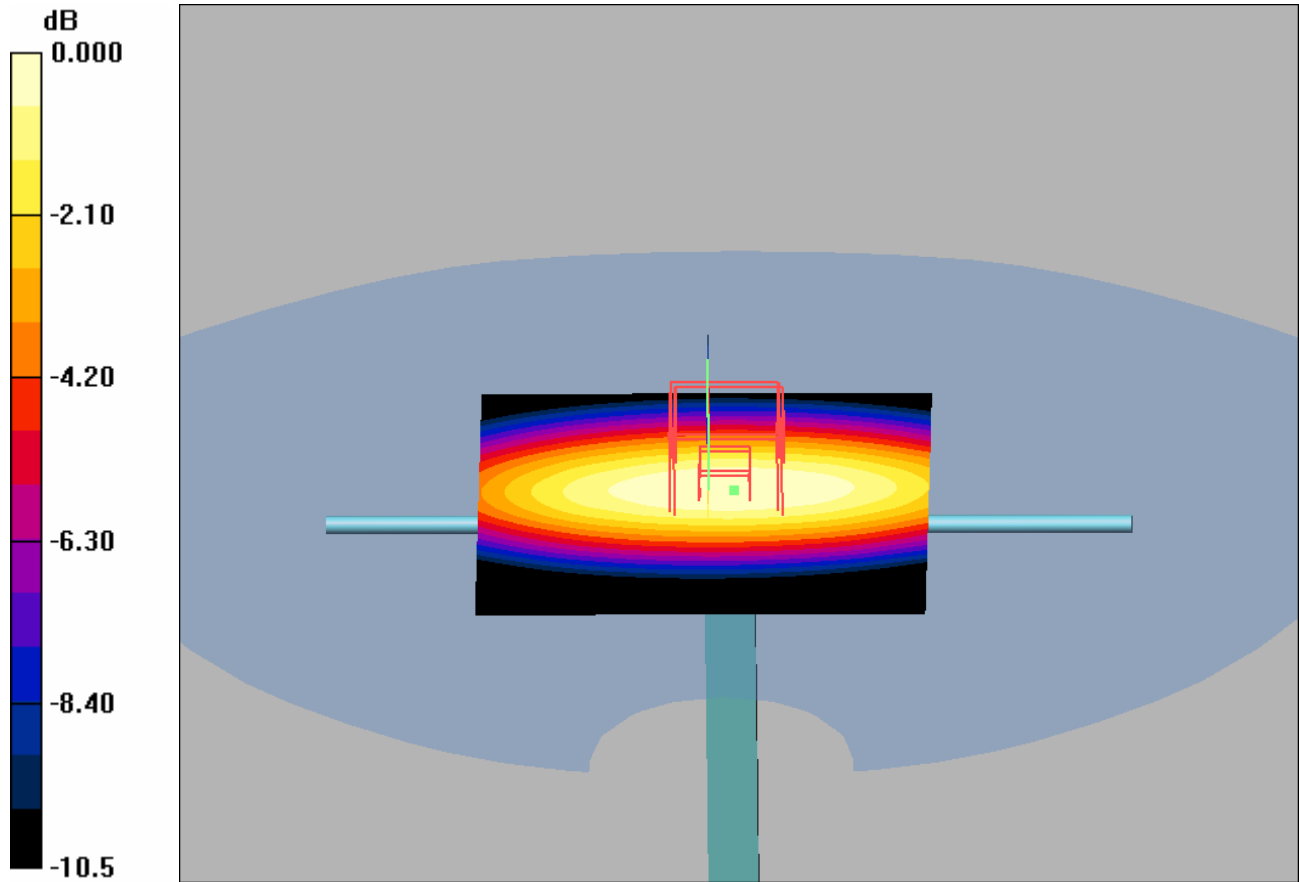


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0 dB = 1.00mW/g



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**835 MHz SAR Distribution of Validation Dipole Antenna****System Performance Check.****Validation\_835Head\_429\_1023\_28Jan09\_T01**File Name: [Validation\\_835Head\\_429\\_1023\\_28Jan09\\_T01.da4](#)

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

Probe: ET3DV6 - SN1583ConvF(6.48, 6.48, 6.48) Duty Cycle: 1:1 Frequency: 835 MHz

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.927 \text{ mho/m}$ ;  $\epsilon_r = 42.8$ ;  $\rho = 1000 \text{ kg/m}^3$ 

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) = 1.08 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 = 35.2 V/m; Power Drift = 0.031 dB

Peak SAR (extrapolated) = 1.47 W/kg

**SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.659 mW/g**

Maximum value of SAR (measured) = 1.09 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 = 35.2 V/m; Power Drift = 0.031 dB

Peak SAR (extrapolated) = 1.42 W/kg

**SAR(1 g) = 0.978 mW/g; SAR(10 g) = 0.641 mW/g**

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

Procedure Notes: Pin: before 99.8 mW / after 100.1 mW

Humidity - 41.2 % Ambient Temp - 22.5 C Simulant Temp - 22.4 C

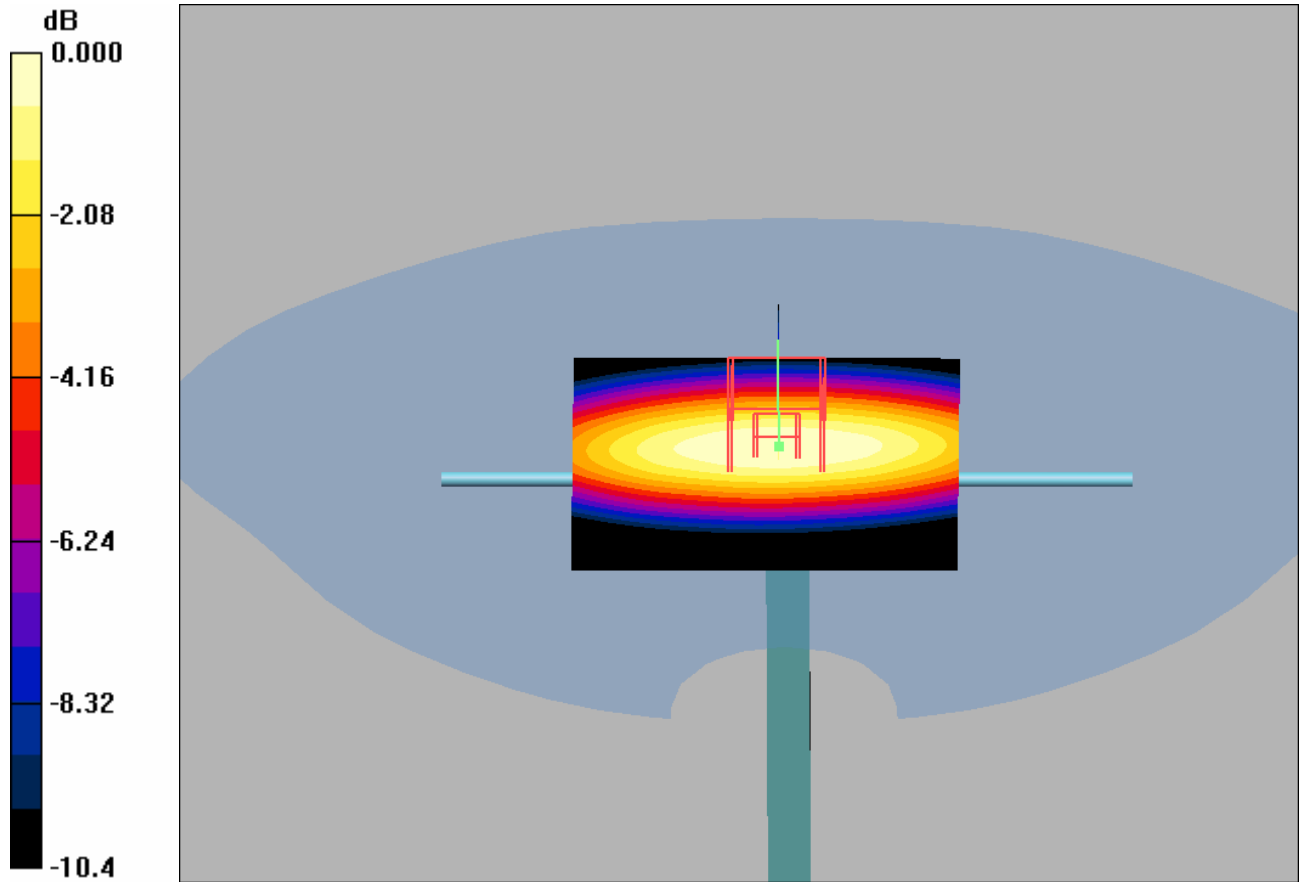


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0 dB = 1.06mW/g



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**1900 MHz SAR Distribution of Validation Dipole Antenna****System Performance Check.****Validation\_1900Body\_537\_1020\_25Jan09\_T01**File Name: [Validation\\_1900Body\\_537\\_1020\\_25Jan09\\_T01.da4](#)

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

Probe: ET3DV6 - SN1586ConvF(4.64, 4.64, 4.64) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.54 \text{ mho/m}$ ;  $\epsilon_r = 51.3$ ;  $\rho = 1000 \text{ kg/m}^3$ 

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) = 4.90 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 = 53.9 V/m; Power Drift = 0.039 dB

Peak SAR (extrapolated) = 6.78 W/kg

**SAR(1 g) = 3.72 mW/g; SAR(10 g) = 1.95 mW/g**

Maximum value of SAR (measured) = 4.19 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 = 53.9 V/m; Power Drift = 0.039 dB

Peak SAR (extrapolated) = 7.15 W/kg

**SAR(1 g) = 3.96 mW/g; SAR(10 g) = 2.07 mW/g**

Maximum value of SAR (measured) = 4.45 mW/g

Procedure Notes: Pin: before 99.7 mW / after 99.3 mW

Humidity - 42.1 % Ambient Temp - 22.1 C Simulant Temp - 21.7 C

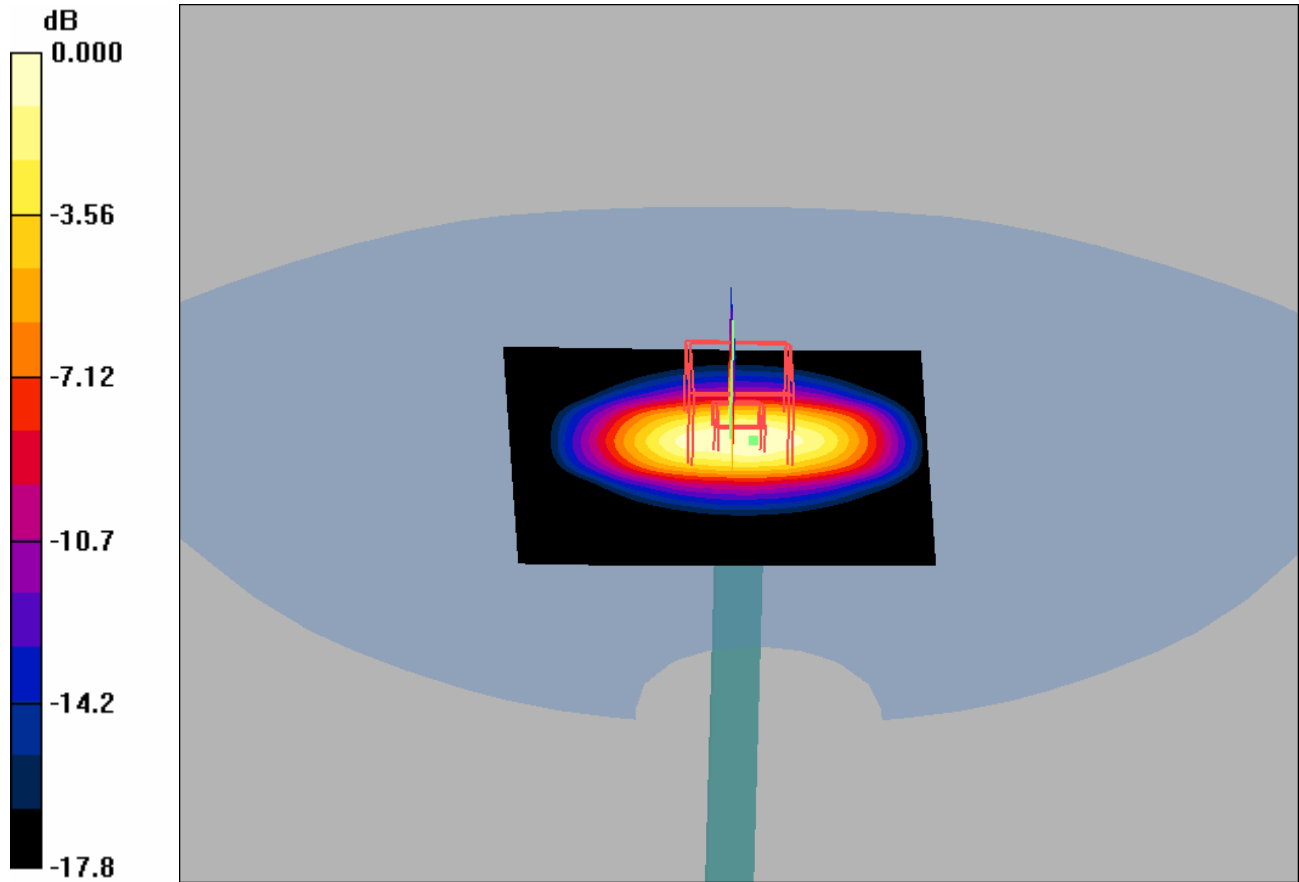


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0 dB = 4.45mW/g



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**1900 MHz SAR Distribution of Validation Dipole Antenna****System Performance Check.****Validation\_1900Body\_537\_1020\_26Jan09\_T01**File Name: [Validation\\_1900Body\\_537\\_1020\\_26Jan09\\_T01.da4](#)

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

Probe: ET3DV6 - SN1586ConvF(4.64, 4.64, 4.64) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.51 \text{ mho/m}$ ;  $\epsilon_r = 50.8$ ;  $\rho = 1000 \text{ kg/m}^3$ 

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) = 5.05 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 = 53.2 V/m; Power Drift = 0.012 dB

Peak SAR (extrapolated) = 7.23 W/kg

**SAR(1 g) = 3.96 mW/g; SAR(10 g) = 2.07 mW/g**

Maximum value of SAR (measured) = 4.43 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 = 53.2 V/m; Power Drift = 0.012 dB

Peak SAR (extrapolated) = 7.48 W/kg

**SAR(1 g) = 4.13 mW/g; SAR(10 g) = 2.16 mW/g**

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

Procedure Notes: Pin: before 99.4 mW / after 99.6 mW

Humidity - 42.1 % Ambient Temp - 22.1 C Simulant Temp - 21.7 C

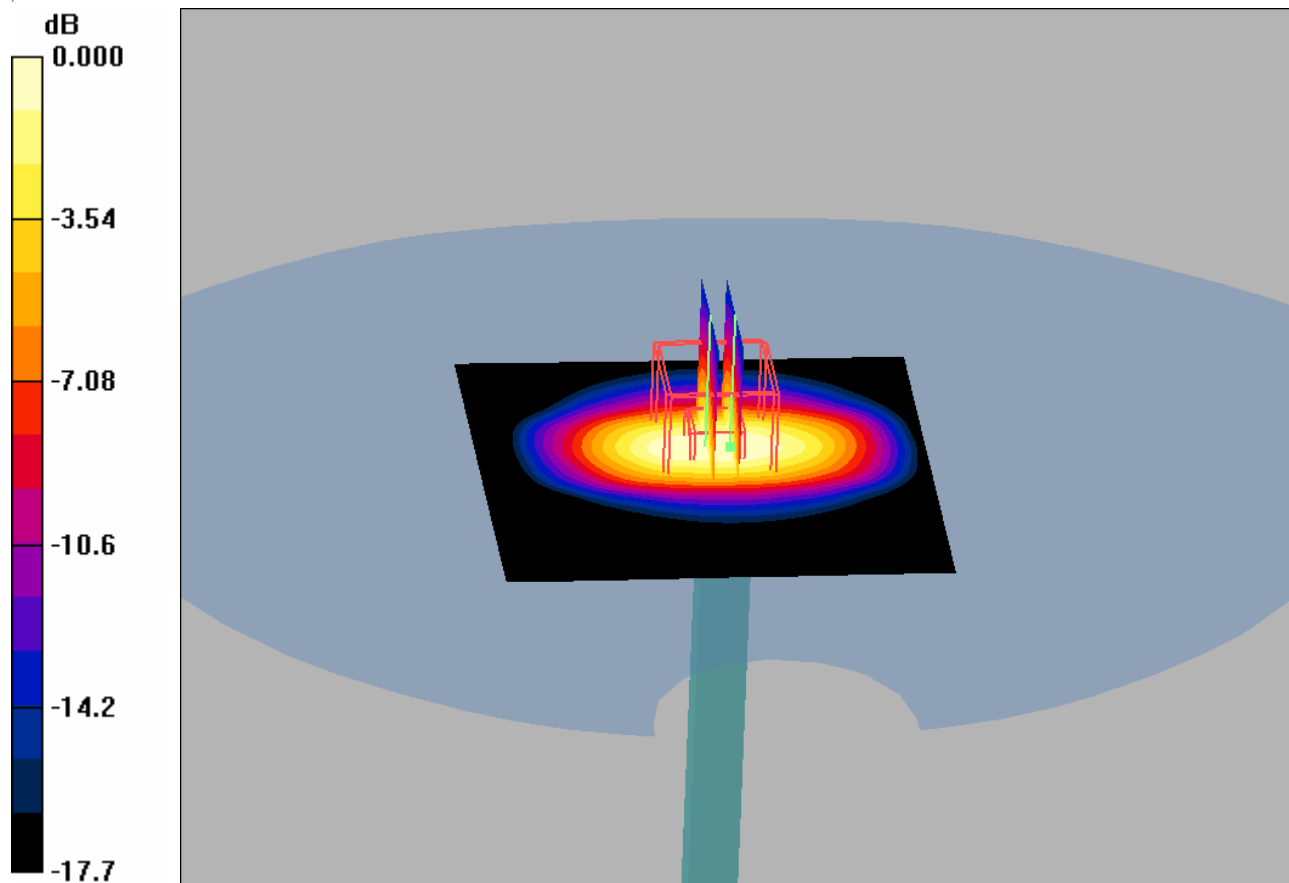


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0 dB = 4.65mW/g



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Approved SEM/CV/PF/P Gerard Hayes	Checked	B

**1900 MHz SAR Distribution of Validation Dipole Antenna****System Performance Check.****Validation\_1900Body\_537\_1054\_28Jan09\_T01**File Name: [Validation\\_1900Body\\_537\\_1054\\_28Jan09\\_T01.da4](#)

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

Probe: ET3DV6 - SN1538ConvF(5.18, 5.18, 5.18) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.41 \text{ mho/m}$ ;  $\epsilon_r = 38.7$ ;  $\rho = 1000 \text{ kg/m}^3$ 

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) = 4.57 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 = 55.4 V/m; Power Drift = 0.067 dB

Peak SAR (extrapolated) = 6.49 W/kg

**SAR(1 g) = 3.64 mW/g; SAR(10 g) = 1.91 mW/g**

Maximum value of SAR (measured) = 4.11 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 = 55.4 V/m; Power Drift = 0.067 dB

Peak SAR (extrapolated) = 6.86 W/kg

**SAR(1 g) = 3.87 mW/g; SAR(10 g) = 2.03 mW/g**

Maximum value of SAR (measured) = 4.34 mW/g

Procedure Notes: Pin: before 100.4 mW / after 101.4 mW

Humidity: 36.2 % Ambient Temp: 21.8 C Simulant Temp: 21.7 C



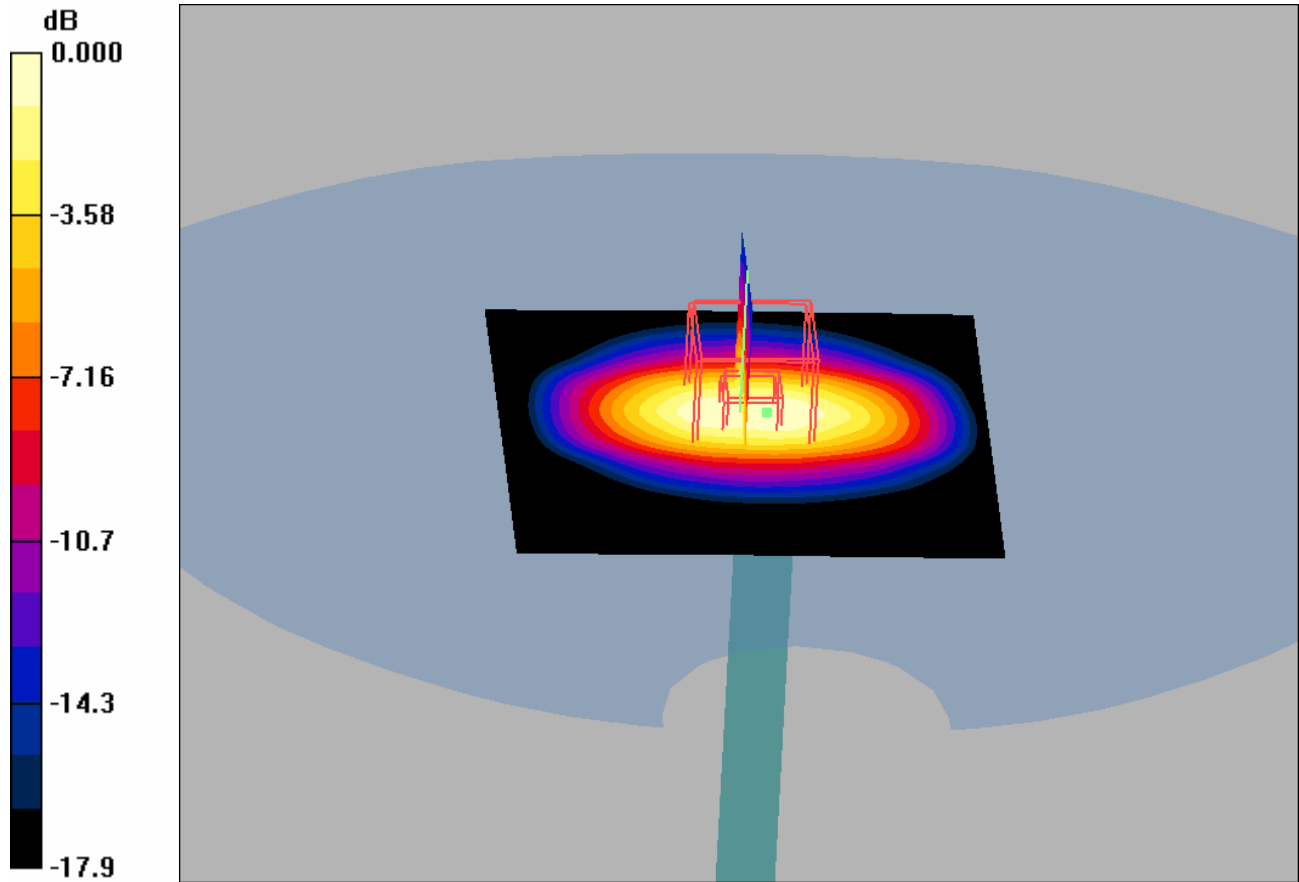


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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0 dB = 4.34mW/g



Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02
Approved SEM/CV/PF/P Gerard Hayes	Checked	B

**1900 MHz SAR Distribution of Validation Dipole Antenna****System Performance Check.****Validation\_1900Head\_537\_1054\_27Jan09\_T01**File Name: [Validation\\_1900Head\\_537\\_1054\\_27Jan09\\_T01.da4](#)

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

Probe: ET3DV6 - SN1538ConvF(5.18, 5.18, 5.18) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 39.1$ ;  $\rho = 1000 \text{ kg/m}^3$ 

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) = 5.07 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 = 60.1 V/m; Power Drift = 0.017 dB

Peak SAR (extrapolated) = 7.19 W/kg

**SAR(1 g) = 4.02 mW/g; SAR(10 g) = 2.1 mW/g**

Maximum value of SAR (measured) = 4.50 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 = 60.1 V/m; Power Drift = 0.017 dB

Peak SAR (extrapolated) = 7.58 W/kg

**SAR(1 g) = 4.25 mW/g; SAR(10 g) = 2.22 mW/g**

Maximum value of SAR (measured) = 4.70 mW/g

Procedure Notes: Pin: before 100.4 mW / after 101.4 mW

Humidity: 36.2 % Ambient Temp: 21.8 C Simulant Temp: 21.7 C

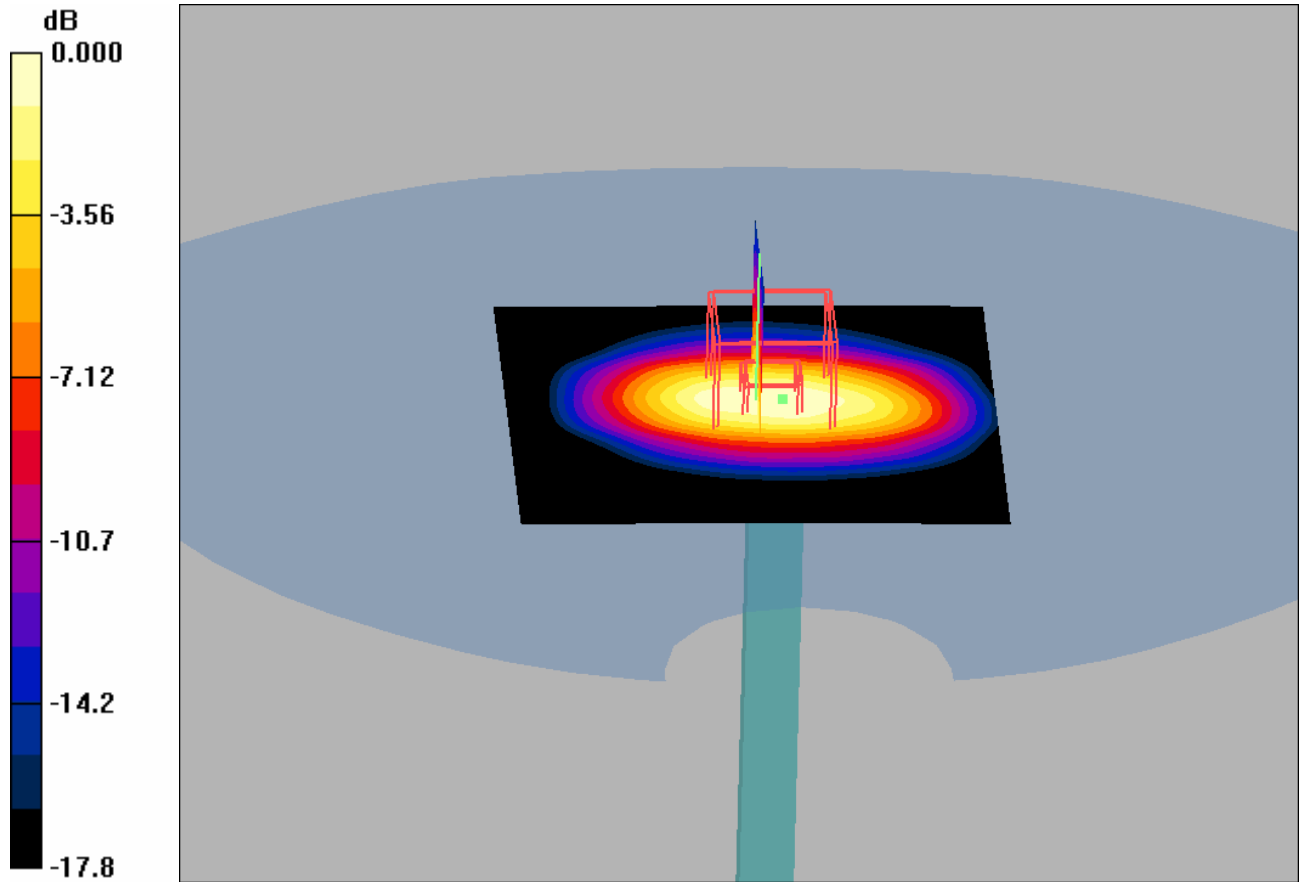


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



0 dB = 4.70mW/g



Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**1900 MHz SAR Distribution of Validation Dipole Antenna****System Performance Check.****Validation\_1900Head\_537\_1335\_22Jan09\_T01**File Name: [Validation\\_1900Head\\_537\\_1335\\_22Jan09\\_T01.da4](#)

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

Probe: ET3DV6 - SN1583ConvF(5.12, 5.12, 5.12) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.45 \text{ mho/m}$ ;  $\epsilon_r = 38.4$ ;  $\rho = 1000 \text{ kg/m}^3$ 

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) = 5.31 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 = 57.6 V/m; Power Drift = -0.052 dB

Peak SAR (extrapolated) = 7.63 W/kg

**SAR(1 g) = 4.25 mW/g; SAR(10 g) = 2.21 mW/g**

Maximum value of SAR (measured) = 4.79 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 = 57.6 V/m; Power Drift = -0.052 dB

Peak SAR (extrapolated) = 7.42 W/kg

**SAR(1 g) = 4.15 mW/g; SAR(10 g) = 2.17 mW/g**

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

Procedure Notes: Pin: before 100 mW / after 100.4 mW

Humidity: 36.8 % Ambient Temp: 22.7 C Simulant Temp: 23 C

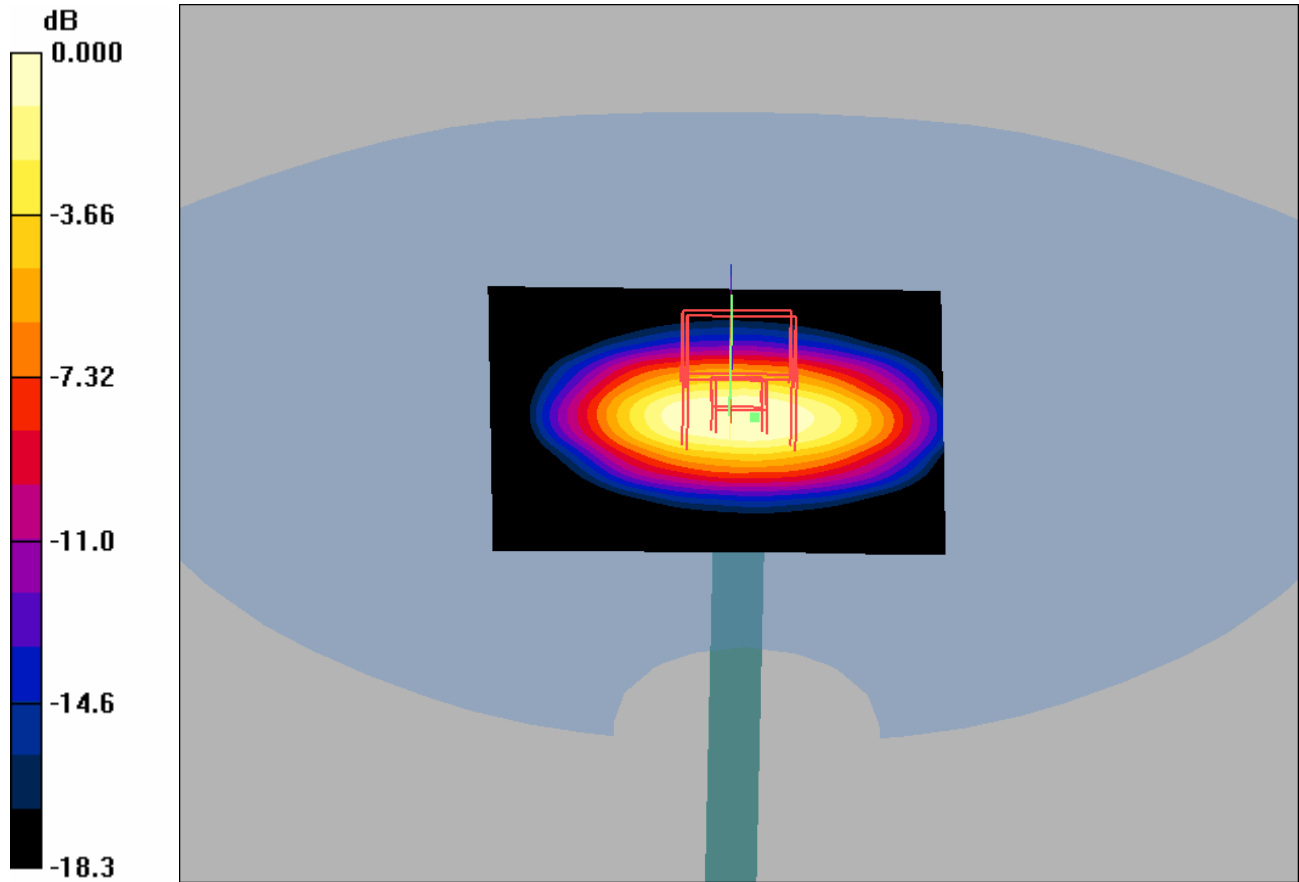


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	



0 dB = 4.69mW/g



Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02
Approved SEM/CV/PF/P Gerard Hayes	Checked	B

**1900 MHz SAR Distribution of Validation Dipole Antenna****System Performance Check.****Validation\_1900Head\_537\_1335\_23Jan09\_T01**File Name: [Validation\\_1900Head\\_537\\_1335\\_23Jan09\\_T01.da4](#)

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

Probe: ET3DV6 - SN1583ConvF(5.12, 5.12, 5.12) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.46 \text{ mho/m}$ ;  $\epsilon_r = 39.5$ ;  $\rho = 1000 \text{ kg/m}^3$ 

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) = 5.30 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 = 58.0 V/m; Power Drift = 0.016 dB

Peak SAR (extrapolated) = 7.70 W/kg

**SAR(1 g) = 4.26 mW/g; SAR(10 g) = 2.21 mW/g**

Maximum value of SAR (measured) = 4.79 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 = 58.0 V/m; Power Drift = 0.016 dB

Peak SAR (extrapolated) = 7.59 W/kg

**SAR(1 g) = 4.19 mW/g; SAR(10 g) = 2.17 mW/g**

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

Procedure Notes: Pin: before 100.1 mW / after 99.9 mW

Humidity: 34.7 % Ambient Temp: 22.6 C Simulant Temp: 22.4 C

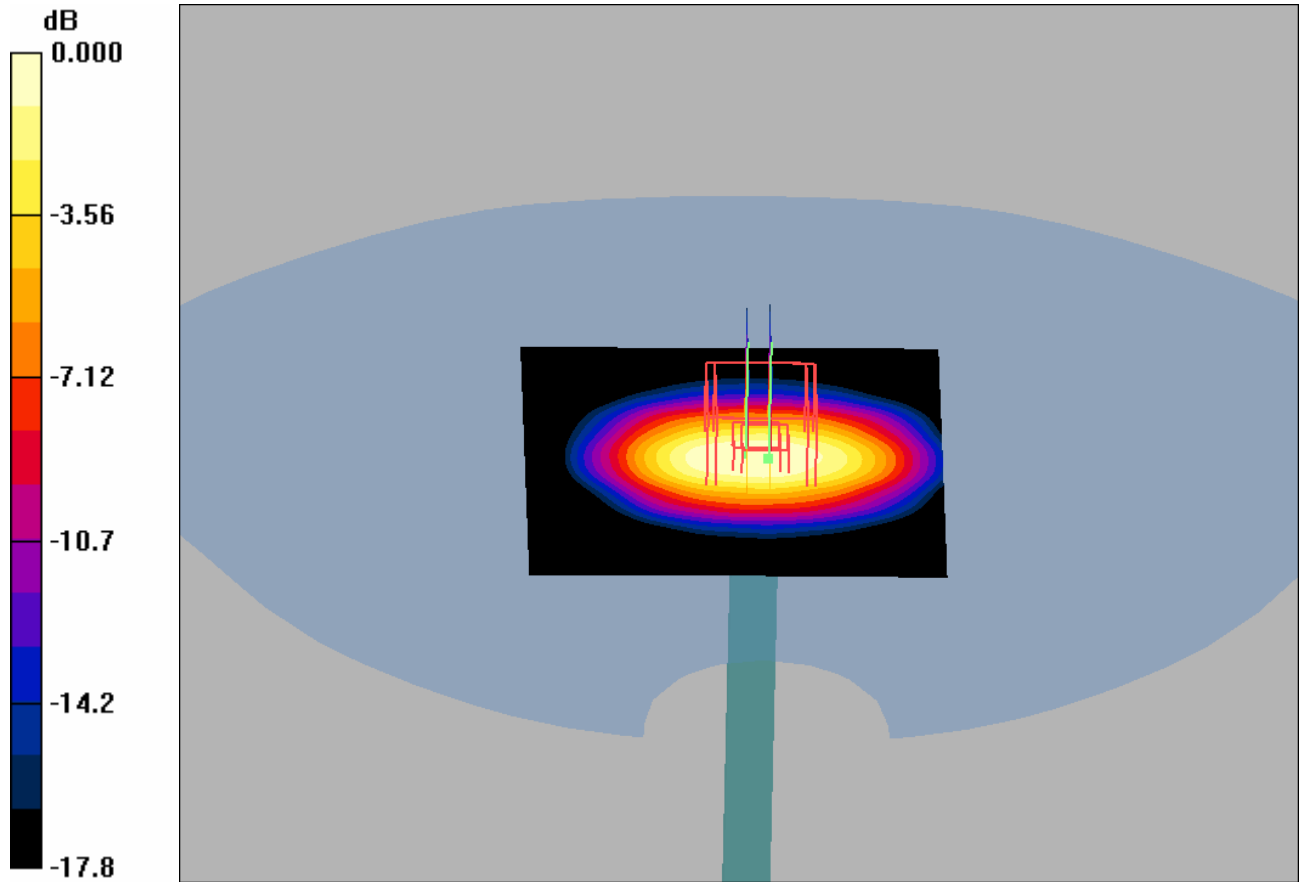


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	



0 dB = 4.75mW/g

APPLICANT: Sony Ericsson Mobile Communications Inc.

FCC ID: **PY7A3880017**



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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02
Approved SEM/CV/PF/P Gerard Hayes	Checked	B

## Appendix 2

### SAR distribution plots for Phantom Head Adjacent Use





Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B

**800 GSM Band: SAR Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Right Cheek Position.**

Date/Time: 1/27/2009 11:16:09 AM

File Name: [27Jan09\\_W518\\_GSM850\\_KHST\\_RC01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(6.48, 6.48, 6.48)

Medium parameters used (interpolated):  $f = 849$  MHz;  $\sigma = 0.904$  mho/m;  $\epsilon_r = 41$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery BST-39 Humidity - 43.2 % Ambient Temp - 22 C Simulant Temp - 22.3 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.48, 6.48, 6.48); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 3/Area Scan (51x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.726 mW/g

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

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

Reference Value = 13.3 V/m; Power Drift = -0.046 dB

Peak SAR (extrapolated) = 1.27 W/kg

**SAR(1 g) = 0.683 mW/g; SAR(10 g) = 0.427 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.748 mW/g

**Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 1:**

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

Reference Value = 13.3 V/m; Power Drift = -0.046 dB

Peak SAR (extrapolated) = 0.677 W/kg

**SAR(1 g) = 0.537 mW/g; SAR(10 g) = 0.395 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.568 mW/g

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

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

Reference Value = 13.3 V/m; Power Drift = -0.046 dB

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

Maximum value of SAR (interpolated) = 1.27 mW/g

**Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 1:**

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

Reference Value = 13.3 V/m; Power Drift = -0.046 dB

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

Maximum value of SAR (interpolated) = 0.677 mW/g

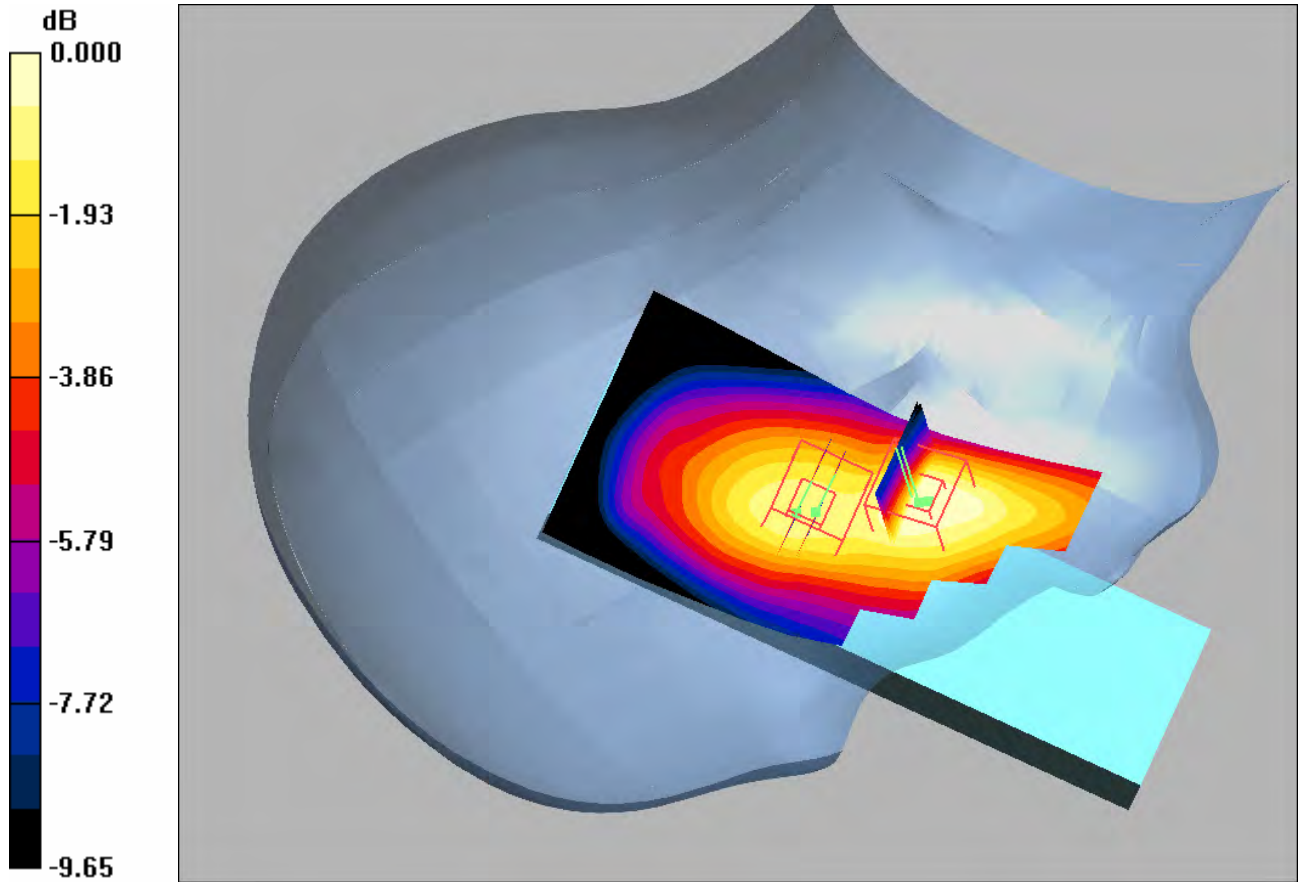


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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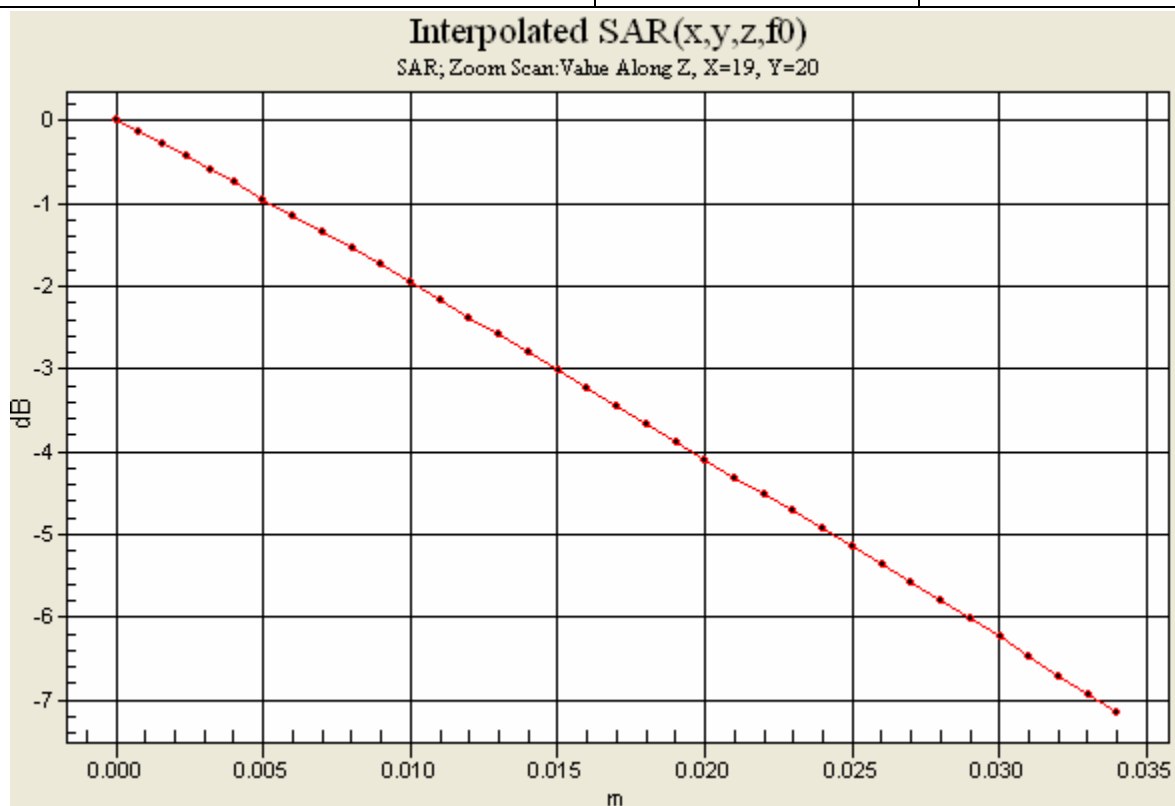
0 dB = 0.677mW/g

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**800 GSM Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Right Tilt Position.**

Date/Time: 1/27/2009 12:29:38 PM

File Name: [27Jan09\\_W518\\_GSM850\\_KHST\\_RT01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(6.48, 6.48, 6.48)

Medium parameters used (interpolated):  $f = 849$  MHz;  $\sigma = 0.904$  mho/m;  $\epsilon_r = 41$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery BST-39 Humidity - 43.2 % Ambient Temp - 22 C Simulant Temp - 22.3 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.48, 6.48, 6.48); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 3/Area Scan (51x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.343 mW/g

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

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

Reference Value = 15.9 V/m; Power Drift = 0.009 dB

Peak SAR (extrapolated) = 0.399 W/kg

**SAR(1 g) = 0.320 mW/g; SAR(10 g) = 0.235 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.338 mW/g

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

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

Reference Value = 15.9 V/m; Power Drift = 0.009 dB

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

Maximum value of SAR (interpolated) = 0.399 mW/g

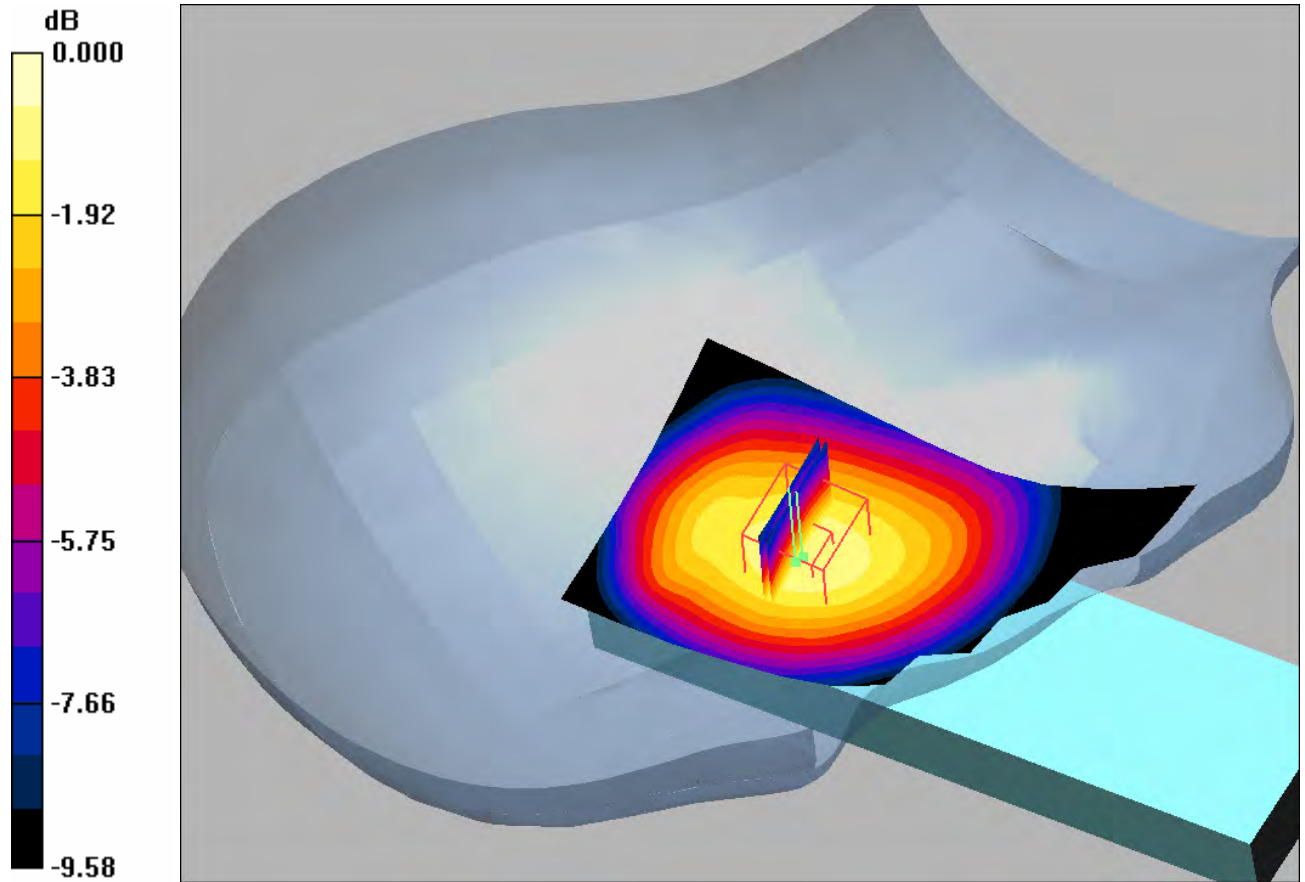


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



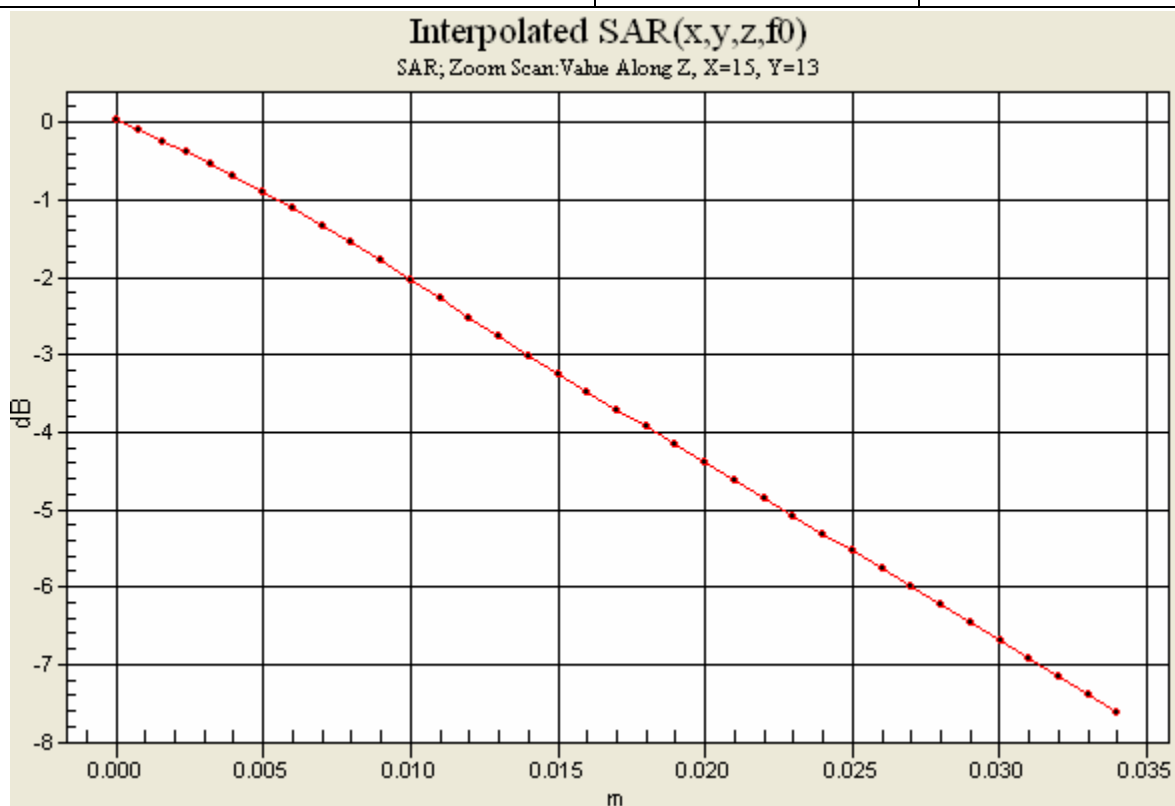
0 dB = 0.399mW/g

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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	





Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B

**800 GSM Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Left Cheek Position.**

Date/Time: 1/27/2009 8:25:00 AM

File Name: [27Jan09\\_W518\\_GSM850\\_KHST\\_LC01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(6.48, 6.48, 6.48)

Medium parameters used (interpolated):  $f = 849$  MHz;  $\sigma = 0.904$  mho/m;  $\epsilon_r = 41$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery BST-39 Humidity - 41.2 % Ambient Temp - 22.5 C Simulant Temp - 22.4 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.48, 6.48, 6.48); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 3/Area Scan (51x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.730 mW/g

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

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

Reference Value = 14.7 V/m; Power Drift = -0.114 dB

Peak SAR (extrapolated) = 0.867 W/kg

**SAR(1 g) = 0.692 mW/g; SAR(10 g) = 0.508 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.737 mW/g

**Unnamed procedure 3/Zoom Scan (7x7x7)/Cube 1:**

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

Reference Value = 14.7 V/m; Power Drift = -0.114 dB

Peak SAR (extrapolated) = 0.811 W/kg

**SAR(1 g) = 0.587 mW/g; SAR(10 g) = 0.419 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.634 mW/g

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

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

Reference Value = 14.7 V/m; Power Drift = -0.114 dB

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

Maximum value of SAR (interpolated) = 0.867 mW/g

**Unnamed procedure 3/Zoom Scan (31x31x36)/Cube 1:**

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

Reference Value = 14.7 V/m; Power Drift = -0.114 dB

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

Maximum value of SAR (interpolated) = 0.811 mW/g

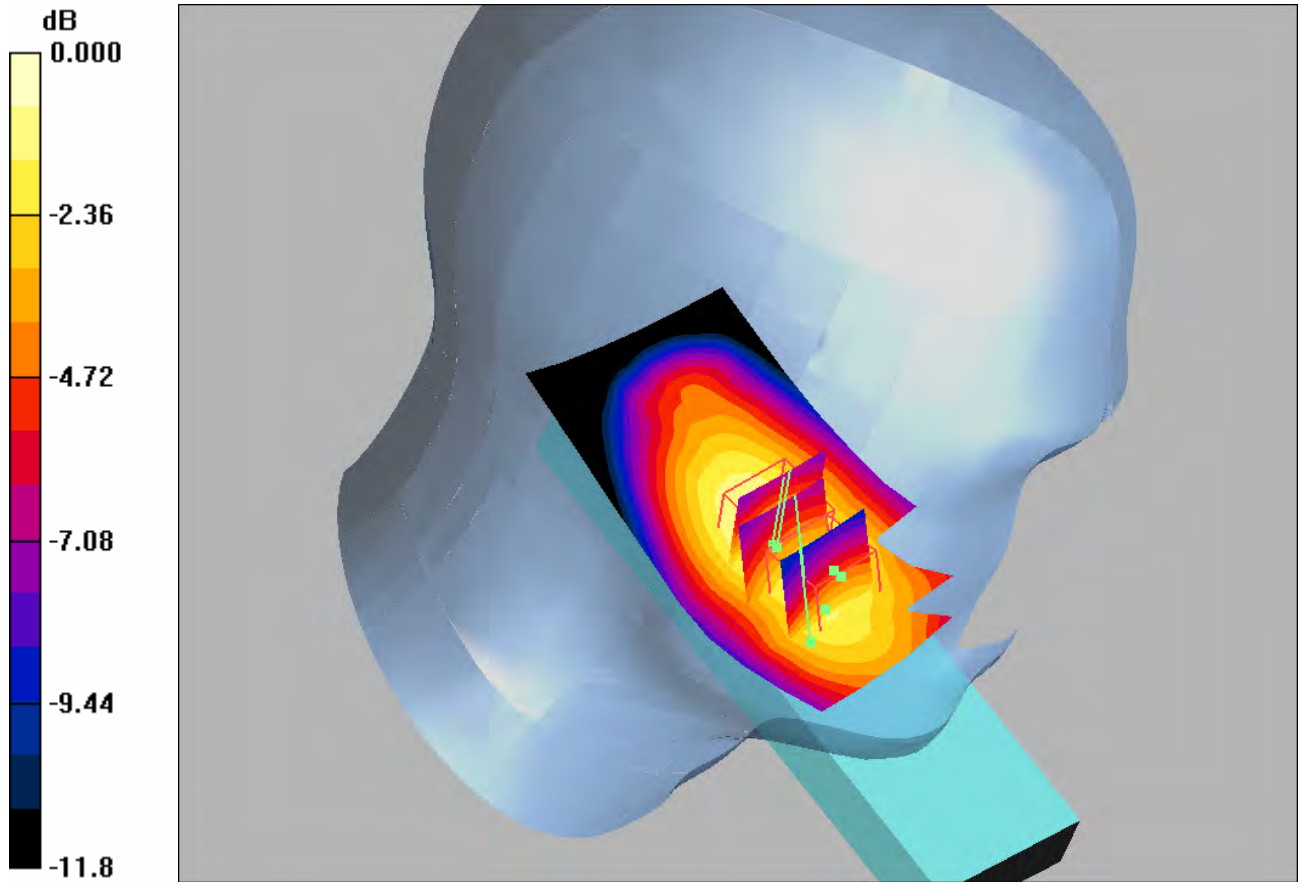


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	



0 dB = 0.811mW/g



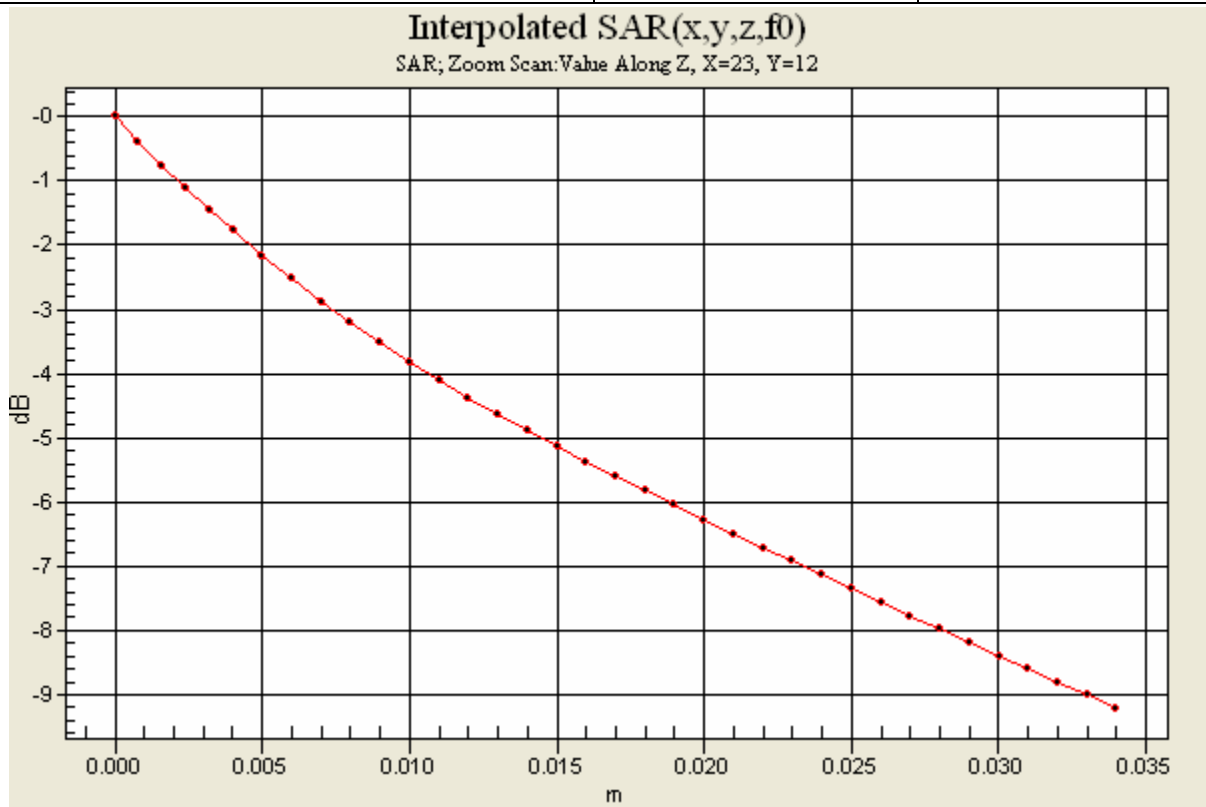


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	





Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**800 GSM Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Left Tilt Position.**

Date/Time: 1/27/2009 9:44:33 AM

File Name: [27Jan09\\_W518\\_GSM850\\_KHST\\_LT01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(6.48, 6.48, 6.48)

Medium parameters used (interpolated):  $f = 849$  MHz;  $\sigma = 0.904$  mho/m;  $\epsilon_r = 41$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery BST-39 Humidity - 41.2 % Ambient Temp - 22.5 C Simulant Temp - 22.4 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.48, 6.48, 6.48); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 3/Area Scan (51x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.345 mW/g

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

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

Reference Value = 16.6 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.421 W/kg

**SAR(1 g) = 0.329 mW/g; SAR(10 g) = 0.241 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.347 mW/g

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

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

Reference Value = 16.6 V/m; Power Drift = -0.016 dB

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

Maximum value of SAR (interpolated) = 0.421 mW/g

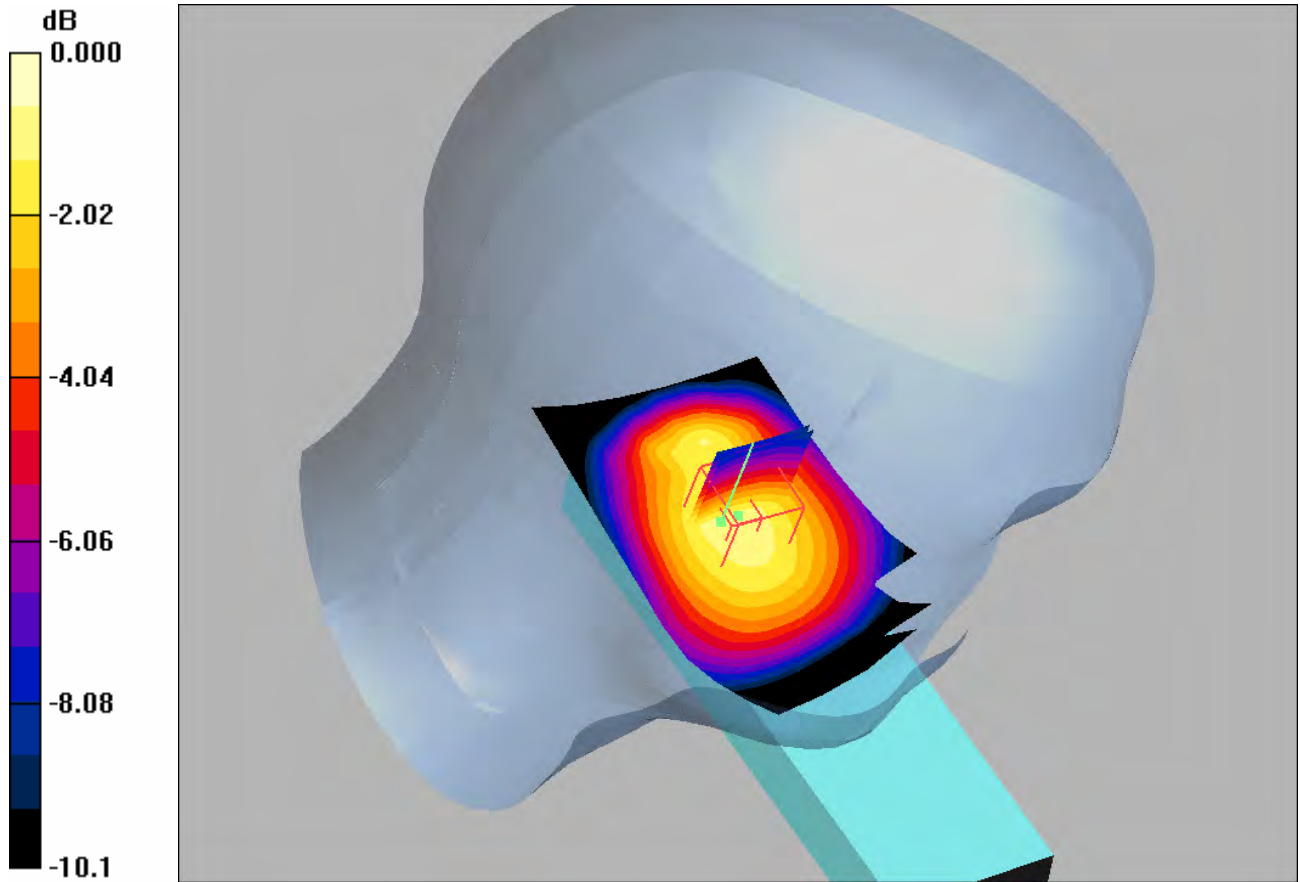


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



0 dB = 0.421mW/g

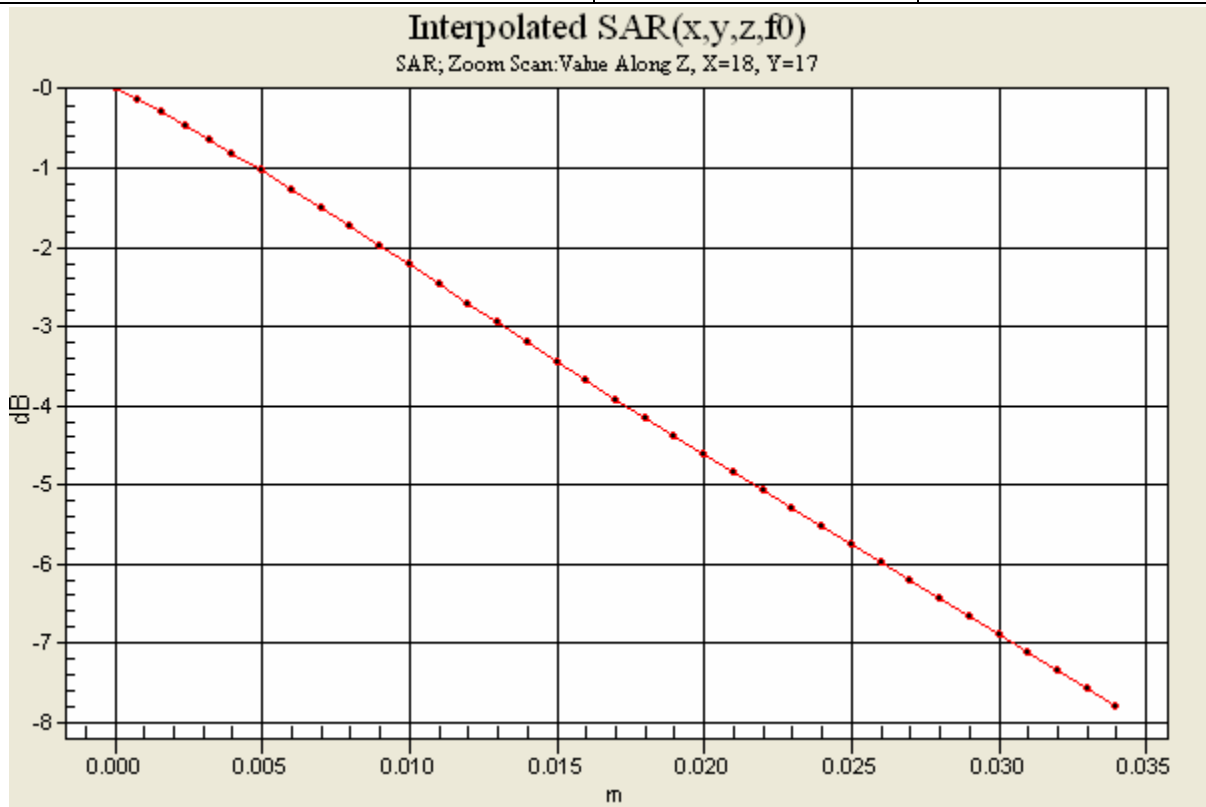


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B

**1900 GSM Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Right Cheek Position.**

Date/Time: 1/22/2009 12:47:29 PM

File Name: [22Jan09\\_W518\\_GSM1900\\_K155\\_RC01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(5.12, 5.12, 5.12)

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 38.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery - BST39 Humidity - 35.7 % Ambient Temp - 22.3 C Simulant Tem - 22.8 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(5.12, 5.12, 5.12); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure/Area Scan (51x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.656 mW/g

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

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

Reference Value = 4.99 V/m; Power Drift = -0.126 dB

Peak SAR (extrapolated) = 0.873 W/kg

**SAR(1 g) = 0.537 mW/g; SAR(10 g) = 0.344 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.578 mW/g

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

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

Reference Value = 4.99 V/m; Power Drift = -0.126 dB

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

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

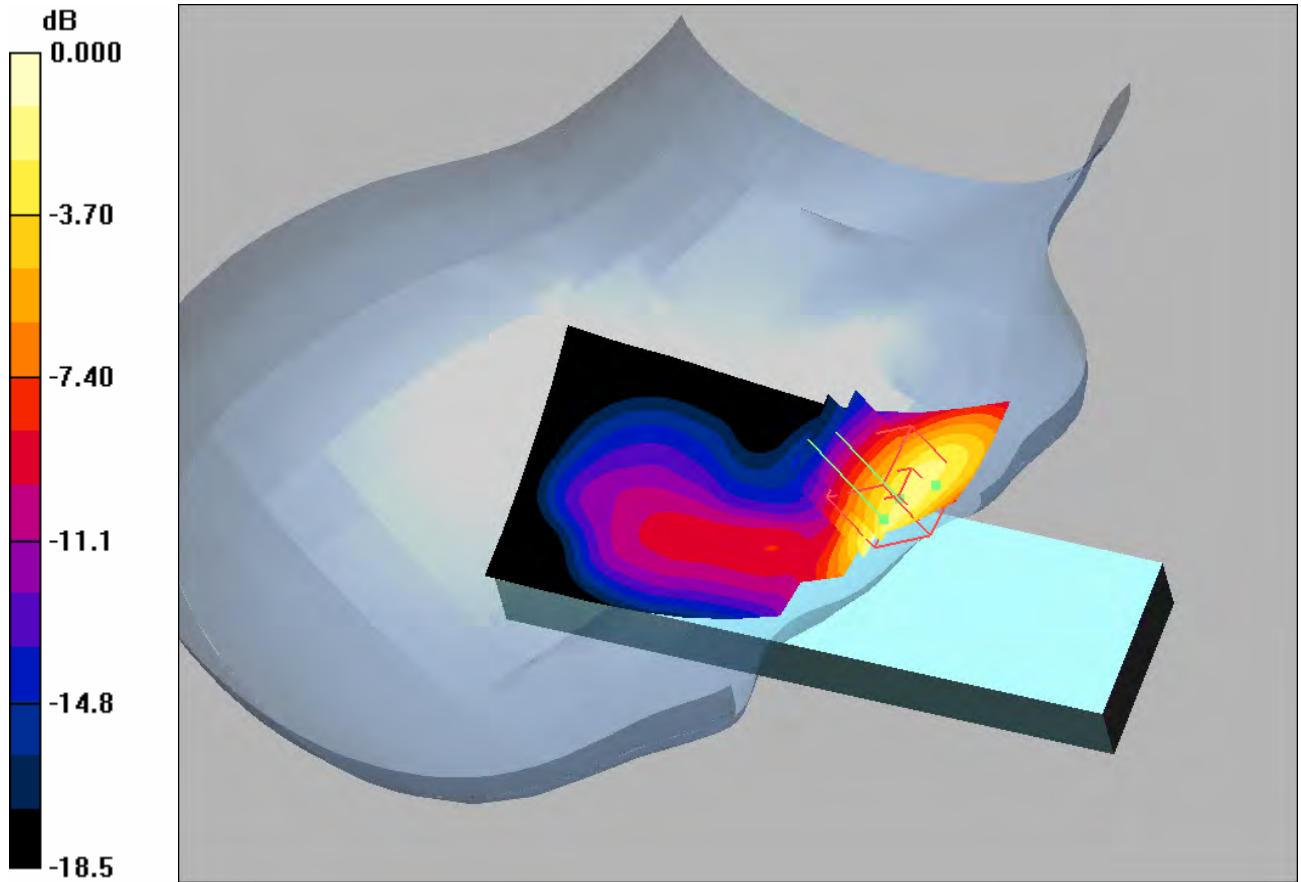


**Sony Ericsson**

REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



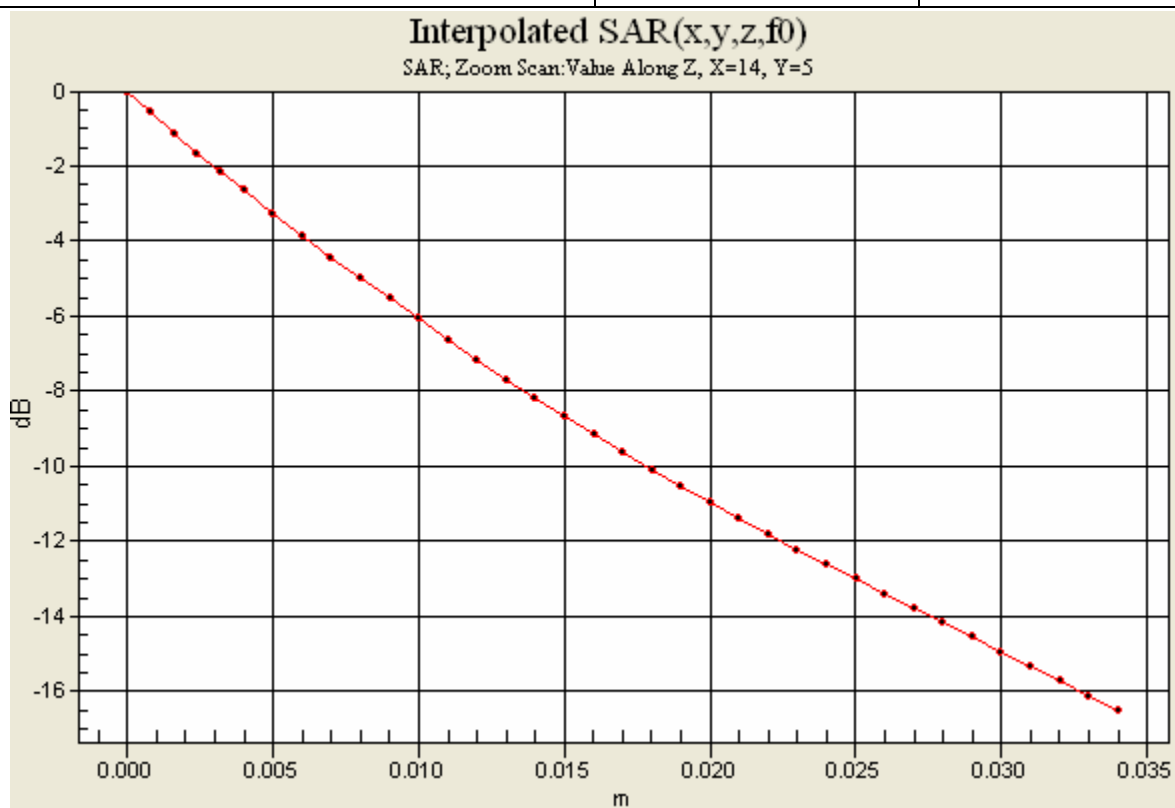
0 dB = 0.873mW/g

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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**1900 GSM Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Right Tilt Position.**

Date/Time: 1/22/2009 2:21:42 PM

File Name: [22Jan09\\_W518\\_GSM1900\\_K155\\_RT01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(5.12, 5.12, 5.12)

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.43$  mho/m;  $\epsilon_r = 38.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery - BST39 Humidity - 35.7 % Ambient Temp - 22.3 C Simulant Tem - 22.8 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(5.12, 5.12, 5.12); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 2/Area Scan (51x91x1):**

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

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

**Unnamed procedure 2/Zoom Scan (7x7x7)/Cube 0:**

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

Reference Value = 10.6 V/m; Power Drift = 0.124 dB

Peak SAR (extrapolated) = 0.292 W/kg

**SAR(1 g) = 0.192 mW/g; SAR(10 g) = 0.116 mW/g**

Maximum value of SAR (measured) = 0.207 mW/g

**Unnamed procedure 2/Zoom Scan (31x31x36)/Cube 0:**

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

Reference Value = 10.6 V/m; Power Drift = 0.124 dB

Maximum value of SAR (interpolated) = 0.292 mW/g



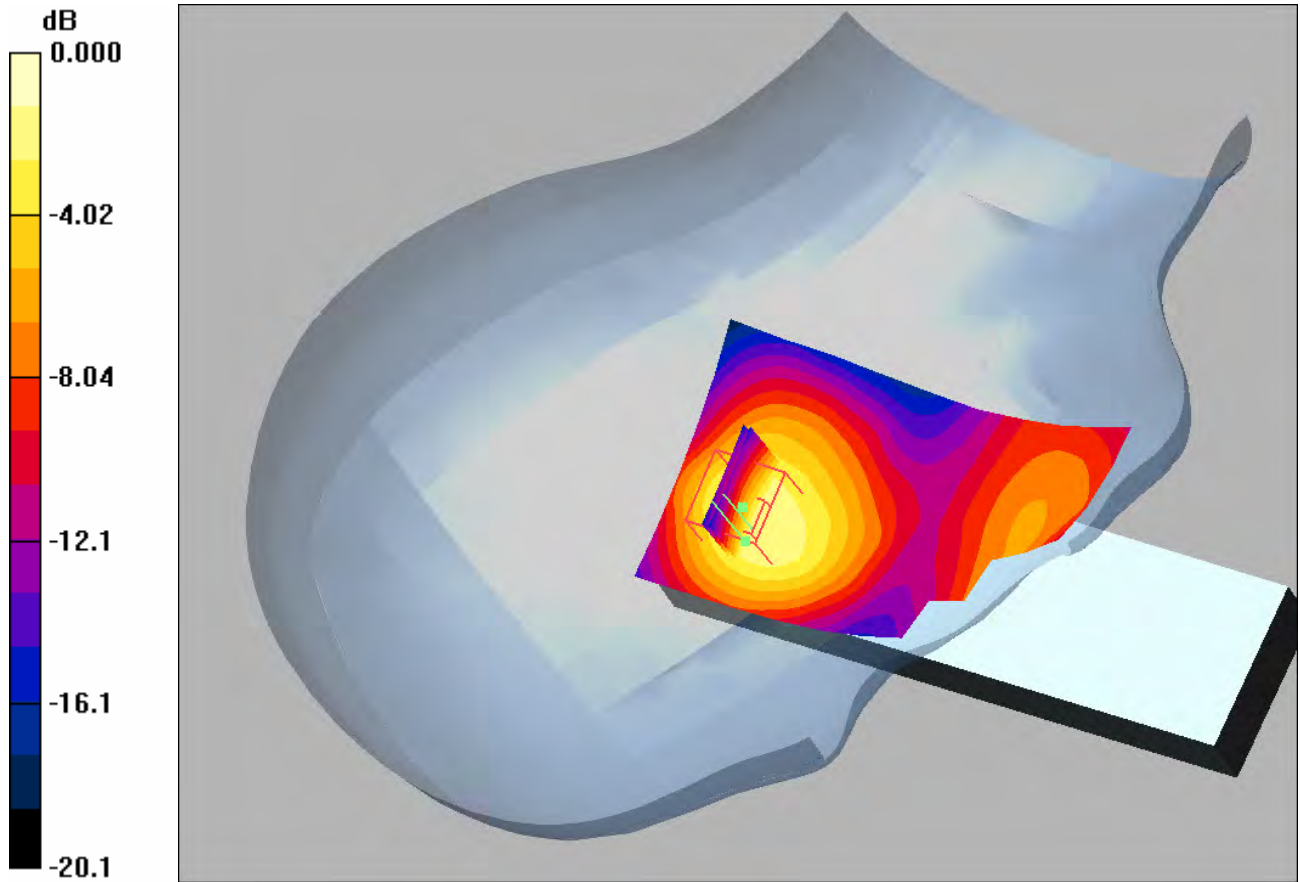


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



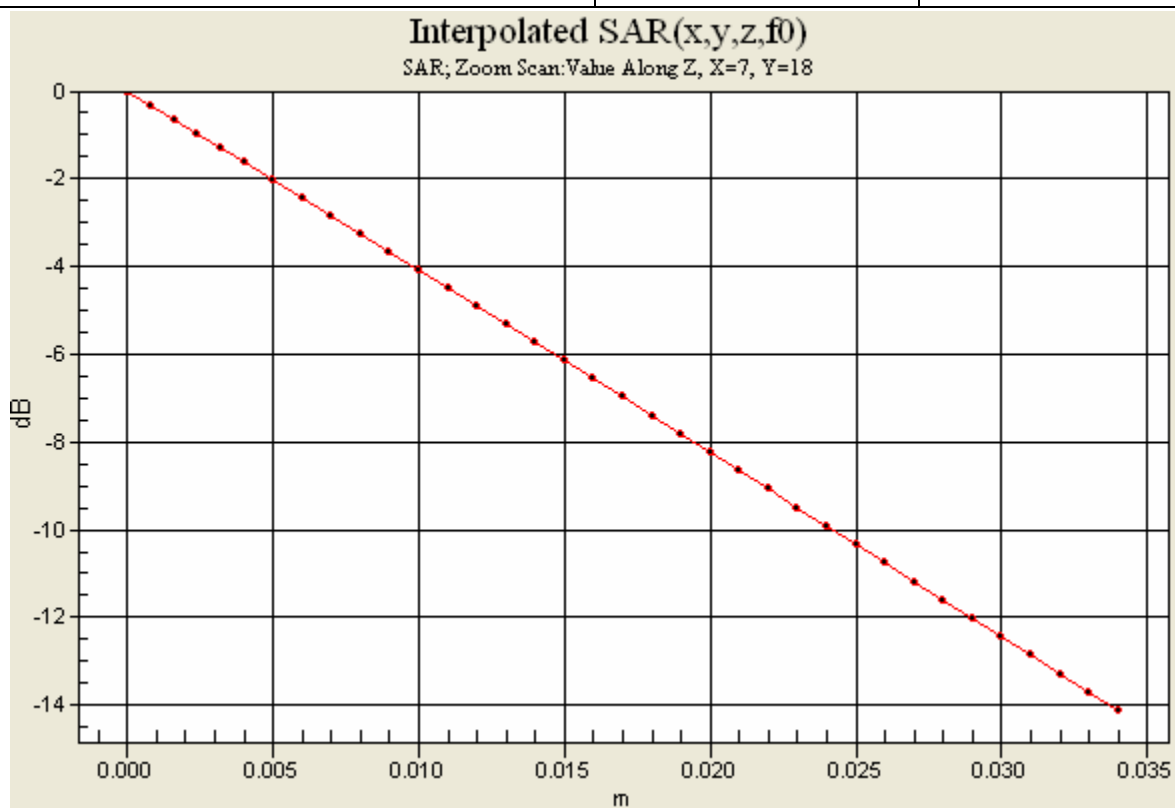
0 dB = 0.292mW/g

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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**1900 GSM Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Left Cheek Position.**

Date/Time: 1/22/2009 11:10:09 AM

File Name: [22Jan09\\_W518\\_GSM1900\\_K155\\_LC01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(5.12, 5.12, 5.12)

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.43$  mho/m;  $\epsilon_r = 38.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery - BST-39 Humidity: 36.8 % Ambient Temp: 22.7 C Simulant Temp: 23 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(5.12, 5.12, 5.12); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 2/Area Scan (51x91x1):**

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

Maximum value of SAR (interpolated) = 0.495 mW/g

**Unnamed procedure 2/Zoom Scan (7x7x7)/Cube 0:**

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

Reference Value = 3.76 V/m; Power Drift = -0.166 dB

Peak SAR (extrapolated) = 0.865 W/kg

**SAR(1 g) = 0.455 mW/g; SAR(10 g) = 0.279 mW/g**

Maximum value of SAR (measured) = 0.488 mW/g

**Unnamed procedure 2/Zoom Scan (31x31x36)/Cube 0:**

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

Reference Value = 3.76 V/m; Power Drift = -0.166 dB

Maximum value of SAR (interpolated) = 0.865 mW/g

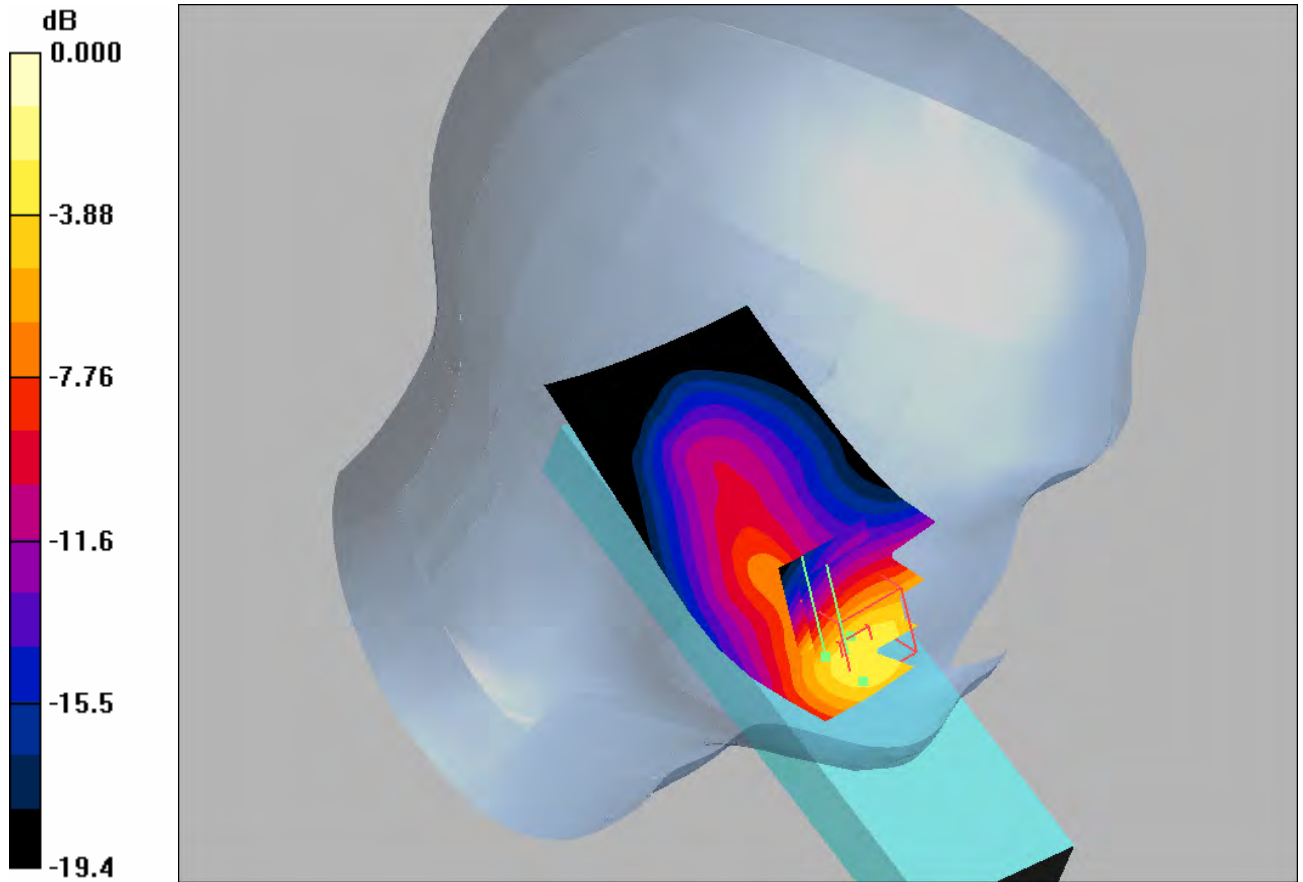


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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0 dB = 0.865mW/g

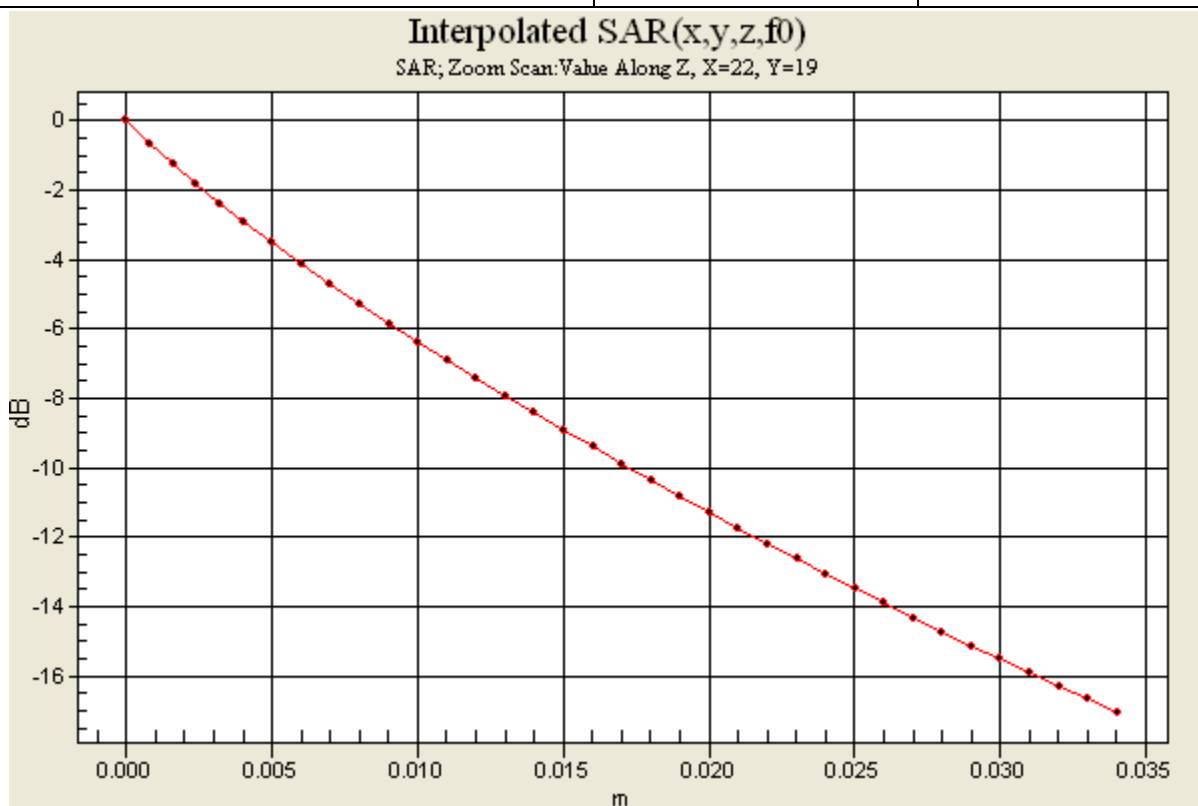


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B

**1900 GSM Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Left Tilt Position.**

Date/Time: 1/22/2009 12:15:03 PM

File Name: [22Jan09\\_W518\\_GSM1900\\_K155\\_LT01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(5.12, 5.12, 5.12)

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.46$  mho/m;  $\epsilon_r = 38.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery - BST-39 Humidity: 36.8 % Ambient Temp: 22.7 C Simulant Temp: 23 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(5.12, 5.12, 5.12); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 3/Area Scan (51x91x1):**

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

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

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

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

Reference Value = 10.7 V/m; Power Drift = 0.169 dB

Peak SAR (extrapolated) = 0.377 W/kg

**SAR(1 g) = 0.248 mW/g; SAR(10 g) = 0.149 mW/g**

Maximum value of SAR (measured) = 0.269 mW/g

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

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

Reference Value = 10.7 V/m; Power Drift = 0.169 dB

Maximum value of SAR (interpolated) = 0.377 mW/g

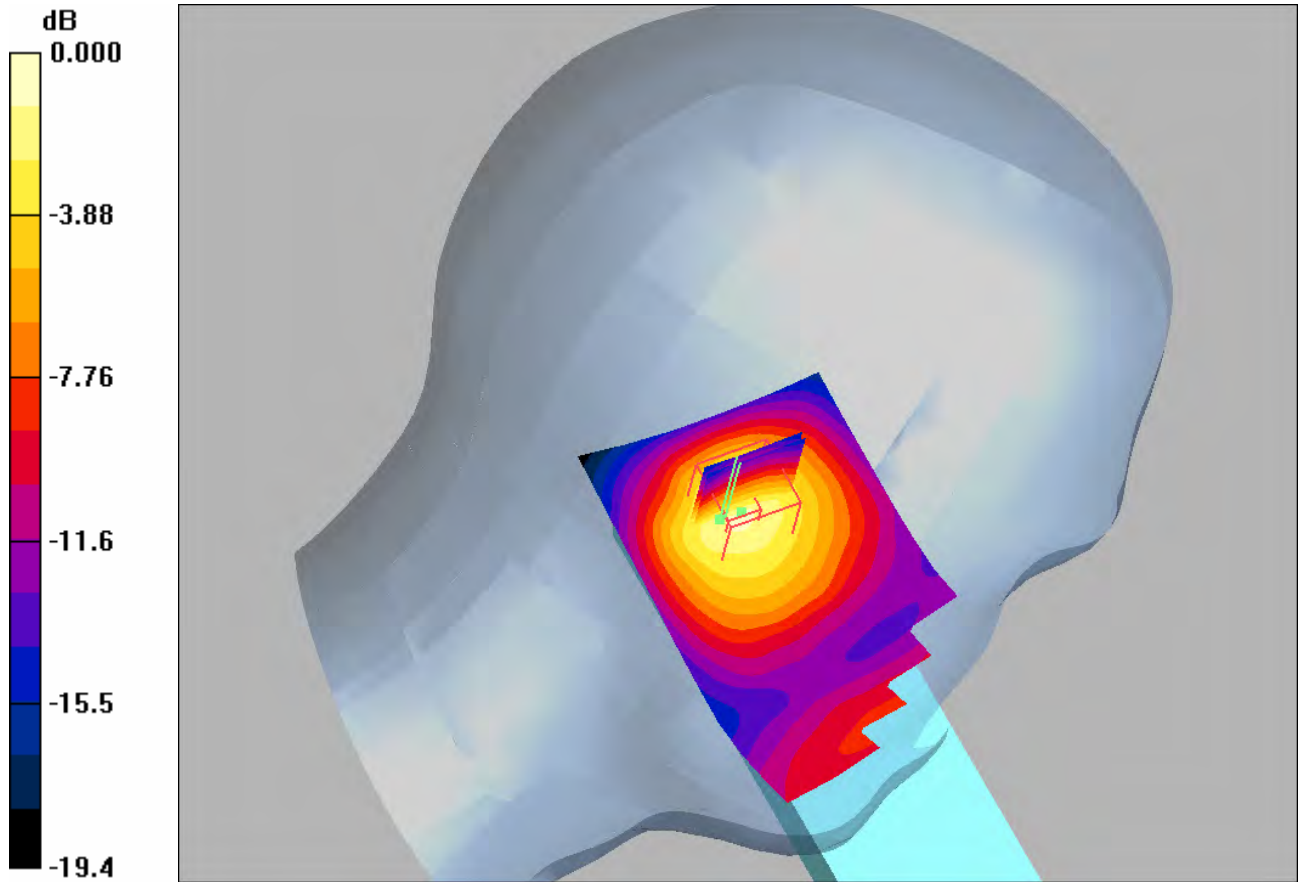


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



0 dB = 0.377mW/g

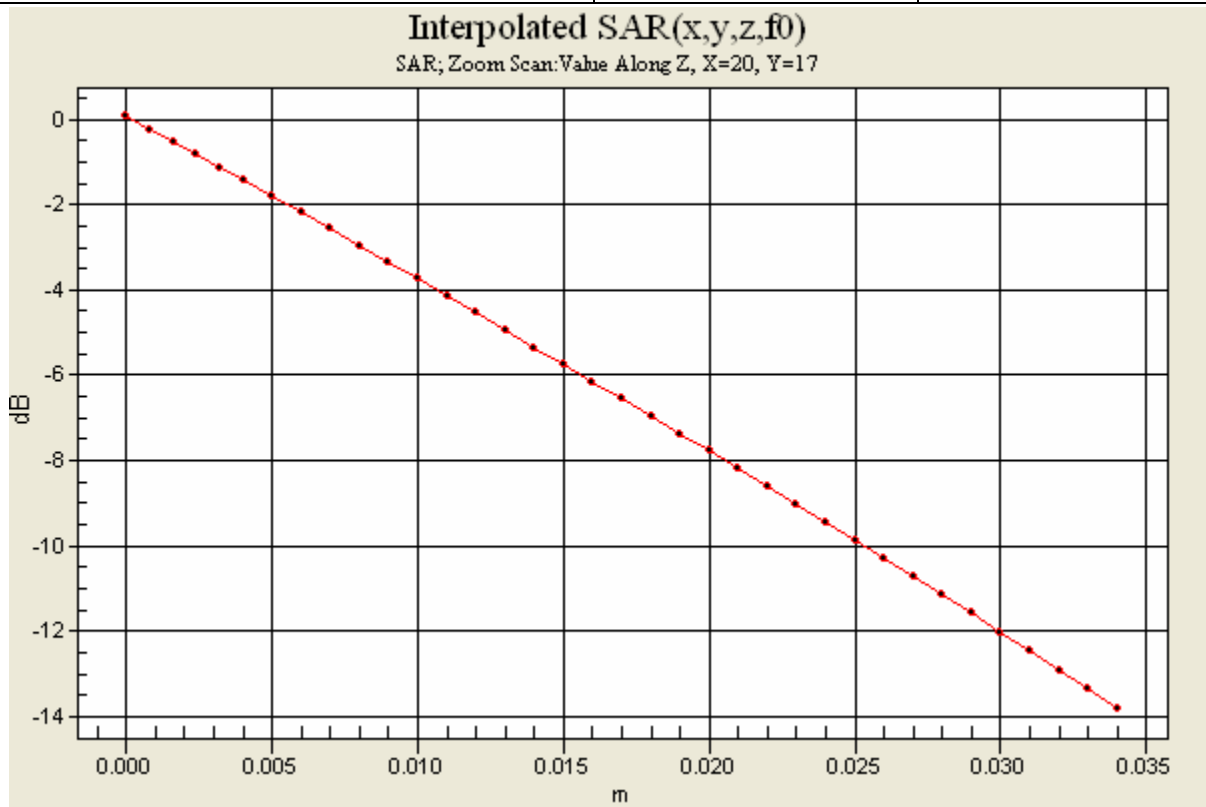


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**Band II WCDMA Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Right Cheek Position.**

Date/Time: 1/23/2009 9:45:10 AM

File Name: [23Jan09\\_W518\\_B2WCDMA\\_K13T\\_RC01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(5.12, 5.12, 5.12)

Medium parameters used (interpolated):  $f = 1907.4$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery - BST39 Humidity - 34.7 % Ambient Temp - 22.6 C Simulant Temp - 22.4 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(5.12, 5.12, 5.12); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1335

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 3/Area Scan (51x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.789 mW/g

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

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

Reference Value = 7.11 V/m; Power Drift = -0.084 dB

Peak SAR (extrapolated) = 1.06 W/kg

**SAR(1 g) = 0.713 mW/g; SAR(10 g) = 0.444 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.776 mW/g

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

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

Reference Value = 7.11 V/m; Power Drift = -0.084 dB

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

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

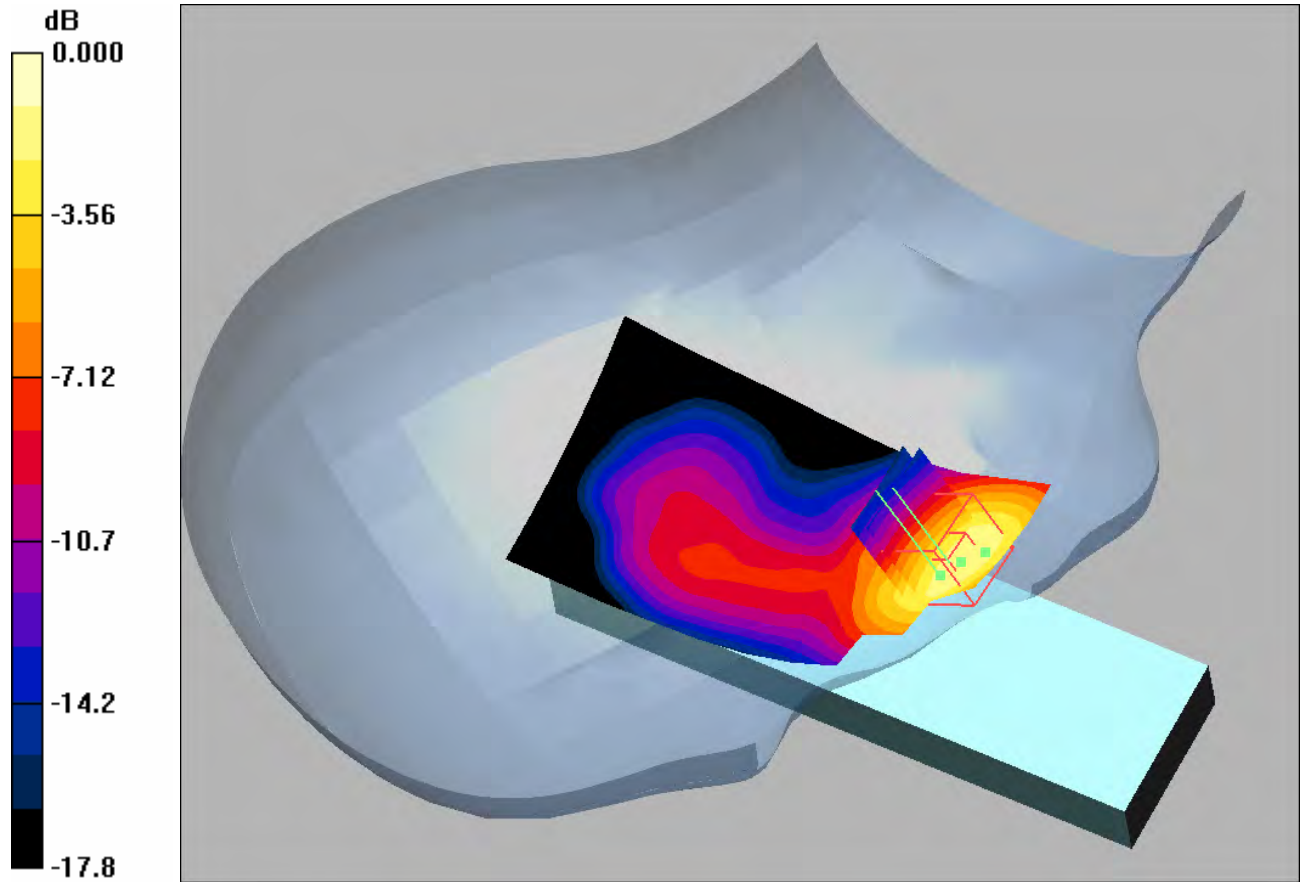


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



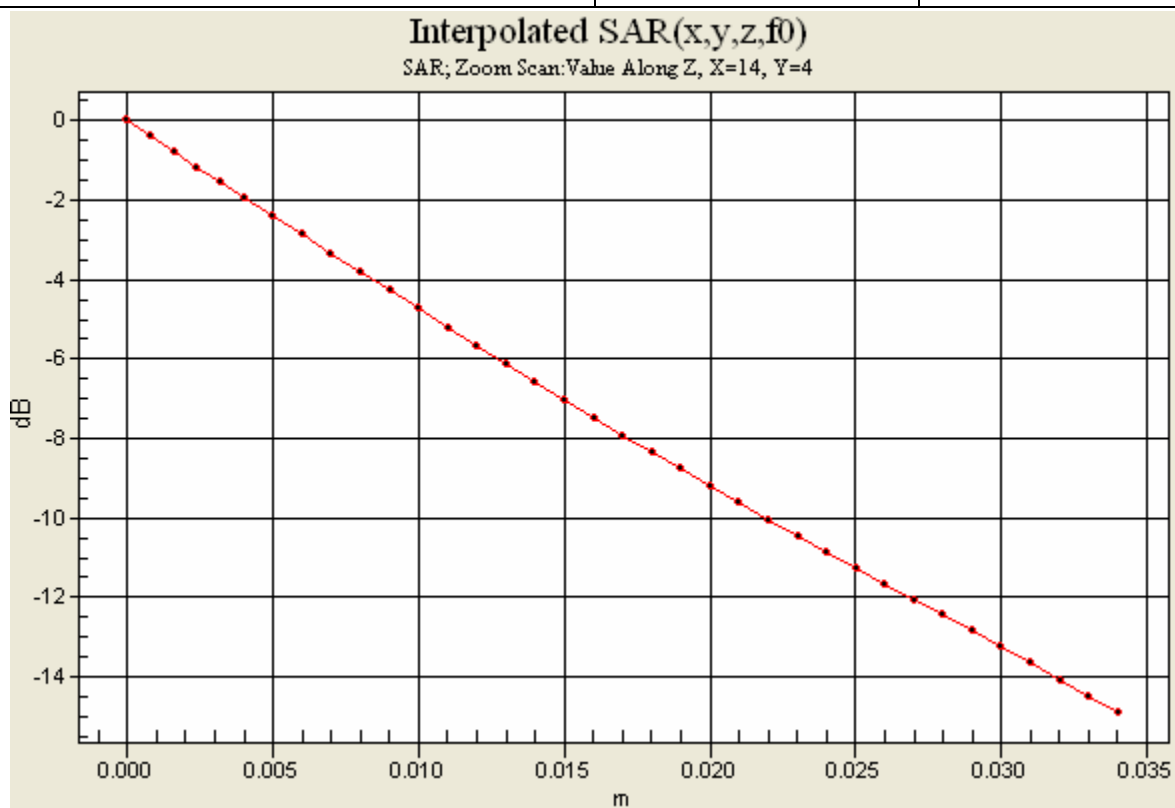
0 dB = 1.06mW/g

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**Band II WCDMA Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Right Tilt Position.**

Date/Time: 1/23/2009 11:23:29 AM

File Name: [23Jan09\\_W518\\_B2WCDMA\\_K13T\\_RT01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(5.12, 5.12, 5.12)

Medium parameters used (interpolated):  $f = 1907.4$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery - BST39 Humidity - 34.7 % Ambient Temp - 22.6 C Simulant Temp - 22.4 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(5.12, 5.12, 5.12); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1335

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 3/Area Scan (51x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.372 mW/g

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

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

Reference Value = 14.4 V/m; Power Drift = 0.003 dB

Peak SAR (extrapolated) = 0.505 W/kg

**SAR(1 g) = 0.316 mW/g; SAR(10 g) = 0.190 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.341 mW/g

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

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

Reference Value = 14.4 V/m; Power Drift = 0.003 dB

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

Maximum value of SAR (interpolated) = 0.505 mW/g

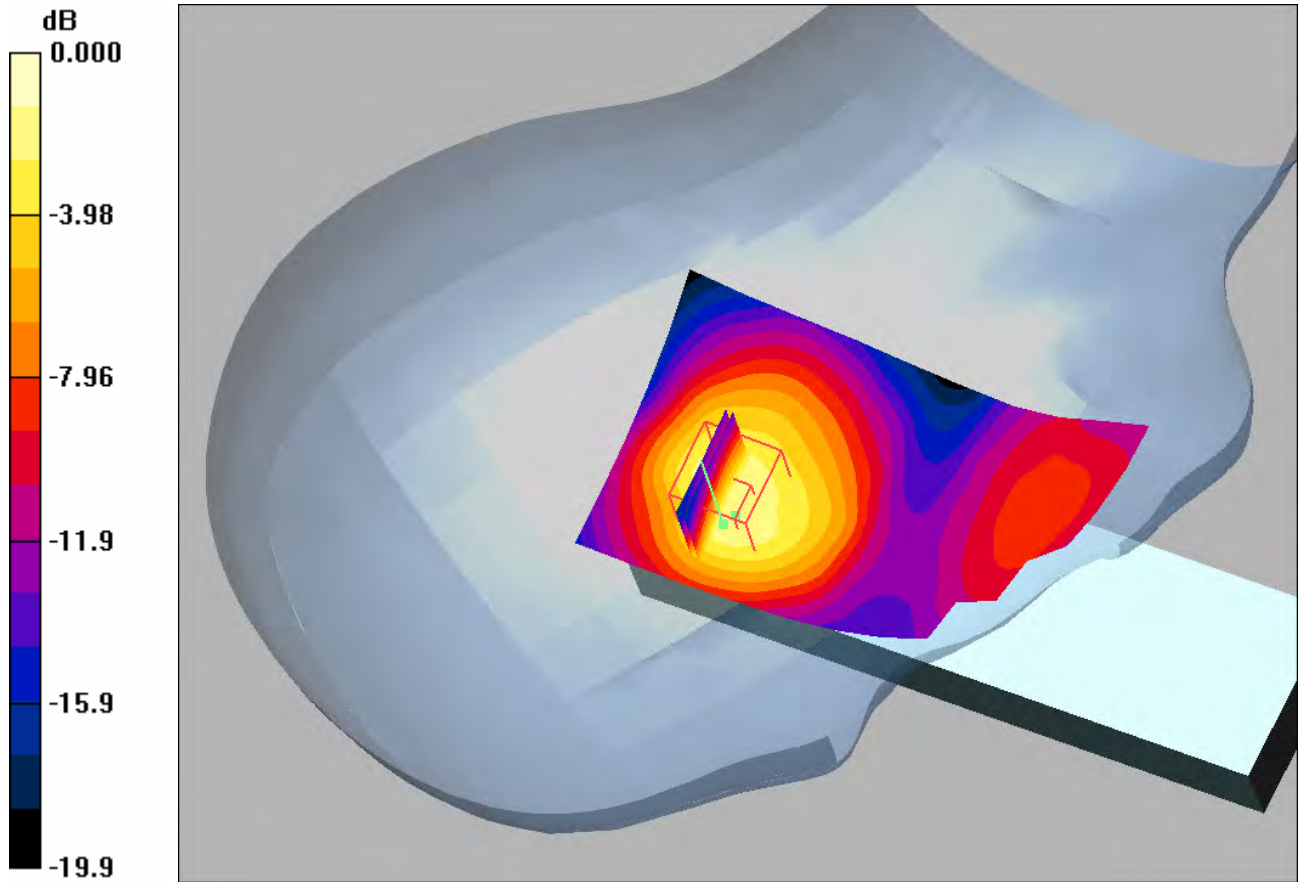


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	



0 dB = 0.505mW/g

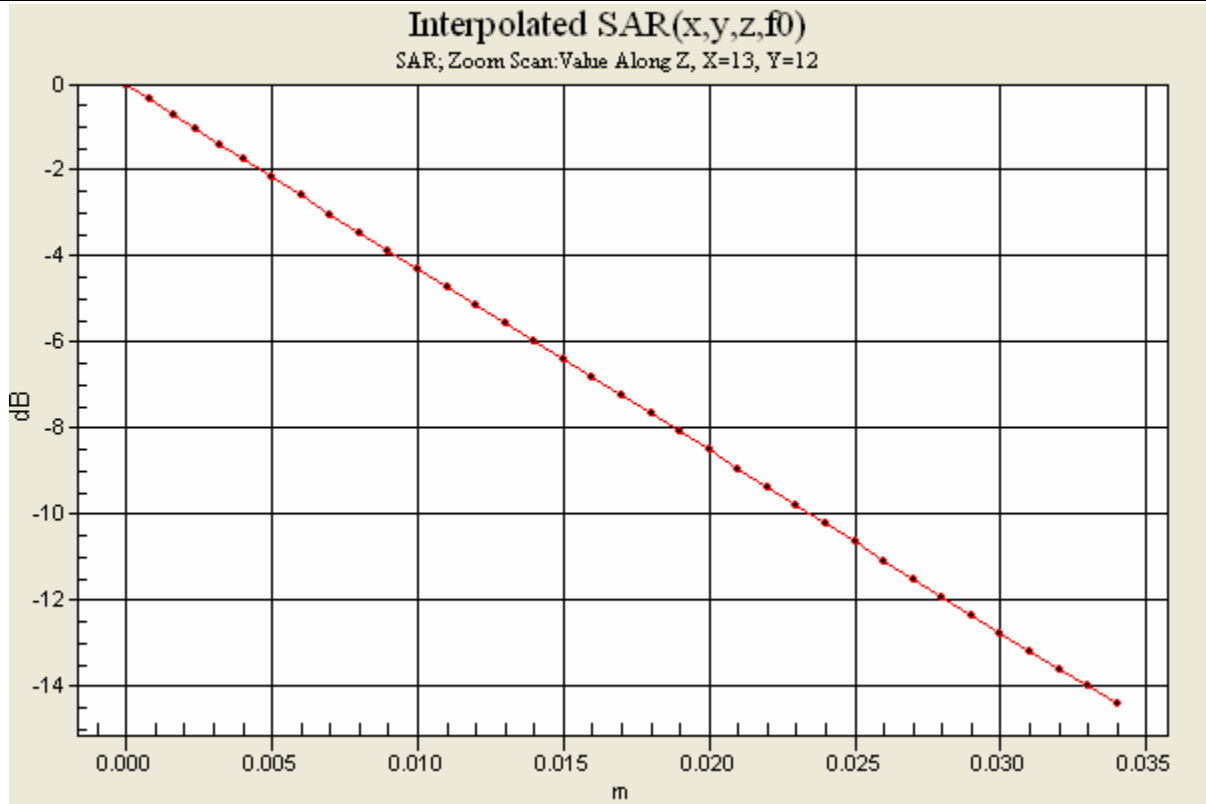


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	





Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**Band II WCDMA Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Left Cheek Position.**

Date/Time: 1/23/2009 12:35:28 PM

File Name: [23Jan09\\_W518\\_B2WCDMA\\_K13T\\_LC01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(5.12, 5.12, 5.12)

Medium parameters used (interpolated):  $f = 1907.4$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery - BST39 Humidity - 34.9 % Ambient Temp - 22.7 C Simulant Temp - 22.4 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(5.12, 5.12, 5.12); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1335

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 3/Area Scan (51x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.830 mW/g

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

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

Reference Value = 6.26 V/m; Power Drift = -0.099 dB

Peak SAR (extrapolated) = 1.31 W/kg

**SAR(1 g) = 0.682 mW/g; SAR(10 g) = 0.403 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.742 mW/g

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

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

Reference Value = 6.26 V/m; Power Drift = -0.099 dB

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

Maximum value of SAR (interpolated) = 1.31 mW/g

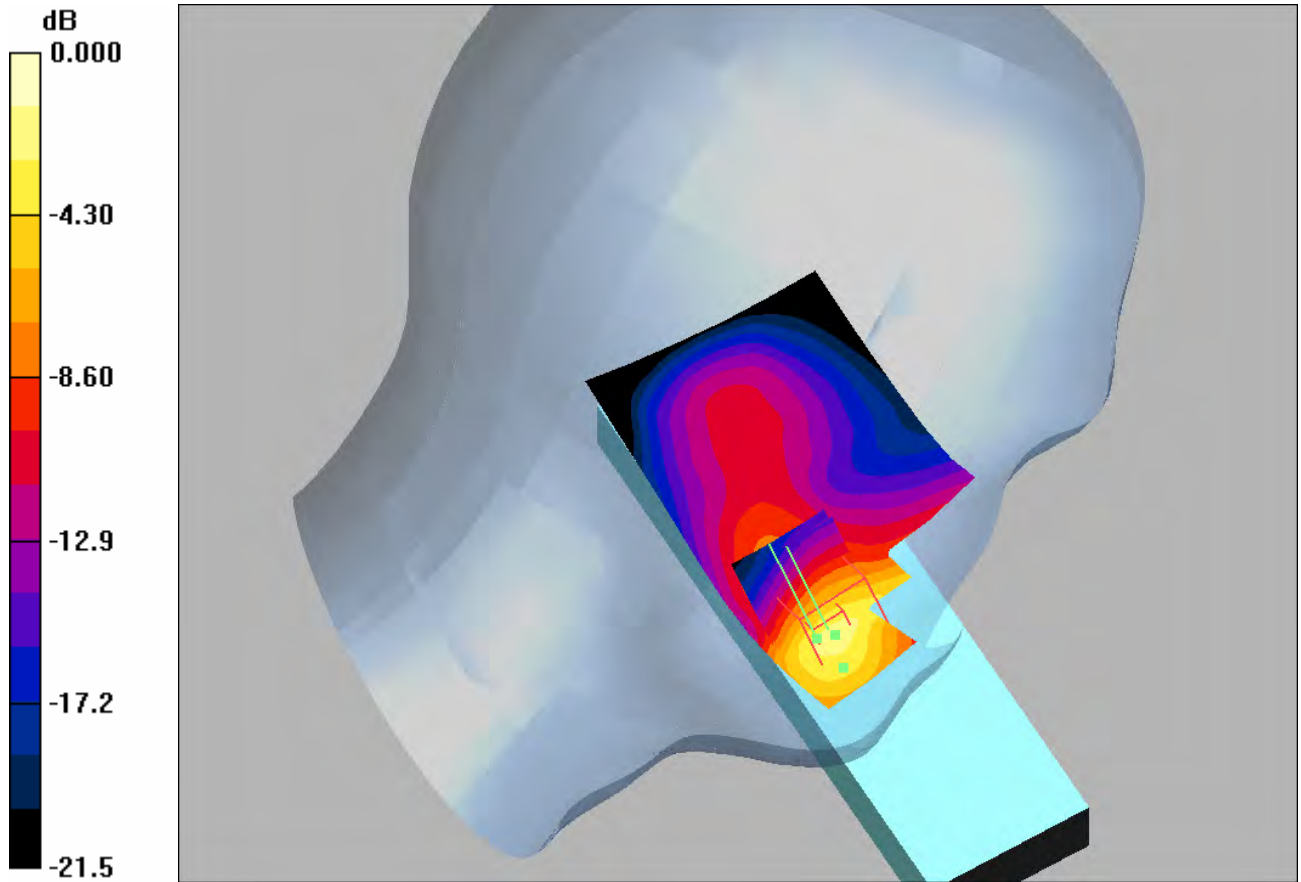


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



0 dB = 1.31mW/g

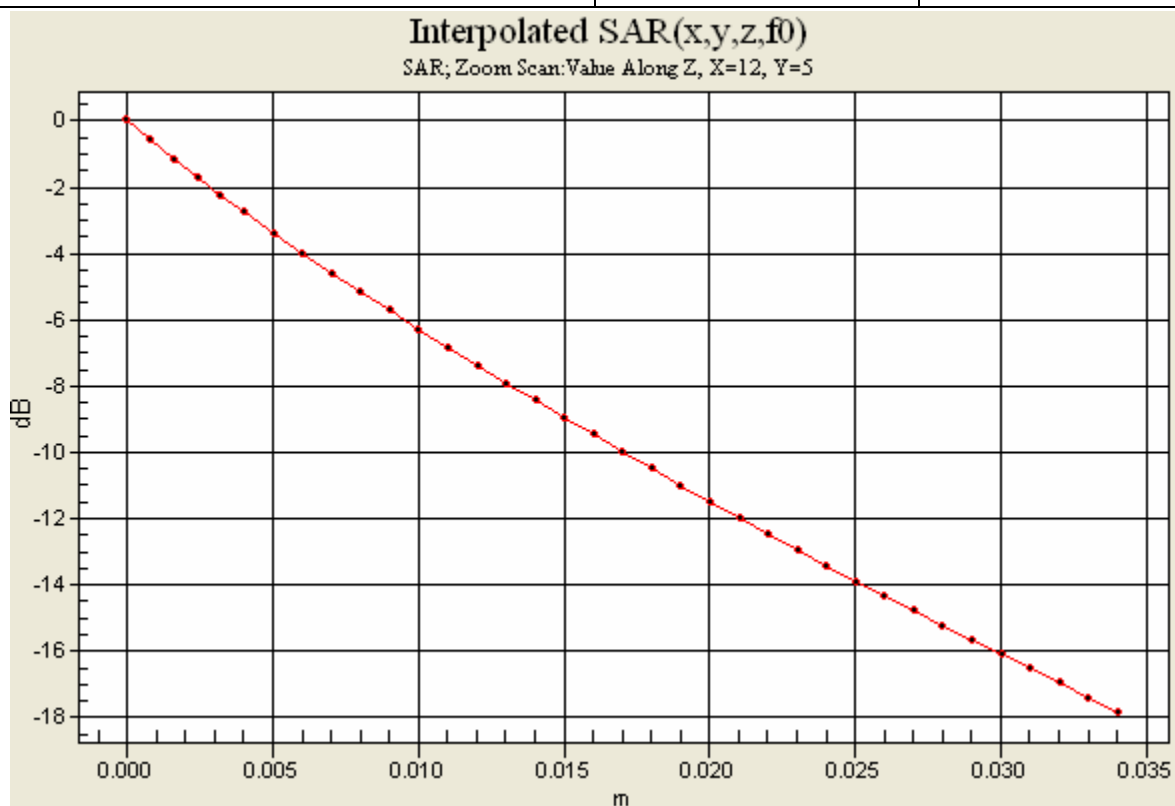


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	





Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**Band II WCDMA Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Left Tilt Position.**

Date/Time: 1/23/2009 1:51:14 PM

File Name: [23Jan09\\_W518\\_B2WCDMA\\_K13T\\_LT01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(5.12, 5.12, 5.12)

Medium parameters used (interpolated):  $f = 1907.4$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery - BST39 Humidity - 34.9 % Ambient Temp - 22.7 C Simulant Temp - 22.4 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(5.12, 5.12, 5.12); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1335

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 3/Area Scan (51x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.398 mW/g

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

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

Reference Value = 14.0 V/m; Power Drift = -0.003 dB

Peak SAR (extrapolated) = 0.503 W/kg

**SAR(1 g) = 0.319 mW/g; SAR(10 g) = 0.188 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.346 mW/g

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

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

Reference Value = 14.0 V/m; Power Drift = -0.003 dB

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

Maximum value of SAR (interpolated) = 0.503 mW/g

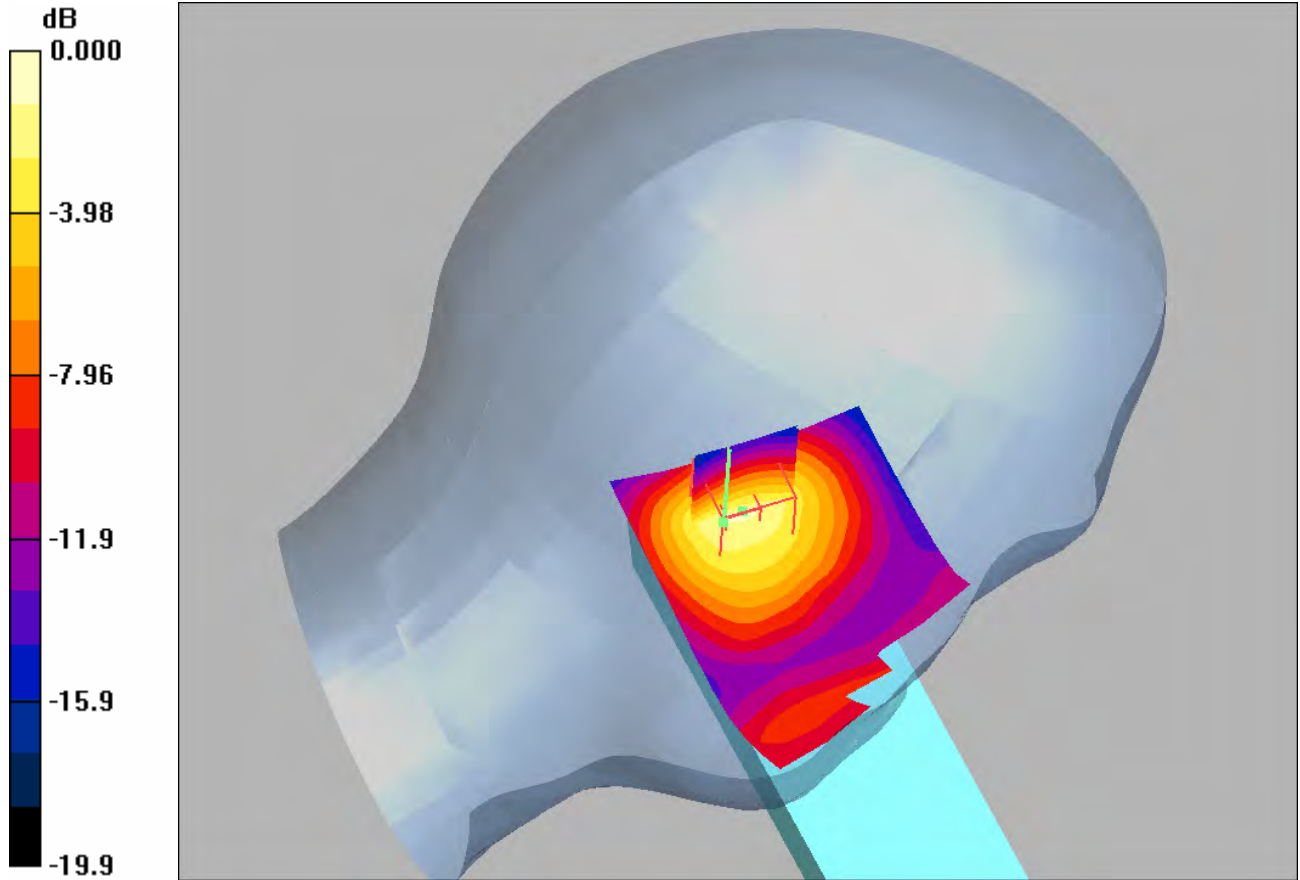


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



0 dB = 0.503mW/g

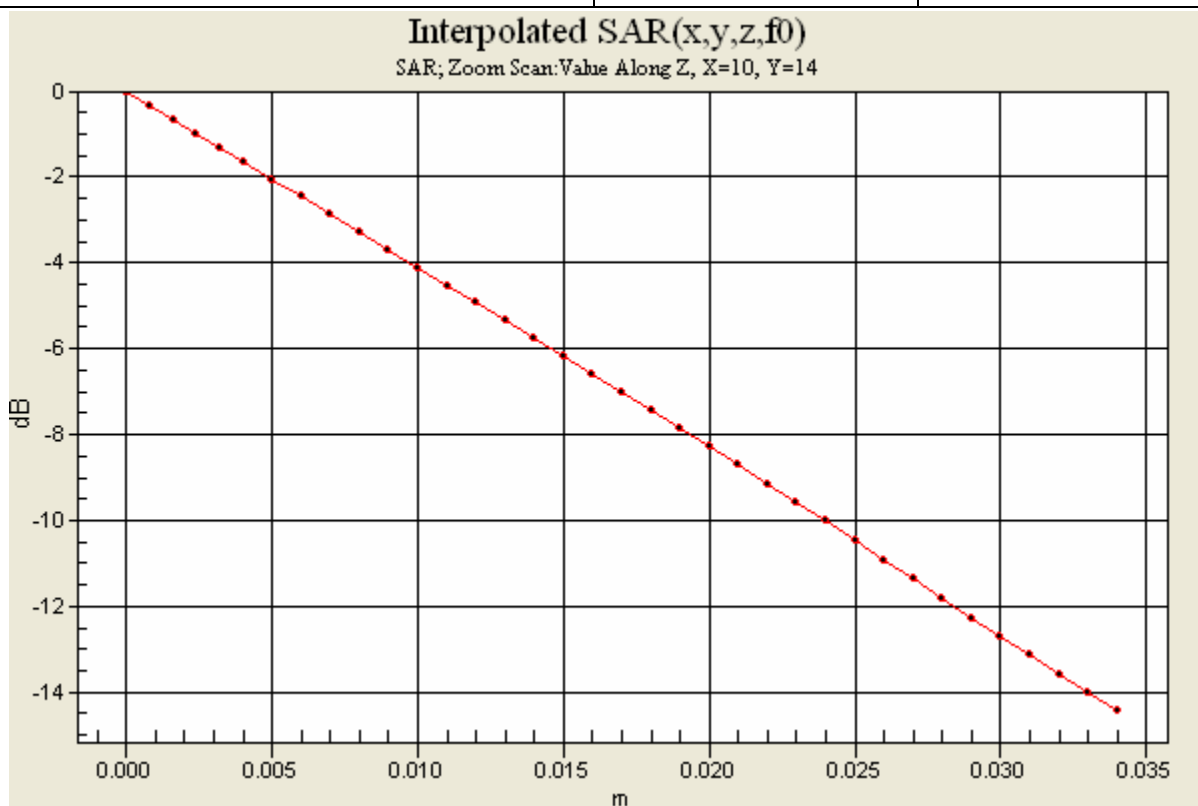


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	





Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**Band V WCDMA Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Right Cheek Position.**

Date/Time: 1/28/2009 10:32:46 AM

File Name: [28Jan09\\_W518\\_B5WCDMA\\_KHST\\_RC01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583ConvF(6.48, 6.48, 6.48)

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.927 \text{ mho/m}$ ;  $\epsilon_r = 42.8$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery BST-39 Humidity: 39.9 % Ambient Temp: 22.3 C Simulant Temp: 22.3 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.48, 6.48, 6.48); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 2/Area Scan (51x91x1):**Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$ 

Maximum value of SAR (interpolated) = 0.556 mW/g

**Unnamed procedure 2/Zoom Scan (7x7x7)/Cube 0:**Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value = 13.0 V/m; Power Drift = -0.035 dB

Peak SAR (extrapolated) = 0.973 W/kg

**SAR(1 g) = 0.533 mW/g; SAR(10 g) = 0.340 mW/g**

Maximum value of SAR (measured) = 0.575 mW/g

**Unnamed procedure 2/Zoom Scan (31x31x36)/Cube 0:**Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value = 13.0 V/m; Power Drift = -0.035 dB

Maximum value of SAR (interpolated) = 0.973 mW/g

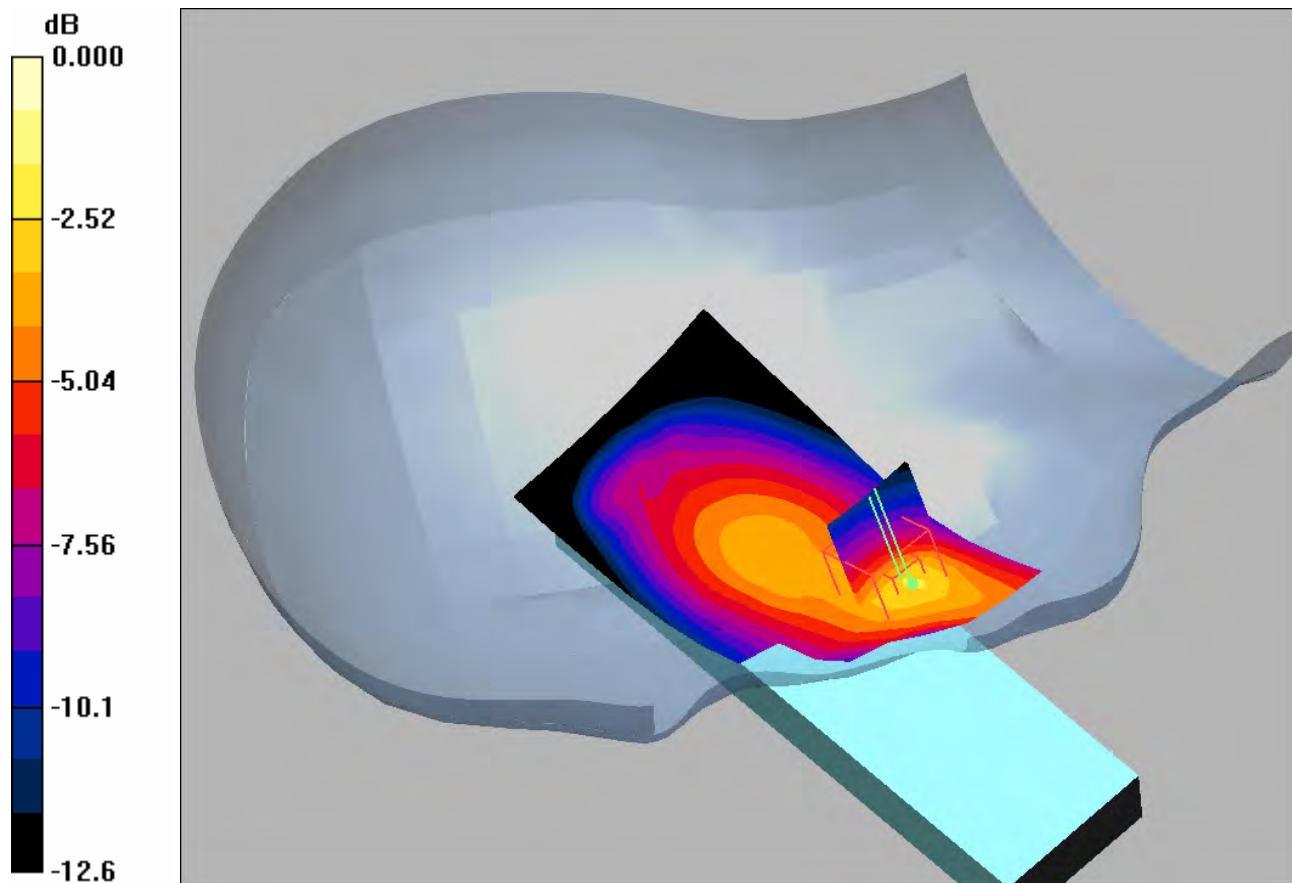


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



0 dB = 0.973mW/g

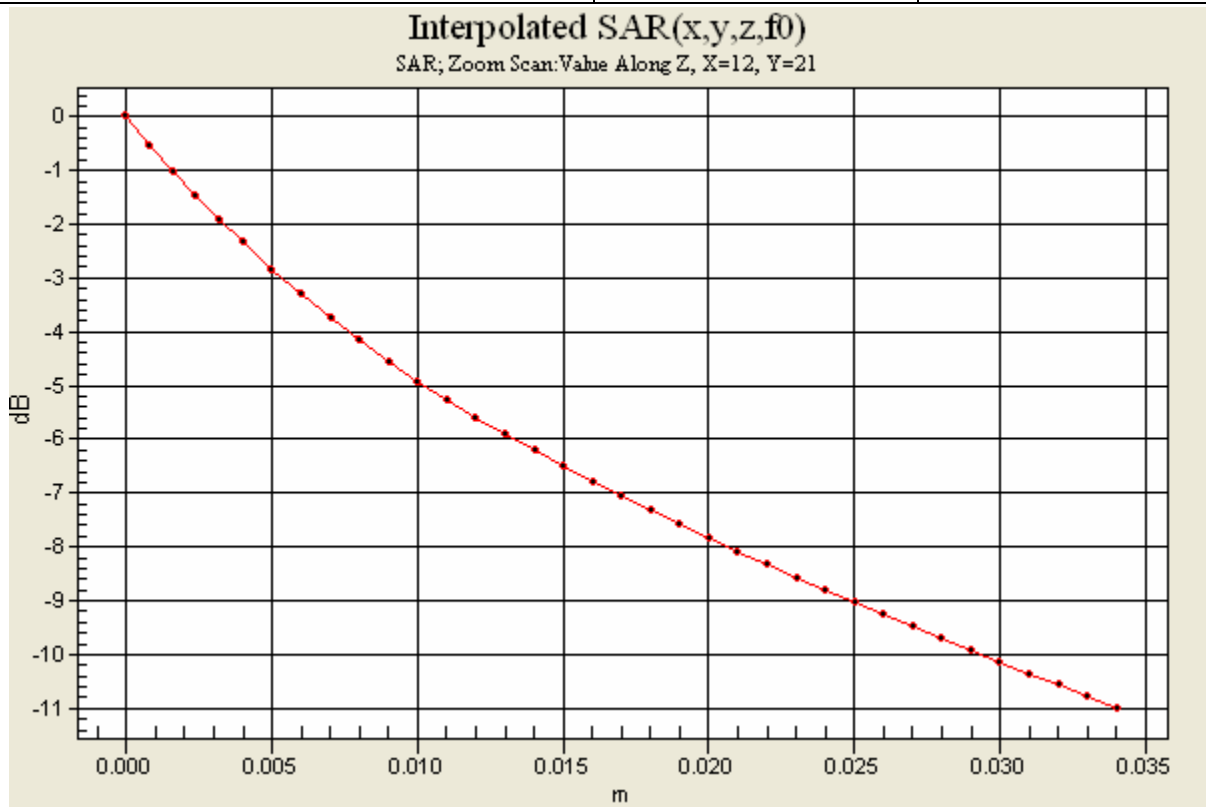


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	





Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**Band V WCDMA Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Right Tilt Position.**

Date/Time: 1/28/2009 11:18:40 AM

File Name: [28Jan09\\_W518\\_B5WCDMA\\_KHST\\_RT01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(6.48, 6.48, 6.48)

Medium parameters used (interpolated):  $f = 826.6$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 42.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery BST-39 Humidity: 39.9 % Ambient Temp: 22.3 C Simulant Temp: 22.3 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.48, 6.48, 6.48); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure/Area Scan (51x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.361 mW/g

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

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

Reference Value = 16.7 V/m; Power Drift = 0.003 dB

Peak SAR (extrapolated) = 0.429 W/kg

**SAR(1 g) = 0.341 mW/g; SAR(10 g) = 0.252 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.363 mW/g

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

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

Reference Value = 16.7 V/m; Power Drift = 0.003 dB

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

Maximum value of SAR (interpolated) = 0.429 mW/g



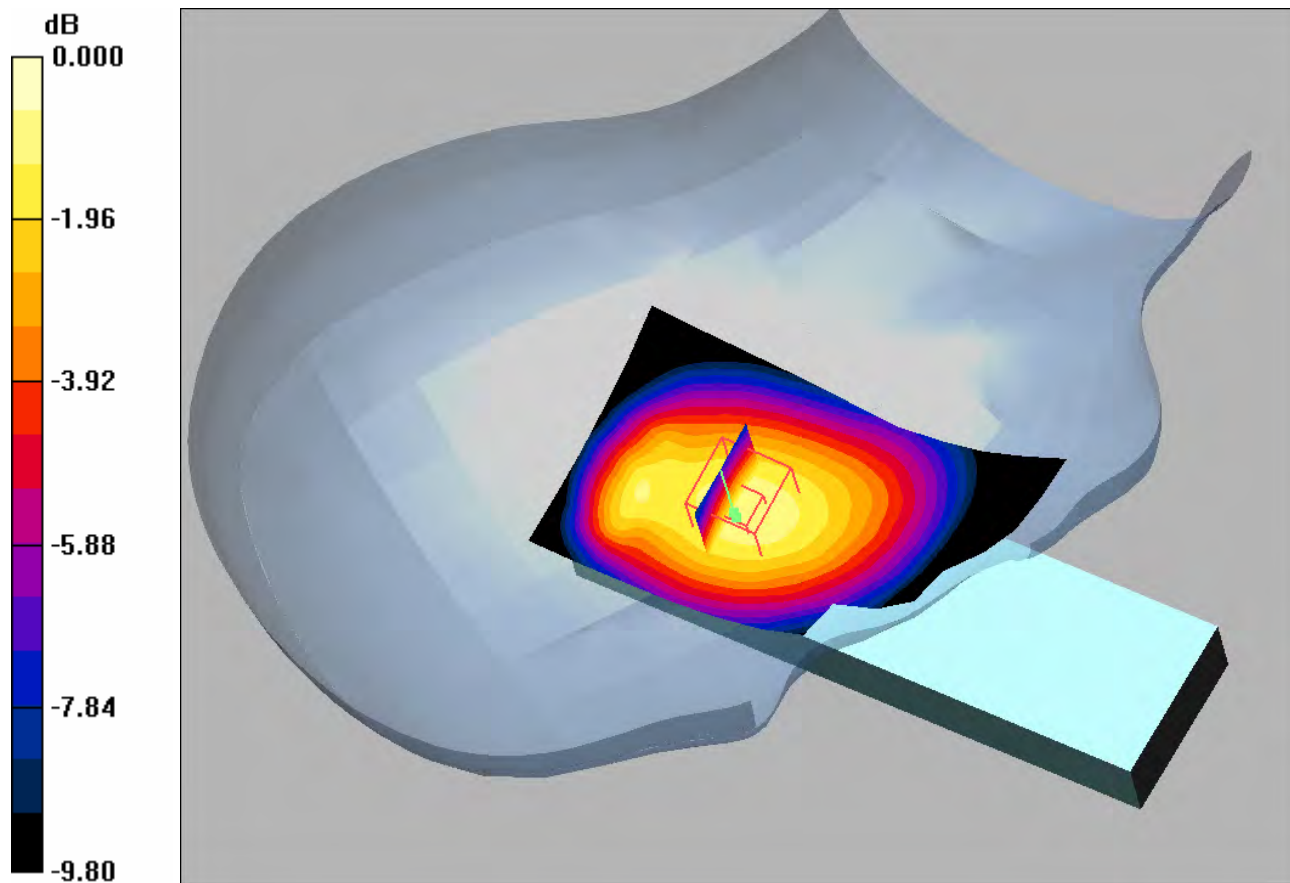


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



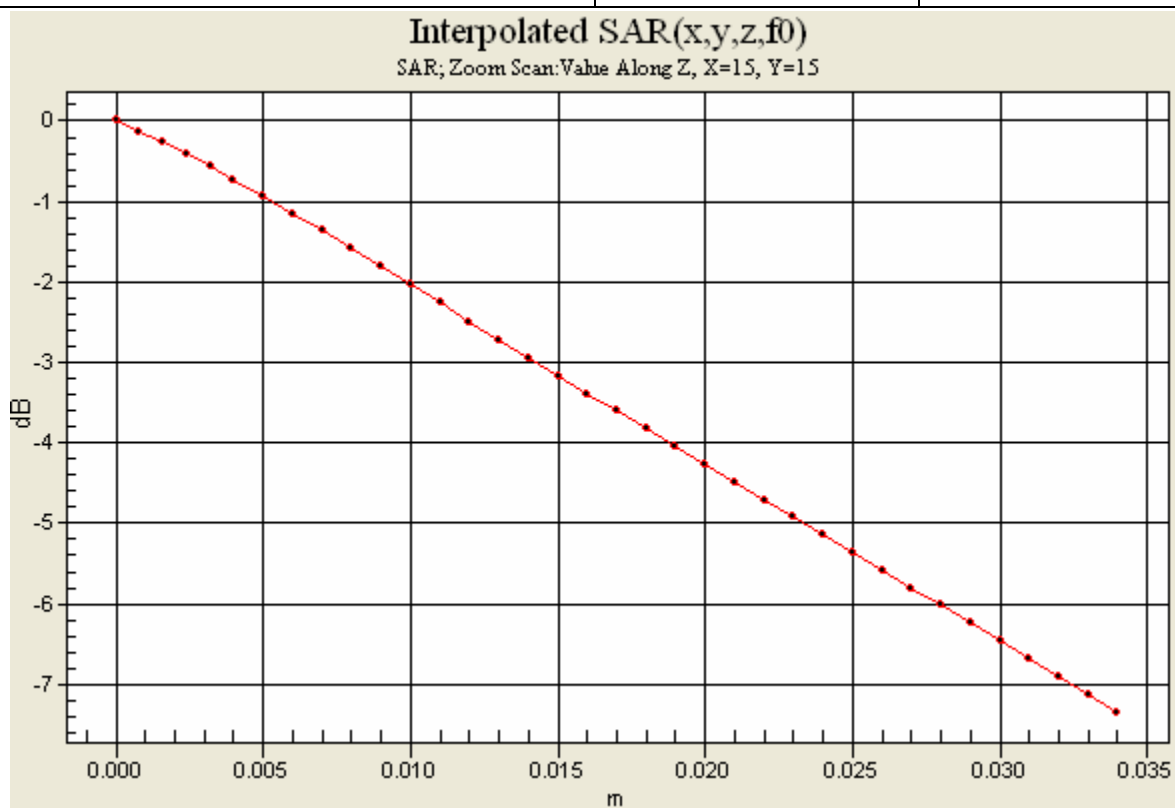
0 dB = 0.429mW/g

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	





Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**Band V WCDMA Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Left Cheek Position.**

Date/Time: 1/28/2009 8:24:07 AM

File Name: [28Jan09\\_W518\\_B5WCDMA\\_KHST\\_LC01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(6.48, 6.48, 6.48)

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.927 \text{ mho/m}$ ;  $\epsilon_r = 42.8$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery BST-39 Humidity: 41.2 % Ambient Temp: 22.5 C Simulant Temp: 22.4 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.48, 6.48, 6.48); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 2/Area Scan (51x91x1):**Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$ 

Maximum value of SAR (interpolated) = 0.550 mW/g

**Unnamed procedure 2/Zoom Scan (7x7x7)/Cube 0:**Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value = 12.0 V/m; Power Drift = 0.065 dB

Peak SAR (extrapolated) = 0.653 W/kg

**SAR(1 g) = 0.517 mW/g; SAR(10 g) = 0.380 mW/g**

Maximum value of SAR (measured) = 0.553 mW/g

**Unnamed procedure 2/Zoom Scan (31x31x36)/Cube 0:**Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value = 12.0 V/m; Power Drift = 0.065 dB

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

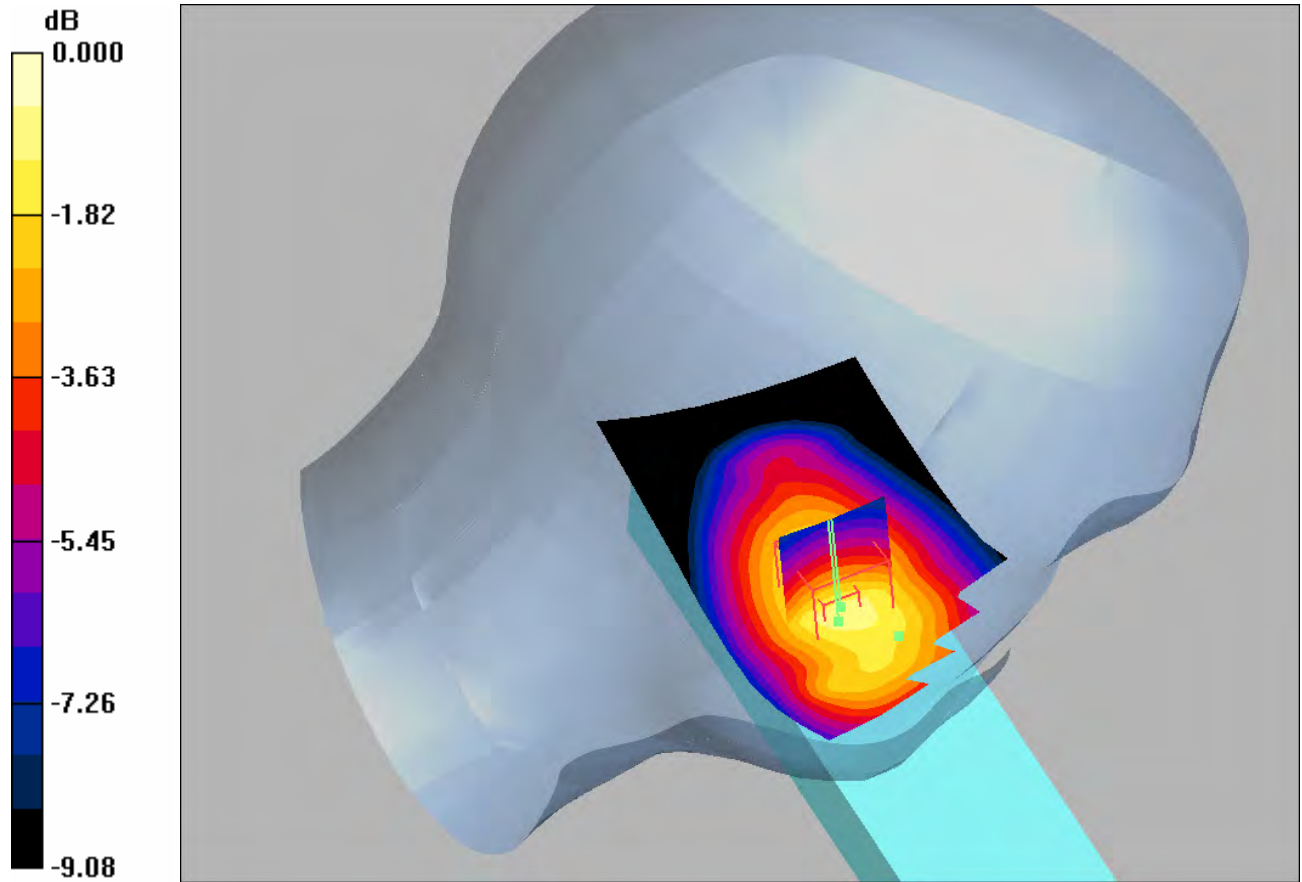


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



0 dB = 0.653mW/g

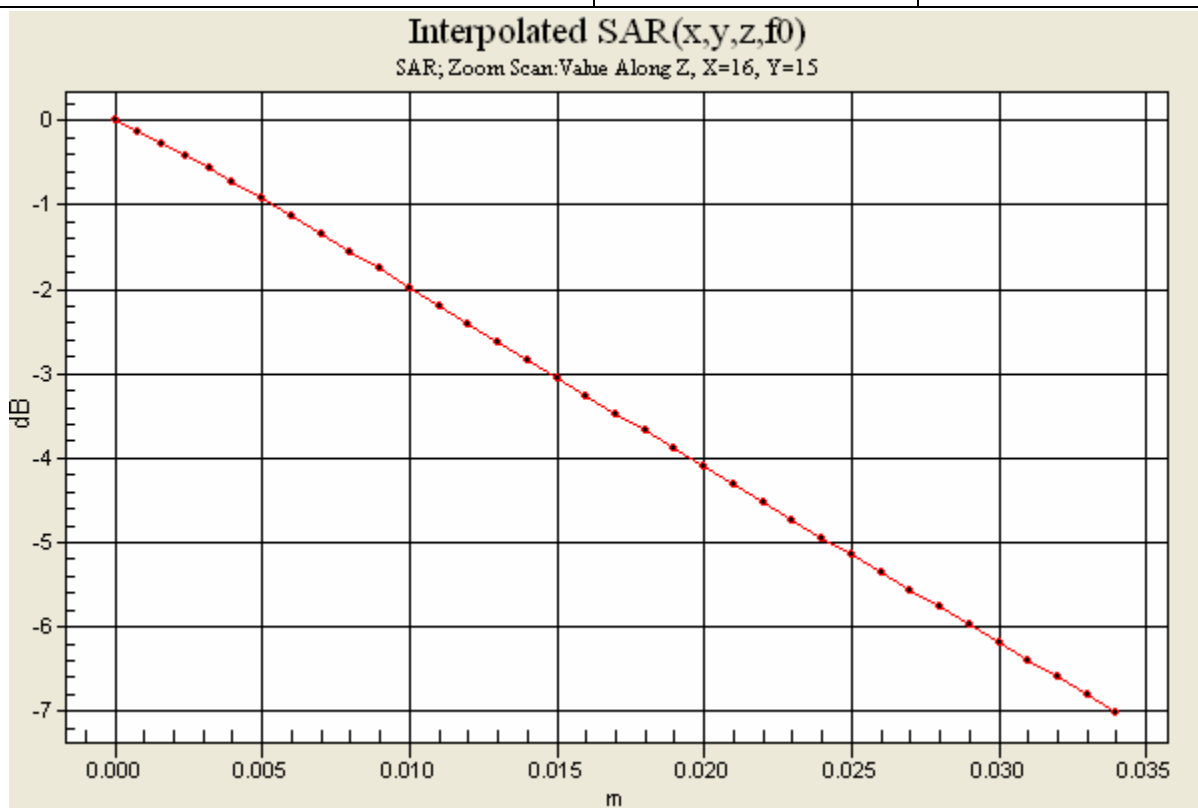


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	





Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**Band V WCDMA Band: Distribution and Extrapolation of Maximum SAR****Model: W518A with Standard Battery: BST-39, Left Tilt Position.**

Date/Time: 1/28/2009 9:06:36 AM

File Name: [28Jan09\\_W518\\_B5WCDMA\\_KHST\\_LT01.da4](#)**DUT: W518**

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

Probe: ET3DV6 - SN1583 ConvF(6.48, 6.48, 6.48)

Medium parameters used (interpolated):  $f = 826.6$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 42.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery BST-39 Humidity: 41.2 % Ambient Temp: 22.5 C Simulant Temp: 22.4 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(6.48, 6.48, 6.48); Calibrated: 11/17/2008

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

- Electronics: DAE3 Sn345; Calibrated: 10/31/2008

- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure/Area Scan (51x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.395 mW/g

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

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

Reference Value = 17.8 V/m; Power Drift = 0.002 dB

Peak SAR (extrapolated) = 0.479 W/kg

**SAR(1 g) = 0.376 mW/g; SAR(10 g) = 0.277 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.398 mW/g

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

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

Reference Value = 17.8 V/m; Power Drift = 0.002 dB

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

Maximum value of SAR (interpolated) = 0.479 mW/g

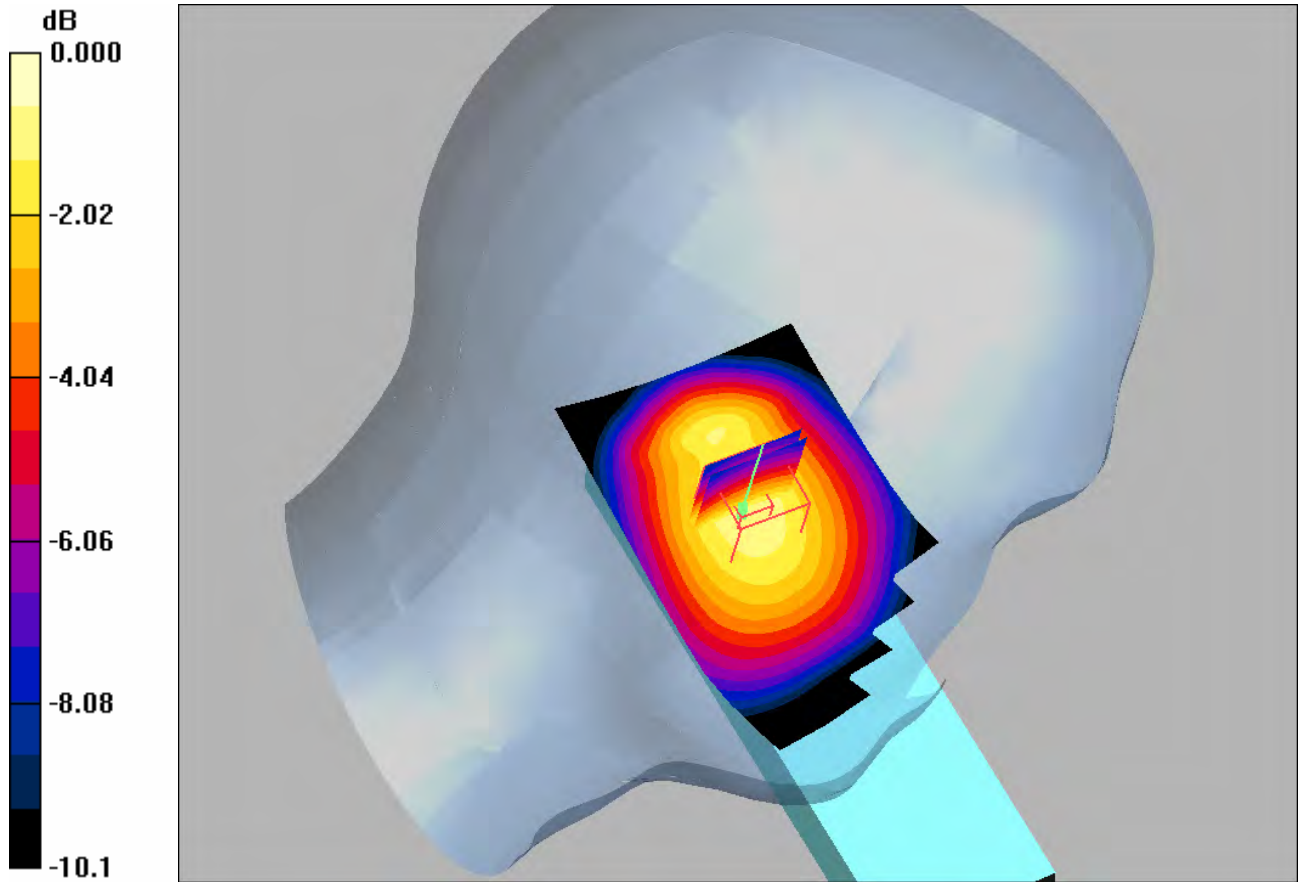


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



0 dB = 0.479mW/g

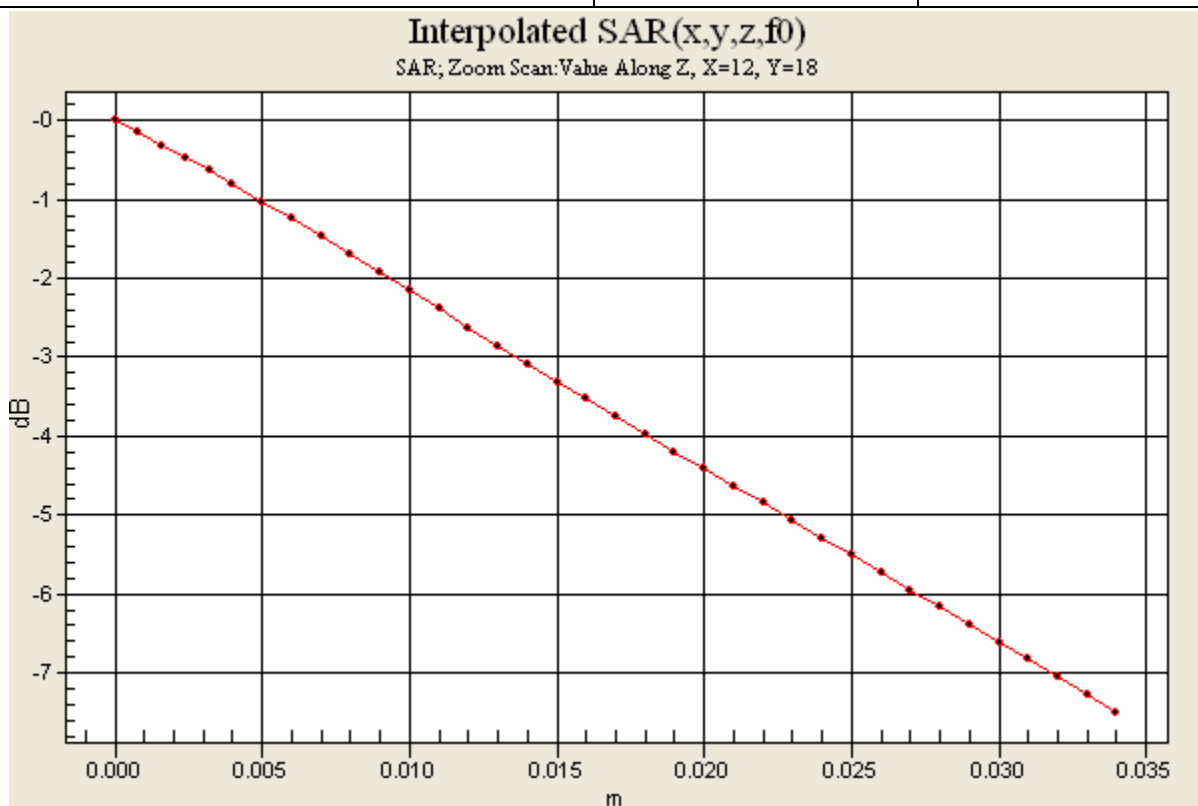


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	





APPLICANT: Sony Ericsson Mobile Communications Inc.

FCC ID: **PY7A3880017**



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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02
Approved SEM/CV/PF/P Gerard Hayes	Checked	B

### Appendix 3

#### SAR distribution plots for Body Worn Configuration



Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**Distribution of maximum SAR in 800 GSM band. Measured with back of device facing the body using a 15mm spacer. (Standard Battery, BST-39)**

Date/Time: 1/23/2009 9:20:42 AM

File Name: [23Jan09\\_W518\\_GSM835\\_KHST\\_15mm\\_BB01.da4](#)

**DUT: W518 body**

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

Probe: ET3DV6 - SN1586ConvF(6.25, 6.25, 6.25)

Medium parameters used (interpolated):  $f = 849$  MHz;  $\sigma = 0.956$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery - BST39 Humidity - 37.2 % Ambient Temp - 23 C Simulant Temp - 22.6 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1586; ConvF(6.25, 6.25, 6.25); Calibrated: 5/19/2008

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

- Electronics: DAE3 Sn432; Calibrated: 5/13/2008

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

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**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) = 0.589 mW/g

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

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

Reference Value = 12.2 V/m; Power Drift = 0.015 dB

Peak SAR (extrapolated) = 0.765 W/kg

**SAR(1 g) = 0.543 mW/g; SAR(10 g) = 0.360 mW/g**

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

Maximum value of SAR (measured) = 0.587 mW/g

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

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

Reference Value = 12.2 V/m; Power Drift = 0.015 dB

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

Maximum value of SAR (interpolated) = 0.765 mW/g

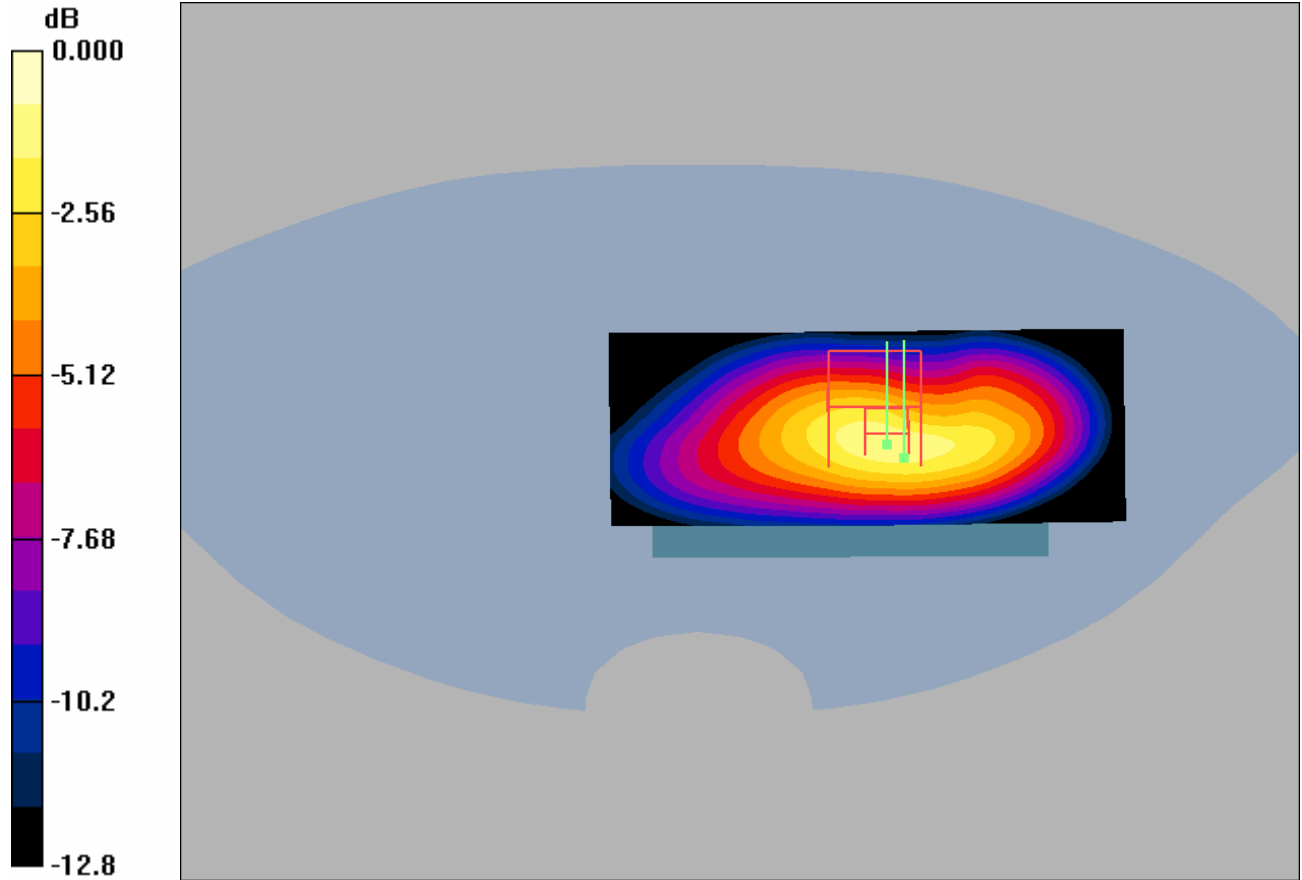


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	



0 dB = 0.765mW/g

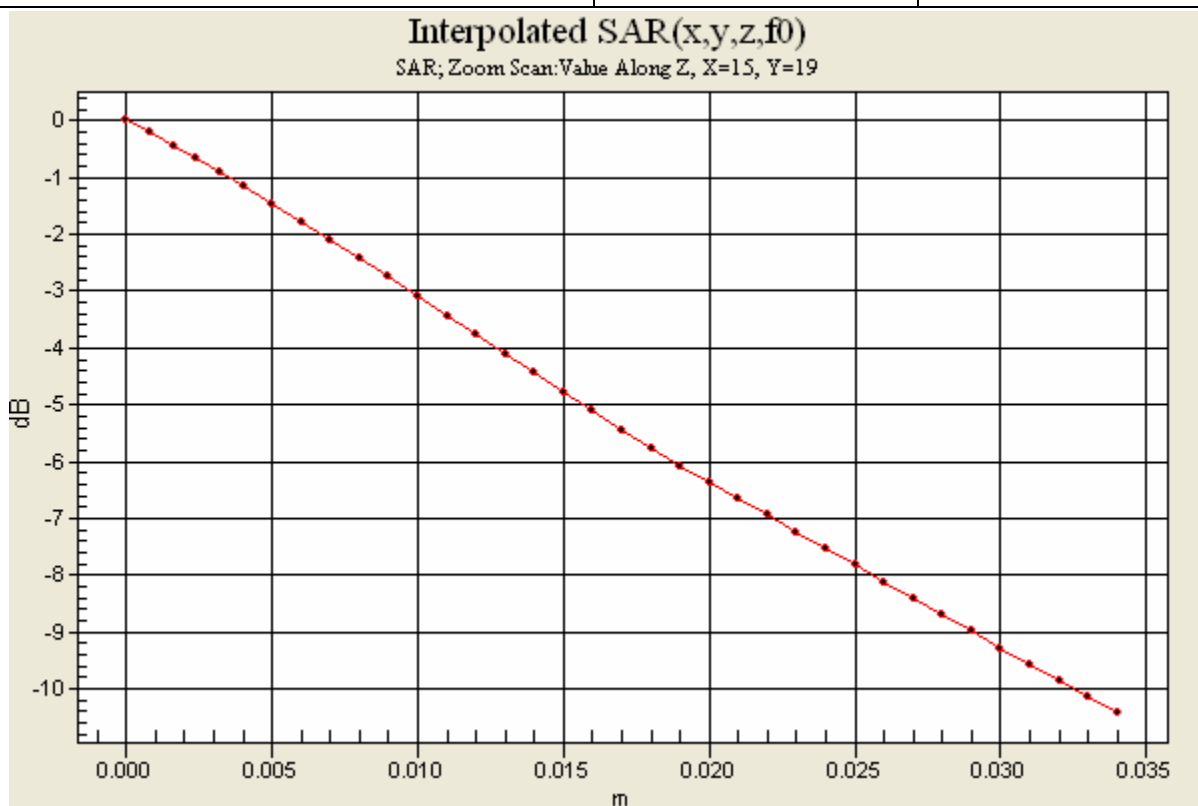


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	





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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**Distribution of maximum SAR in 1900 GSM band. Measured with back of device facing the body using a 15mm spacer. (Standard Battery, BST-39)**

Date/Time: 1/25/2009 10:23:53 AM

File Name: [25Jan09\\_W518\\_GSM1900\\_K155\\_15mm\\_BB01.da4](#)

**DUT: W518 body**

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

Probe: ET3DV6 - SN1586ConvF(4.64, 4.64, 4.64)

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.55$  mho/m;  $\epsilon_r = 51.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery - BST39 Humidity - 42.1 % Ambient Temp - 22.1 C Simulant Temp - 21.7 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1586; ConvF(4.64, 4.64, 4.64); Calibrated: 5/19/2008

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

- Electronics: DAE3 Sn432; Calibrated: 5/13/2008

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

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 3/Area Scan (51x81x1):**

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

Maximum value of SAR (interpolated) = 0.708 mW/g

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

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

Reference Value = 11.6 V/m; Power Drift = 0.025 dB

Peak SAR (extrapolated) = 1.08 W/kg

**SAR(1 g) = 0.620 mW/g; SAR(10 g) = 0.359 mW/g**

Maximum value of SAR (measured) = 0.673 mW/g

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

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

Reference Value = 11.6 V/m; Power Drift = 0.025 dB

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

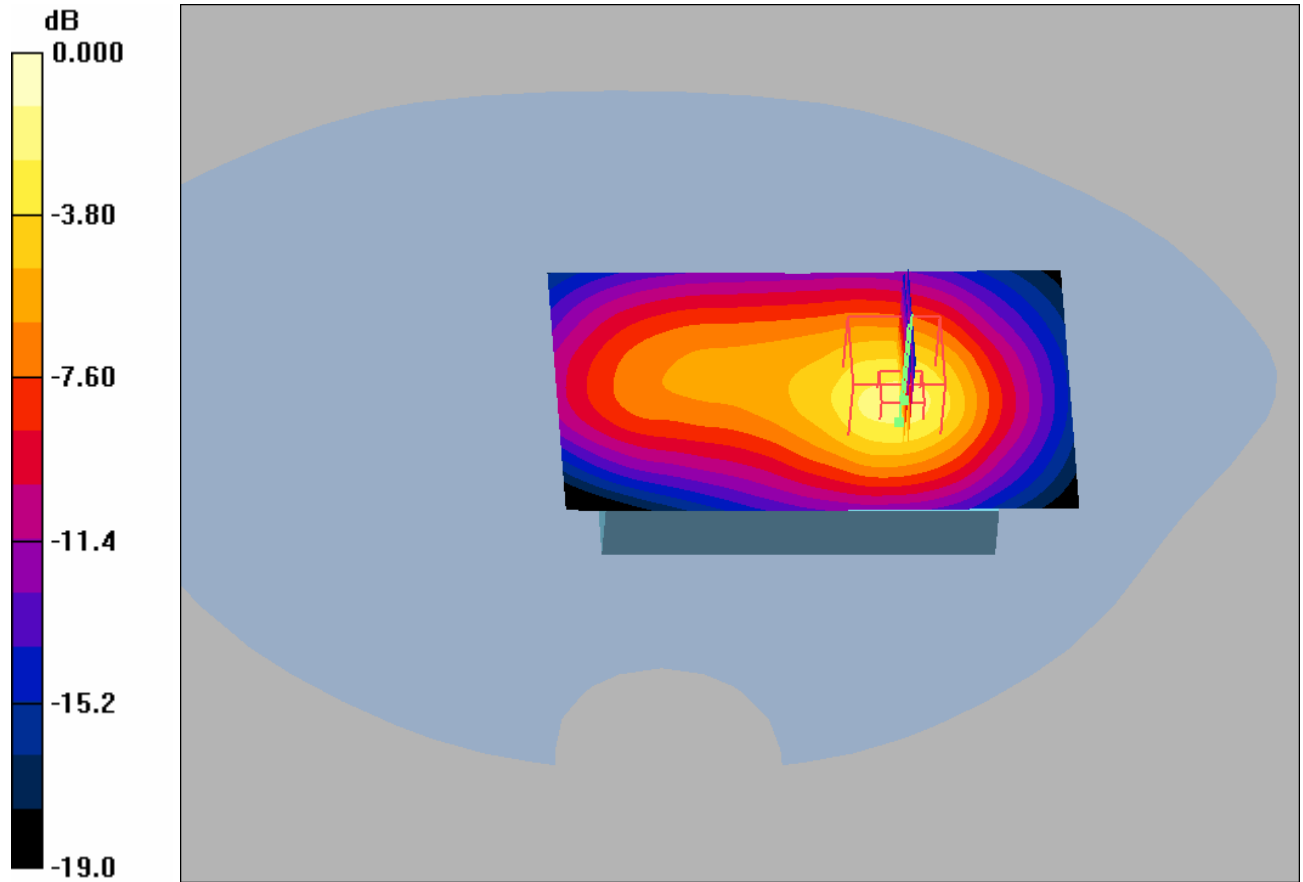


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REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	



0 dB = 1.08mW/g

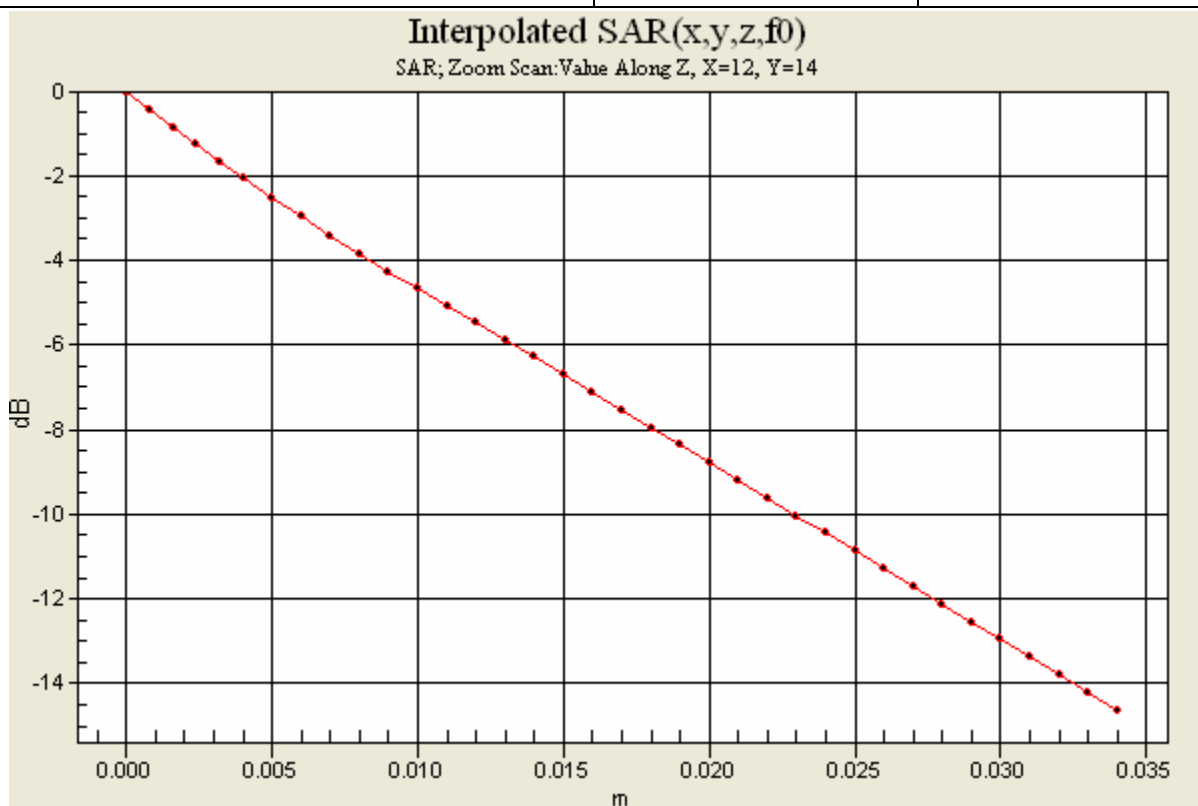


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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	





Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**Distribution of maximum SAR in UMTS Band V (850MHz). Measured with back of device facing the body using a 15mm spacer. (Standard Battery, BST-39)**

Date/Time: 1/29/2009 10:21:47 AM

File Name: [29Jan09\\_W518\\_B5WCDMA\\_KHST\\_15mm\\_BB01.da4](#)

**DUT: W518 body**

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

Probe: ET3DV6 - SN1586ConvF(6.25, 6.25, 6.25)

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.948 \text{ mho/m}$ ;  $\epsilon_r = 56.1$ ;  $\rho = 1000 \text{ kg/m}^3$

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery - BST39 Humidity - 41.3 % Ambient Temp - 21.6 C Simulant Temp - 21.2 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1586; ConvF(6.25, 6.25, 6.25); Calibrated: 5/19/2008

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

- Electronics: DAE3 Sn432; Calibrated: 5/13/2008

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

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 2/Area Scan (51x81x1):**

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

Maximum value of SAR (interpolated) = 0.338 mW/g

**Unnamed procedure 2/Zoom Scan (7x7x7)/Cube 0:**

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

Reference Value = 11.2 V/m; Power Drift = 0.073 dB

Peak SAR (extrapolated) = 0.410 W/kg

**SAR(1 g) = 0.309 mW/g; SAR(10 g) = 0.210 mW/g**

Maximum value of SAR (measured) = 0.333 mW/g

**Unnamed procedure 2/Zoom Scan (31x31x36)/Cube 0:**

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

Reference Value = 11.2 V/m; Power Drift = 0.073 dB

Maximum value of SAR (interpolated) = 0.410 mW/g



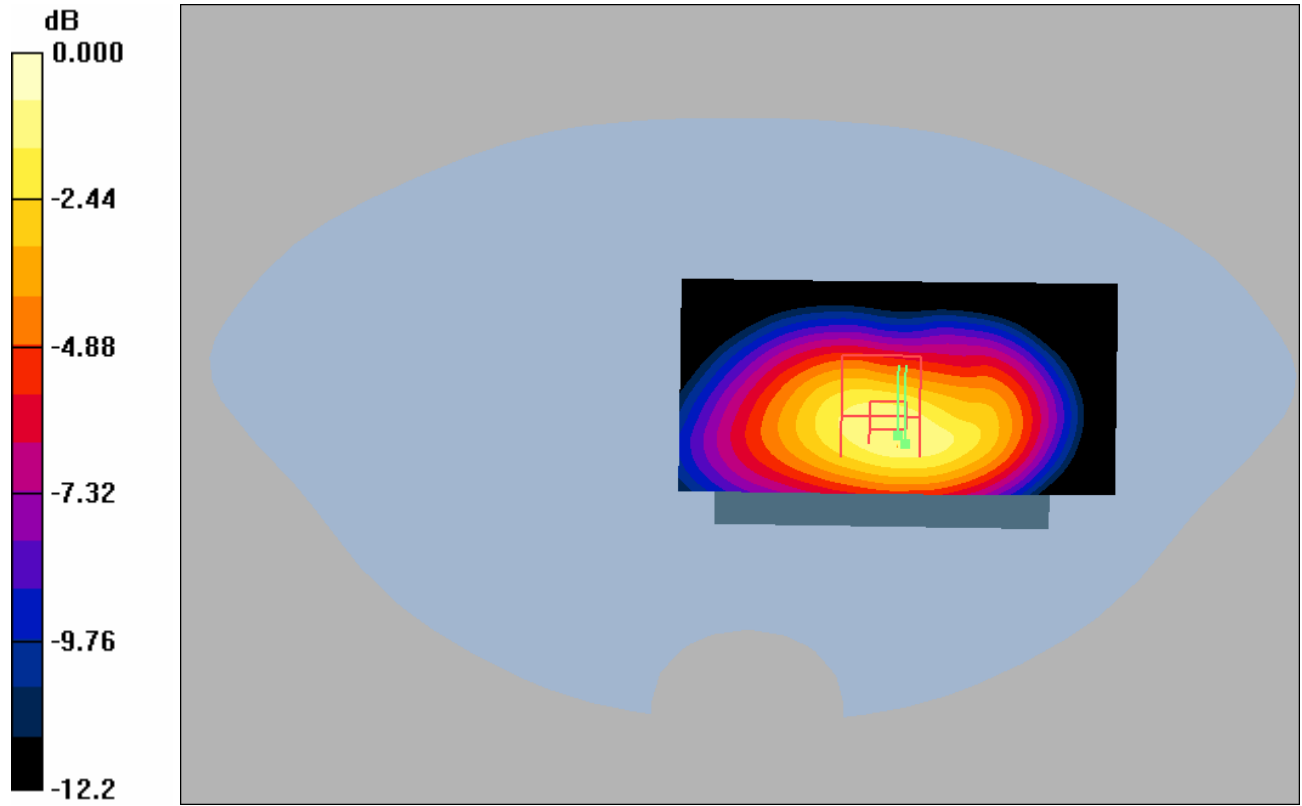


**Sony Ericsson**

REPORT

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Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked		B



0 dB = 0.410mW/g

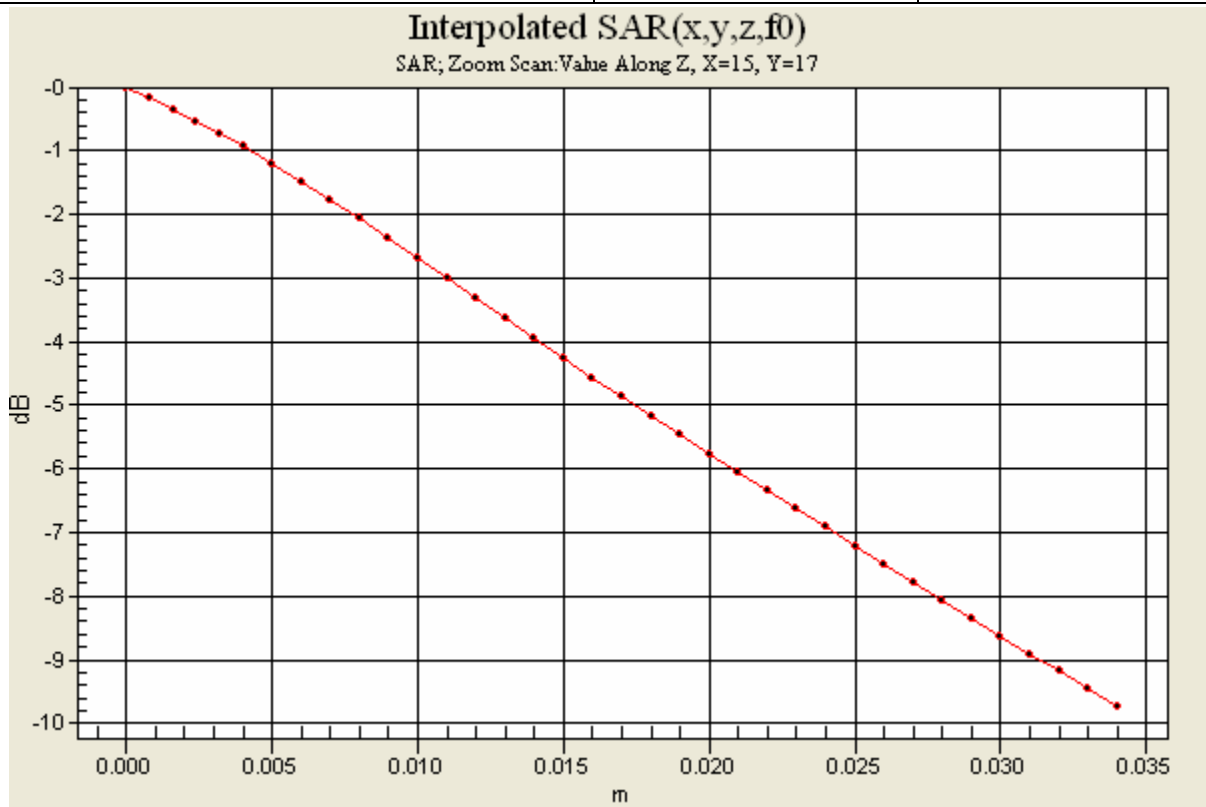


**Sony Ericsson**

REPORT

98(117)

Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	





Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	B	

**Distribution of maximum SAR in UMTS Band II (1900 MHz). Measured with back of device facing the body using a 15mm spacer. (Standard Battery, BST-39)**

Date/Time: 1/26/2009 8:32:36 AM

File Name: [26Jan09\\_W518\\_B2WCDMA\\_K13T\\_15mm\\_BB01.da4](#)

**DUT: W518 body**

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

Probe: ET3DV6 - SN1586ConvF(4.64, 4.64, 4.64)

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.5$  mho/m;  $\epsilon_r = 50.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Measurement Standard: DASY4 (High Precision Assessment)

Program Notes: Battery - BST39 Humidity - 42.1 % Ambient Temp - 22.1 C Simulant Temp - 21.7 C

DASY4 Configuration:

- Probe: ET3DV6 - SN1586; ConvF(4.64, 4.64, 4.64); Calibrated: 5/19/2008

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

- Electronics: DAE3 Sn432; Calibrated: 5/13/2008

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

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**Unnamed procedure 2/Area Scan (51x81x1):**

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

Maximum value of SAR (interpolated) = 0.960 mW/g

**Unnamed procedure 2/Zoom Scan (7x7x7)/Cube 0:**

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

Reference Value = 12.2 V/m; Power Drift = 0.066 dB

Peak SAR (extrapolated) = 1.46 W/kg

**SAR(1 g) = 0.827 mW/g; SAR(10 g) = 0.479 mW/g**

Maximum value of SAR (measured) = 0.884 mW/g

**Unnamed procedure 2/Zoom Scan (31x31x36)/Cube 0:**

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

Reference Value = 12.2 V/m; Power Drift = 0.066 dB

Maximum value of SAR (interpolated) = 1.46 mW/g

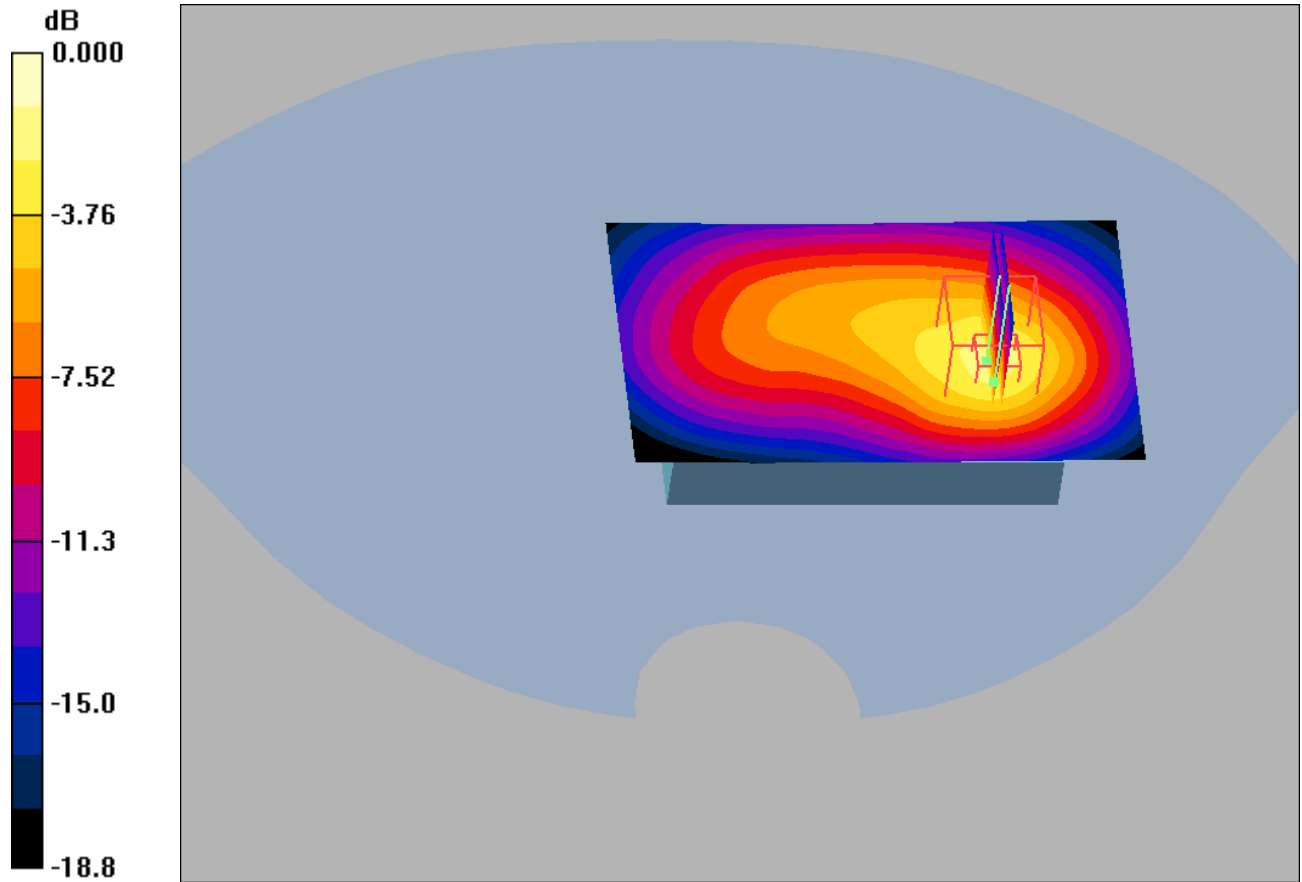


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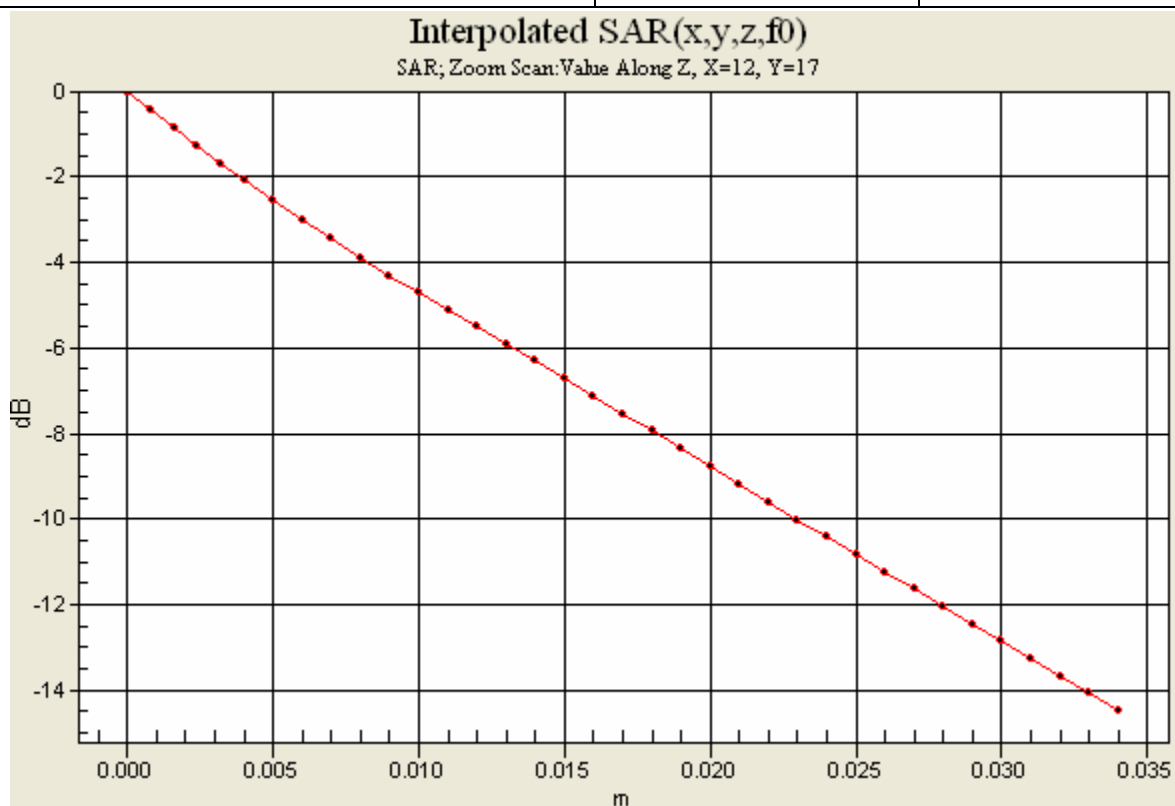
0 dB = 1.46mW/g

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## Appendix 4

### Probe Calibration Certificates

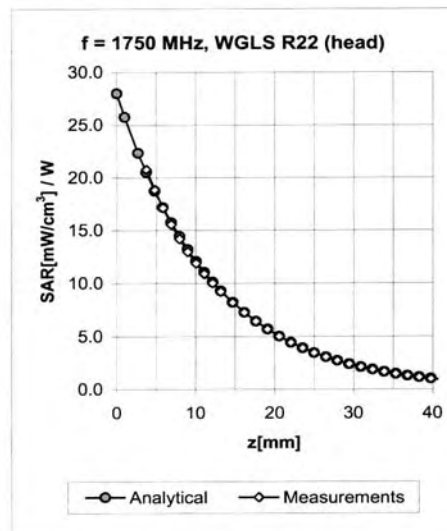
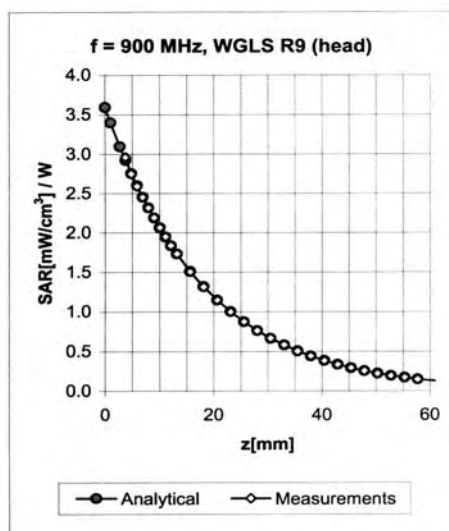


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ET3DV6 SN:1538

May 19, 2008

### Conversion Factor Assessment



f [MHz]	Validity [MHz] <sup>c</sup>	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.23	3.69	6.22 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.28	3.22	6.08 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.55	2.50	5.46 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.53	2.50	5.18 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.50	2.40	4.68 ± 11.0% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.32	3.06	6.07 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.41	2.70	5.93 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.56	2.50	4.82 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.50	2.50	4.58 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.48	2.40	4.15 ± 11.0% (k=2)

<sup>c</sup> 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:1538

May 19, 2008

**DASY - Parameters of Probe: ET3DV6 SN:1538****Sensitivity in Free Space<sup>A</sup>****Diode Compression<sup>B</sup>**

NormX	1.28 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	90 mV
NormY	1.22 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	83 mV
NormZ	1.41 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	90 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 <sub>be</sub> [%]	Without Correction Algorithm	10.8	6.4
SAR <sub>be</sub> [%]	With Correction Algorithm	0.6	0.2

**TSL 1750 MHz Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR <sub>be</sub> [%]	Without Correction Algorithm	11.1	6.5
SAR <sub>be</sub> [%]	With Correction Algorithm	0.8	0.5

**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%.

<sup>A</sup> The uncertainties of NormX,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Page 8).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.



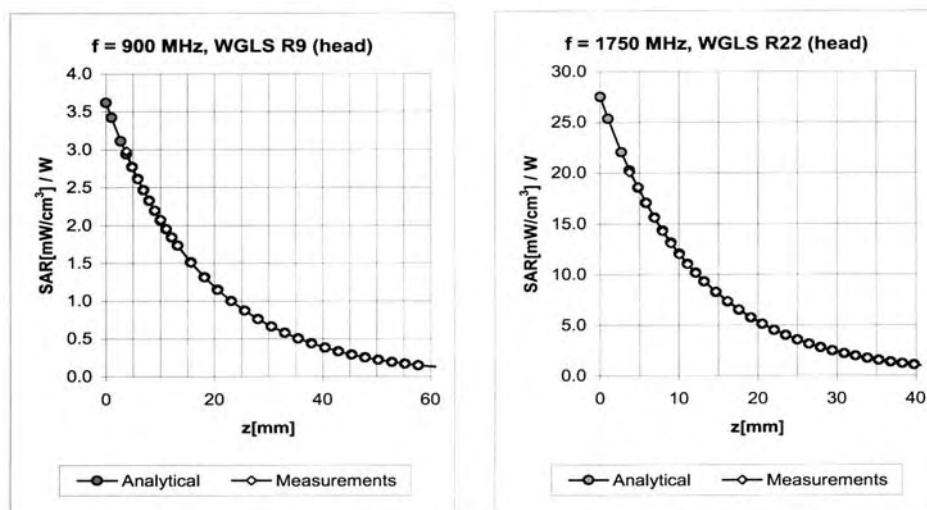


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ET3DV6 SN:1583

November 17, 2008

### Conversion Factor Assessment



f [MHz]	Validity [MHz] <sup>c</sup>	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.20	3.91	6.48 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.23	3.41	6.31 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.81	1.92	5.40 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.99	1.72	5.12 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.99	1.23	4.58 ± 11.0% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.27	3.20	6.33 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.34	2.72	6.19 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.99	1.89	4.90 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.99	1.78	4.58 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.99	1.43	4.00 ± 11.0% (k=2)

<sup>c</sup> 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.



Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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ET3DV6 SN:1583

November 17, 2008

**DASY - Parameters of Probe: ET3DV6 SN:1583****Sensitivity in Free Space<sup>A</sup>****Diode Compression<sup>B</sup>**

NormX	<b>1.84</b> ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	<b>92</b> mV
NormY	<b>2.03</b> ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	<b>93</b> mV
NormZ	<b>1.96</b> ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	<b>92</b> 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		<b>3.7 mm</b>	<b>4.7 mm</b>
SAR <sub>be</sub> [%]	Without Correction Algorithm	9.8	6.0
SAR <sub>be</sub> [%]	With Correction Algorithm	0.8	0.5

**TSL                      1750 MHz              Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		<b>3.7 mm</b>	<b>4.7 mm</b>
SAR <sub>be</sub> [%]	Without Correction Algorithm	11.2	7.5
SAR <sub>be</sub> [%]	With Correction Algorithm	0.9	0.4

**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%.**

<sup>A</sup> The uncertainties of NormX,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Page 8).<sup>B</sup> Numerical linearization parameter: uncertainty not required.

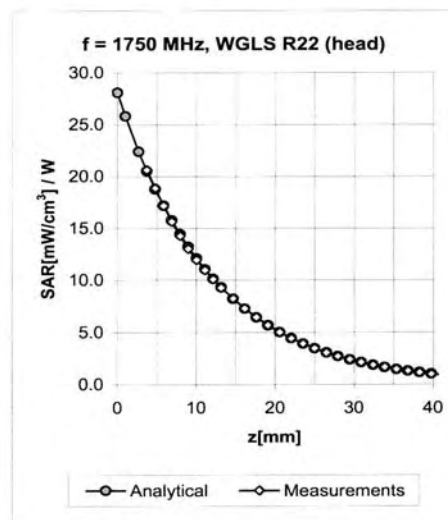
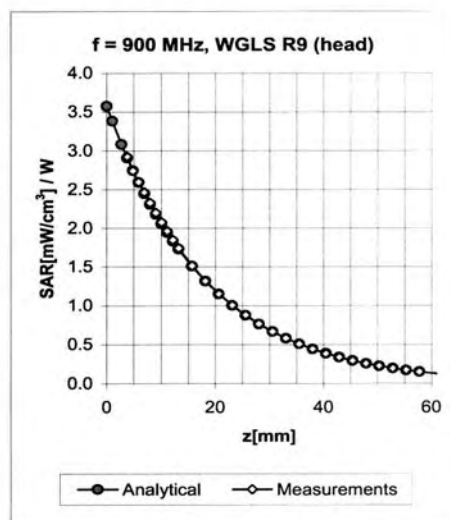


Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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ET3DV6 SN:1586

May 19, 2008

### Conversion Factor Assessment



f [MHz]	Validity [MHz] <sup>c</sup>	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.68	2.06	6.50 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.35	2.80	6.29 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.55	2.50	5.54 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.50	2.50	5.29 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.45	2.50	4.69 ± 11.0% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.65	2.14	6.25 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.35	2.80	6.10 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.50	2.50	4.91 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.48	2.50	4.64 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.40	2.50	4.11 ± 11.0% (k=2)

<sup>c</sup> 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:1586

May 19, 2008

**DASY - Parameters of Probe: ET3DV6 SN:1586****Sensitivity in Free Space<sup>A</sup>****Diode Compression<sup>B</sup>**

NormX	1.87 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	92 mV
NormY	1.81 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	93 mV
NormZ	1.92 ± 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 <sub>be</sub> [%]	Without Correction Algorithm	10.7	6.6
SAR <sub>be</sub> [%]	With Correction Algorithm	0.6	0.1

**TSL                      1750 MHz      Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR <sub>be</sub> [%]	Without Correction Algorithm	11.2	6.7
SAR <sub>be</sub> [%]	With Correction Algorithm	0.8	0.4

**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%.**

<sup>A</sup> The uncertainties of NormX,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Page 8).<sup>B</sup> Numerical linearization parameter: uncertainty not required.

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## Appendix 5

### Measurement Uncertainty Budget



Prepared (also subject responsible if other) SEM/CV/PF/P Rodney Dixon		No. REP 2009 001 W518A 02	
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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>	$e = f(d,k)$	<i>f</i>	<i>g</i>	$h = c \times f / e$	$i = c \times g / e$	<i>k</i>
Uncertainty Component	Sec.	Tol. (± %)	Prob. Dist.	Div.	$c_i$ (1-g)	$c_i$ (10-g)	1-g $u_i$ (±%)	10-g $u_i$ (±%)	$v_i$
<b>Measurement System</b>									
Probe Calibration ( $k=1$ )	E2.1	4.7	R	1.73	0.707	0.707	1.9	1.9	$\infty$
Axial Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	$\infty$
Hemispherical Isotropy	E.2.2	1.0	R	1.73	1	1	0.6	0.6	$\infty$
Boundary Effect	E.2.3	4.7	R	1.73	1	1	2.7	2.7	$\infty$
Linearity	E.2.4	1.0	R	1.73	1	1	0.6	0.6	$\infty$
System Detection Limits	E.2.5	1.0	N	1	1	1	1.0	1.0	$\infty$
Readout Electronics	E.2.6	0.8	R	1.73	1	1	0.5	0.5	$\infty$
Response Time	E.2.7	2.6	R	1.73	1	1	1.5	1.5	$\infty$
Integration Time	E.2.8	4.7	R	1.73	0.707	0.707	1.9	1.9	$\infty$
RF Ambient Conditions	E.6.1	3.0	R	1.73	1	1	1.7	1.7	$\infty$
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	$\infty$
Probe Positioning with respect to Phantom Shell	E.6.3	2.9	R	1.73	1	1	1.7	1.7	$\infty$
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1	1	0.6	0.6	$\infty$
<b>Dipole</b>									
Dipole Axis to Liquid Distance	8, E.4.2	1.0	R	1.73	1	1	0.6	0.6	$\infty$
Input Power and SAR Drift Measurement	8, 6.6.2	5.0	R	1.73	1	1	2.9	2.9	$\infty$
<b>Phantom and Tissue Parameters</b>									
Phantom Uncertainty - shell thickness tolerance	E.3.1	4.0	R	1.73	1	1	2.3	2.3	$\infty$
Liquid Conductivity - deviation from target values (5)	E.3.2	4.3	R	1.73	0.64	0.43	1.59	1.07	$\infty$
Liquid Conductivity - measurement uncertainty (6)	E.3.3	6.20	R	1.73	0.64	0.43	2.29	1.54	$\infty$

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Liquid Permittivity - deviation from target values (5)	E.3.2	3.7	R	1.73	0.6	0.49	1.28	1.05	$\infty$
Liquid Permittivity - measurement uncertainty (6)	E.3.3	6.08	R	1.73	0.6	0.49	2.11	1.72	$\infty$
<b>Combined Standard Uncertainty</b>			RSS				9.37	9.03	
<b>Expanded Uncertainty (95% C.L.)</b>							18.74	18.05	





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

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	$e = f(d,k)$	<i>f</i>	<i>g</i>	$h = c \times f / e$	$i = c \times g / e$	<i>k</i>
Uncertainty Component	Sec.	Tol. (± %)	Prob. Dist.	Div.	$c_i$ (1-g)	$c_i$ (10-g)	1-g $u_i$ (±%)	10-g $u_i$ (±%)	$v_i$
<b>Measurement System</b>									
Probe Calibration ( $k=1$ )	E2.1	4.8	N	1	1	1	4.8	4.8	$\infty$
Axial Isotropy	E.2.2	4.7	R	1.73	0.707	0.707	1.9	1.9	$\infty$
Hemispherical Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	$\infty$
Boundary Effect	E.2.3	1.0	R	1.73	1	1	0.6	0.6	$\infty$
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	$\infty$
System Detection Limits	E.2.5	1.0	R	1.73	1	1	0.6	0.6	$\infty$
Readout Electronics	E.2.6	1.0	N	1	1	1	1.0	1.0	$\infty$
Response Time	E.2.7	0.8	R	1.73	1	1	0.5	0.5	$\infty$
Integration Time	E.2.8	2.6	R	1.73	1	1	1.5	1.5	$\infty$
RF Ambient Conditions	E.6.1	3.0	R	1.73	1	1	1.7	1.7	$\infty$
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	$\infty$
Probe Positioning with respect to Phantom Shell	E.6.3	2.9	R	1.73	1	1	1.7	1.7	$\infty$
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1	1	0.6	0.6	$\infty$
<b>Test sample Related</b>									
Test Sample Positioning	E.4.2	2.7	N	1	1	1	2.7	2.7	4
Device Holder Uncertainty	E.4.1	1.3	R	1.73	1	1	0.8	0.8	4
Output Power Variation - SAR drift measurement (4)	6.6.2	5.0	R	1.73	1	1	2.9	2.9	$\infty$
Phantom and Tissue Parameters									
Phantom Uncertainty (shape and thickness tolerances)	E.3.1	4.0	R	1.73	1	1	2.3	2.3	$\infty$



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Liquid Conductivity - deviation from target values (5)	E.3.2	4.3	R	1.73	0.64	0.43	1.6	1.1	$\infty$
Liquid Conductivity - measurement uncertainty (6)	E.3.3	6.20	R	1.73	0.64	0.43	2.3	1.5	$\infty$
Liquid Permittivity - deviation from target values (5)	E.3.2	3.7	R	1.73	0.6	0.49	1.3	1.0	$\infty$
Liquid Permittivity - measurement uncertainty (6)	E.3.3	6.08	R	1.73	0.6	0.49	2.1	1.7	$\infty$
<b>Combined Standard Uncertainty</b>			RSS				<b>9.8</b>	<b>9.4</b>	
<b>Expanded Uncertainty (95% CONFIDENCE LEVEL)</b>			K=2				<b>19.5</b>	<b>18.8</b>	



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**Table 3a. Values for  $\epsilon'$** 

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	$\infty$
Dielectric Error Sources	5.93	R	1.73	1	3.42	$\infty$
<b>Combined standard uncertainty</b>					<b>6.08</b>	

**Table 3b. Values for  $\sigma$** 

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	$\infty$
Dielectric Error Sources	5.93	R	1.73	1	3.42	$\infty$
<b>Combined standard uncertainty</b>					<b>6.20</b>	

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## Appendix 6

### Photographs of the Device Under Test

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**Front:****Back:****Side:**



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



**“cheek/touch” position**



**“tilt” position**

**Position with device against flat phantom using a 15mm spacer with hands free accessory.**



**Front of device against flat phantom**



**Back of device against flat phantom.**

**Handsfree Accessory:**

