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## Exhibit 11: SAR Test Report of Portable Cellular Phone FCC ID: PY7AF031011 Model : Z500A

**Date of test:** June 22- July 29, 2004  
**Date of Report:** July 30, 2004

**Laboratory:** SAR Testing Laboratory Sony Ericsson Mobile Communications, Inc. 7001  
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**Test Responsible:** Gerard Hayes  
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**Accreditation:** This laboratory is accredited to ISO/IEC 17025-1999 to perform the following electromagnetic exposure tests:



- Specific Absorption Rate (SAR)
- Dielectric parameters
- RF power measurement

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

**Statement of Compliance:** Sony Ericsson Mobile Communications, Inc declares under its sole responsibility that portable cellular telephone FCC ID PY7AF031011 model Z500A 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 PY7AF031011 model Z500A. 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

<b>Type</b>	Internal antenna	
<b>Location</b>	Inside the lower back cover, near the hinge	
<b>Dimensions</b>	Width	35 mm
	Length	15 mm
	Height	10mm
<b>Configuration</b>	PIFA-Type Antenna	

### 2.2 Device description

<b>FCC ID Number / Device Model</b>	PY7AF031011 / Z500A			
<b>Serial number</b>	BD3017AYMN			
<b>Mode(s) of Operation</b>	GSM 800		GSM 1900	
<b>Modulation Mode(s)</b>	TDMA		TDMA	
<b>Target Value and Factory Tolerance Window for Maximum Output Power Setting</b>	$f_{low}$	32.0± 0.6 dBm	$f_{low}$	29.7± 0.3 dBm
	$f_{mid}$	32.0± 0.6 dBm	$f_{mid}$	29.5± 0.5 dBm
	$f_{high}$	32.0± 0.7 dBm	$f_{high}$	29.2± 0.8 dBm
<b>Calibration Frequency (<math>f_{low}</math>, <math>f_{mid}</math>, <math>f_{high}</math>)</b>	$f_{mid}$		$f_{low}$	
<b>Duty Cycle</b>	1/8 GSM 2/8 EGPRS (Data)		1/8 GSM 2/8 EGPRS (Data)	
<b>Transmitting Frequency Rang(s)</b>	824-849 MHz		1850-1910 MHz	
<b>Production Unit or Identical Prototype (47 CFR §2.908)</b>	Identical Prototype			
<b>Device Category</b>	Portable			
<b>RF Exposure Limits</b>	General Population / Uncontrolled			



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### 3. Test Equipment Used

#### 3.1 Dosimetric System

The Sony Ericsson SAR Laboratory utilizes Dosimetric Assessment Systems (Dasy3™ v3.1d for body-worn measurements and Dasy4™ for adjacent to head measurements) manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. The overall RSS uncertainty of the measurement system is ±11.33% (K=1) with an expanded uncertainty of ±22.67% (K=2) for Dasy3™ v3.1d and ±10.14% (K=1) with an expanded uncertainty of ±20.27% (K=2) for Dasy4™. The measurement uncertainty budget is given in Appendix 5 for both systems. The list of calibrated equipment used for the measurements is shown in the following table.

Description	Serial Number	Cal Due Date
DASY3 DAE V1	415	10-Dec-2004
DASY3 DAE V1	417	10-Dec-2004
DASY3 DAE V1	431	26-Nov-2004
DASY3 DAE V1	432	24-Nov-2004
E-Field Probe ETDV6	1538	27-May-2005
E-Field Probe ETDV6	1539	16-Dec-2004
E-Field Probe ETDV6	1583	16-Dec-2004
E-Field Probe ETDV6	1586	27-May-2005
Dipole Validation Kit, DV835V2	429	22-Jan-2005
Dipole Validation Kit, DV1800V2	217	21-Jan-2005
Dipole Validation Kit, DV1900V2	536	21-Jan-2005
S.A.M. Phantom used for 835MHz (Head)	1251	
S.A.M. Phantoms used for 835MHz (Body)	1020 / 1031	
S.A.M. Phantom used for 1800MHz (Head)	1054	
S.A.M. Phantom used for 1900MHz (Head)	1054	
S.A.M. Phantoms used for 1900MHz (Body)	1020 / 1030	

#### 3.2 Additional Equipment

Description	Serial Number	Cal Due Date
Signal Generator HP8648C	3537A01598	09-Sep-2005
Power Meter 437B	3125U113481	03-May-2005
Power Meter 437B	3125U13729	08-Jan-2005
Power Sensor - 8482H	MY41090240	12-May-2005
Power Sensor - 8482H	MY41090239	12-May-2005
Network Analyzer HP8752C	3410A3105	17-Sep-2004
Dielectric Probe Kit HP85070B	US33020256	23-Oct-2004
Digital Thermometer 61220-601	350078	10-Nov-2004
Thermometer Probe 61220-604	99172351	10-Nov-2004
Digital Hygrometer/ Thermometer	21242911	10-Nov-2004
AR Power Amplifier 5S1G4	19290	21-Jan-2005



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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]. During the tests, the ambient temperature of the laboratory was in the range 21.7-24.7°C, the relative humidity was 40.8%- 55.1 %, and the liquid depth above the ear reference points was more than 15.0 cm for 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 (°C)
835	Head	Measured, 22-Jun-04	40.94	0.882	23.5
		Measured, 01-Jul-04	40.53	0.881	21.5
		Measured, 28-Jul-04	42.07	0.895	22.5
		Recommended Limits	<b>41.50</b>	<b>0.90</b>	<b>20-25</b>
	Body	Measured, 27-Jun-04	54.93	0.980	22.8
		Measured, 26-Jul-04	54.91	0.977	23.3
1900	Head	Measured, 21-Jun-04	38.85	1.44	22.6
		Measured, 22-Jul-04	38.10	1.43	22.3
		Recommended Limits	<b>40.00</b>	<b>1.40</b>	<b>20-25</b>
	Body	Measured, 25-Jun-04	50.89	1.55	23.0
		Measured, 28-Jun-04	50.68	1.56	22.4
		Measured, 29-Jul-04	51.16	1.51	21.8
		Recommended Limits	<b>53.30</b>	<b>1.52</b>	<b>20-25</b>

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

Ingredient	800MHz	800MHz	1800/1900MHz	1900MHz
	Head	Body	Head	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 DASY3 was performed using the measurement equipment listed in Section 3.1. The daily system accuracy verification occurs within the flat section of the SAM phantom.

A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR indicated on the dipole certification sheet. These tests were done at 835 MHz and/or 1800MHz/1900MHz. These frequencies are within 100MHz of the mid-band frequency of the test device, according to [1]. The test was conducted on the same days as the measurement of the DUT. The results from the system accuracy verification are displayed in the table below (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the ambient temperature of the laboratory was in the range 21.5-23.8 °C, the relative humidity was in the range 44.4 – 55.5 % and the liquid depth above the ear reference points was above 150 mm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values. The SAR distributions are shown in Appendix 1.

Daily, prior to conducting tests, measurements were made with the RF sources powered off to determine the system noise level. The highest system noise was 0.0085 W/kg, which is below the recommended limit in [1].

f (MHz)	Tissue Type	Description	SAR (W/kg) 1g / 10g		Dielectric Parameters		Tissue Temp (°C)
					ε <sub>r</sub>	σ (S/m)	
835	Head	Measured. 22-Jun-04	8.61	5.63	40.94	0.882	23.5
		Measured. 01-Jul-04	8.69	5.67	40.53	0.881	21.5
		Measured. 28-Jul-04	8.99	5.86	42.07	0.895	22.5
	<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	Measured. 27-Jun-04	9.47	6.20	54.93	0.980	22.8
		Measured. 26-Jul-04	9.45	6.22	54.91	0.977	23.3
<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	Measured. 21-Jun-04	39.60	20.70	38.85	1.44	22.6
		Measured. 22-Jul-04	40.53	21.20	38.10	1.43	22.3
		<b>Recommended Limits</b>		<b>39.70</b>	<b>20.50</b>	<b>40.00</b>	<b>1.40</b>
	Body	Measured. 25-Jun-04	42.98	22.49	50.89	1.55	23.0
		Measured. 28-Jun-04	43.54	22.73	50.68	1.56	22.4
		Measured. 29-Jul-04	42.93	22.40	51.16	1.51	21.8
<b>Recommended Limits</b>		<b>40.50</b>	<b>20.89</b>	<b>53.30</b>	<b>1.52</b>	<b>20-25</b>	



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## 6. Test Results

For head measurements (with a 1/8 GSM duty cycle), the sample was operated using test software that allows the control of the transmitter. For body measurements (2/8 EGPRS duty cycle), the test sample was operated using a base station simulator that allows control of the transmitter using the signally software that installed on the phone call. For the purposes of these tests, the unit is commanded to set to the proper channel, transmitter power level and transmit mode of operation. The phone was tested in the configurations stipulated in [1,2]. The phone was positioned into these configurations using the positioner supplied with the DASY 3.1d SAR measurement system.

The Cellular Phone FCC ID PY7AF031011 has the following battery options:

- Model #1 – BKB 193 191 (BST-35) Standard Lithium Polymer Battery
- Model #2 – BKB 193 174 (BST-30) Alternative/Optional Lithium Ion Battery

Both batteries were used for SAR testing. The phone was placed in the SAR measurement system with a fully charged battery.

### 6.1 Head Adjacent Test Results

The SAR results shown in tables 1 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 humidity and ambient temperature of the test facility were in the ranges 21.1-26.5% and 22.9-23.9°C, respectively. The SAR measurements were performed using the SAM phantoms listed in section 3.1.

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

Summary of Maximum Extrapolated SAR Results : Head Adjacent			
Frequency	Extrapolated SAR (W/kg)		Test Configuration
	1 g	10 g	
<b>800 GSM</b>	1.25	0.84	Right head, cheek/touch position, 824 MHz BST-35 battery
<b>1900 GSM</b>	1.45	0.73	Left head, cheek/touch position, 1850 MHz BST-35 battery



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f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 1:8 Duty Cycle	FCC ID PYAF031011 with Standard Battery BST-35						
			Left Head (Cheek / Touch Position)					Ambi ent Temp (°C)	Simulate Temp (°C)
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g			
800 GSM	<b>128 / 824</b>	<b>32.3</b>	<b>0.981</b>	<b>0.694</b>	<b>-0.02</b>	<b>1.00</b>	<b>0.71</b>	<b>23.7</b>	<b>22.5</b>
	189 / 837	32.4	0.759	0.547	-0.02	0.78	0.56	23.7	22.5
	251 / 849	32.6	0.796	0.563	-0.11	0.81	0.58	23.7	22.5
1900 GSM	<b>512 / 1850</b>	<b>29.9</b>	<b>1.42</b>	<b>0.713</b>	<b>-0.13</b>	<b>1.45</b>	<b>0.73</b>	<b>23.5</b>	<b>21.7</b>
	660/1880	29.7	1.31	0.675	-0.04	1.34	0.69	23.5	21.7
	810/1910	29.4	1.11	0.587	-0.06	1.14	0.60	23.5	21.7
f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 1:8 Duty Cycle	FCC ID PYAF031011 with Standard Battery BST-35						
			Left Head (15° Tilt Position)					Ambi ent Temp (°C)	Simulate Temp (°C)
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g			
800 GSM	128 / 824	32.3	0.277	0.21	-0.19	0.28	0.21	24.4	22.6
	189 / 837	32.4	0.3	0.226	-0.05	0.31	0.23	24.4	22.6
	<b>251 / 849</b>	<b>32.6</b>	<b>0.338</b>	<b>0.253</b>	<b>-0.06</b>	<b>0.35</b>	<b>0.26</b>	<b>24.4</b>	<b>22.6</b>
1900 GSM	512 / 1850	29.9	0.195	0.123	0.02	0.20	0.13	23.1	21.9
	<b>660/1880</b>	<b>29.7</b>	<b>0.216</b>	<b>0.135</b>	<b>-0.03</b>	<b>0.22</b>	<b>0.14</b>	<b>23.1</b>	<b>21.9</b>
	810/1910	29.4	0.176	0.11	-0.04	0.18	0.11	23.1	21.9

**Table 1: SAR measurement results for the portable cellular telephone FCC ID PY7AF031011 model Z500A at maximum output power with Standard Battery BST-35. Measured against the left head.**





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f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 1:8 Duty Cycle	FCC ID PYAF031011 with Standard Battery BST-35						
			Right Head (Check / Touch Position)						
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambi ent Temp (°C)	Simulate Temp (°C)
800 GSM	<b>128 / 824</b>	<b>32.3</b>	<b>1.22</b>	<b>0.816</b>	<b>-0.09</b>	<b>1.25</b>	<b>0.84</b>	<b>23.5</b>	<b>22.2</b>
	189 / 837	32.4	0.959	0.652	0.01	0.98	0.67	23.5	22.2
	251 / 849	32.6	0.959	0.645	-0.10	0.98	0.66	23.5	22.2
1900 GSM	<b>512 / 1850</b>	<b>29.9</b>	<b>1.29</b>	<b>0.673</b>	<b>-0.07</b>	<b>1.32</b>	<b>0.69</b>	<b>22.5</b>	<b>21.7</b>
	660/1880	29.7	1.19	0.641	-0.04	1.22	0.66	22.5	21.7
	810/1910	29.4	1.08	0.581	-0.04	1.11	0.59	22.5	21.7
f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 1:8 Duty Cycle	FCC ID PYAF031011 with Standard Battery BST-35						
			Right Head (15° Tilt Position)						
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambi ent Temp (°C)	Simulate Temp (°C)
800 GSM	<b>128 / 824</b>	32.3	0.316	0.237	-0.03	0.32	0.24	24.7	22.8
	189 / 837	32.4	0.303	0.225	-0.08	0.31	0.23	24.7	22.8
	251 / 849	<b>32.6</b>	<b>0.324</b>	<b>0.241</b>	<b>0.01</b>	<b>0.33</b>	<b>0.25</b>	<b>24.7</b>	<b>22.8</b>
1900 GSM	512 / 1850	29.9	0.197	0.127	0.00	0.20	0.13	23.6	21.8
	<b>660/1880</b>	<b>29.7</b>	<b>0.205</b>	<b>0.129</b>	<b>-0.03</b>	<b>0.21</b>	<b>0.13</b>	<b>23.6</b>	<b>21.8</b>
	810/1910	29.4	1.08	0.102	-0.03	1.11	0.10	23.6	21.8

**Table 2: SAR measurement results for the portable cellular telephone FCC ID PY7AF031011 model Z500A at maximum output power with Standard Battery BST-35. Measured against the right head.**



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f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 1:8 Duty Cycle	FCC ID PYAF031011 with Optional Battery BST-30						
			Left Head (Cheek / Touch Position)					Ambi ent Temp (°C)	Simulate Temp (°C)
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g			
800 GSM	128 / 824	32.3	<b>0.966</b>	<b>0.683</b>	<b>-0.16</b>	<b>0.989</b>	<b>0.699</b>	<b>22.6</b>	<b>22.5</b>
	189 / 837	32.4	0.862	0.610	-0.11	0.882	0.624	22.6	22.5
	251 / 849	32.6	0.806	0.571	-0.07	0.825	0.584	22.6	22.5
1900 GSM	512 / 1850	29.9	<b>1.400</b>	<b>0.699</b>	<b>-0.07</b>	<b>1.433</b>	<b>0.715</b>	<b>22.6</b>	<b>21.4</b>
	660/1880	29.7	1.280	0.656	-0.01	1.310	0.671	22.6	21.4
	810/1910	29.4	1.160	0.607	-0.02	1.187	0.621	22.6	21.4
f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 1:8 Duty Cycle	FCC ID PYAF031011 with Optional Battery BST-30						
			Left Head (15° Tilt Position)					Ambi ent Temp (°C)	Simulate Temp (°C)
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g			
800 GSM	128 / 824	32.3	<b>0.310</b>	<b>0.236</b>	<b>-0.06</b>	<b>0.317</b>	<b>0.241</b>	<b>22.7</b>	<b>22.0</b>
	189 / 837	32.4	0.299	0.227	-0.08	0.306	0.232	22.7	22.0
	251 / 849	32.6	0.267	0.203	-0.04	0.273	0.208	22.7	22.0
1900 GSM	512 / 1850	29.9	<b>0.211</b>	<b>0.132</b>	<b>0.02</b>	<b>0.216</b>	<b>0.135</b>	<b>22.8</b>	<b>21.0</b>
	660/1880	29.7	0.201	0.125	0.08	0.206	0.128	22.8	21.0
	810/1910	29.4	0.178	0.109	0.06	0.182	0.112	22.8	21.0

**Table 3: SAR measurement results for the portable cellular telephone FCC ID PY7AF031011 model Z500A at maximum output power with Optional Battery BST-30. Measured against the left head.**



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f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 1:8 Duty Cycle	FCC ID PYAF031011 with Optional Battery BST-30						
			Right Head (Check / Touch Position)						
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambi ent Temp (°C)	Simulate Temp (°C)
800 GSM	128 / 824	32.3	<b>1.100</b>	<b>0.746</b>	<b>-0.12</b>	<b>1.126</b>	<b>0.764</b>	<b>22.3</b>	<b>21.7</b>
	189 / 837	32.4	0.982	0.670	-0.04	1.005	0.686	22.3	21.7
	251 / 849	32.6	0.903	0.612	-0.07	0.924	0.626	22.3	21.7
1900 GSM	512 / 1850	29.9	<b>1.300</b>	<b>0.676</b>	<b>-0.20</b>	<b>1.330</b>	<b>0.692</b>	<b>23.0</b>	<b>22.3</b>
	660/1880	29.7	1.160	0.612	-0.17	1.187	0.626	23.0	22.3
	810/1910	29.4	1.020	0.548	-0.13	1.044	0.561	23.0	22.3
f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 1:8 Duty Cycle	FCC ID PYAF031011 with Optional Battery BST-30						
			Right Head (15° Tilt Position)						
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambi ent Temp (°C)	Simulate Temp (°C)
800 GSM	128 / 824	32.3	0.292	0.219	-0.11	0.299	0.224	22.3	21.7
	189 / 837	32.4	0.288	0.215	-0.01	0.295	0.220	22.3	21.7
	251 / 849	32.6	<b>0.295</b>	<b>0.220</b>	<b>-0.04</b>	<b>0.302</b>	<b>0.225</b>	<b>22.3</b>	<b>21.7</b>
1900 GSM	512 / 1850	29.9	<b>0.191</b>	<b>0.121</b>	<b>-0.03</b>	<b>0.195</b>	<b>0.124</b>	<b>22.7</b>	<b>21.2</b>
	660/1880	29.7	0.191	0.119	-0.07	0.195	0.122	22.7	21.2
	810/1910	29.4	0.164	0.101	0.08	0.168	0.103	22.7	21.2

**Table 4: SAR measurement results for the portable cellular telephone FCC ID PY7AF031011 model Z500A at maximum output power with Optional Battery BST-30. Measured against the right head.**



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### 6.2 Body-Worn Test Results

The SAR results shown in tables 5-8 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. The humidity and ambient temperature of the test facility were in the ranges 22.3-32.8% and 22.5-23.9°C, respectively.

A “flat” phantom was used for the body-worn tests. This “flat” phantom corresponds to the flat portion of the SAM phantom. The tissue stimulant depth above the ear canal was verified to be above 15.0 cm in all the measurements. 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:

- Carry case model ICE-26
- 15 mm spacer

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

Summary of Maximum Extrapolated SAR Results: Body-worn			
Frequency	Extrapolated SAR (W/kg)		Test Configuration
	1 g	10 g	
<b>800 GSM</b>	0.973	0.649	ICE-26 Carry Accessory, back of phone facing body, 824MHz BST-35 battery
<b>1900 GSM</b>	0.683	0.641	ICE-26 Carry Accessory, front of phone facing body, 1850MHz BST-35 battery



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f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 2:8 Duty Cycle	FCC ID PYAF031011 with Standard Battery BST-35						
			Body Worn (PHF: HPB-20)				Carry Accessory: ICE-26		
			Back of phone facing body		Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambi ent Temp (°C)
800 GSM	128 / 824	<b>32.3</b>	<b>0.951</b>	<b>0.634</b>	<b>-0.09</b>	<b>0.973</b>	<b>0.649</b>	<b>22.8</b>	<b>22.4</b>
	189 / 837	32.4	0.802	0.535	-0.03	0.821	0.547	24.0	22.4
	251 / 849	32.6	0.606	0.403	-0.03	0.620	0.412	24.1	22.3
1900 GSM	512 / 1850	29.9	0.415	0.269	-0.06	0.425	0.275	23.0	22.8
	660/1880	<b>29.7</b>	<b>0.431</b>	<b>0.268</b>	<b>-0.01</b>	<b>0.441</b>	<b>0.274</b>	<b>23.2</b>	<b>22.7</b>
	810/1910	29.4	0.429	0.271	-0.03	0.439	0.277	24.2	22.6
f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  EGPRS 2:8 Duty Cycle	FCC ID PYAF031011 with Standard Battery BST-35						
			Body Worn (PHF: HPB-20)				Carry Accessory: ICE-26		
			Front of phone facing body		Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambi ent Temp (°C)
800 GSM	128 / 824	<b>32.3</b>	<b>0.851</b>	<b>0.581</b>	<b>-0.11</b>	<b>0.871</b>	<b>0.595</b>	<b>22.8</b>	<b>22.4</b>
	189 / 837	32.4	0.639	0.427	-0.03	0.654	0.437	24.0	22.4
	251 / 849	32.6	0.546	0.367	-0.05	0.559	0.376	24.1	22.3
1900 GSM	512 / 1850	<b>29.9</b>	<b>0.667</b>	<b>0.373</b>	<b>-0.03</b>	<b>0.683</b>	<b>0.382</b>	<b>23.0</b>	<b>22.8</b>
	660/1880	29.7	0.488	0.264	0.05	0.499	0.270	23.2	22.7
	810/1910	29.4	0.488	0.626	-0.03	0.499	0.641	24.2	22.6

**Table 5: SAR measurement results for the portable cellular telephone FCC ID PY7AF031011 model Z500A at maximum output power with Standard Battery BST-35. Measured against the body with carry accessory ICE-26.**



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f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 2:8 Duty Cycle	FCC ID PYAF031011 with Optional Battery BST-30						
			Body Worn (PHF: HPB-20)			Carry Accessory: ICE-26			
			Back of phone facing body			Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g	
800 GSM	128 / 824	32.3	<b>0.922</b>	<b>0.617</b>	<b>-0.07</b>	<b>0.943</b>	<b>0.631</b>	<b>23.0</b>	<b>22.8</b>
	189 / 837	32.4	0.703	0.456	-0.05	0.719	0.467	23.0	22.4
	251 / 849	32.6	0.645	0.424	-0.06	0.660	0.434	22.9	22.1
1900 GSM	512 / 1850	29.9	<b>0.462</b>	<b>0.279</b>	<b>-0.02</b>	<b>0.473</b>	<b>0.285</b>	<b>22.6</b>	<b>21.8</b>
	660/1880	29.7	0.445	0.272	-0.03	0.455	0.278	22.4	21.4
	810/1910	29.4	0.402	0.245	0	0.411	0.251	22.3	21.6
f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  EGPRS 2:8 Duty Cycle	FCC ID PYAF031011 with Optional Battery BST-30						
			Body Worn (PHF: HPB-20)			Carry Accessory: ICE-26			
			Front of phone facing body			Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g	
800 GSM	128 / 824	32.3	<b>0.875</b>	<b>0.599</b>	<b>-0.12</b>	<b>0.90</b>	<b>0.613</b>	<b>22.8</b>	<b>23.3</b>
	189 / 837	32.4	0.765	0.51	-0.05	0.783	0.522	23.0	22.4
	251 / 849	32.6	0.566	0.379	-0.05	0.579	0.388	22.9	22.1
1900 GSM	512 / 1850	29.9	<b>0.556</b>	<b>0.318</b>	<b>-0.08</b>	<b>0.569</b>	<b>0.325</b>	<b>22.6</b>	<b>21.8</b>
	660/1880	29.7	0.476	0.268	-0.07	0.487	0.274	22.4	21.4
	810/1910	29.4	0.410	0.235	0.01	0.420	0.240	22.3	21.6

**Table 6: SAR measurement results for the portable cellular telephone FCC ID PY7AF031011 model Z500A at maximum output power with Optional Battery BST-30. Measured against the body with carry accessory ICE-26.**



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f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 2:8 Duty Cycle	FCC ID PYAF031011 with Standard Battery BST-35						
			Body Worn (PHF: HPB-20 )			Carry Accessory: 15mm Spacer			
			Back of phone facing body						
		Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambi ent Temp (°C)	Simulate Temp (°C)		
800 GSM	<b>128 / 824</b>	<b>32.3</b>	<b>0.881</b>	<b>0.581</b>	<b>-0.06</b>	<b>0.902</b>	<b>0.595</b>	<b>24.2</b>	<b>22.8</b>
	189 / 837	32.4	0.657	0.439	0.03	0.672	0.449	24.6	23.0
	251 / 849	32.6	0.535	0.357	-0.02	0.547	0.365	24.2	22.6
1900 GSM	512 / 1850	29.9	0.428	0.265	-0.04	0.438	0.271	22.4	22.3
	660/1880	29.7	0.425	0.26	0.00	0.435	0.266	22.5	21.7
	<b>810/1910</b>	<b>29.4</b>	<b>0.438</b>	<b>0.265</b>	<b>-0.02</b>	<b>0.448</b>	<b>0.271</b>	<b>22.6</b>	<b>21.9</b>
f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  EGPRS 2:8 Duty Cycle	FCC ID PYAF031011 with Standard Battery BST-35						
			Body Worn (PHF: HPB-20 )			Carry Accessory: 15mm Spacer			
			Front of phone facing body						
		Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambi ent Temp (°C)	Simulate Temp (°C)		
800 GSM	<b>128 / 824</b>	<b>32.3</b>	<b>0.409</b>	<b>0.297</b>	<b>-0.06</b>	<b>0.419</b>	<b>0.304</b>	<b>24.2</b>	<b>22.8</b>
	189 / 837	32.4	0.238	0.171	-0.15	0.244	0.175	24.6	23.0
	251 / 849	32.6	0.177	0.127	0.07	0.181	0.130	24.2	22.6
1900 GSM	<b>512 / 1850</b>	<b>29.9</b>	<b>0.219</b>	<b>0.13</b>	<b>0.00</b>	<b>0.224</b>	<b>0.133</b>	<b>22.4</b>	<b>22.3</b>
	660/1880	29.7	0.127	0.0795	0.01	0.130	0.081	22.5	21.7
	810/1910	29.4	0.11	0.0649	-0.03	0.113	0.066	22.6	21.9

**Table 7: SAR measurement results for the portable cellular telephone FCC ID PY7AF031011 model Z500A at maximum output power with Standard Battery BST-35. Measured against the body with 15mm spacer.**



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f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 2:8 Duty Cycle	FCC ID PYAF031011 with Optional Battery BST-30						
			Body Worn (PHF: HPB-20 )			Carry Accessory: 15mm Spacer			
			Back of phone facing body						
		Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambi ent Temp (°C)	Simulate Temp (°C)		
800 GSM	128 / 824	32.3	<b>0.903</b>	<b>0.599</b>	<b>-0.03</b>	<b>0.92</b>	<b>0.613</b>	<b>23.0</b>	<b>22.8</b>
	189 / 837	32.4	0.84	0.555	0.01	0.860	0.568	23.0	22.4
	251 / 849	32.6	0.521	0.338	-0.17	0.533	0.346	22.9	22.1
1900 GSM	512 / 1850	29.9	0.427	0.261	-0.01	0.437	0.267	22.3	21.5
	660/1880	29.7	0.381	0.237	0.01	0.390	0.243	22.4	21.2
	810/1910	29.4	<b>0.427</b>	<b>0.263</b>	<b>-0.01</b>	<b>0.437</b>	<b>0.269</b>	<b>22.5</b>	<b>21.4</b>
f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  EGPRS 2:8 Duty Cycle	FCC ID PYAF031011 with Optional Battery BST-30						
			Body Worn (PHF: HPB-20 )			Carry Accessory: 15mm Spacer			
			Front of phone facing body						
		Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g		Ambi ent Temp (°C)	Simulate Temp (°C)		
800 GSM	128 / 824	32.3	<b>0.324</b>	<b>0.233</b>	<b>-0.13</b>	<b>0.332</b>	<b>0.238</b>	<b>23.0</b>	<b>22.8</b>
	189 / 837	32.4	0.286	0.206	-0.01	0.293	0.211	23.0	22.4
	251 / 849	32.6	0.171	0.118	-0.01	0.175	0.121	22.9	22.1
1900 GSM	512 / 1850	29.9	<b>0.189</b>	<b>0.117</b>	<b>-0.04</b>	<b>0.193</b>	<b>0.120</b>	<b>22.3</b>	<b>21.5</b>
	660/1880	29.7	0.155	0.096	-0.04	0.159	0.098	22.4	21.2
	810/1910	29.4	0.117	0.072	-0.02	0.120	0.073	22.5	21.4

**Table 8: SAR measurement results for the portable cellular telephone FCC ID PY7AF031011 model Z500A at maximum output power with Optional Battery BST-30. Measured against the body with 15mm spacer.**

**References**

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



APPLICANT: Sony Ericsson Mobile Communications Inc.

FCC ID: **PY7AF031011**



**Sony Ericsson**

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**Appendix 1**

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



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**835 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on June 22, 2004 (Using head tissue).**

Phantom: SAM with CRP (Low Band Head) Phantom section: Flat Section  
 Probe: ET3DV6 - SN1586 ConvF(6.62, 6.62, 6.62) Duty Cycle: 1:1 Frequency: 835 MHz  
 Medium parameters used (interpolated):  $f = 835 \text{ MHz}$ ;  $\sigma = 0.892 \text{ mho/m}$ ;  $\epsilon_r = 41.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Measurement Standard: DASY4 (High Precision Assessment)

**Dipole at 10 mm/Area Scan (7x7x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Reference Value = 33.3 V/m; Power Drift = -0.0 dB  
 Maximum value of SAR (measured) = 0.878 mW/g

**Dipole at 10 mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 33.3 V/m; Power Drift = -0.0 dB  
 Maximum value of SAR (measured) = 0.930 mW/g  
 Peak SAR (extrapolated) = 1.28 W/kg

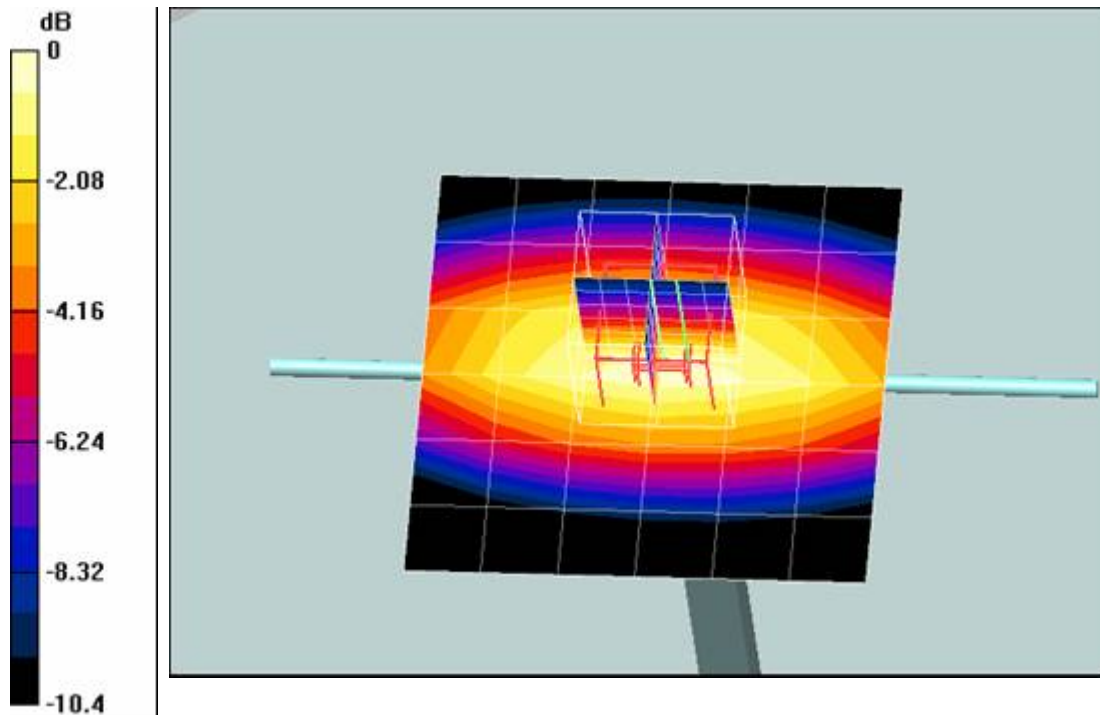
**SAR(1 g) = 0.857 mW/g; SAR(10 g) = 0.559 mW/g**

**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 = 33.3 V/m; Power Drift = -0.0 dB  
 Maximum value of SAR (measured) = 0.935 mW/g  
 Peak SAR (extrapolated) = 1.3 W/kg

**SAR(1 g) = 0.864 mW/g; SAR(10 g) = 0.563 mW/g**

Procedure Notes: Pin: before 99.0 mW / after 99.0 mW  
 Humidity: 44.4 Ambient Temp: 23.5 Simulant Temp: 22.2  
 File Name: Validation\_835Head\_429\_1251\_22June04\_T01.da4



0 dB = 0.935mW/g



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**835 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on July 1, 2004 (Using head tissue).**

Phantom: SAM with CRP (Low Band Head) Phantom section: Flat Section  
 Probe: ET3DV6 - SN1586ConvF(6.62, 6.62, 6.62) Duty Cycle: 1:1 Frequency: 835 MHz  
 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.878 \text{ mho/m}$ ;  $\epsilon_r = 40.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Measurement Standard: DAS4 (High Precision Assessment)

**Dipole at 10 mm/Area Scan (61x61x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Reference Value = 34.1 V/m; Power Drift = -0.1 dB  
 Maximum value of SAR (interpolated) = 0.929 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 = 34.1 V/m; Power Drift = -0.1 dB  
 Maximum value of SAR (measured) = 0.939 mW/g  
 Peak SAR (extrapolated) = 1.29 W/kg

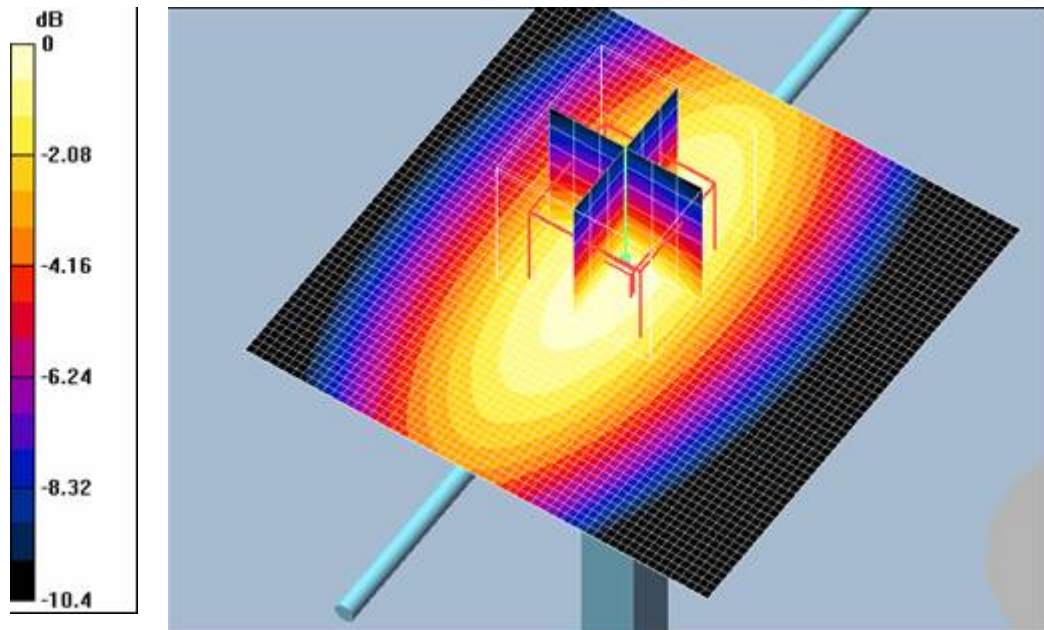
**SAR(1 g) = 0.867 mW/g; SAR(10 g) = 0.567 mW/g**

**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 = 34.1 V/m; Power Drift = -0.1 dB  
 Maximum value of SAR (measured) = 0.954 mW/g  
 Peak SAR (extrapolated) = 1.33 W/kg

**SAR(1 g) = 0.882 mW/g; SAR(10 g) = 0.576 mW/g**

Procedure Notes: Pin: before 101.6 mW / after 101.6 mW Humidity: 54.1 % Ambient Temp: 21.5 C  
 Simulant Temp: 23.1 C

File Name: Validation\_835Head\_429\_1251\_01July04\_T01.da4



0 dB = 0.954mW/g



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**835 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on July 28, 2004 (Using head tissue).**

**Validation\_835Head\_429\_1251\_28July04\_T01**

File Name: [Validation\\_835Head\\_429\\_1251\\_28July04\\_T01.da4](#)

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

Probe: ET3DV6 - SN1538ConvF(6.27, 6.27, 6.27) Duty Cycle: 1:1 Frequency: 835 MHz

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.894 \text{ mho/m}$ ;  $\epsilon_r = 42$ ;  $\rho = 1000 \text{ kg/m}^3$

Measurement Standard: DASY4 (High Precision Assessment)

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

Reference Value = 34.4 V/m; Power Drift = -0.0 dB

Maximum value of SAR (interpolated) = 0.963 mW/g

**Dipole at 10 mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

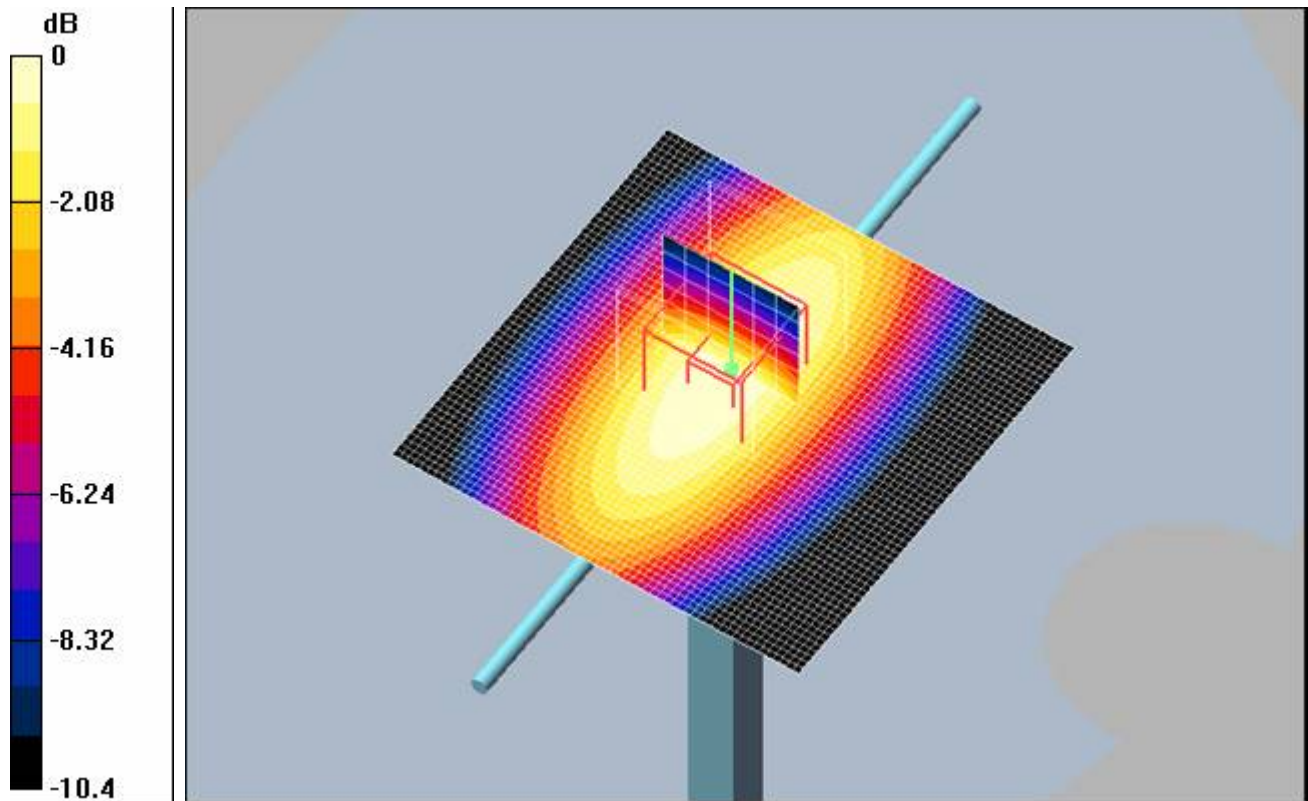
Reference Value = 34.4 V/m; Power Drift = -0.0 dB

Maximum value of SAR (measured) = 0.970 mW/g

Peak SAR (extrapolated) = 1.32 W/kg

**SAR(1 g) = 0.899 mW/g; SAR(10 g) = 0.587 mW/g**

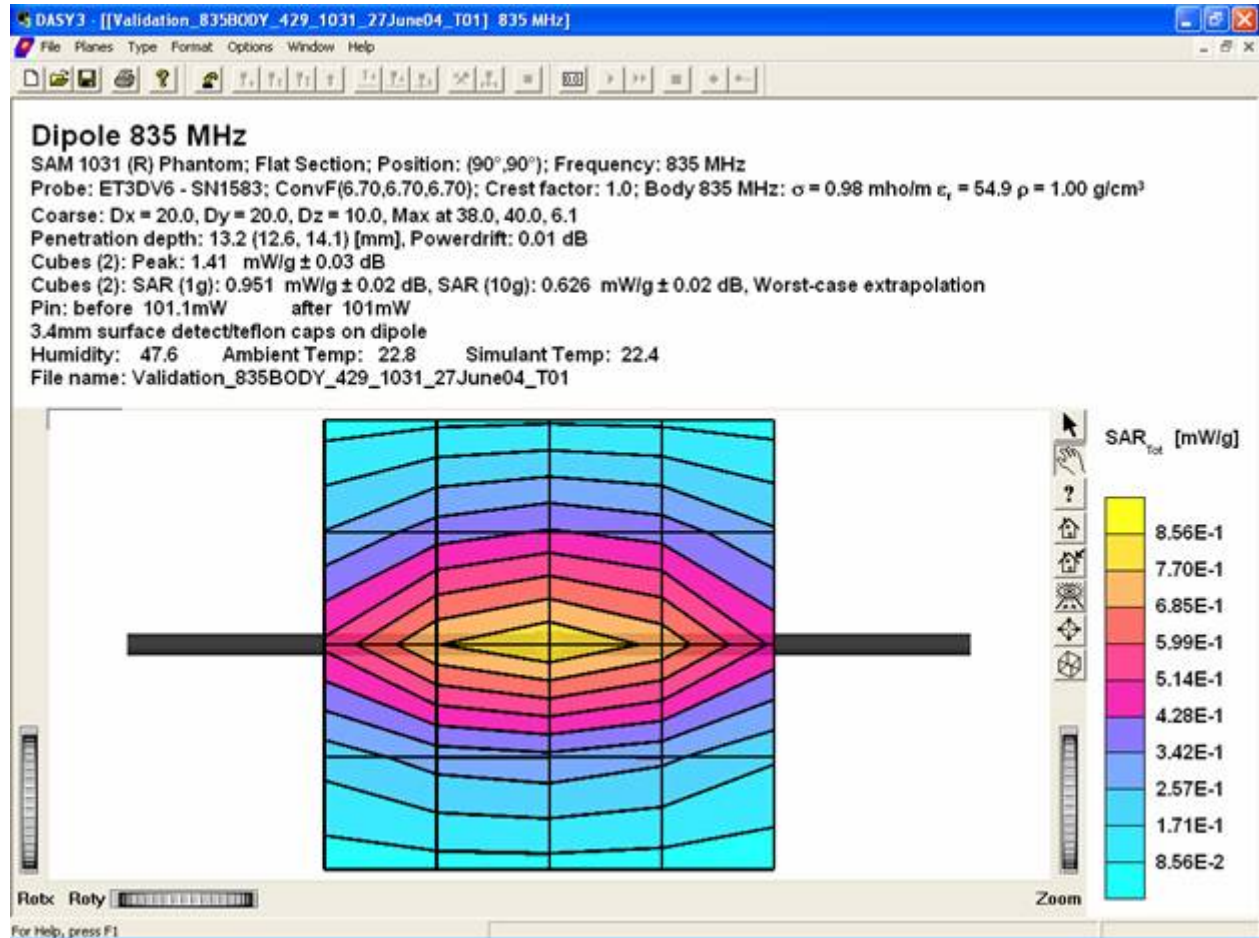
Procedure Notes: Battery BST-30 Humidity: 51.3 % Ambient Temp: 23.1 C Simulant Temp: 22.5 Pin: before -100.0 mW after - 100.5 mW



0 dB = 0.970mW/g



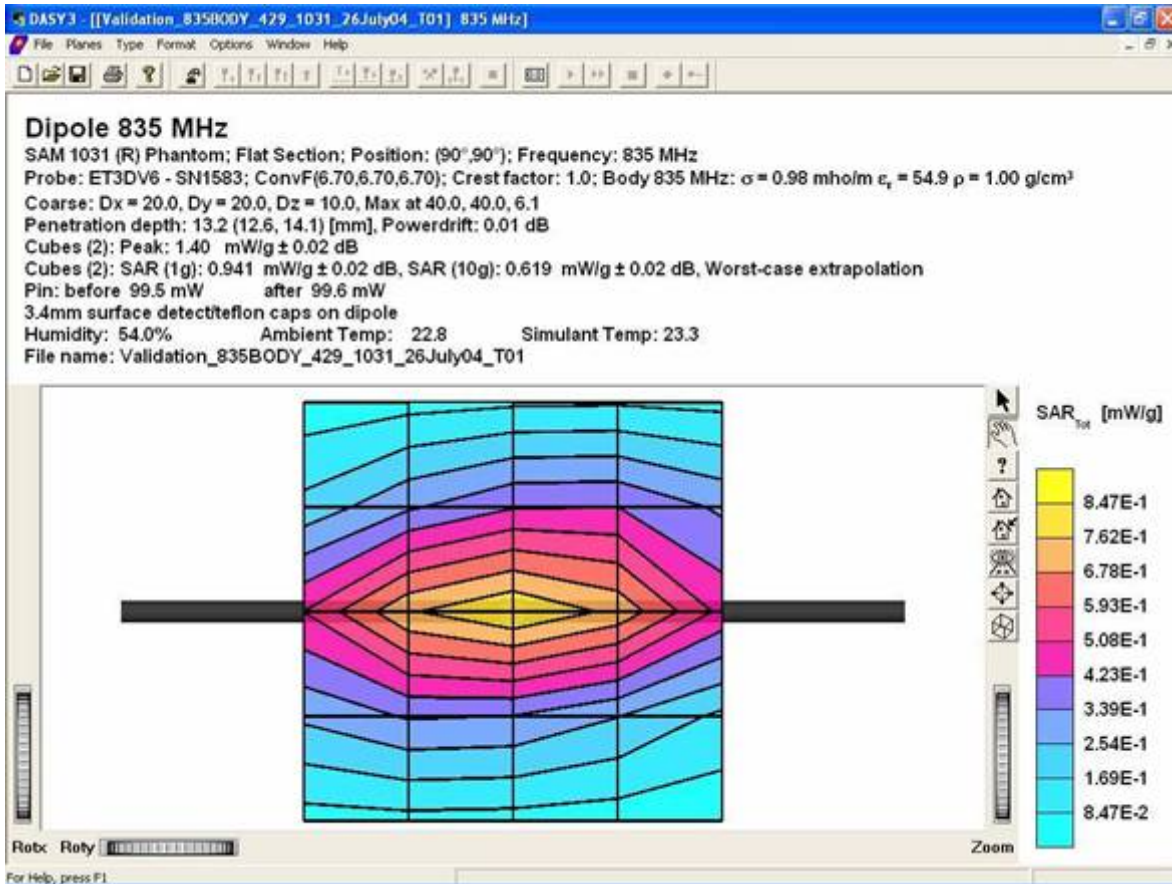
Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
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**835 MHz SAR distribution of validation dipole antenna from system performance check on June 27, 2004 (Using muscle/body tissue).**



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**835 MHz SAR distribution of validation dipole antenna from system performance check on July 26, 2004 (Using muscle/body tissue).**



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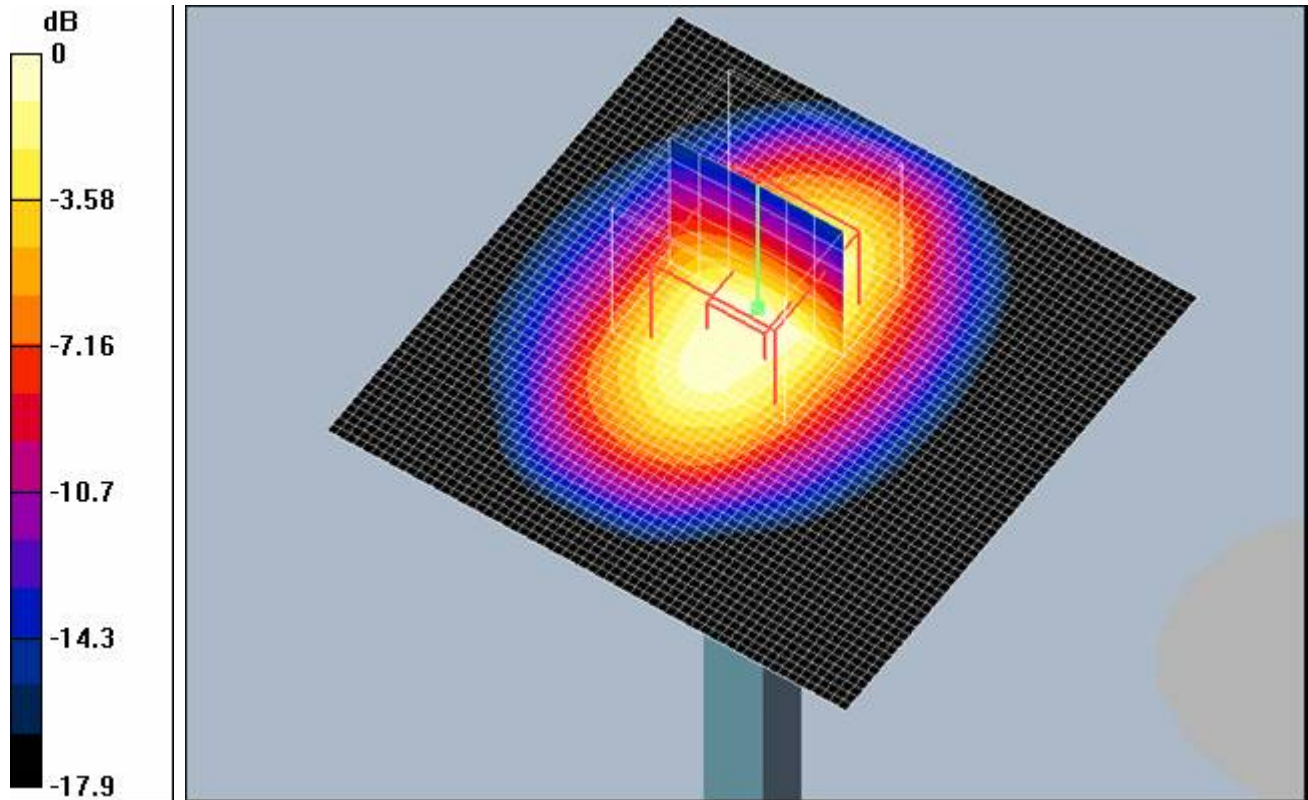
**1900 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on June 21, 2004 (Using head tissue).**

Phantom: SAM with CRP (High Band Head) Phantom section: Flat Section  
 Probe: ET3DV6 - SN1586ConvF(5.14, 5.14, 5.14) Duty Cycle: 1:1 Frequency: 1900 MHz  
 Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.45 \text{ mho/m}$ ;  $\epsilon_r = 39.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Measurement Standard: DASY4 (High Precision Assessment)

**Dipole at 10 mm/Area Scan (61x61x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Reference Value = 57.7 V/m; Power Drift = 0.008 dB  
 Maximum value of SAR (interpolated) = 4.81 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 = 57.7 V/m; Power Drift = 0.008 dB  
 Maximum value of SAR (measured) = 4.29 mW/g  
 Peak SAR (extrapolated) = 6.73 W/kg

**SAR(1 g) = 3.81 mW/g; SAR(10 g) = 1.99 mW/g**  
 Procedure Notes: Pin: before 99.4 mW / after 100.1 mW Humidity: 45.1% Ambient Temp: 22.6 C  
 Simulant Temp: 21.9 C  
 File Name: Validation\_1900Head\_536\_1054\_21June04\_T01.da4



0 dB = 4.29mW/g





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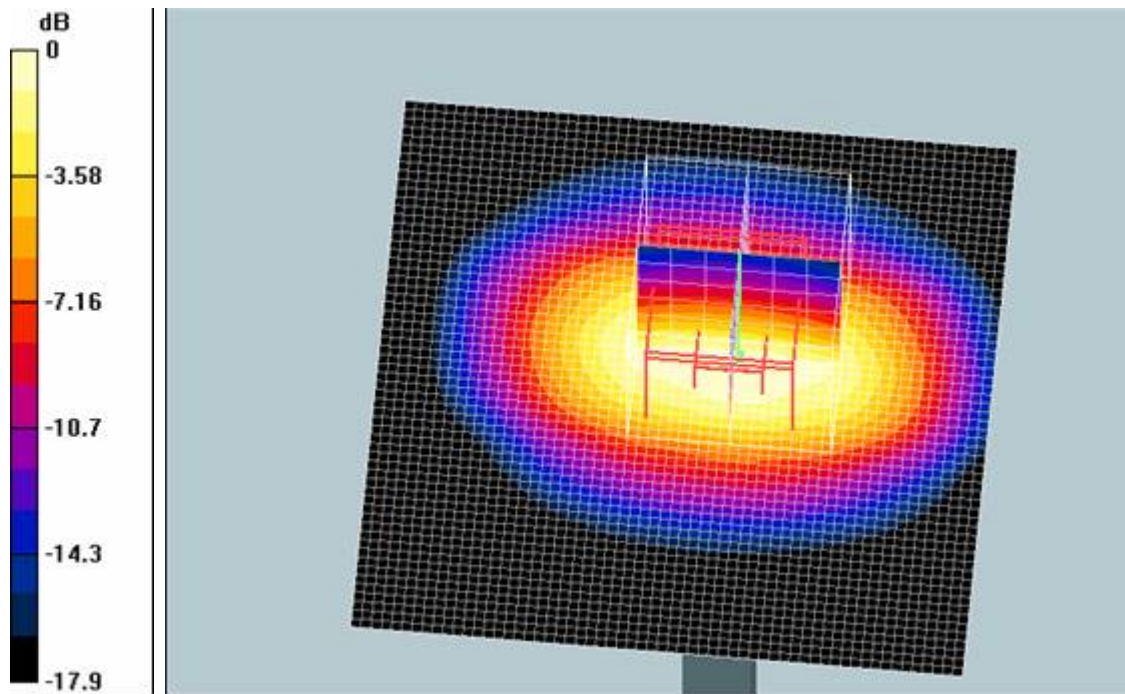
**1900 MHz SAR Distribution of Validation Dipole Antenna System Performance Check on July 22, 2004 (Using head tissue).**

File Name: Validation\_1900Head\_536\_1054\_22July04\_T01.da4  
 Phantom: SAM with CRP (High Band Head)Phantom section: Flat Section  
 Probe: ET3DV6 - SN1538ConvF(4.95, 4.95, 4.95)Duty Cycle: 1:1Frequency: 1900 MHz  
 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.43$  mho/m;  $\epsilon_r = 38.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Measurement Standard: DASY4 (High Precision Assessment)

**Dipole at 10 mm/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm  
 Reference Value = 59.6 V/m; Power Drift = 0.0 dB  
 Maximum value of SAR (interpolated) = 5.05 mW/g

**Dipole at 10 mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 59.6 V/m; Power Drift = 0.0 dB  
 Maximum value of SAR (measured) = 4.52 mW/g  
 Peak SAR (extrapolated) = 6.98 W/kg  
**SAR(1 g) = 3.98 mW/g; SAR(10 g) = 2.08 mW/g**

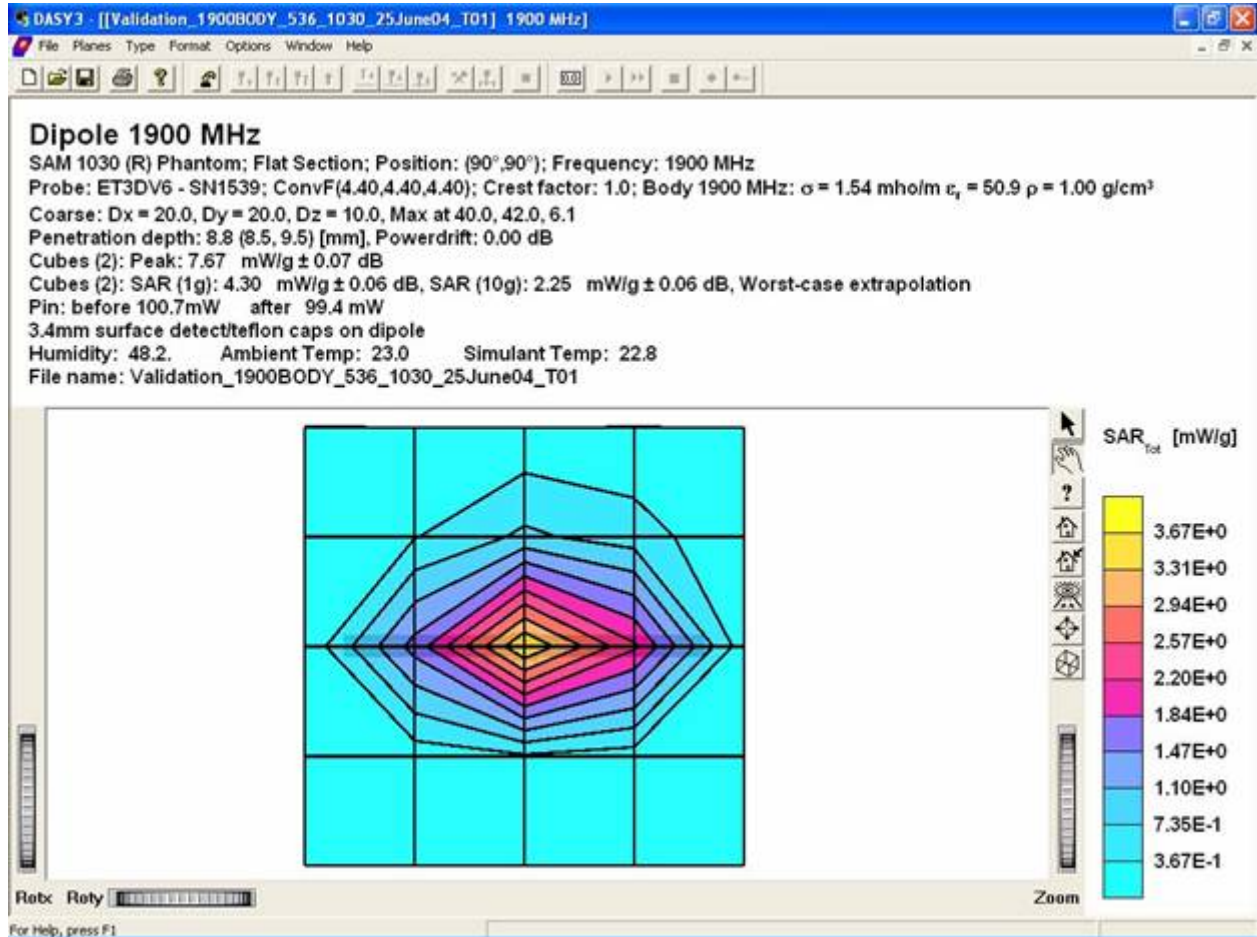
**Dipole at 10 mm/Zoom Scan 2 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 59.6 V/m; Power Drift = 0.0 dB  
 Maximum value of SAR (measured) = 4.58 mW/g  
 Peak SAR (extrapolated) = 7.19 W/kg  
**SAR(1 g) = 4.07 mW/g; SAR(10 g) = 2.13 mW/g**  
 Procedure Notes: Pin: before 99.0 mW / after 99.6mW Humidity: 42.8% Ambient Temp: 23 C Simulant Temp: 22.3 C



0 dB = 4.58mW/g



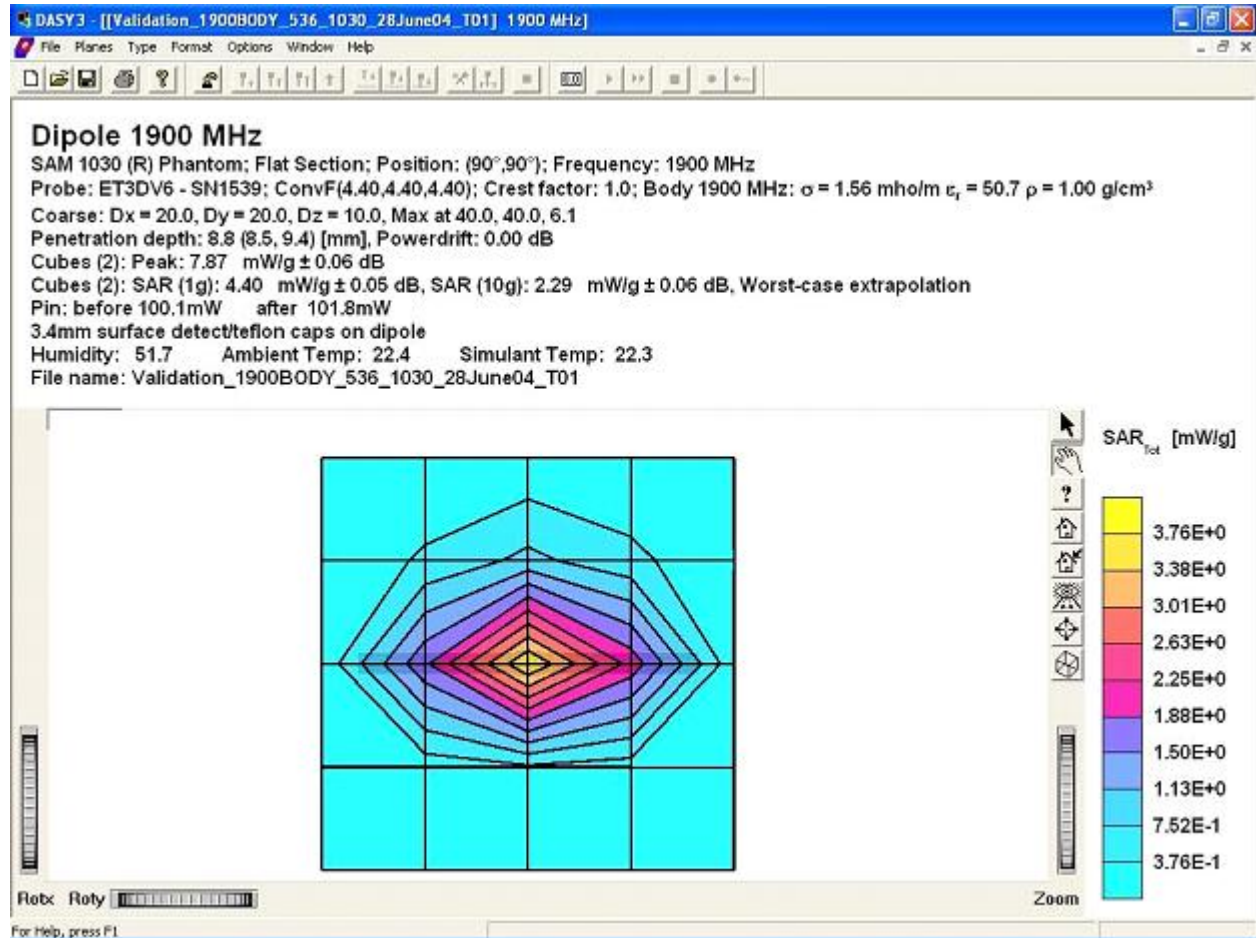
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**1900 MHz SAR distribution of validation dipole antenna from system performance check on June 25, 2004 (Using muscle/body tissue).**



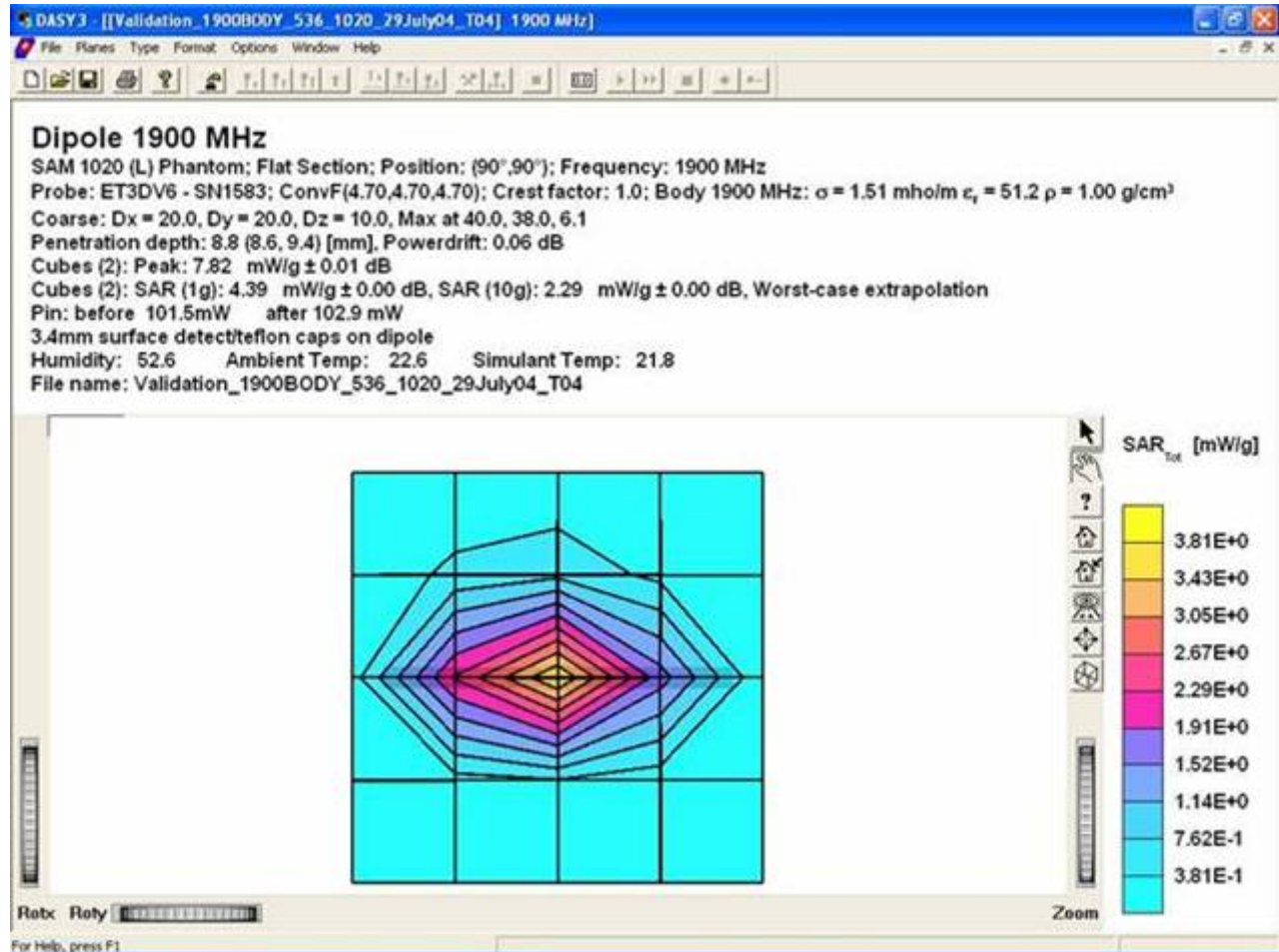
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**1900 MHz SAR distribution of validation dipole antenna from system performance check on June 28, 2004 (Using muscle/body tissue).**



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1900 MHz SAR distribution of validation dipole antenna from system performance check on July 29, 2004 (Using muscle/body tissue).



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## Appendix 2

### SAR distribution plots for Phantom Head Adjacent Use



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**800 GSM Band: SAR Distribution and Extrapolation of Maximum SAR**  
**Model: Z500A SN: BD3017AYMN with Standard Battery: BST-35**  
**Right Side, Cheek/Touch Position.**

Date/Time: 06/22/04 10:18:54  
 File Name: 22June04\_Z500a\_GSM850\_AYMN\_RC01.da4  
 Program Notes: Battery BST-35 Humidity: 44.4 Ambient Temp: 23.5 Simulant Temp: 22.2  
 Communication System: GSM 850; Frequency: 824 MHz; Duty Cycle: 1:8.3  
 Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz;  $\sigma = 0.872$  mho/m;  $\epsilon_r = 41.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Right Section  
 DASY4 Configuration:  
 - Probe: ET3DV6 - SN1586; ConvF(6.62, 6.62, 6.62); Calibrated: 5/27/2004  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn432; Calibrated: 5/24/2004  
 - Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251  
 - Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 11.3 V/m; Power Drift = -0.1 dB  
 Maximum value of SAR (interpolated) = 1.28 mW/g

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.3 V/m; Power Drift = -0.1 dB  
 Maximum value of SAR (measured) = 1.3 mW/g  
 Peak SAR (extrapolated) = 1.82 W/kg

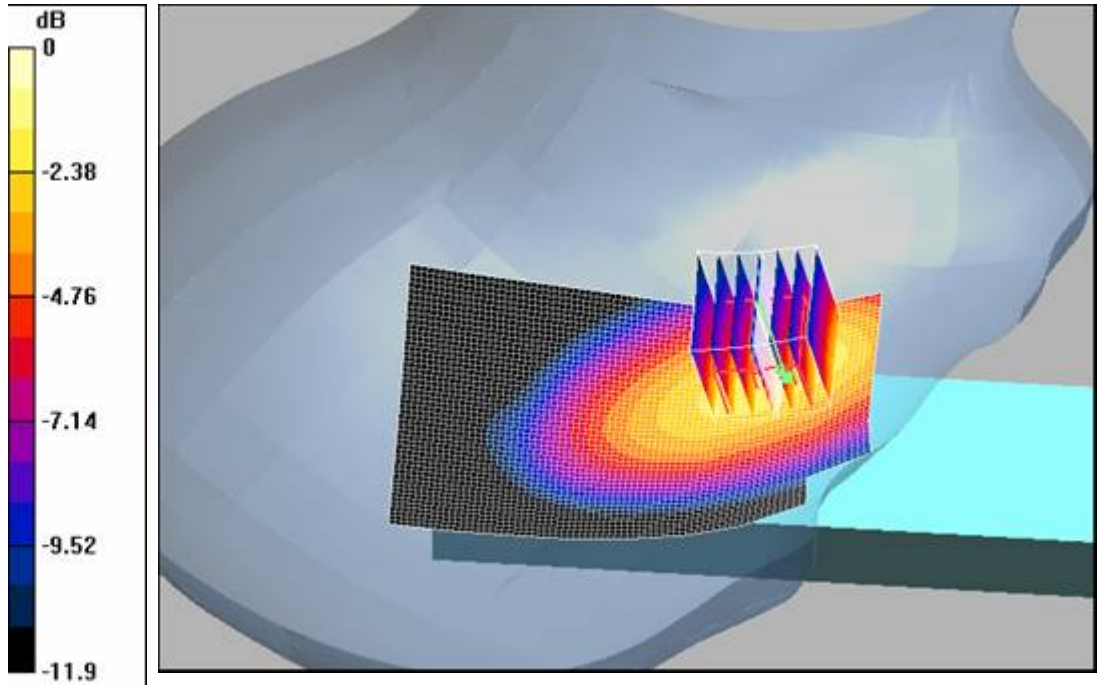
**SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.816 mW/g**

**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

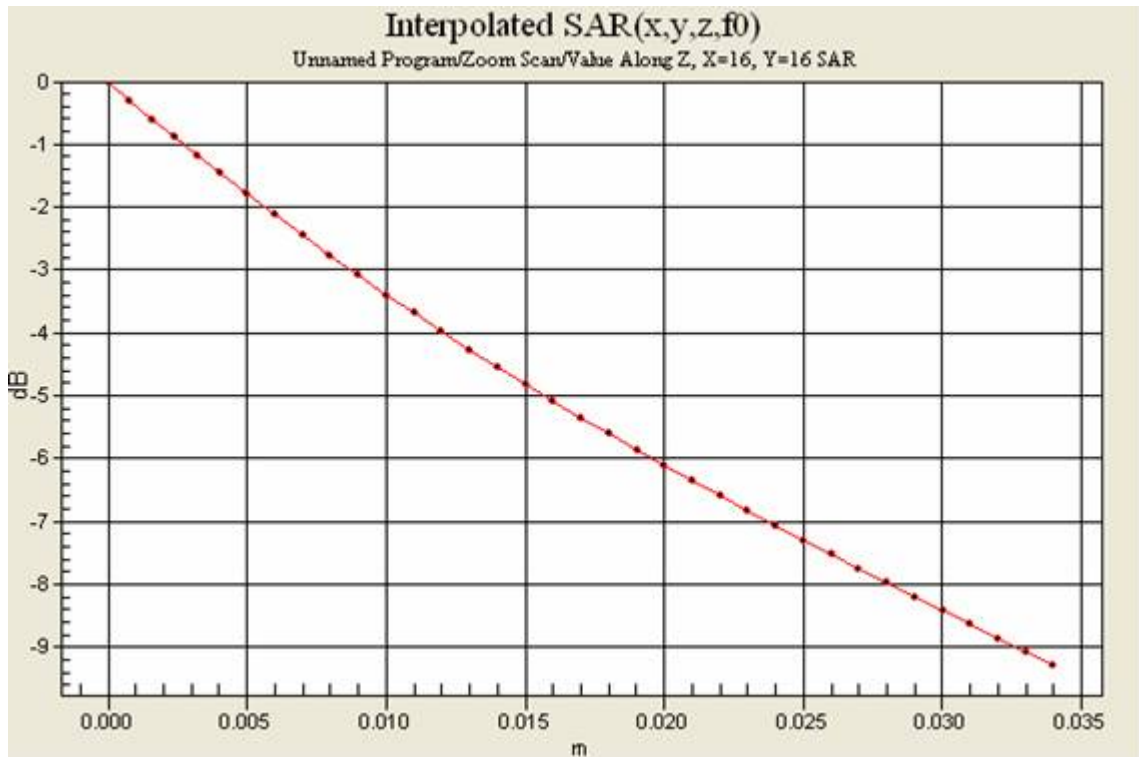
Reference Value = 11.3 V/m; Power Drift = -0.1 dB  
 Maximum value of SAR (interpolated) = 1.82 mW/g



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0 dB = 1.82mW/g





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**800 GSM Band: Distribution and Extrapolation of Maximum SAR**

**Model: Z500A SN: BD3017AYMN with Standard Battery: BST-35**

**Right Side, Tilt Position.**

Date/Time: 06/22/04 11:38:27

File Name: [22June04\\_Z500a\\_GSM850\\_AYMN\\_RT01.da4](#)

Program Notes: Battery BST-35 Humidity: 46.8 Ambient Temp: 24.7 Simulant Temp: 22.8

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

Medium: Head 835/900 MHz Medium parameters used (interpolated):  $f = 849 \text{ MHz}$ ;  $\sigma = 0.895 \text{ mho/m}$ ;  $\epsilon_r = 40.8$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1586; ConvF(6.62, 6.62, 6.62); Calibrated: 5/27/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 5/24/2004
- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

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

Reference Value = 12.7 V/m; Power Drift = 0.0 dB

Maximum value of SAR (interpolated) = 0.350 mW/g

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

Reference Value = 12.7 V/m; Power Drift = 0.0 dB

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

Peak SAR (extrapolated) = 0.411 W/kg

**SAR(1 g) = 0.324 mW/g; SAR(10 g) = 0.241 mW/g**

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

Reference Value = 12.7 V/m; Power Drift = 0.0 dB

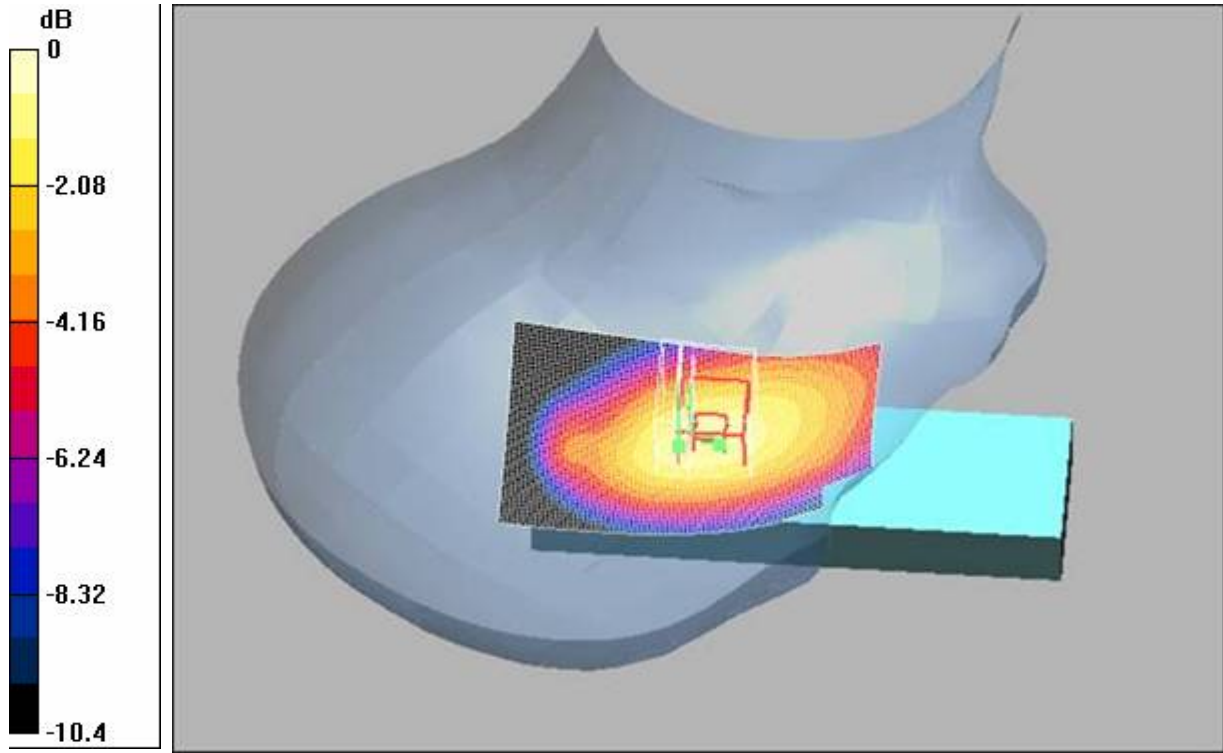
Maximum value of SAR (interpolated) = 0.411 mW/g



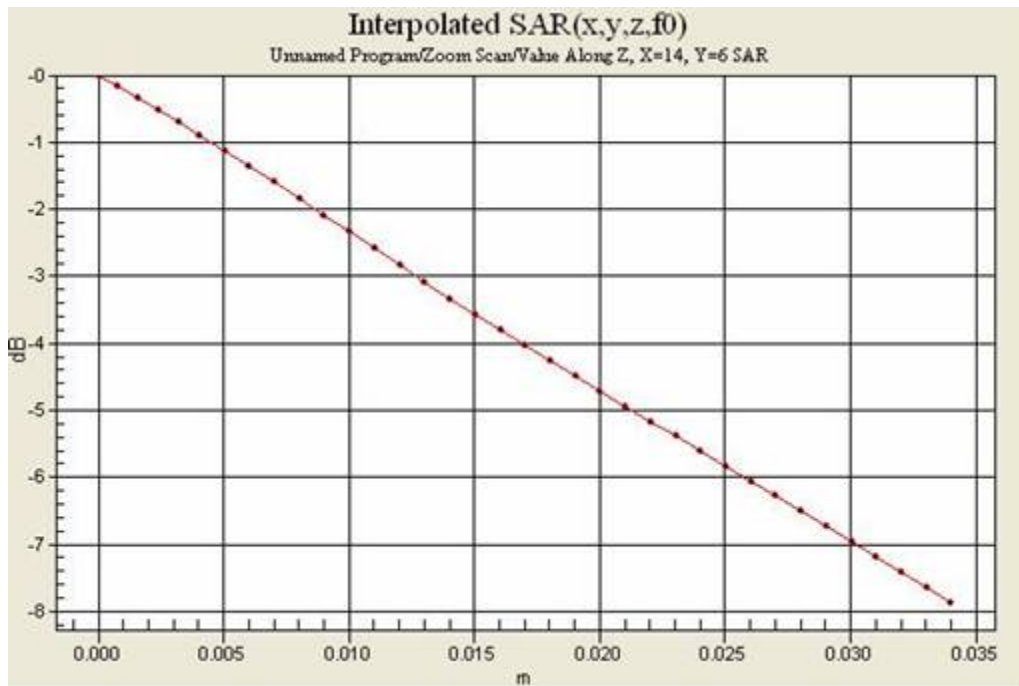


REPORT

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0 dB = 0.411mW/g





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**800 GSM Band: Distribution and Extrapolation of Maximum SAR**

**Model: Z500A SN: BD3017AYMN with Standard Battery: BST-35**

**Left Side, Cheek/Touch Position.**

Date/Time: 06/22/04 14:58:15

File Name: 22June04\_Z500a\_GSM850\_AYMN\_LC01.da4

Program Notes: Battery BST-35 Humidity: 55.1 Ambient Temp: 23.7 Simulant Temp: 22.5

Communication System: GSM 850; Frequency: 824 MHz; Duty Cycle: 1:8.3

Medium: Head 835/900 MHz Medium parameters used (interpolated):  $f = 824 \text{ MHz}$ ;  $\sigma = 0.872 \text{ mho/m}$ ;  $\epsilon_r = 41.1$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1586; ConvF(6.62, 6.62, 6.62); Calibrated: 5/27/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 5/24/2004
- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 10.3 V/m; Power Drift = -0.0 dB

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

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.3 V/m; Power Drift = -0.0 dB

Maximum value of SAR (measured) = 1.05 mW/g

Peak SAR (extrapolated) = 1.37 W/kg

**SAR(1 g) = 0.981 mW/g; SAR(10 g) = 0.694 mW/g**

**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

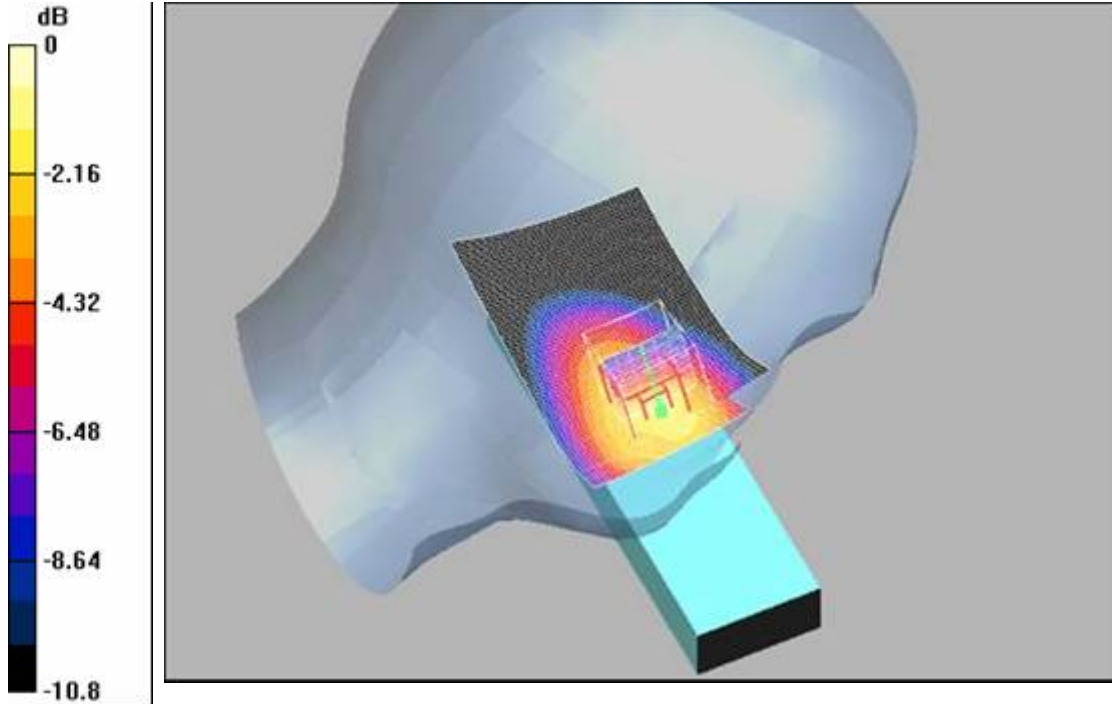
Reference Value = 10.3 V/m; Power Drift = -0.0 dB

Maximum value of SAR (interpolated) = 1.37 mW/g

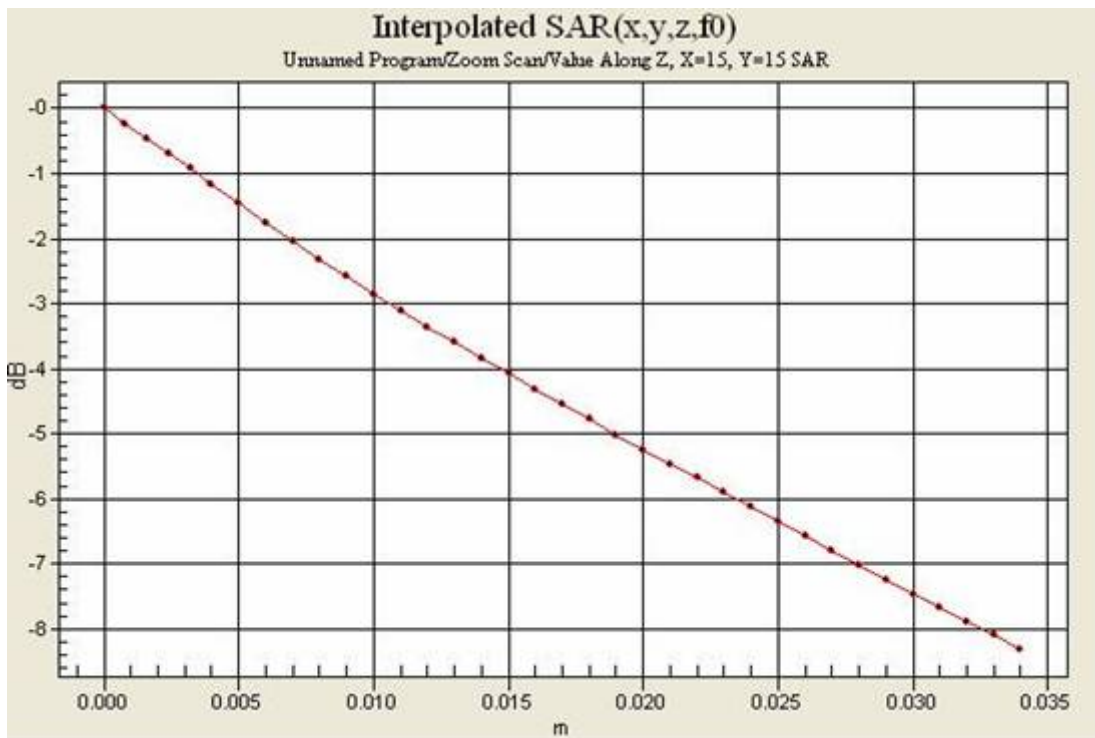


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0 dB = 1.37mW/g





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**800 GSM Band: Distribution and Extrapolation of Maximum SAR**

**Model: Z500A SN: BD3017AYMN with Standard Battery: BST-35**

**Left Side, Tilt Position.**

Date/Time: 06/22/04 13:05:06

File Name: 22June04\_Z500a\_GSM850\_AYMN\_LT01.da4

Program Notes: Battery BST-35 Humidity: 46.6 Ambient Temp: 24.4 Simulant Temp: 22.6

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

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 849 MHz;  $\sigma = 0.895$  mho/m;  $\epsilon_r = 40.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1586; ConvF(6.62, 6.62, 6.62); Calibrated: 5/27/2004

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

- Electronics: DAE3 Sn432; Calibrated: 5/24/2004

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

- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 12.4 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 0.359 mW/g

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.4 V/m; Power Drift = -0.1 dB

Maximum value of SAR (measured) = 0.356 mW/g

Peak SAR (extrapolated) = 0.424 W/kg

**SAR(1 g) = 0.338 mW/g; SAR(10 g) = 0.253 mW/g**

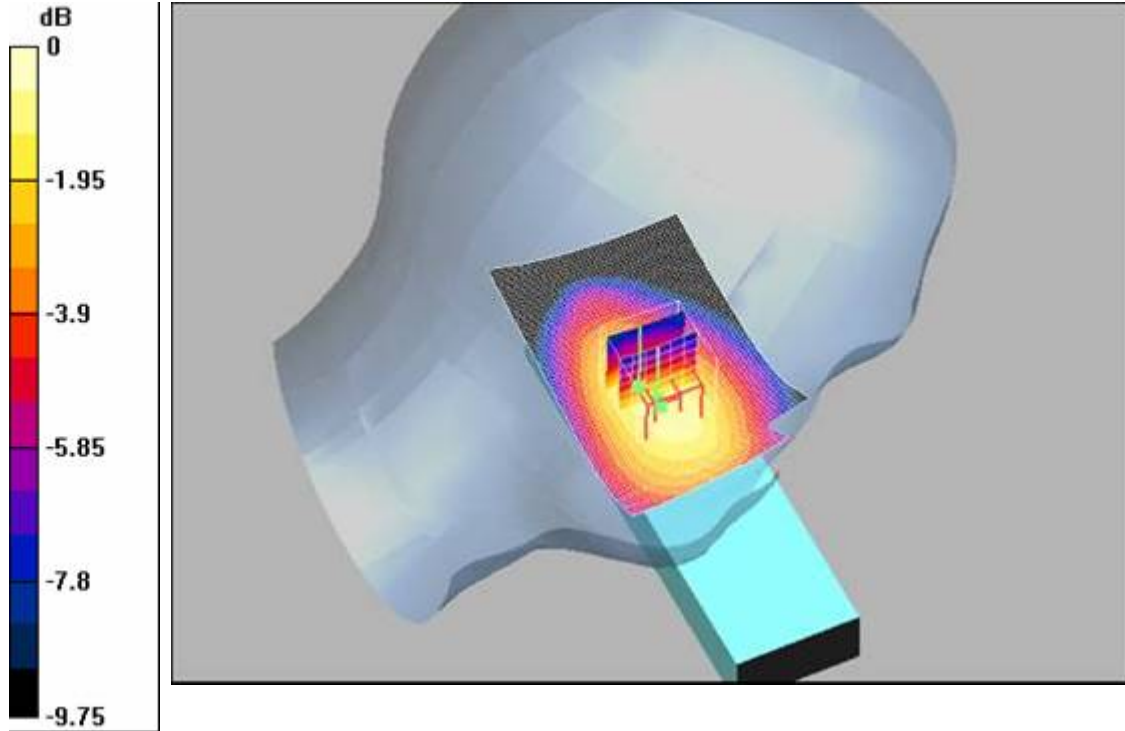
**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.4 V/m; Power Drift = -0.1 dB

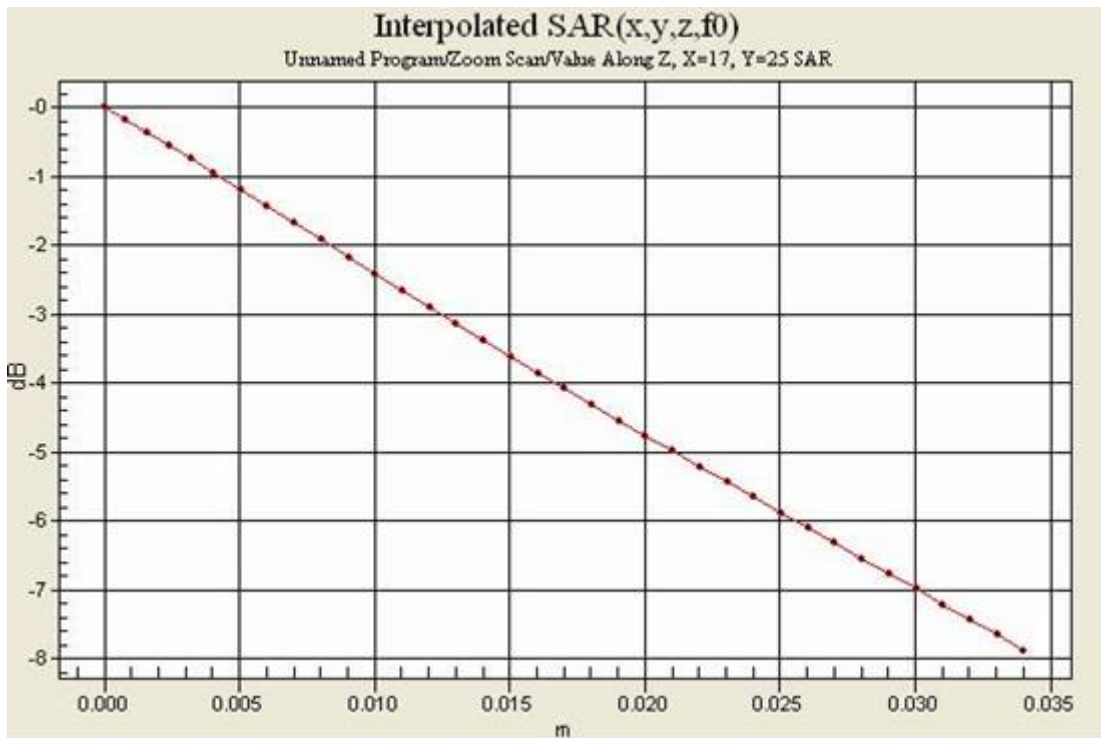
Maximum value of SAR (interpolated) = 0.424 mW/g



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0 dB = 0.424mW/g





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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR**  
**Model: Z500A SN: BD3017AYMN with Standard Battery: BST-35**  
**Right Side, Cheek/Touch Position.**

Date/Time: 06/21/04 12:47:55  
 File Name: 21June04\_Z500a\_GSM1900\_AYMN\_RC01.da4  
 Program Notes: Battery BST-35 Humidity: 41.9 Ambient Temp: 22.5 Simulant Temp: 21.7  
 Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
 Medium: Head 1800/1900 MHz Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.37 \text{ mho/m}$ ;  $\epsilon_r = 39.9$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section  
 DASY4 Configuration:  
 - Probe: ET3DV6 - SN1586; ConvF(5.14, 5.14, 5.14); Calibrated: 5/27/2004  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn432; Calibrated: 5/24/2004  
 - Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054  
 - Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 26.2 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 1.3 mW/g

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.2 V/m; Power Drift = -0.1 dB

Maximum value of SAR (measured) = 1.47 mW/g

Peak SAR (extrapolated) = 2.2 W/kg

**SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.673 mW/g**

**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

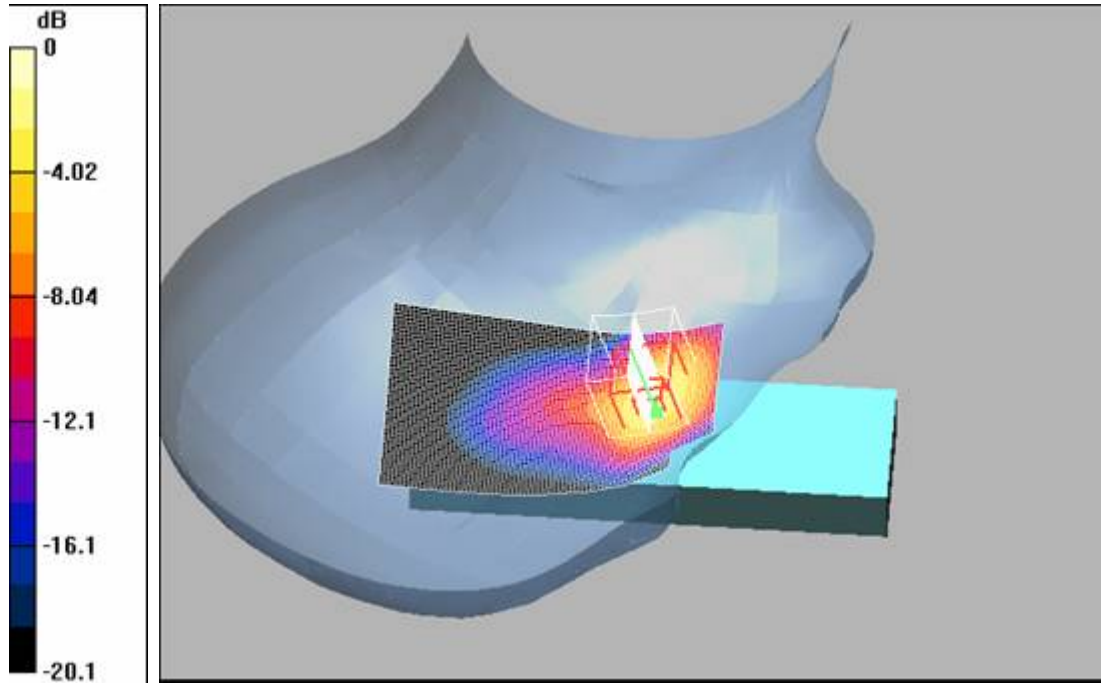
Reference Value = 26.2 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 2.2 mW/g

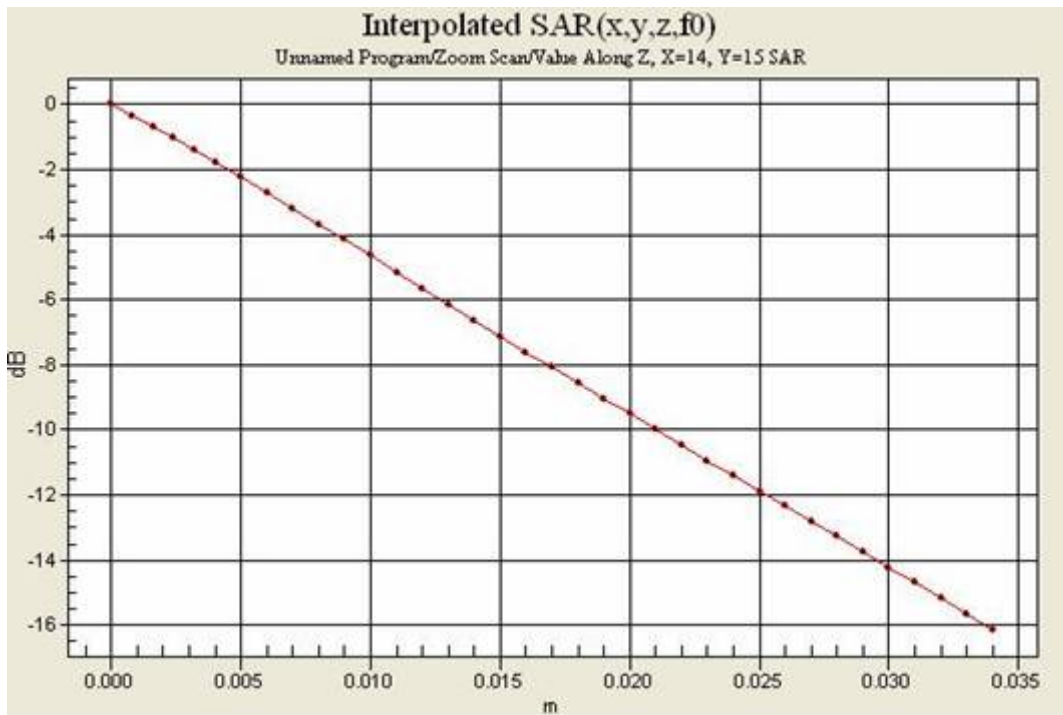


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0 dB = 2.2mW/g





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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR**  
**Model: Z500A SN: BD3017AYMN with Standard Battery: BST-35**  
**Right Side, Tilt Position.**

Date/Time: 06/21/04 11:32:29  
 File Name: 21June04\_Z500a\_GSM1900\_AYMN\_RT01.da4  
 Program Notes: Battery BST-35 Humidity: 40.9 Ambient Temp: 23.6 Simulant Temp: 21.8  
 Communication System: DCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
 Medium: Head 1800/1900 MHz Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 39.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section  
 DASY4 Configuration:  
 - Probe: ET3DV6 - SN1586; ConvF(5.14, 5.14, 5.14); Calibrated: 5/27/2004  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn432; Calibrated: 5/24/2004  
 - Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054  
 - Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm  
 Reference Value = 9.63 V/m; Power Drift = -0.0 dB  
 Maximum value of SAR (interpolated) = 0.221 mW/g

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 9.63 V/m; Power Drift = -0.0 dB  
 Maximum value of SAR (measured) = 0.224 mW/g  
 Peak SAR (extrapolated) = 0.302 W/kg

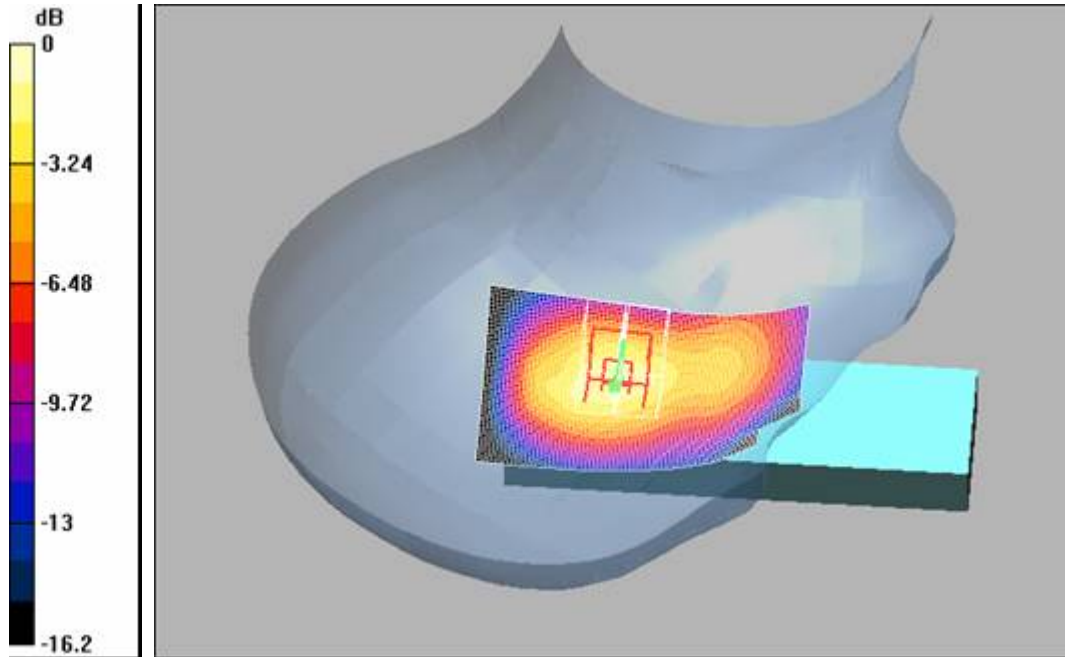
**SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.129 mW/g**

**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 9.63 V/m; Power Drift = -0.0 dB  
 Maximum value of SAR (interpolated) = 0.302 mW/g

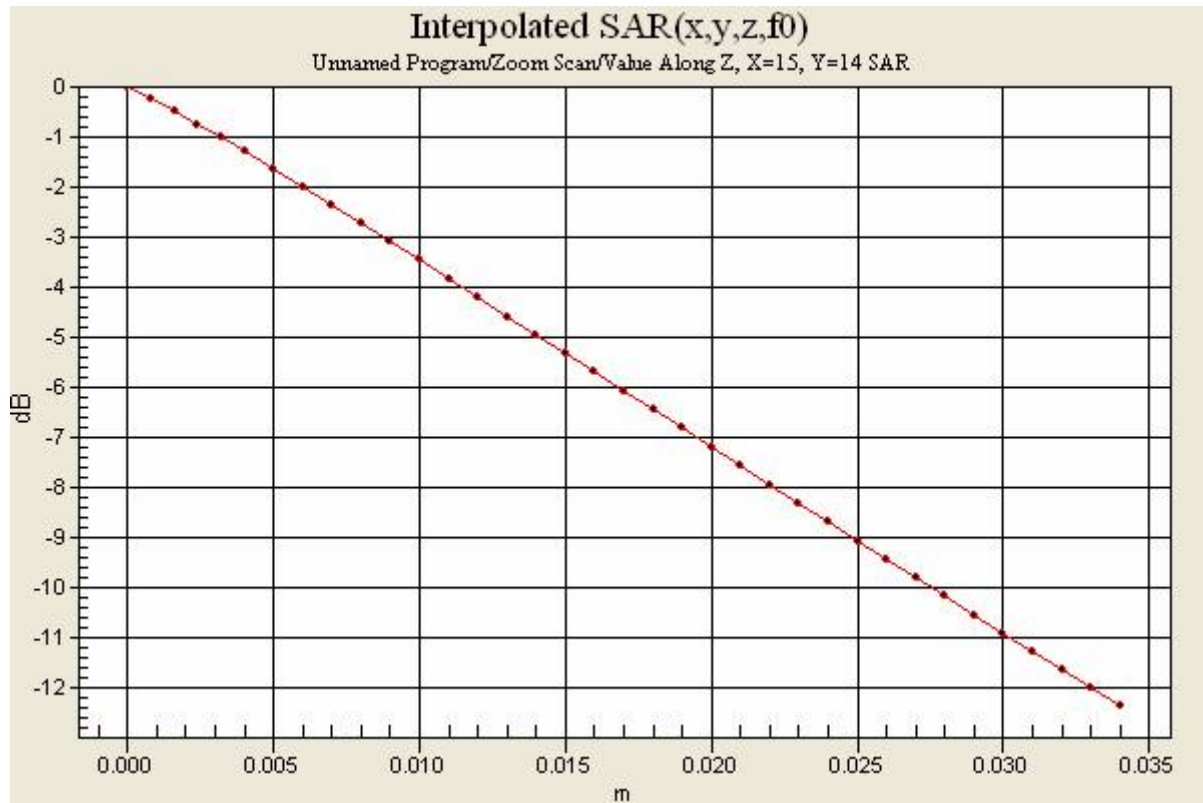




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0 dB = 0.302mW/g





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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR**  
**Model: Z500A SN: BD3017AYMN with Standard Battery: BST-35**  
**Left Side, Cheek/Touch Position.**

Date/Time: 06/21/04 08:41:22  
 File Name: 21June04\_Z500a\_GSM1900\_AYMN\_LC01.da4  
 Program Notes: Battery BST-35 Humidity: 43.9 Ambient Temp: 23.5 Simulant Temp: 21.7  
 Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
 Medium: Head 1800/1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz;  $\sigma = 1.37$  mho/m;  $\epsilon_r = 39.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Left Section  
 DASY4 Configuration:  
 - Probe: ET3DV6 - SN1586; ConvF(5.14, 5.14, 5.14); Calibrated: 5/27/2004  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn432; Calibrated: 5/24/2004  
 - Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054  
 - Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 27.4 V/m; Power Drift = -0.1 dB  
 Maximum value of SAR (interpolated) = 1.42 mW/g

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 27.4 V/m; Power Drift = -0.1 dB  
 Maximum value of SAR (measured) = 1.62 mW/g  
 Peak SAR (extrapolated) = 2.5 W/kg

**SAR(1 g) = 1.42 mW/g; SAR(10 g) = 0.713 mW/g**

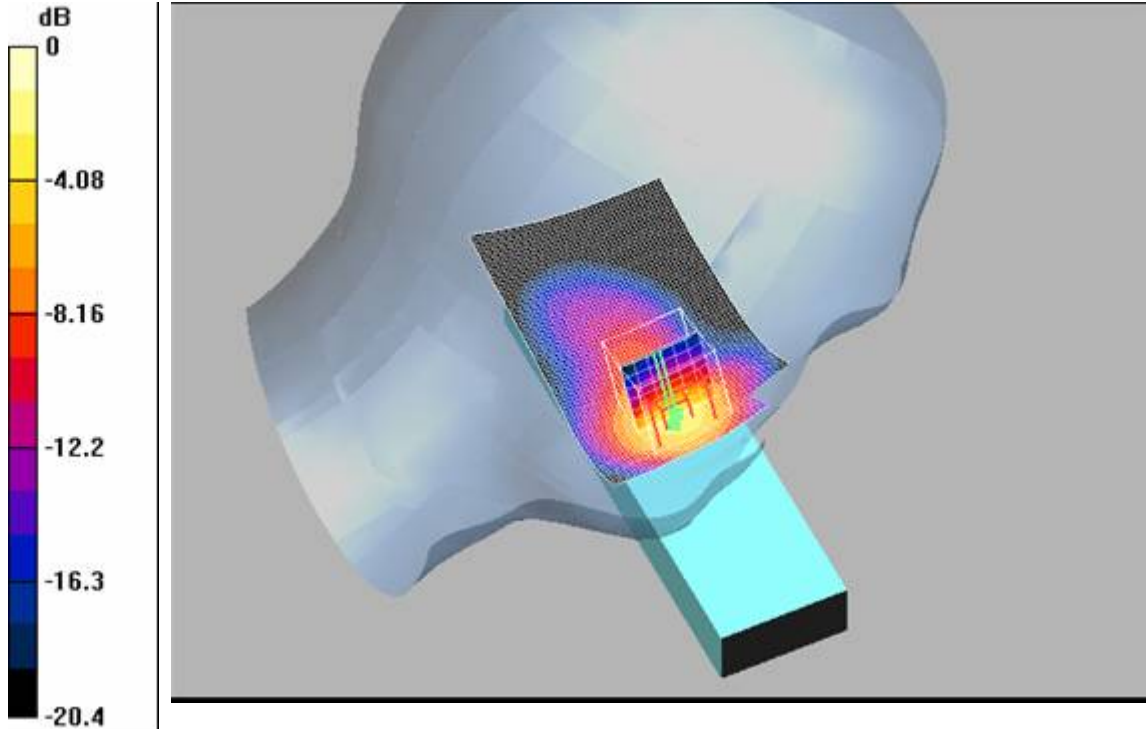
**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 27.4 V/m; Power Drift = -0.1 dB  
 Maximum value of SAR (interpolated) = 2.5 mW/g

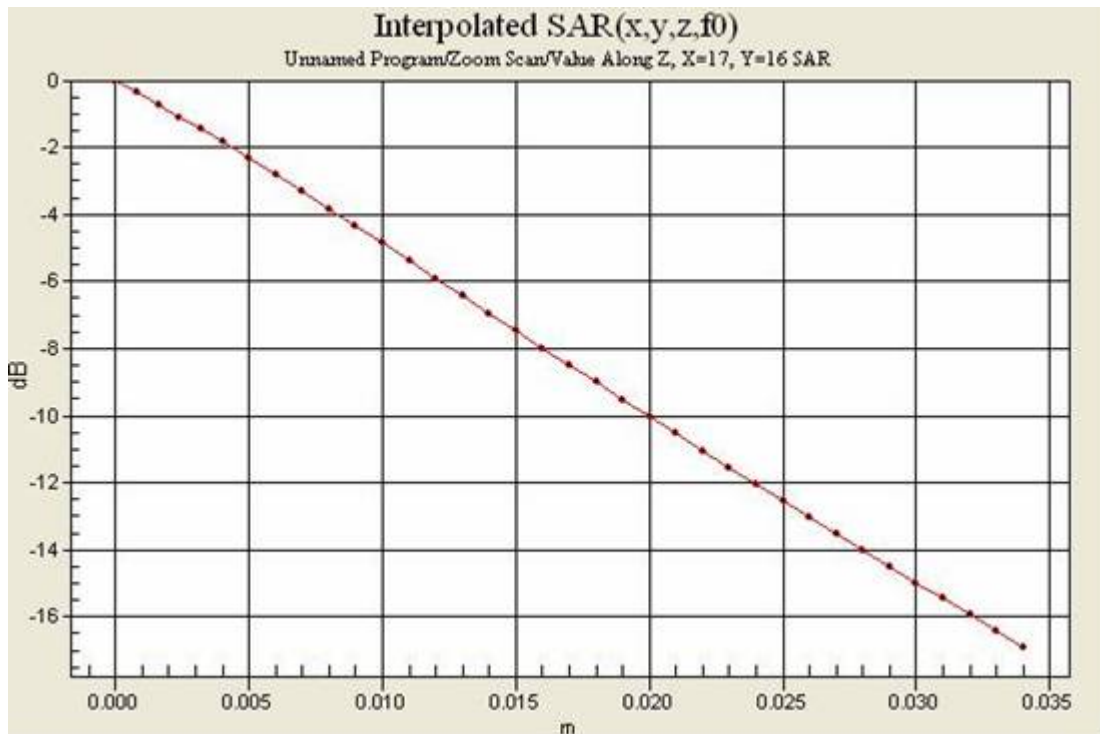


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0 dB = 2.5mW/g





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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR**  
**Model: Z500A SN: BD3017AYMN with Standard Battery: BST-35**  
**Left Side, Tilt Position.**

Date/Time: 06/21/04 09:58:13  
 File Name: 21June04\_Z500a\_GSM1900\_AYMN\_LT01.da4  
 Program Notes: Battery BST-35 Humidity: 43.6 Ambient Temp: 23.1 Simulant Temp: 21.9  
 Communication System: DCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
 Medium: Head 1800/1900 MHz Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 39.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Left Section  
 DASY4 Configuration:  
 - Probe: ET3DV6 - SN1586; ConvF(5.14, 5.14, 5.14); Calibrated: 5/27/2004  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn432; Calibrated: 5/24/2004  
 - Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054  
 - Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm  
 Reference Value = 9.27 V/m; Power Drift = -0.0 dB  
 Maximum value of SAR (interpolated) = 0.235 mW/g

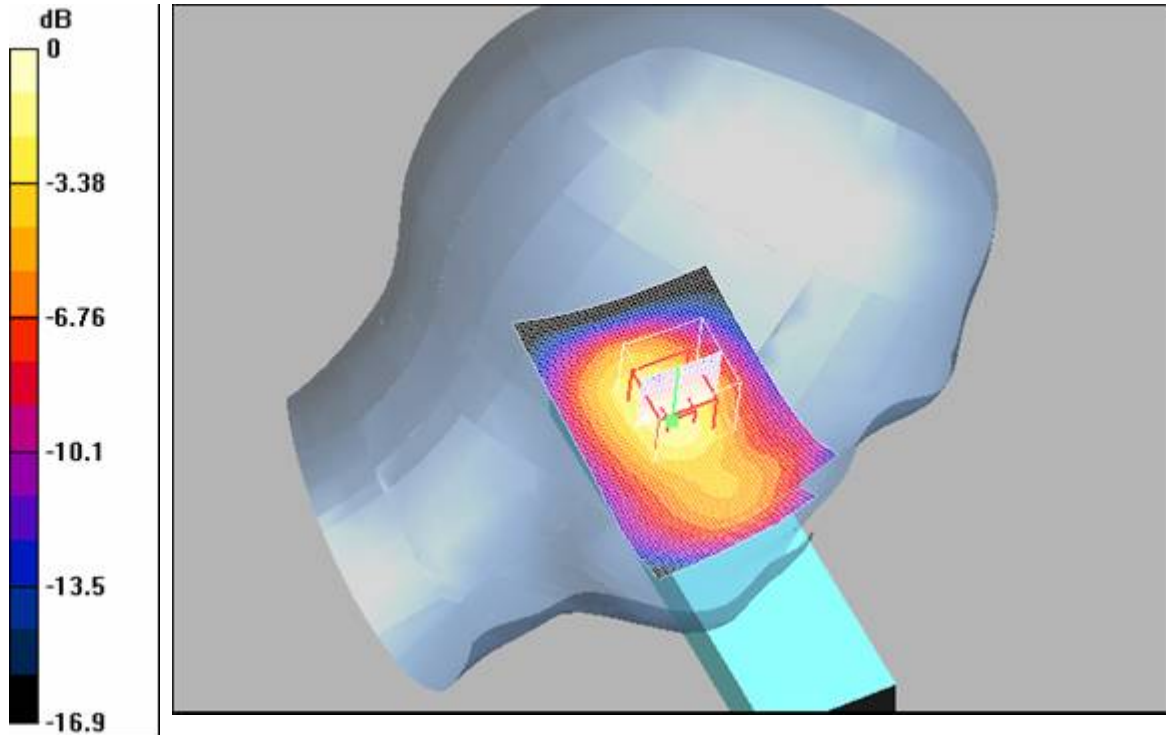
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 9.27 V/m; Power Drift = -0.0 dB  
 Maximum value of SAR (measured) = 0.232 mW/g  
 Peak SAR (extrapolated) = 0.312 W/kg

**SAR(1 g) = 0.216 mW/g; SAR(10 g) = 0.135 mW/g**

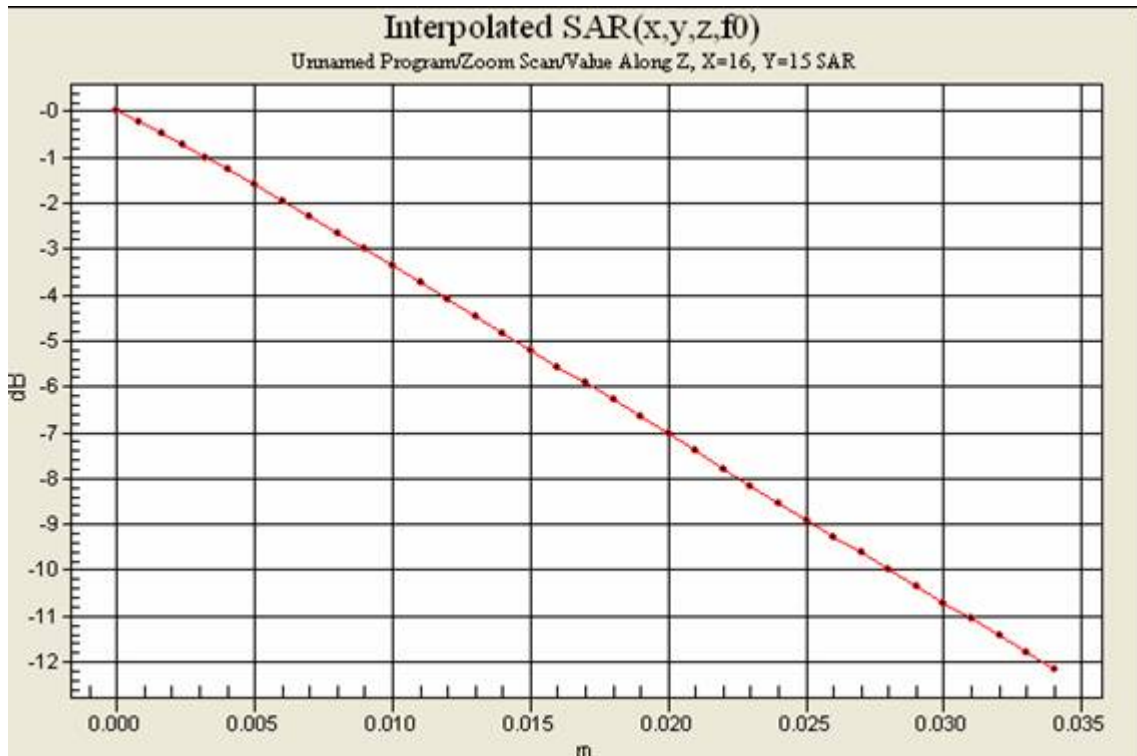
**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 9.27 V/m; Power Drift = -0.0 dB  
 Maximum value of SAR (interpolated) = 0.312 mW/g



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0 dB = 0.312mW/g





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**800 GSM Band: Distribution and Extrapolation of Maximum SAR**

**Model: Z500A SN: BD3017AYMN with Optional Battery: BST-30**

**Right Side, Cheek/Touch Position.**

Date/Time: 07/25/04 11:44:38

File Name: [25July04\\_Z500a\\_GSM850\\_AYMN\\_RC01.da4](#)

Program Notes: Battery BST-30 Humidity: 54.8 Ambient Temp: 22.1 Simulant Temp: 21.6

Communication System: GSM 850; Frequency: 824 MHz; Duty Cycle: 1:8.3

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz;  $\sigma = 0.864$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1538; ConvF(6.27, 6.27, 6.27); Calibrated: 5/27/2004

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

- Electronics: DAE3 Sn431; Calibrated: 5/26/2004

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

- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 10.9 V/m; Power Drift = -0.0 dB

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

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.9 V/m; Power Drift = -0.0 dB

Maximum value of SAR (measured) = 1.2 mW/g

Peak SAR (extrapolated) = 1.64 W/kg

**SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.746 mW/g**

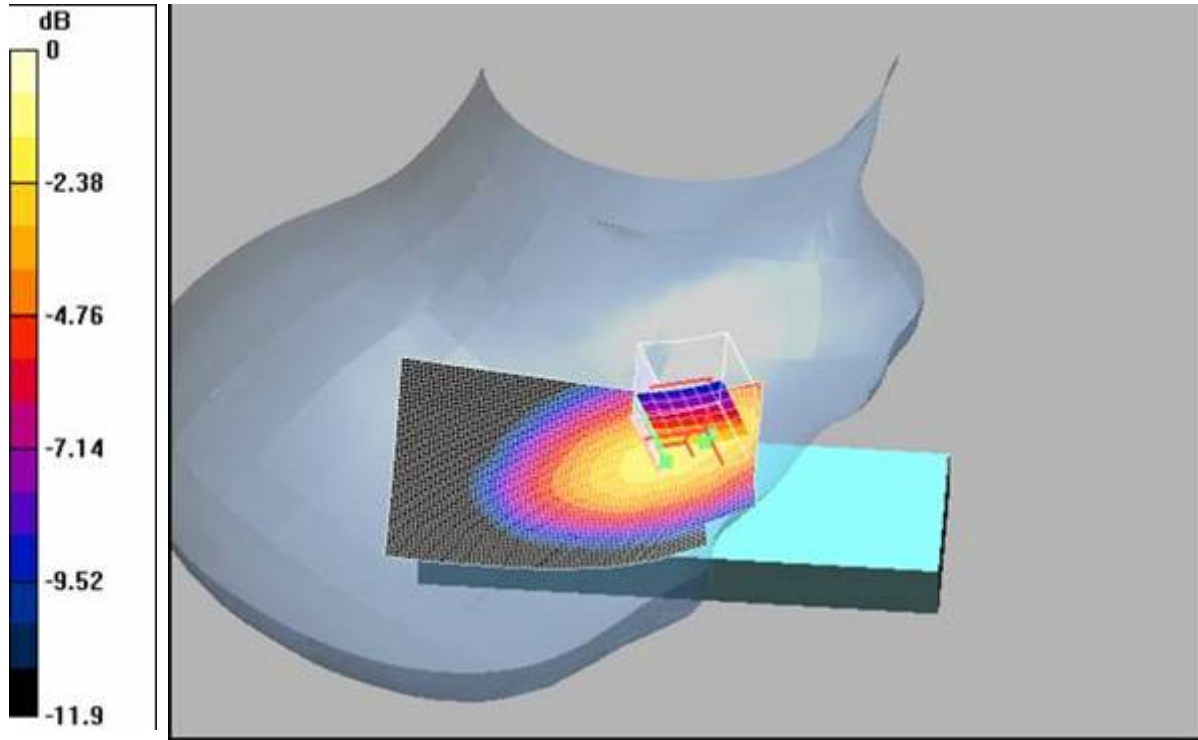
**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.9 V/m; Power Drift = -0.0 dB

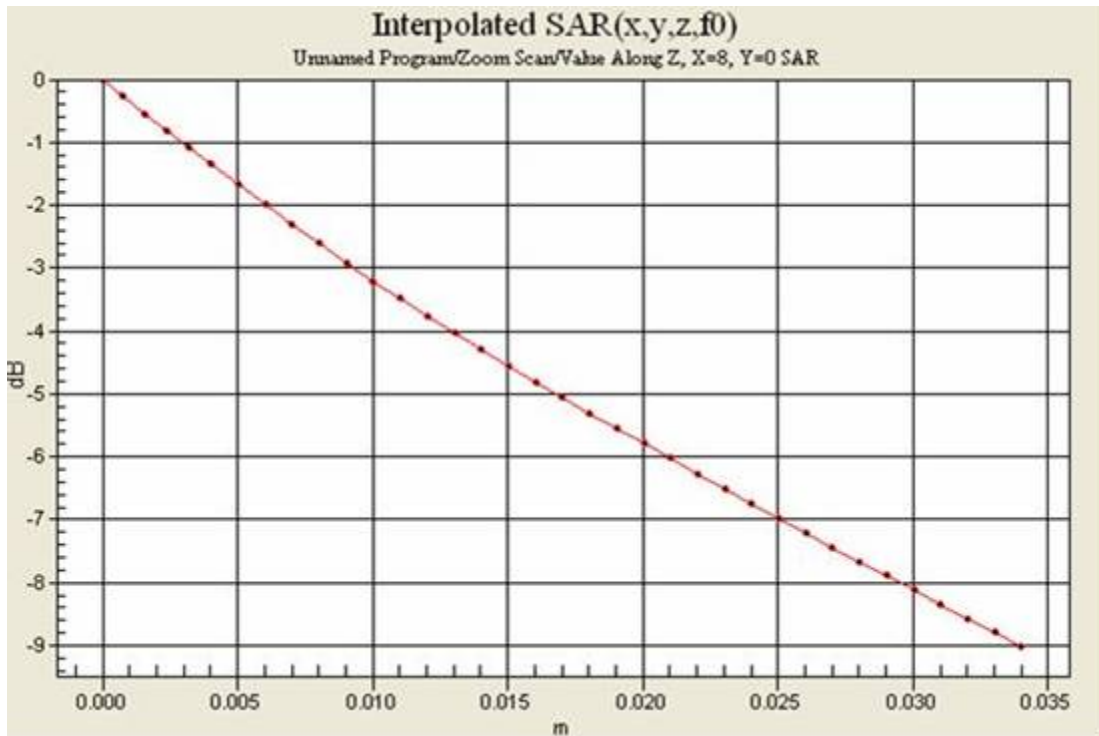
Maximum value of SAR (interpolated) = 1.64 mW/g



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0 dB = 1.64mW/g





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**800 GSM Band: Distribution and Extrapolation of Maximum SAR**  
**Model: Z500A SN: BD3017AYMN with Optional Battery: BST-30**  
**Right Side, Tilt Position.**

Date/Time: 07/25/04 10:36:19

File Name: [25July04\\_Z500a\\_GSM850\\_AYMN\\_RT01.da4](#)

Program Notes: Battery BST-30 Humidity: 53.7 Ambient Temp: 22.3 Simulant Temp: 21.7

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

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 849 MHz;  $\sigma = 0.889$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1538; ConvF(6.27, 6.27, 6.27); Calibrated: 5/27/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 5/26/2004
- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 12.5 V/m; Power Drift = -0.0 dB

Maximum value of SAR (interpolated) = 0.319 mW/g

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.5 V/m; Power Drift = -0.0 dB

Maximum value of SAR (measured) = 0.313 mW/g

Peak SAR (extrapolated) = 0.385 W/kg

**SAR(1 g) = 0.295 mW/g; SAR(10 g) = 0.220 mW/g**

**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

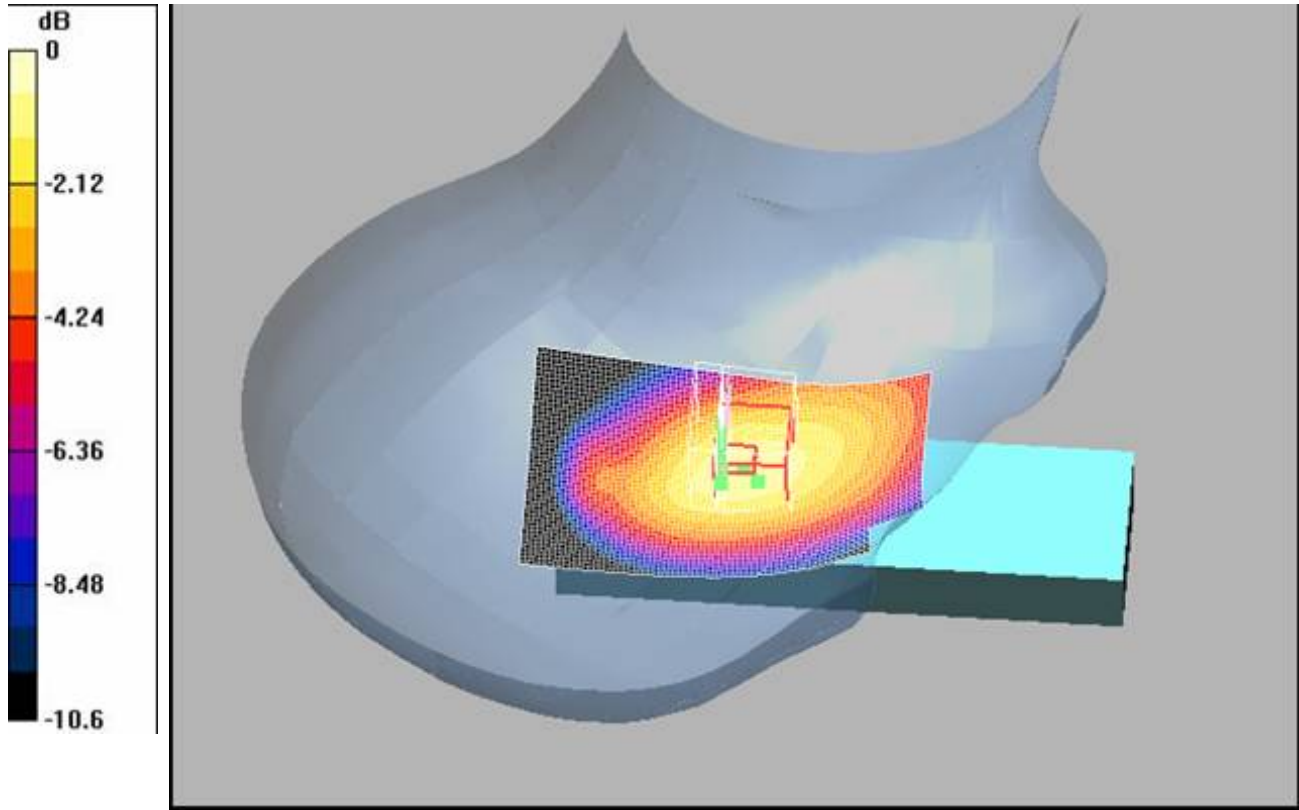
Reference Value = 12.5 V/m; Power Drift = -0.0 dB

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

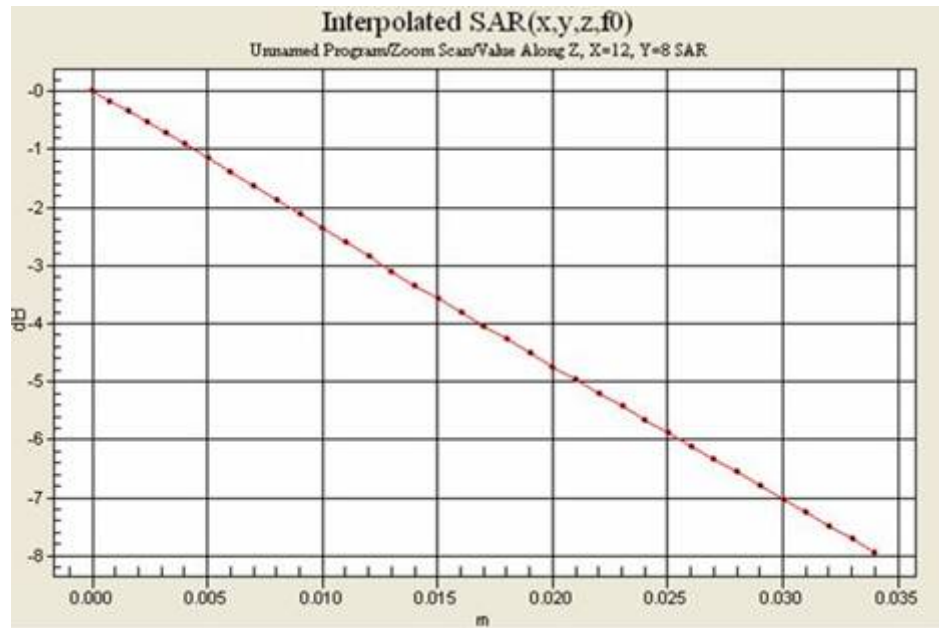




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0 dB = 0.385mW/g





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**800 GSM Band: Distribution and Extrapolation of Maximum SAR**

**Model: Z500A SN: BD3017AYMN with Optional Battery: BST-30**

**Left Side, Cheek/Touch Position.**

File Name: [25July04\\_Z500a\\_GSM850\\_AYMN\\_LC01.da4](#)

Program Notes: Battery BST-30 Humidity: 52.3 Ambient Temp: 22.6 Simulant Temp: 22.5

Communication System: GSM 850; Frequency: 824 MHz; Duty Cycle: 1:8.3

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz;  $\sigma = 0.864$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1538; ConvF(6.27, 6.27, 6.27); Calibrated: 5/27/2004

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

- Electronics: DAE3 Sn431; Calibrated: 5/26/2004

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

- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 10.5 V/m; Power Drift = -0.2 dB

Maximum value of SAR (interpolated) = 1.05 mW/g

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.5 V/m; Power Drift = -0.2 dB

Maximum value of SAR (measured) = 1.02 mW/g

Peak SAR (extrapolated) = 1.34 W/kg

**SAR(1 g) = 0.966 mW/g; SAR(10 g) = 0.683 mW/g**

**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

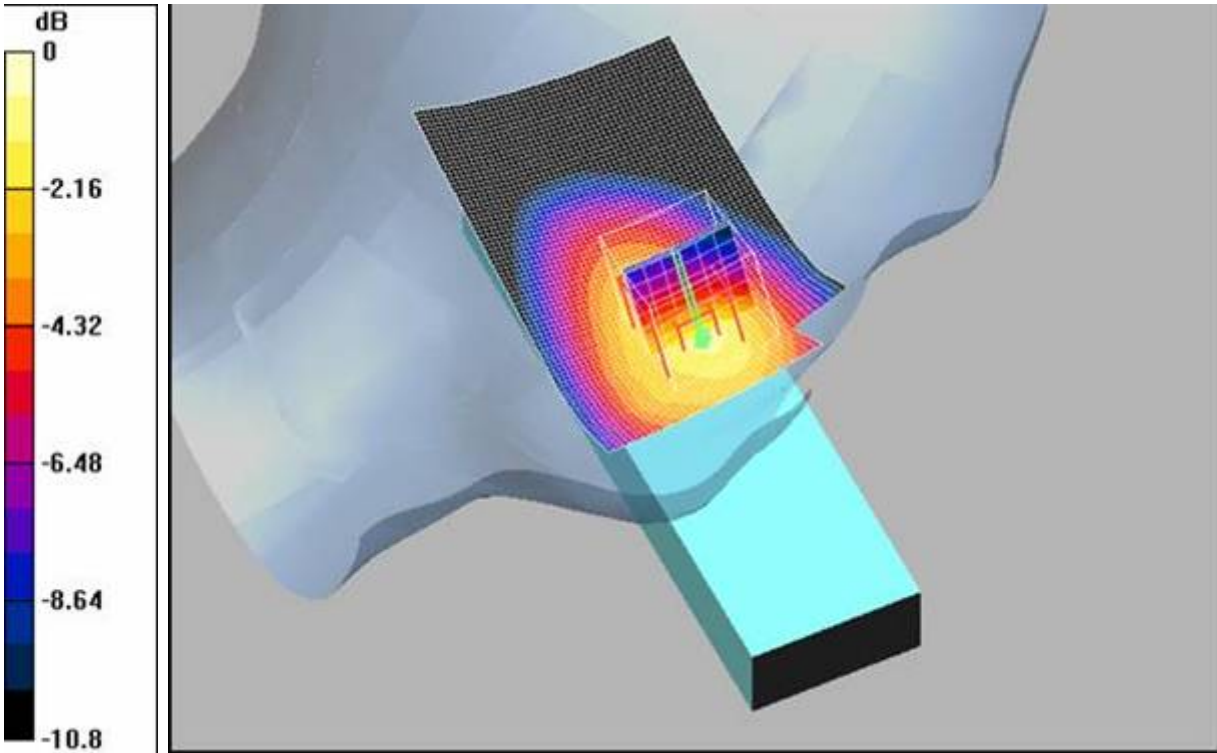
Reference Value = 10.5 V/m; Power Drift = -0.2 dB

Maximum value of SAR (interpolated) = 1.34 mW/g

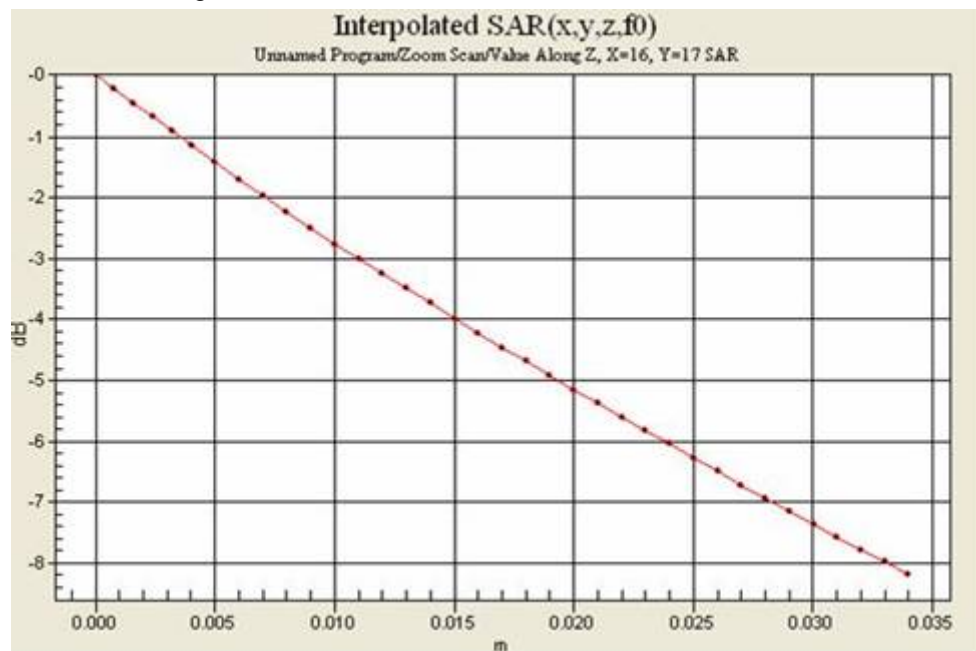


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0 dB = 1.34mW/g





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**800 GSM Band: Distribution and Extrapolation of Maximum SAR**  
**Model: Z500A SN: BD3017AYMN with Optional Battery: BST-30**  
**Left Side, Tilt Position.**

Date/Time: 07/28/04 12:34:24

File Name: [28July04\\_Z500a\\_GSM850\\_AYMN\\_LT01.da4](#)

Program Notes: Battery BST-30 Humidity: 40.8 Ambient Temp: 23.7 Simulant Temp: 22.3

Communication System: GSM 850; Frequency: 824 MHz; Duty Cycle: 1:8.3

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz;  $\sigma = 0.884$  mho/m;  $\epsilon_r = 42.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1538; ConvF(6.27, 6.27, 6.27); Calibrated: 5/27/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 5/26/2004
- Phantom: SAM with CRP (Low Band Head); Type: SAM; Serial: 1251
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 11.8 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 0.328 mW/g

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.8 V/m; Power Drift = -0.1 dB

Maximum value of SAR (measured) = 0.324 mW/g

Peak SAR (extrapolated) = 0.391 W/kg

**SAR(1 g) = 0.310 mW/g; SAR(10 g) = 0.236 mW/g**

**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

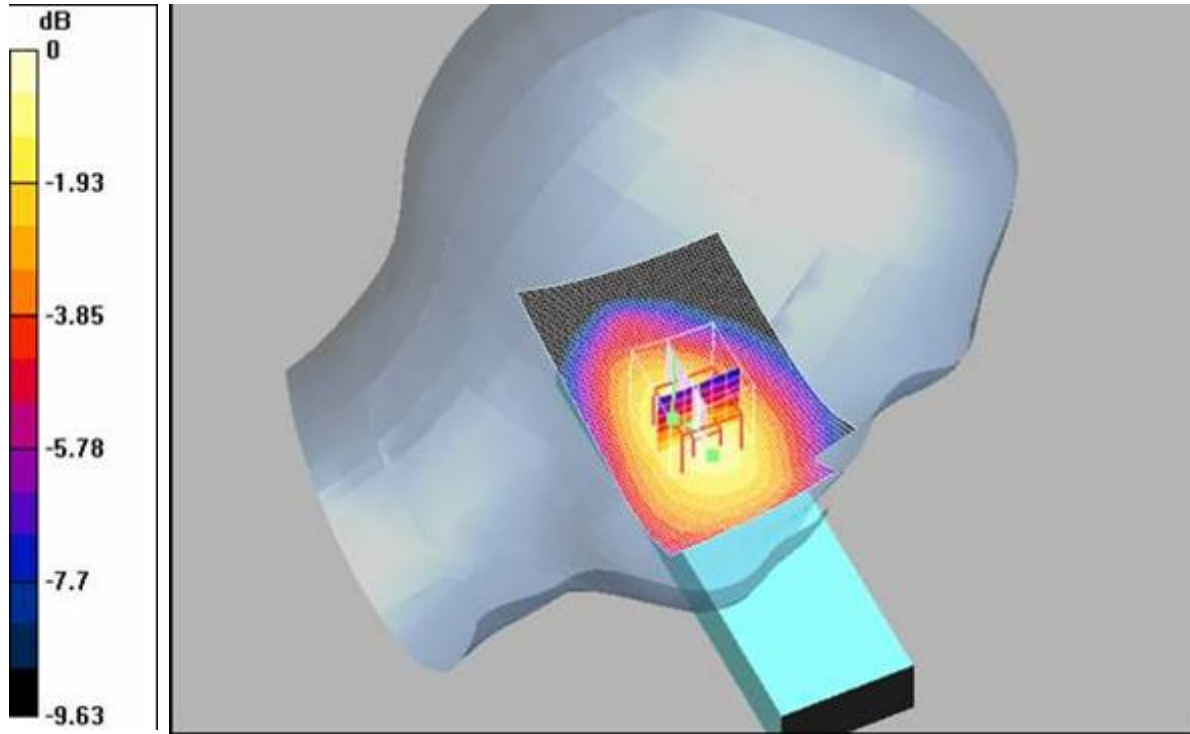
Reference Value = 11.8 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 0.391 mW/g

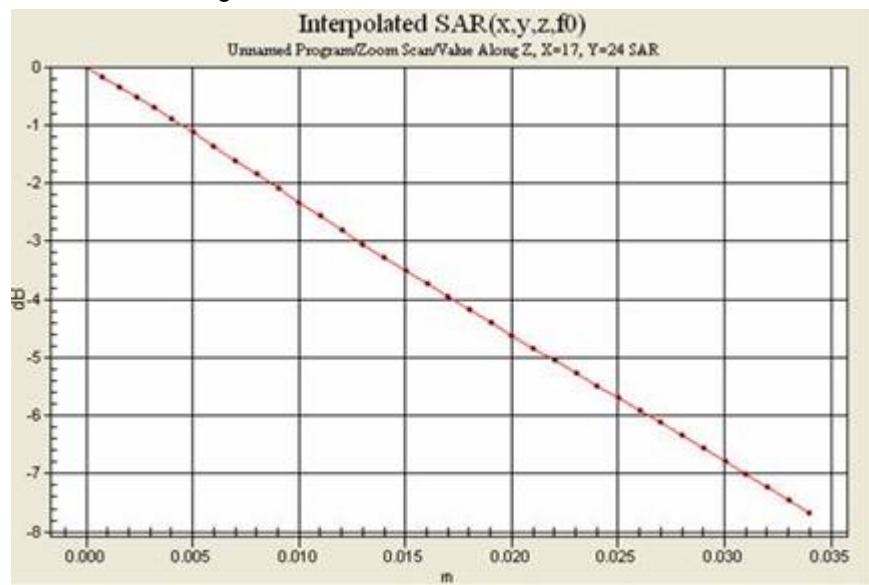


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0 dB = 0.391mW/g





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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR**  
**Model: Z500A SN: BD3017AYMN with Optional Battery: BST-30**  
**Right Side, Cheek/Touch Position.**

Date/Time: 07/22/04 10:01:29  
 File Name: 22July04\_Z500a\_GSM1900\_AYMN\_RC01.da4  
 Program Notes: Battery BST-30 Humidity: 42.8 Ambient Temp: 23 Simulant Temp: 22.3  
 Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
 Medium: Head 1800/1900 MHz Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.39 \text{ mho/m}$ ;  $\epsilon_r = 38.3$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section  
 DASY4 Configuration:  
 - Probe: ET3DV6 - SN1538; ConvF(4.95, 4.95, 4.95); Calibrated: 5/27/2004  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn431; Calibrated: 5/26/2004  
 - Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054  
 - Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 26.5 V/m; Power Drift = -0.2 dB

Maximum value of SAR (interpolated) = 1.3 mW/g

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.5 V/m; Power Drift = -0.2 dB

Maximum value of SAR (measured) = 1.5 mW/g

Peak SAR (extrapolated) = 2.28 W/kg

**SAR(1 g) = 1.3 mW/g; SAR(10 g) = 0.676 mW/g**

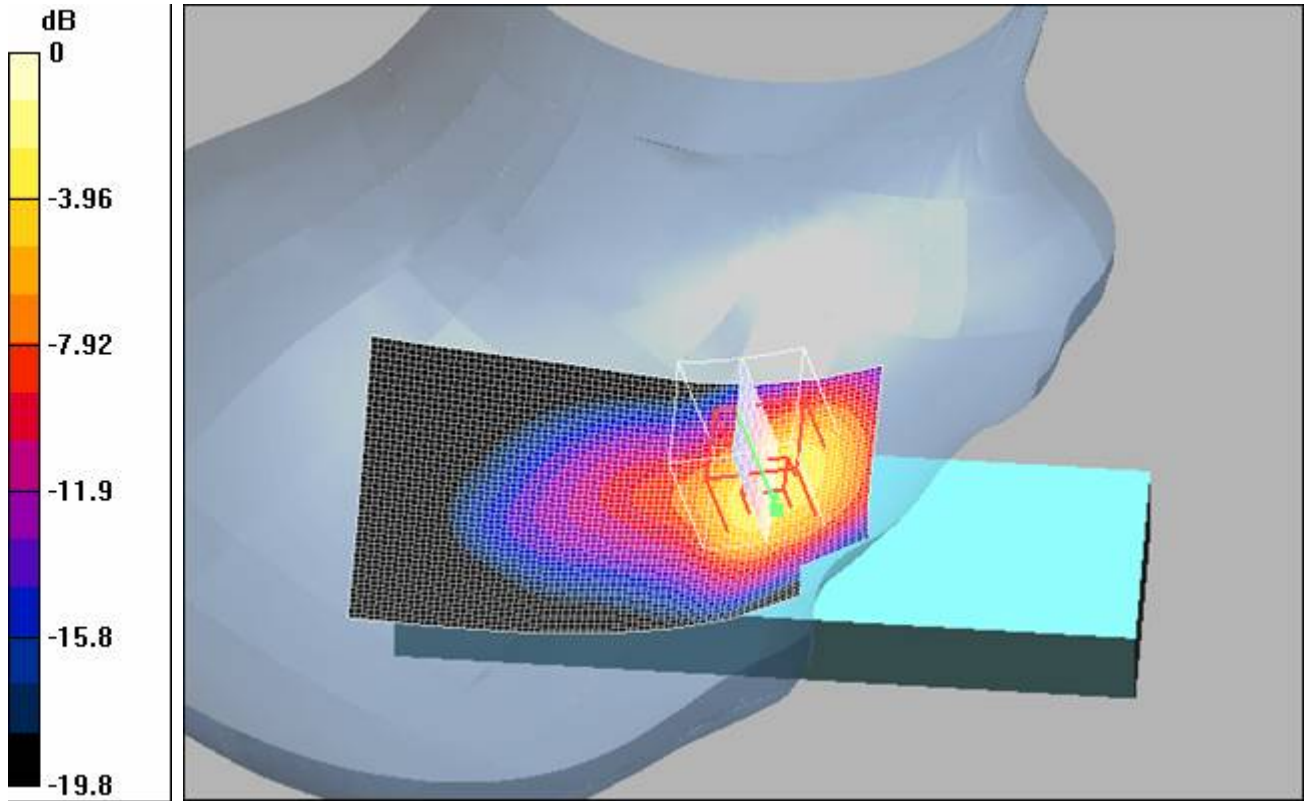
**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.5 V/m; Power Drift = -0.2 dB

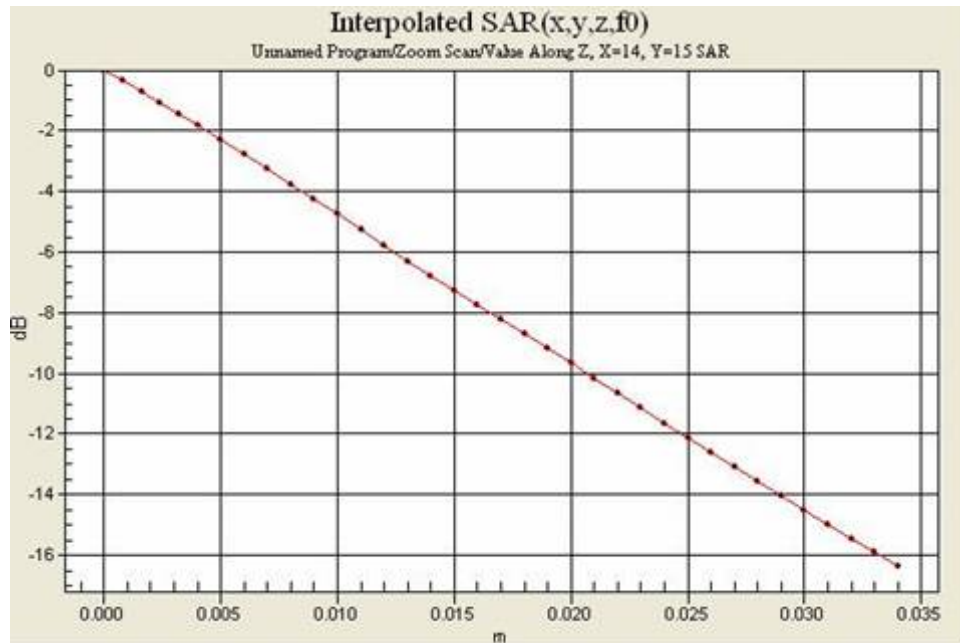
Maximum value of SAR (interpolated) = 2.28 mW/g



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0 dB = 2.28mW/g





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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR**  
**Model: Z500A SN: BD3017AYMN with Optional Battery: BST-30**  
**Right Side, Tilt Position.**

Date/Time: 07/22/04 12:07:06

File Name: 22July04\_Z500a\_GSM1900\_AYMN\_RT01.da4

**DUT: Z500a; Type: Sample**

Program Notes: Battery BST-30 Humidity: 49.7 Ambient Temp: 22.7 Simulant Temp: 21.2

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

Medium: Head 1800/1900 MHz Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.39 \text{ mho/m}$ ;  $\epsilon_r = 38.3$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1538; ConvF(4.95, 4.95, 4.95); Calibrated: 5/27/2004

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

- Electronics: DAE3 Sn431; Calibrated: 5/26/2004

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

- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

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

Reference Value = 9.87 V/m; Power Drift = -0.0 dB

Maximum value of SAR (interpolated) = 0.208 mW/g

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

Reference Value = 9.87 V/m; Power Drift = -0.0 dB

Maximum value of SAR (measured) = 0.209 mW/g

Peak SAR (extrapolated) = 0.277 W/kg

**SAR(1 g) = 0.191 mW/g; SAR(10 g) = 0.121 mW/g**

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

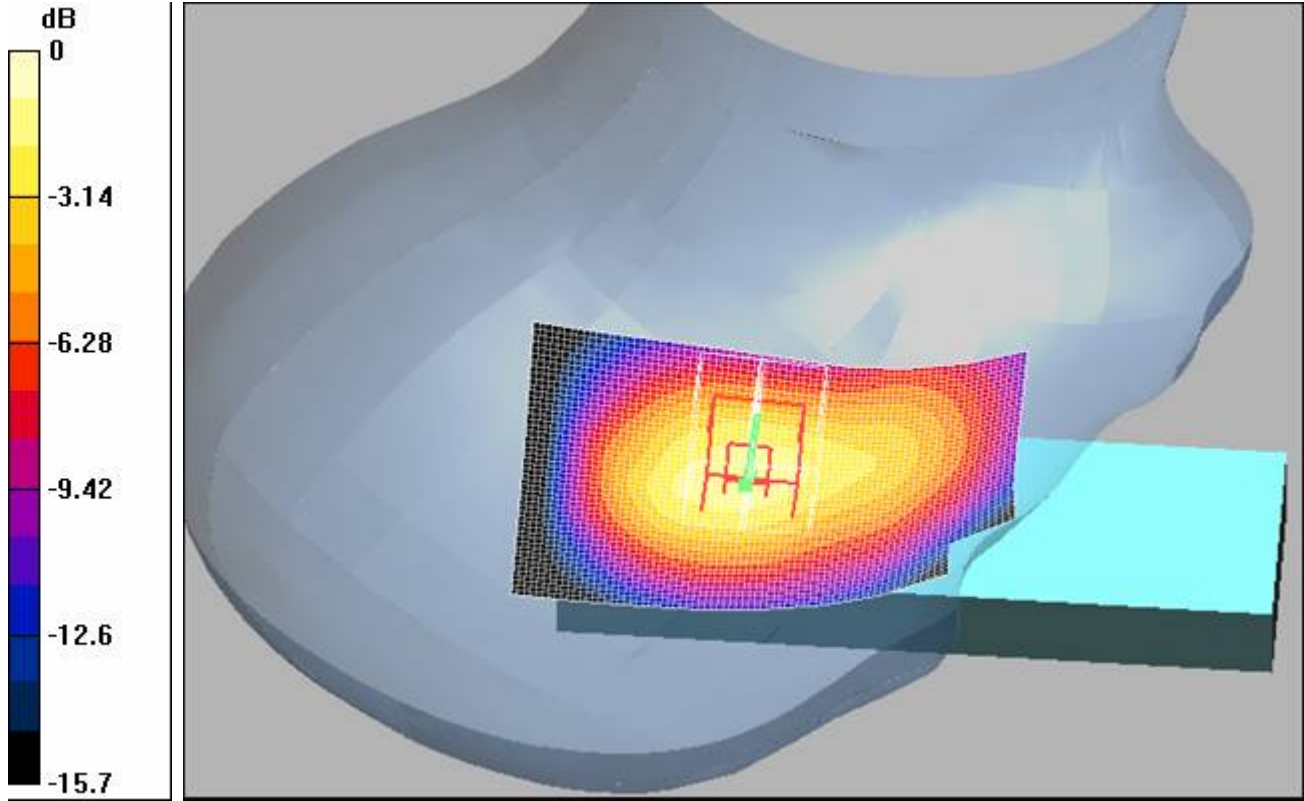
Reference Value = 9.87 V/m; Power Drift = -0.0 dB

Maximum value of SAR (interpolated) = 0.277 mW/g

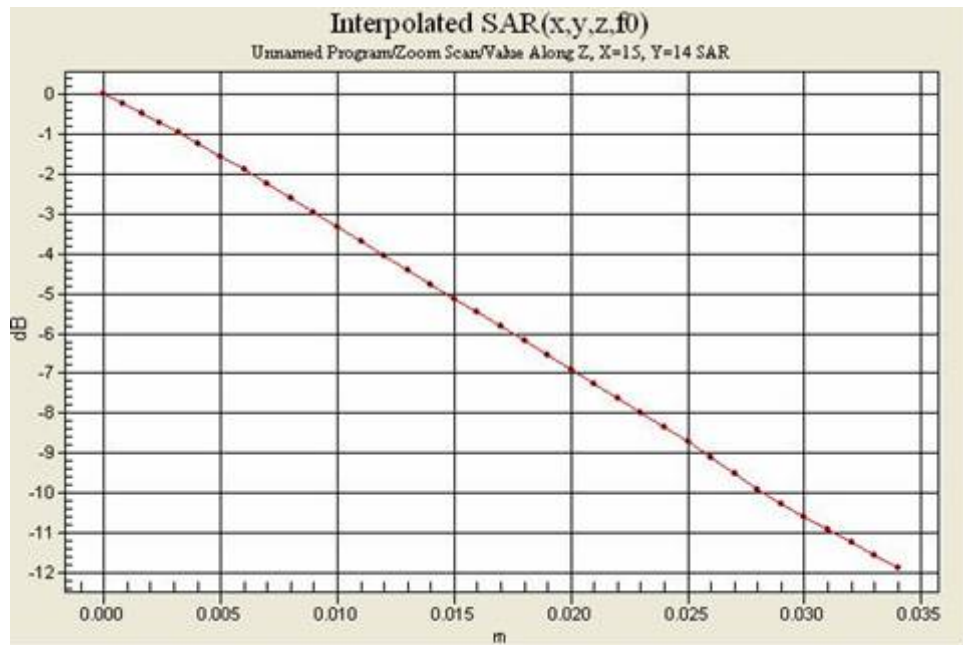




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0 dB = 0.277mW/g





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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc

**1900 GSM Band: Distribution and Extrapolation of Maximum SAR**  
**Model: Z500A SN: BD3017AYMN with Optional Battery: BST-30**  
**Left Side, Cheek/Touch Position.**

Date/Time: 07/22/04 14:16:19  
 File Name: 22July04\_Z500a\_GSM1900\_AYMN\_LC01.da4  
 Program Notes: Battery BST-30 Humidity: 47.2 Ambient Temp: 22.8 Simulant Temp: 21.4  
 Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
 Medium: Head 1800/1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 38.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Left Section  
 DASY4 Configuration:  
 - Probe: ET3DV6 - SN1538; ConvF(4.95, 4.95, 4.95); Calibrated: 5/27/2004  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn431; Calibrated: 5/26/2004  
 - Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054  
 - Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 24.4 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 1.3 mW/g

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.4 V/m; Power Drift = -0.1 dB

Maximum value of SAR (measured) = 1.58 mW/g

Peak SAR (extrapolated) = 2.5 W/kg

**SAR(1 g) = 1.4 mW/g; SAR(10 g) = 0.699 mW/g**

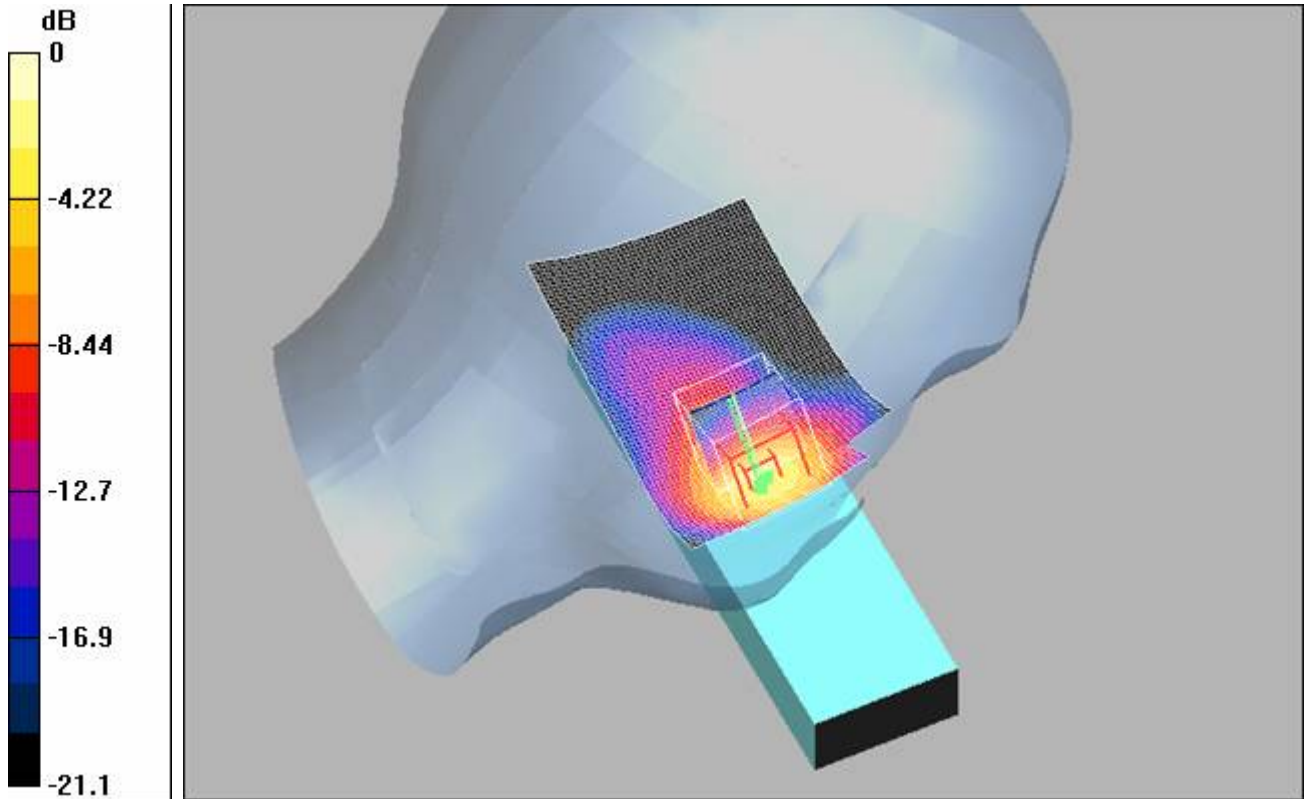
**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.4 V/m; Power Drift = -0.1 dB

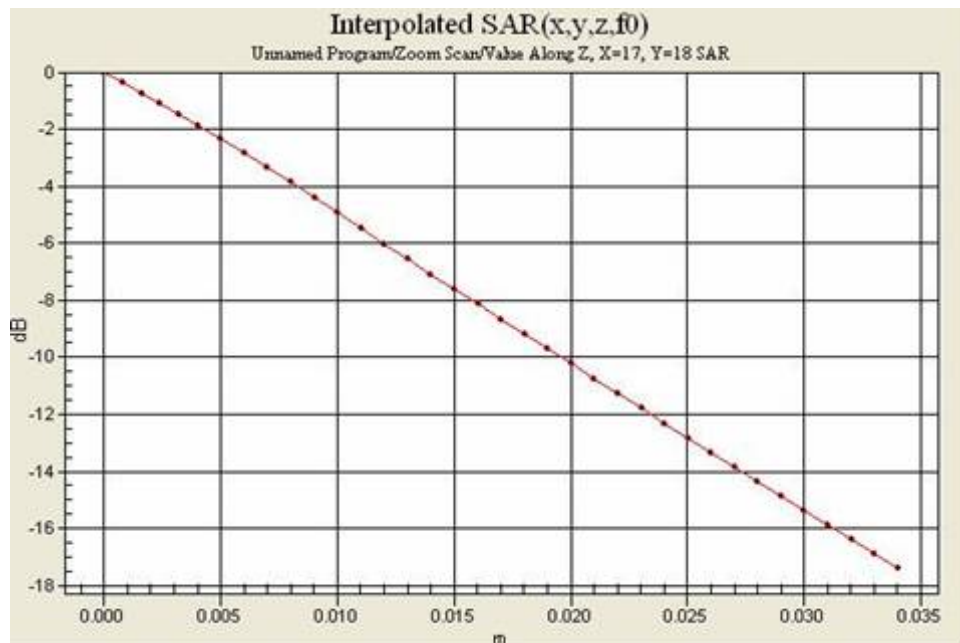
Maximum value of SAR (interpolated) = 2.5 mW/g



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0 dB = 2.5mW/g





Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc

**1900 GSM Band: Distribution and Extrapolation of Maximum SAR**  
**Model: Z500A SN: BD3017AYMN with Optional Battery: BST-30**  
**Left Side, Tilt Position.**

Date/Time: 07/22/04 13:11:15  
 File Name: 22July04\_Z500a\_GSM1900\_AYMN\_LT01.da4  
 Program Notes: Battery BST-30 Humidity: 46.8 Ambient Temp: 22.8 Simulant Temp: 21  
 Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
 Medium: Head 1800/1900 MHz Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.39 \text{ mho/m}$ ;  $\epsilon_r = 38.3$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Left Section  
 DASY4 Configuration:  
 - Probe: ET3DV6 - SN1538; ConvF(4.95, 4.95, 4.95); Calibrated: 5/27/2004  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn431; Calibrated: 5/26/2004  
 - Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054  
 - Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

**Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 9.67 V/m; Power Drift = 0.0 dB

Maximum value of SAR (interpolated) = 0.228 mW/g

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.67 V/m; Power Drift = 0.0 dB

Maximum value of SAR (measured) = 0.228 mW/g

Peak SAR (extrapolated) = 0.304 W/kg

**SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.132 mW/g**

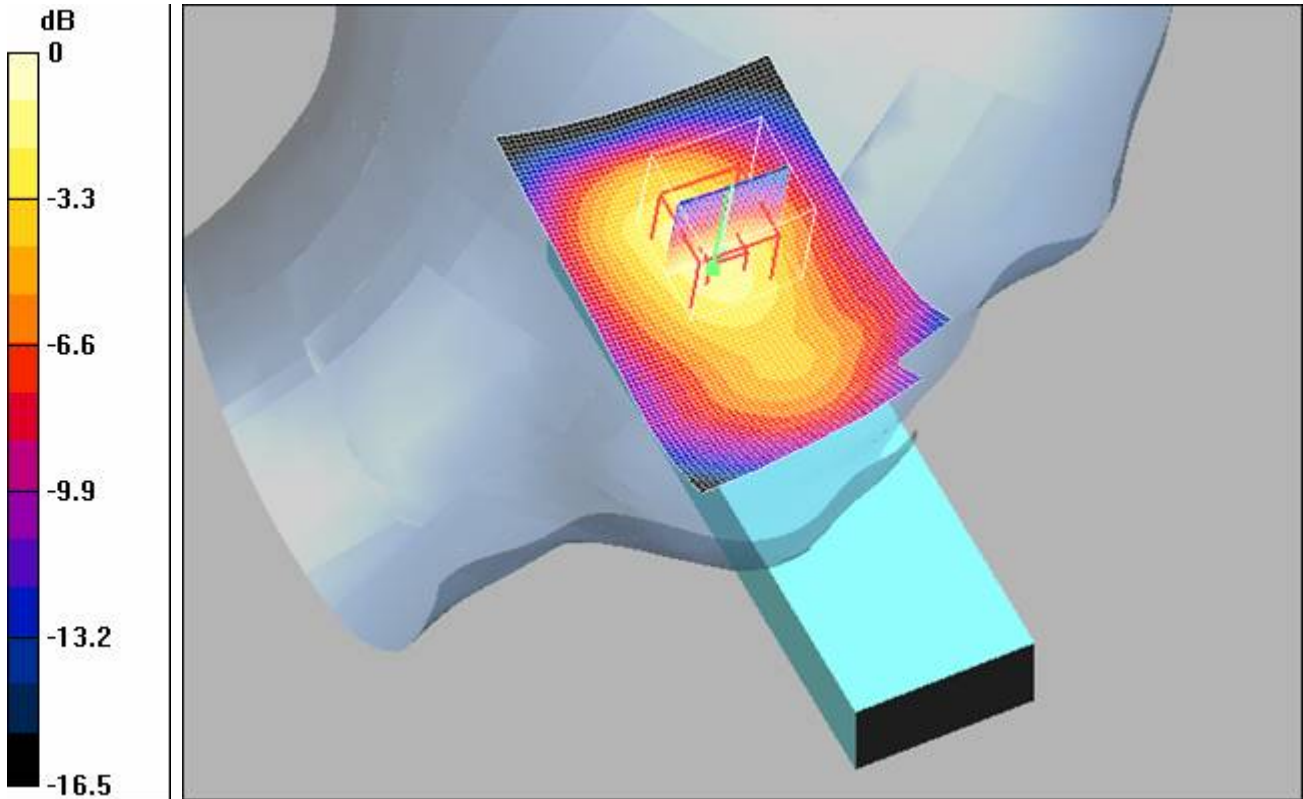
**Zoom Scan (31x31x36)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.67 V/m; Power Drift = 0.0 dB

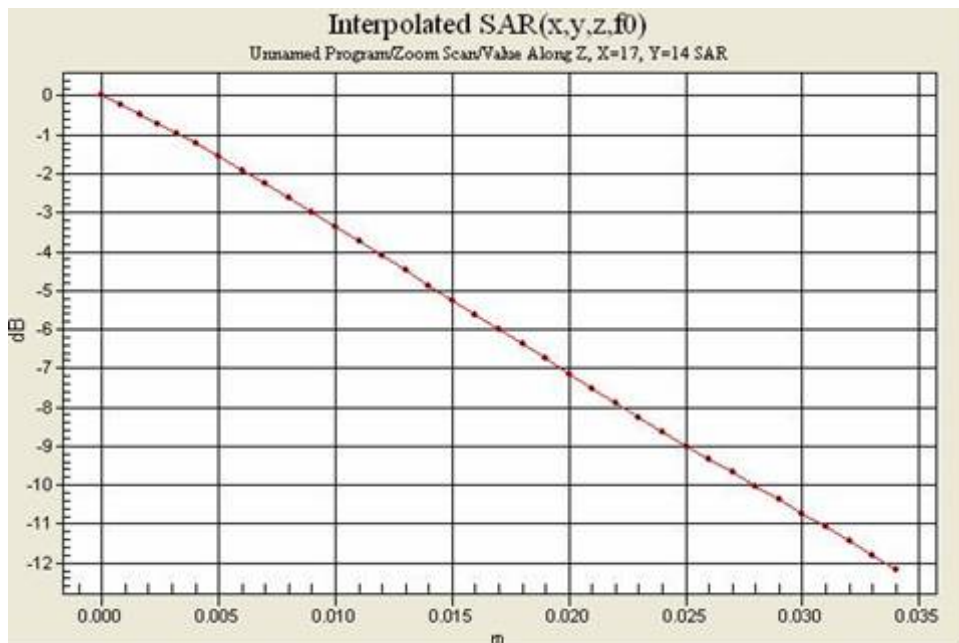
Maximum value of SAR (interpolated) = 0.304 mW/g



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0 dB = 0.304mW/g





**Sony Ericsson**

REPORT

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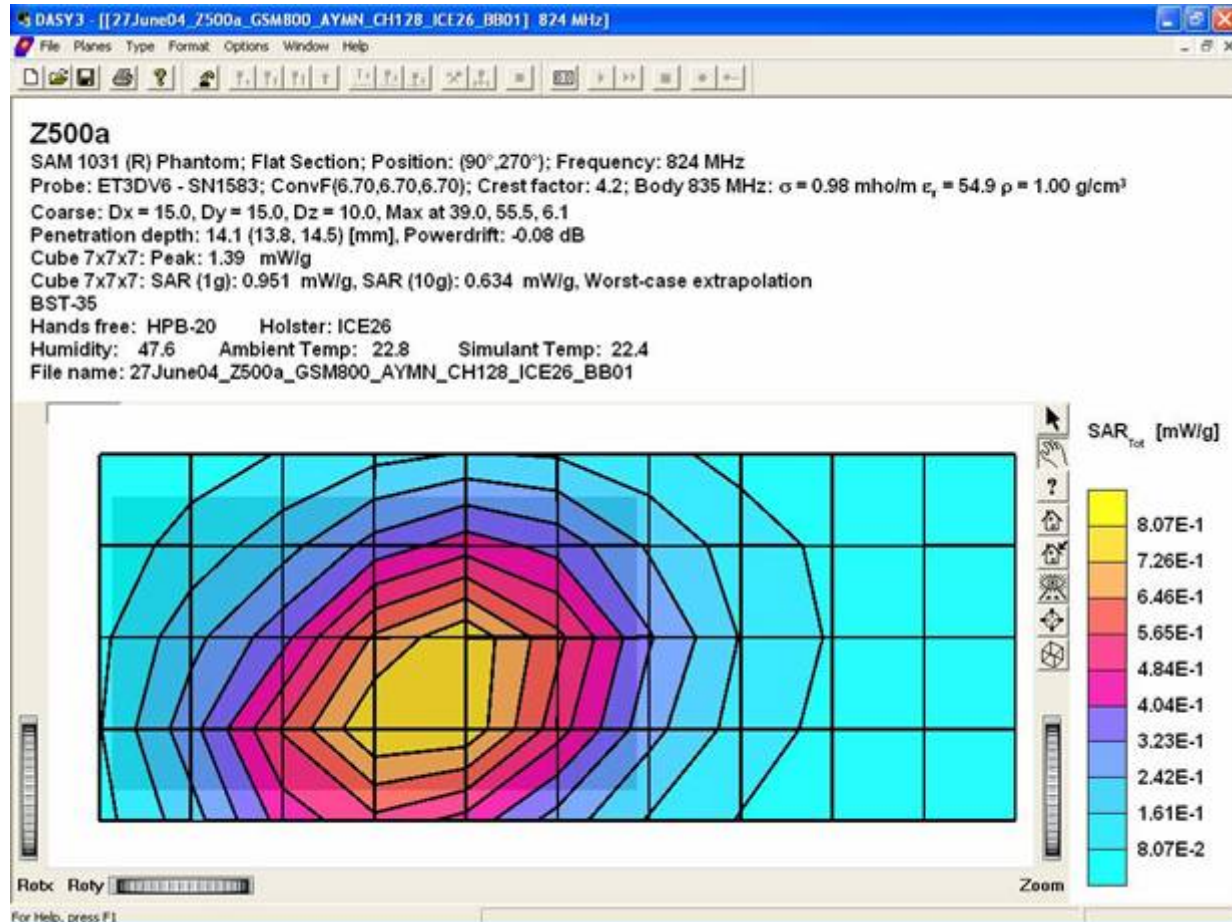
### Appendix 3

### SAR distribution plots for Body Worn Configuration



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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc

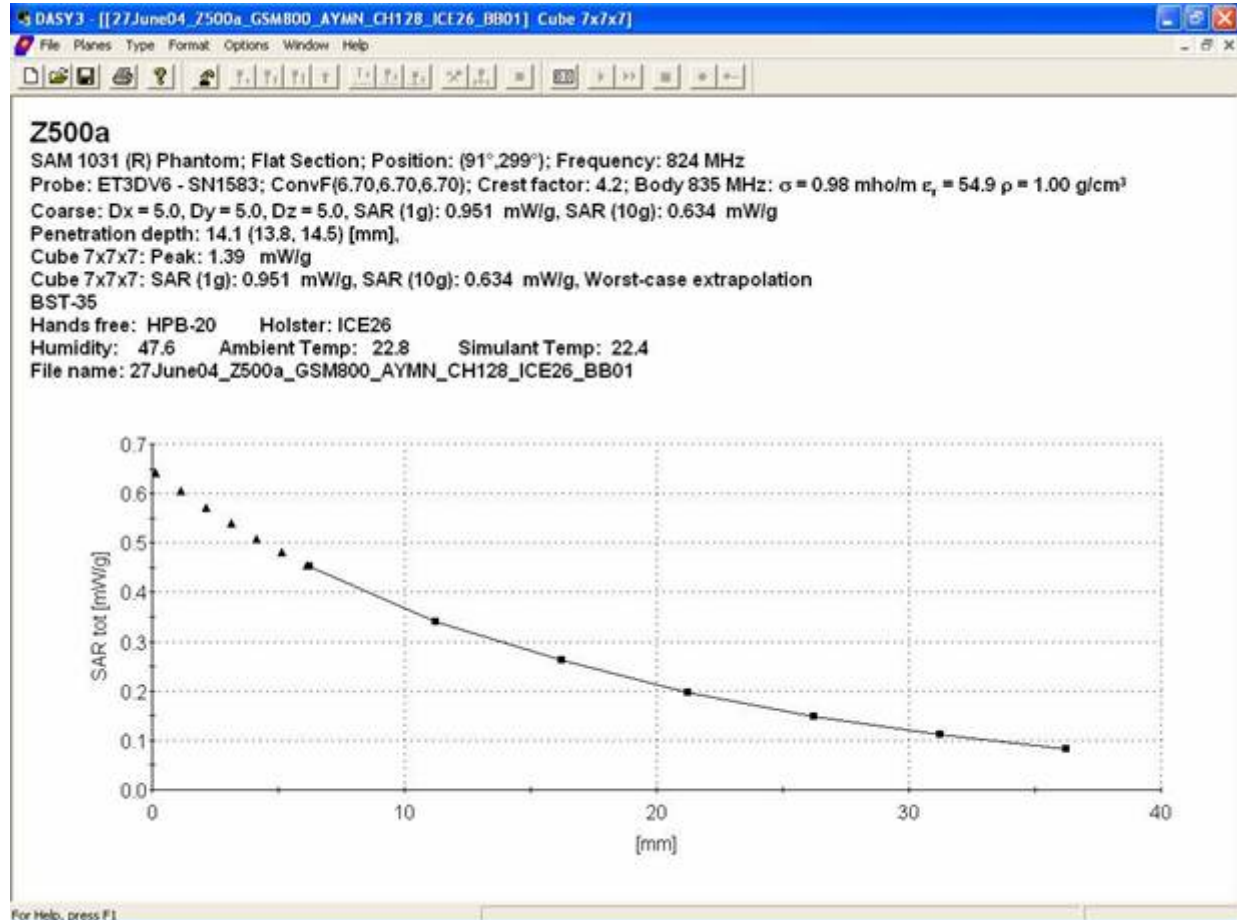


**Distribution of maximum SAR in 800 GSM band. Measured with back of device facing the body using carry accessory ICE-26 and hands free accessory HPB-20. (Standard Battery, BST-35)**



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Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



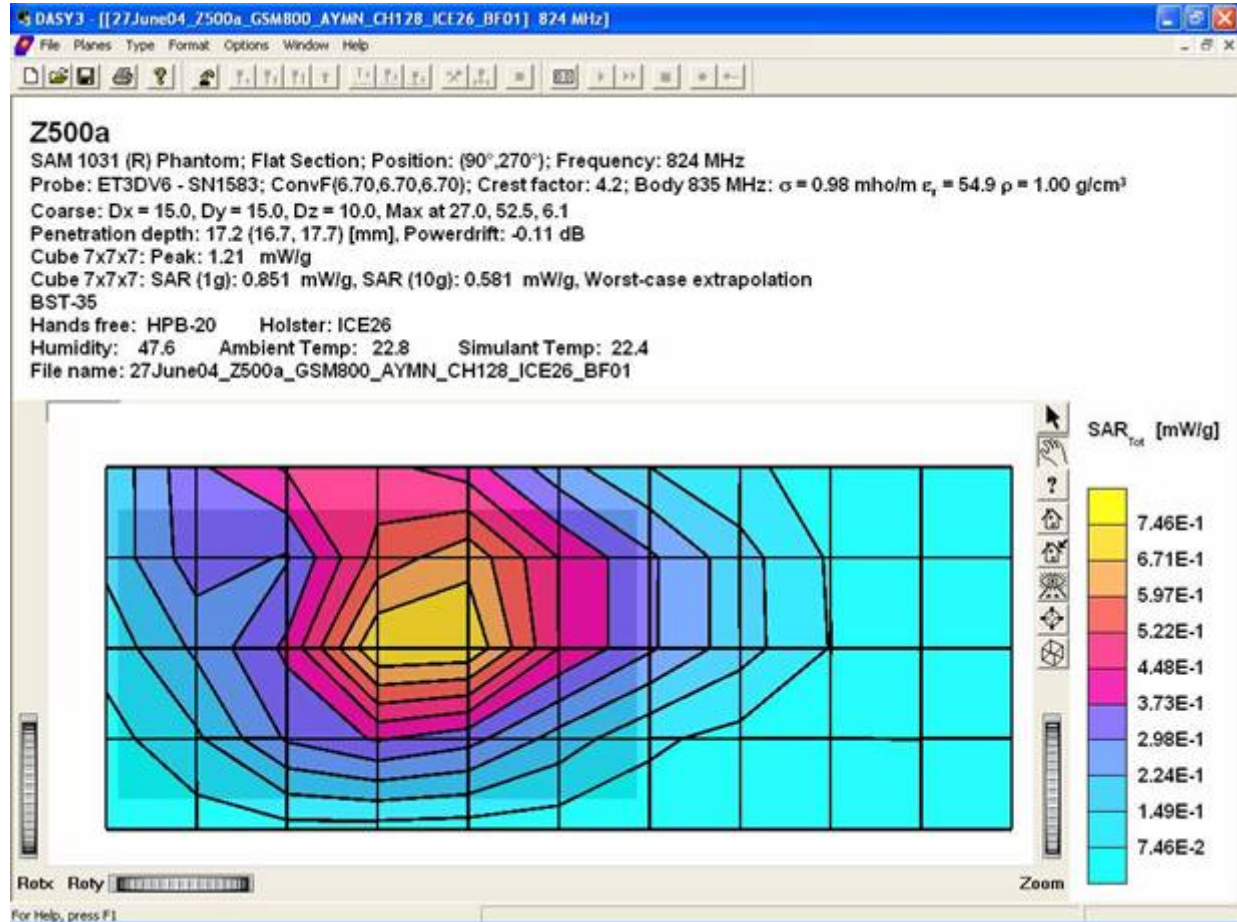
**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 800 GSM band, while back of the phone is against the body using carry accessory ICE-26 and hands free accessory HPB-20. (Standard Battery, BST-35)**





REPORT

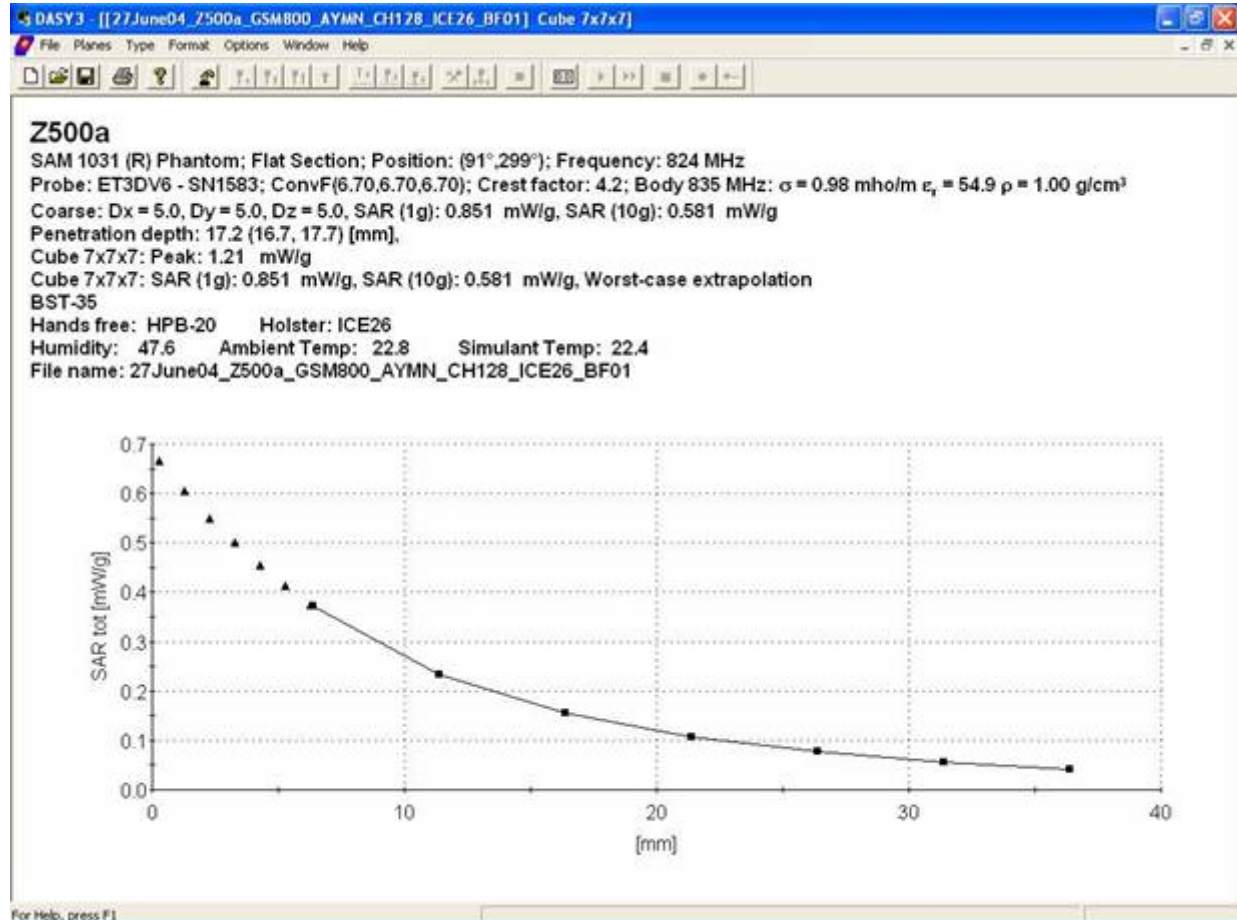
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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



**Distribution of maximum SAR in 800 GSM band. Measured with front of device facing the body using carry accessory ICE-26 and hands free accessory HPB-20. (Standard Battery, BST-35)**



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc

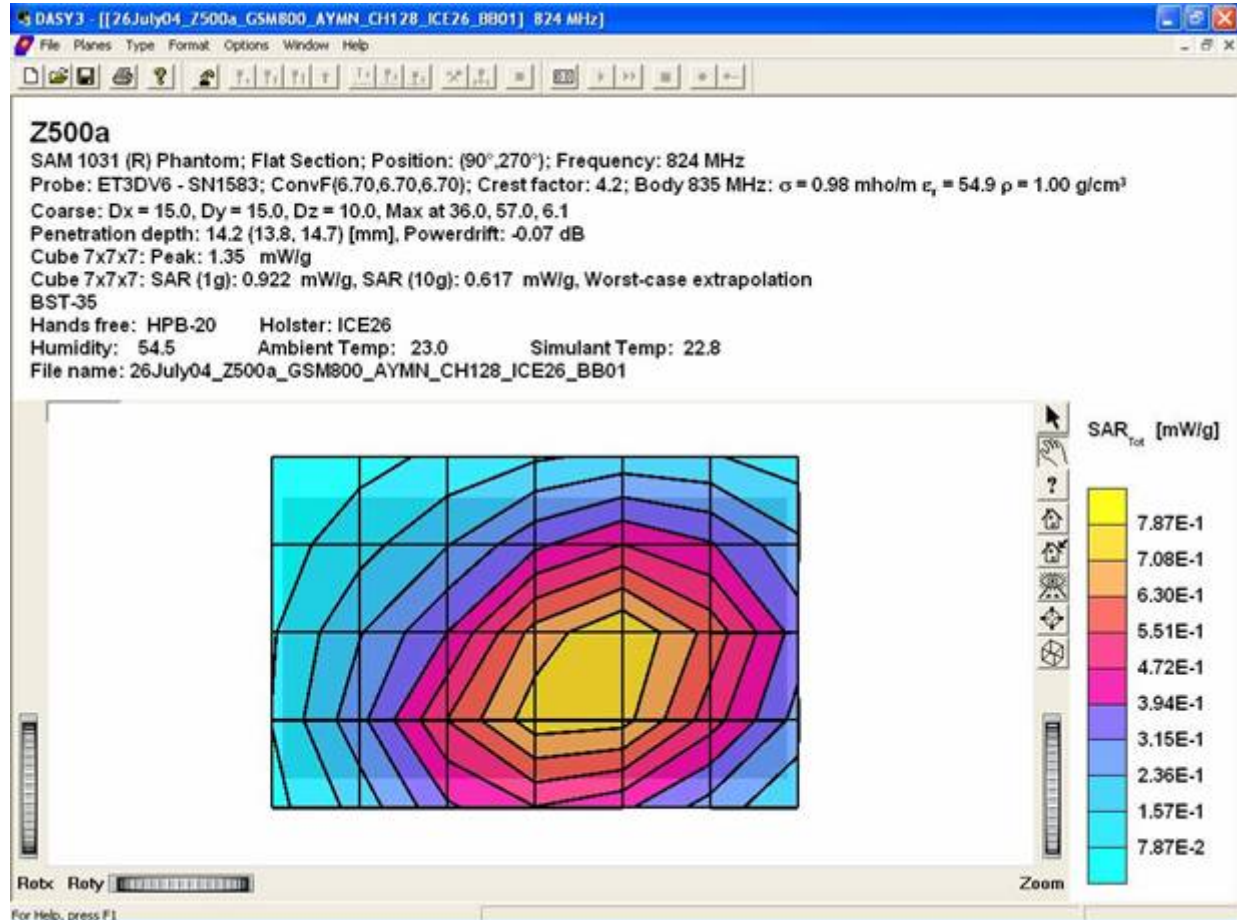


**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 800 GSM band, while front of the phone is against the body using carry accessory ICE-26 and hands free accessory HPB-20. (Standard Battery, BST-35)**



REPORT

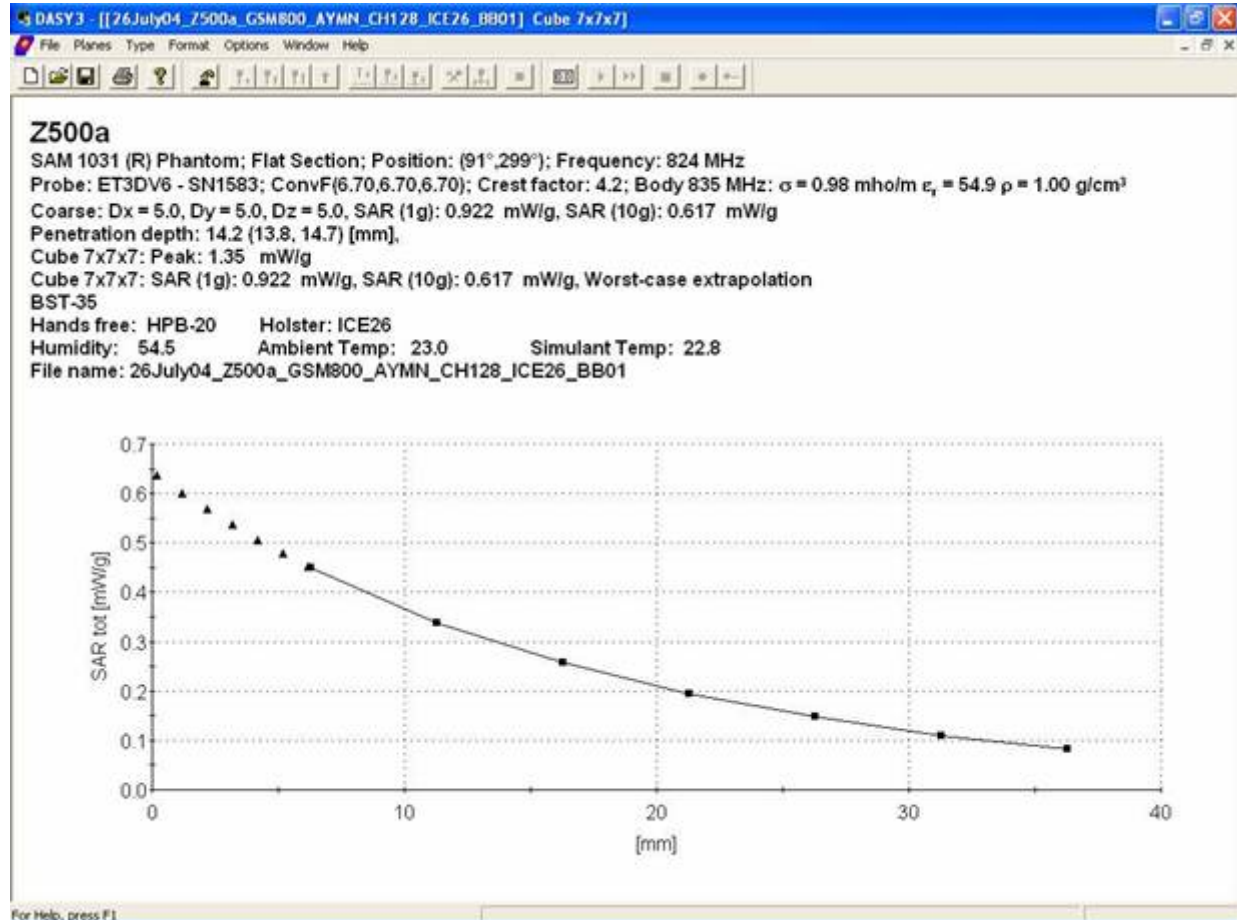
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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



**Distribution of maximum SAR in 800 GSM band. Measured with back of device facing the body using carry accessory ICE-26 and hands free accessory HPB-20. (Optional Battery, BST-30)**



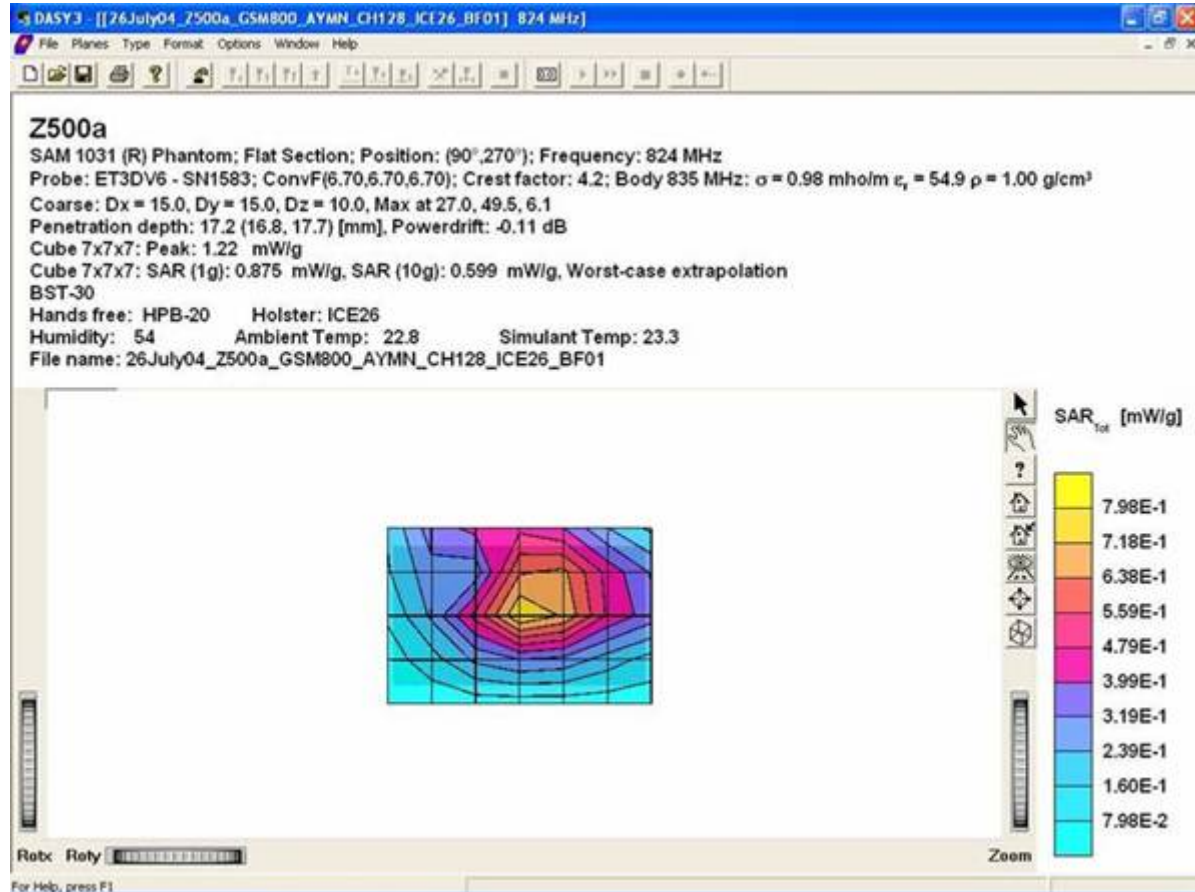
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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 800 GSM band, while back of the phone is against the body using carry accessory ICE-26 and hands free accessory HPB-20. (Optional Battery, BST-30)**



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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc

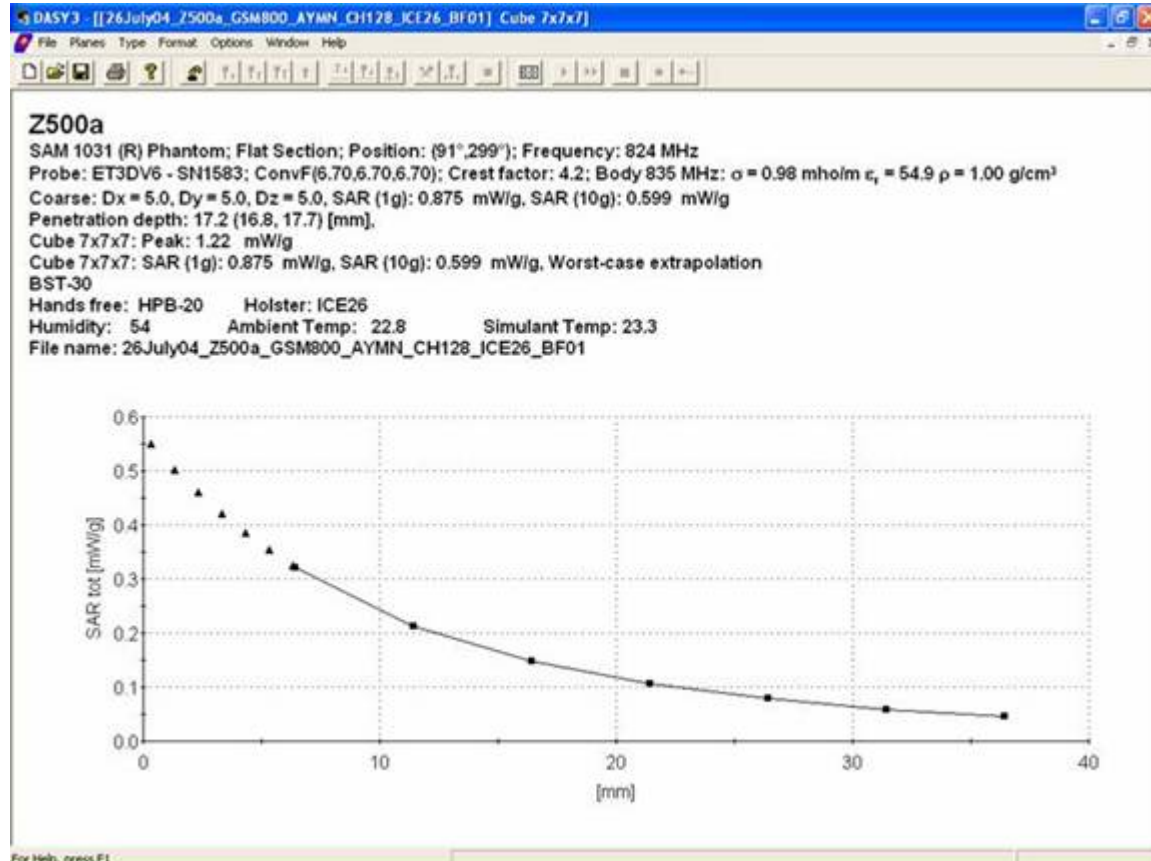


**Distribution of maximum SAR in 800 GSM band. Measured with front of device facing the body using carry accessory ICE-26 and hands free accessory HPB-20. (Optional Battery, BST-30)**



REPORT

Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc

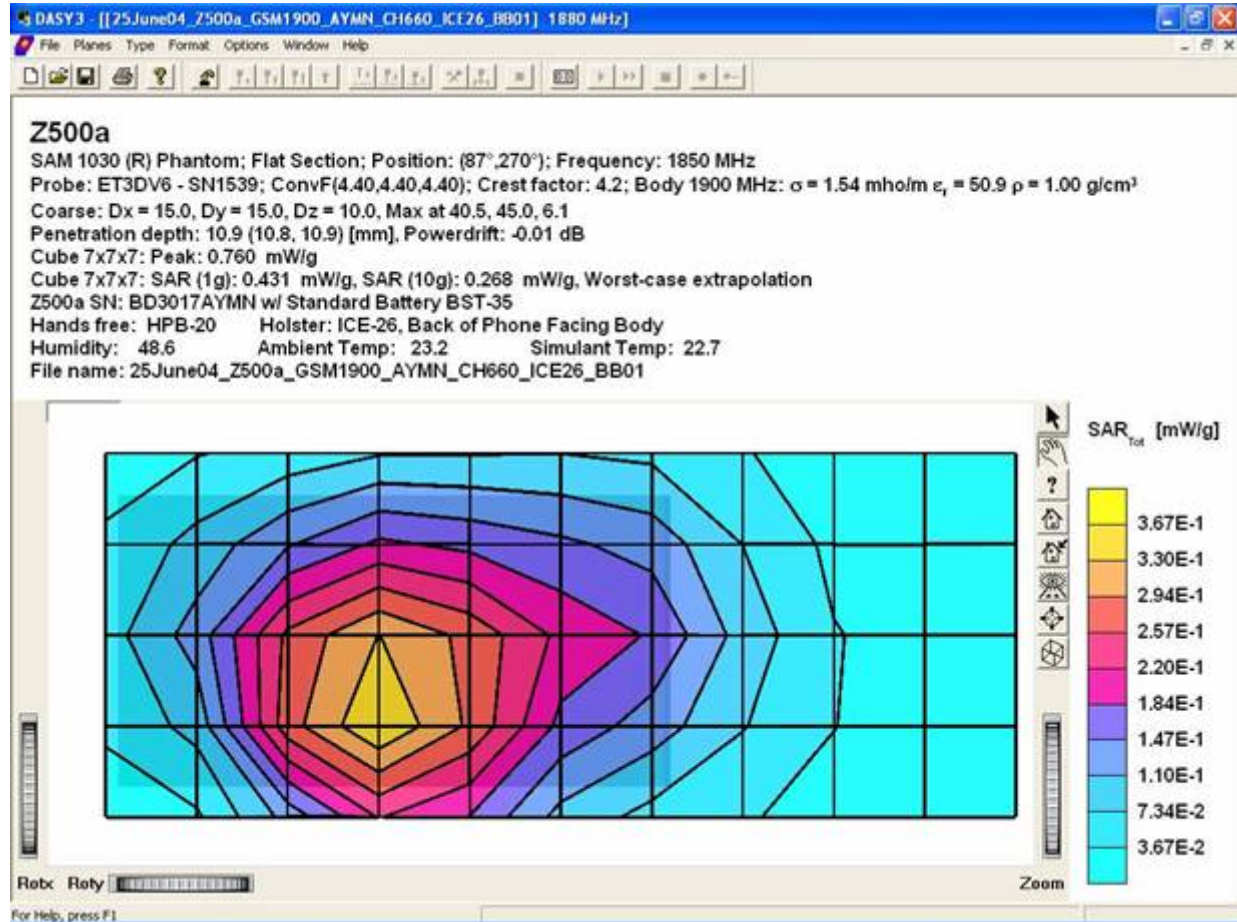


**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 800 GSM band, while front of the phone is against the body using carry accessory ICE-26 and hands free accessory HPB-20. (Optional Battery, BST-30)**



REPORT

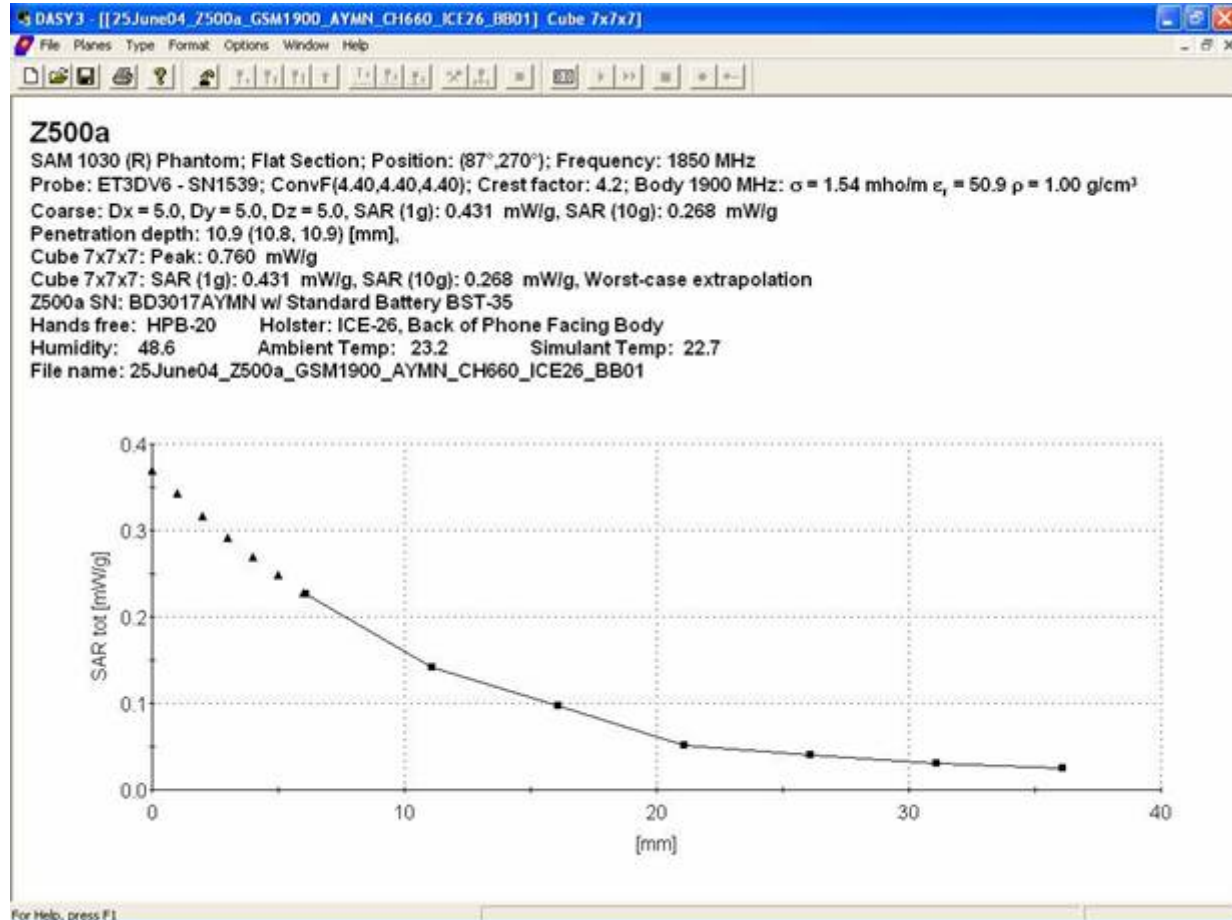
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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



**Distribution of maximum SAR in 1900 GSM band. Measured with back of device facing the body using carry accessory ICE-26 and hands free accessory HPB-20. (Standard Battery, BST-35)**



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
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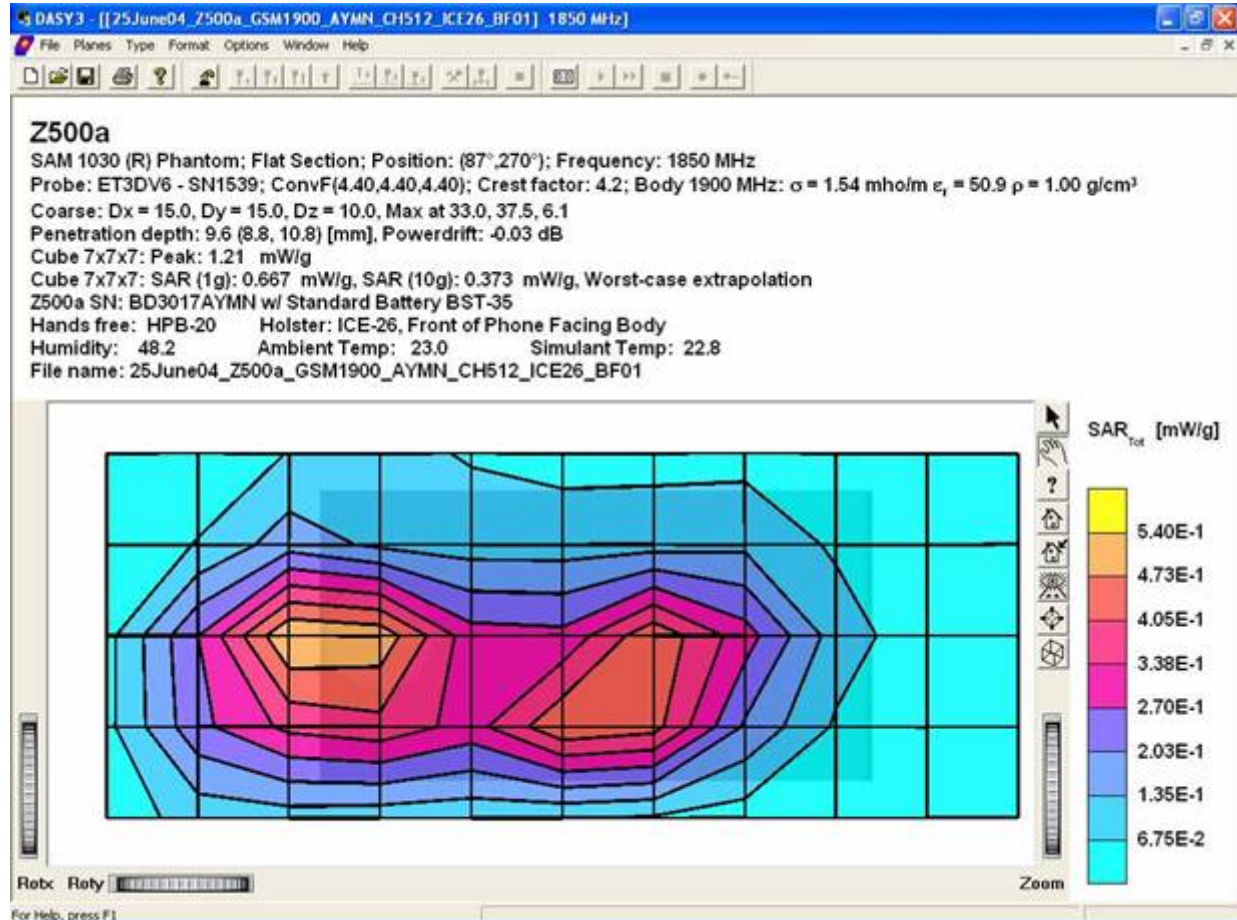
**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 1900 GSM band, while back of the phone is against the body using carry accessory ICE-26 and hands free accessory HPB-20. (Standard Battery, BST-35)**





REPORT

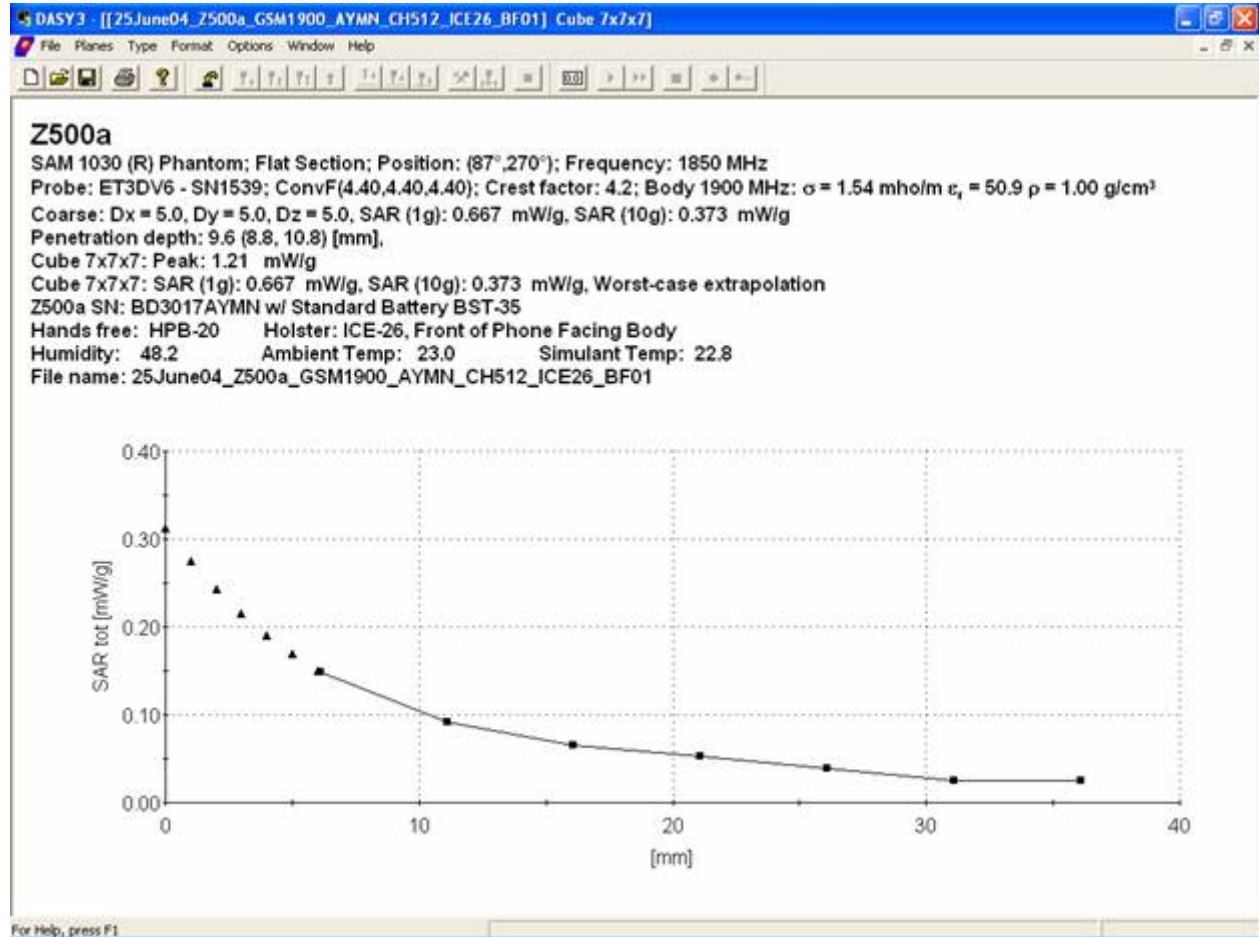
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**Distribution of maximum SAR in 1900 GSM band. Measured with front of device facing the body using carry accessory ICE-26 and hands free accessory HPB-20. (Standard Battery, BST-35)**



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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc

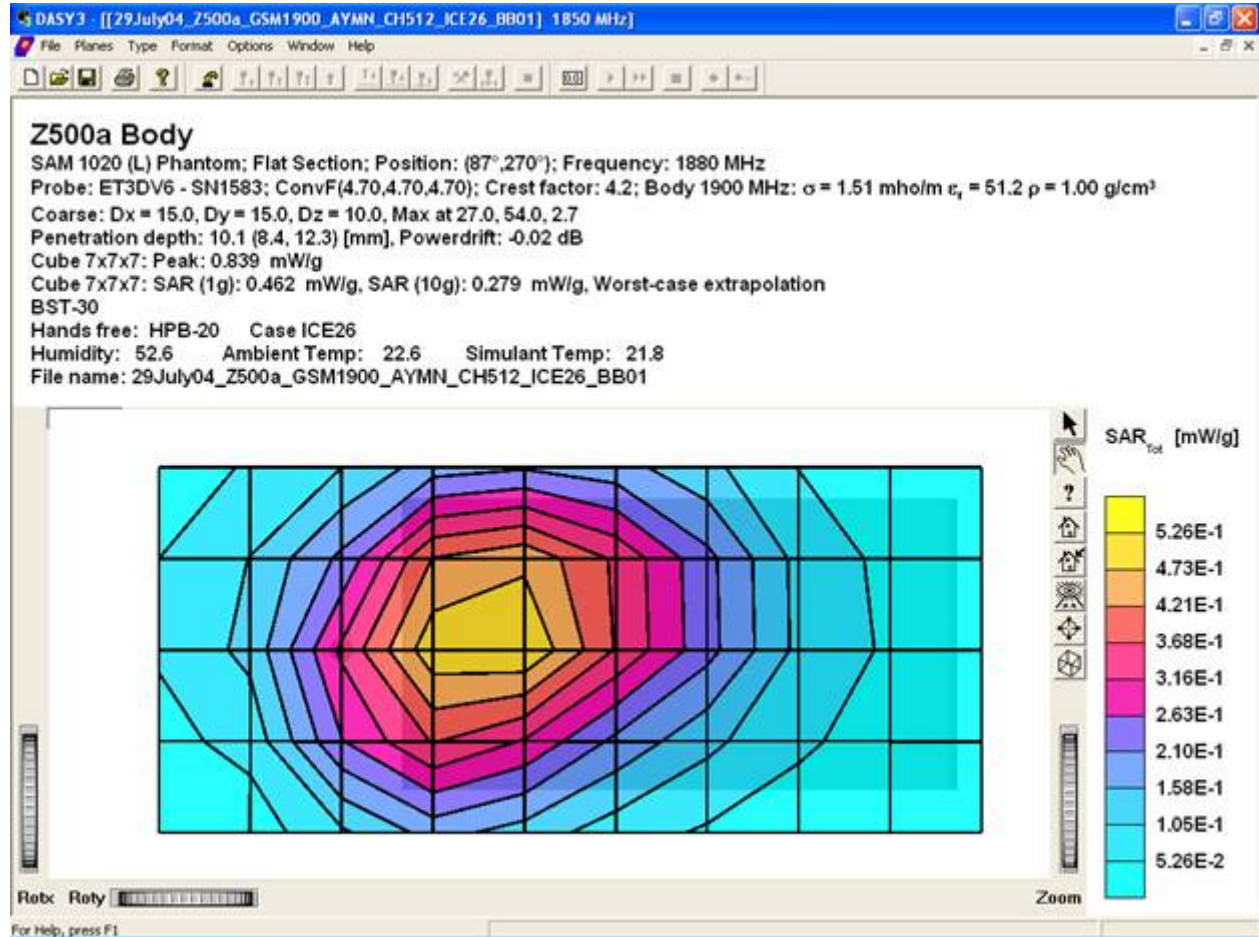


**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 1900 GSM band, while front of the phone is against the body using carry accessory ICE-26 and hands free accessory HPB-20. (Standard Battery, BST-35)**



REPORT

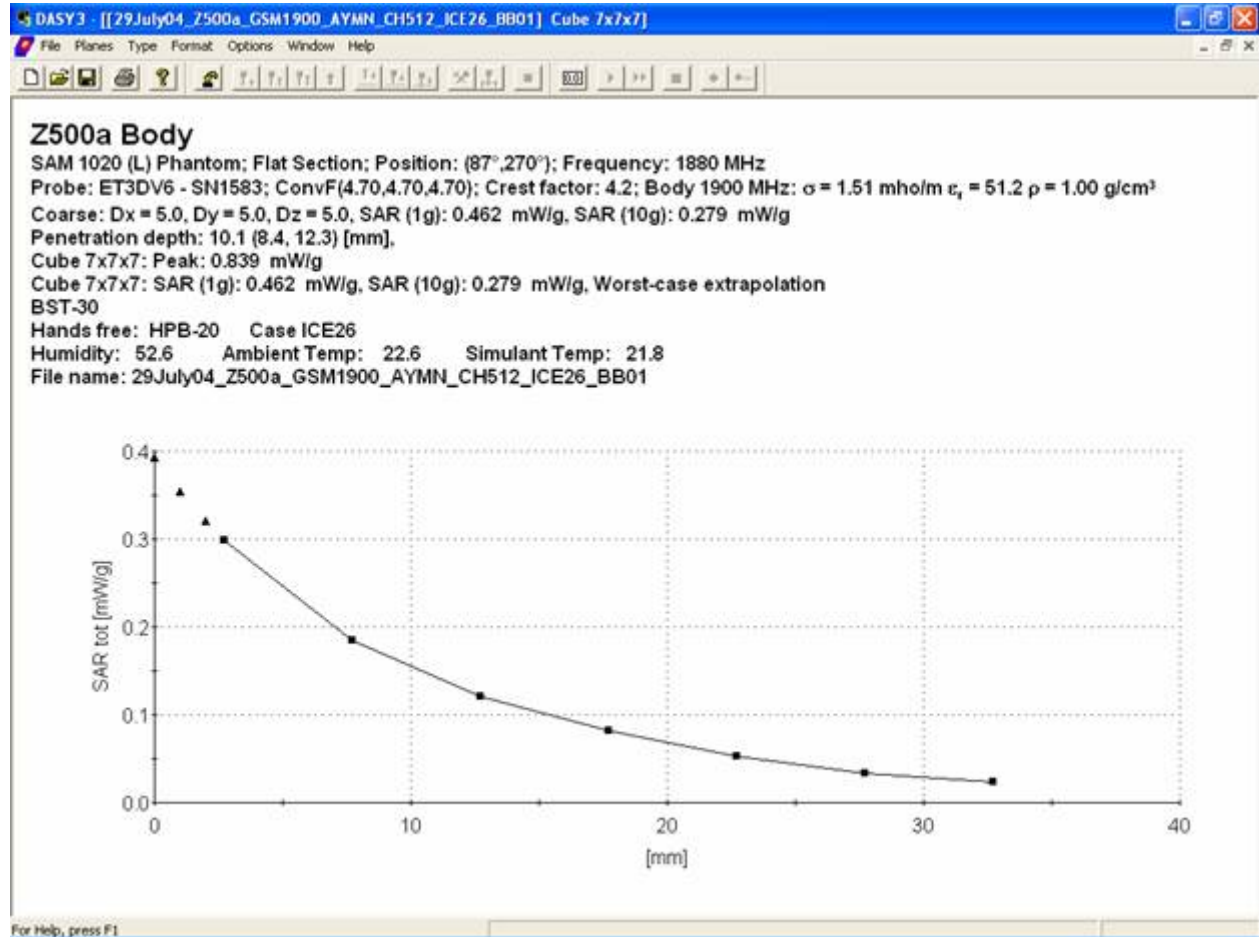
Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



**Distribution of maximum SAR in 1900 GSM band. Measured for maximum SAR in 1900 GSM band, while back of the phone is against the body using carry accessory ICE-26 and hands free accessory HPB-20. (Optional Battery, BST-30)**



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc

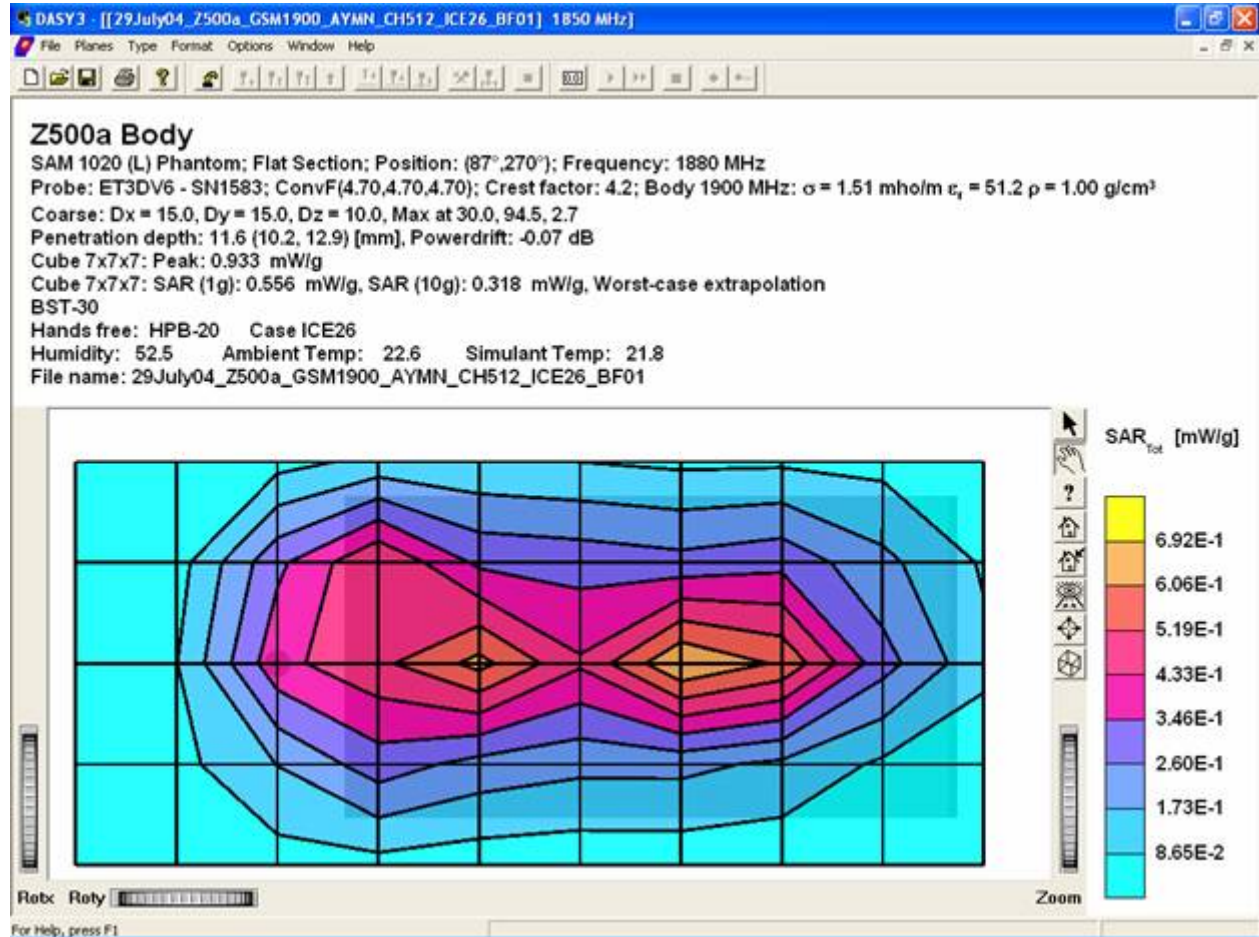


**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 1900 GSM band, while back of the phone is against the body using carry accessory ICE-26 and hands free accessory HPB-20. (Optional Battery, BST-30)**



REPORT

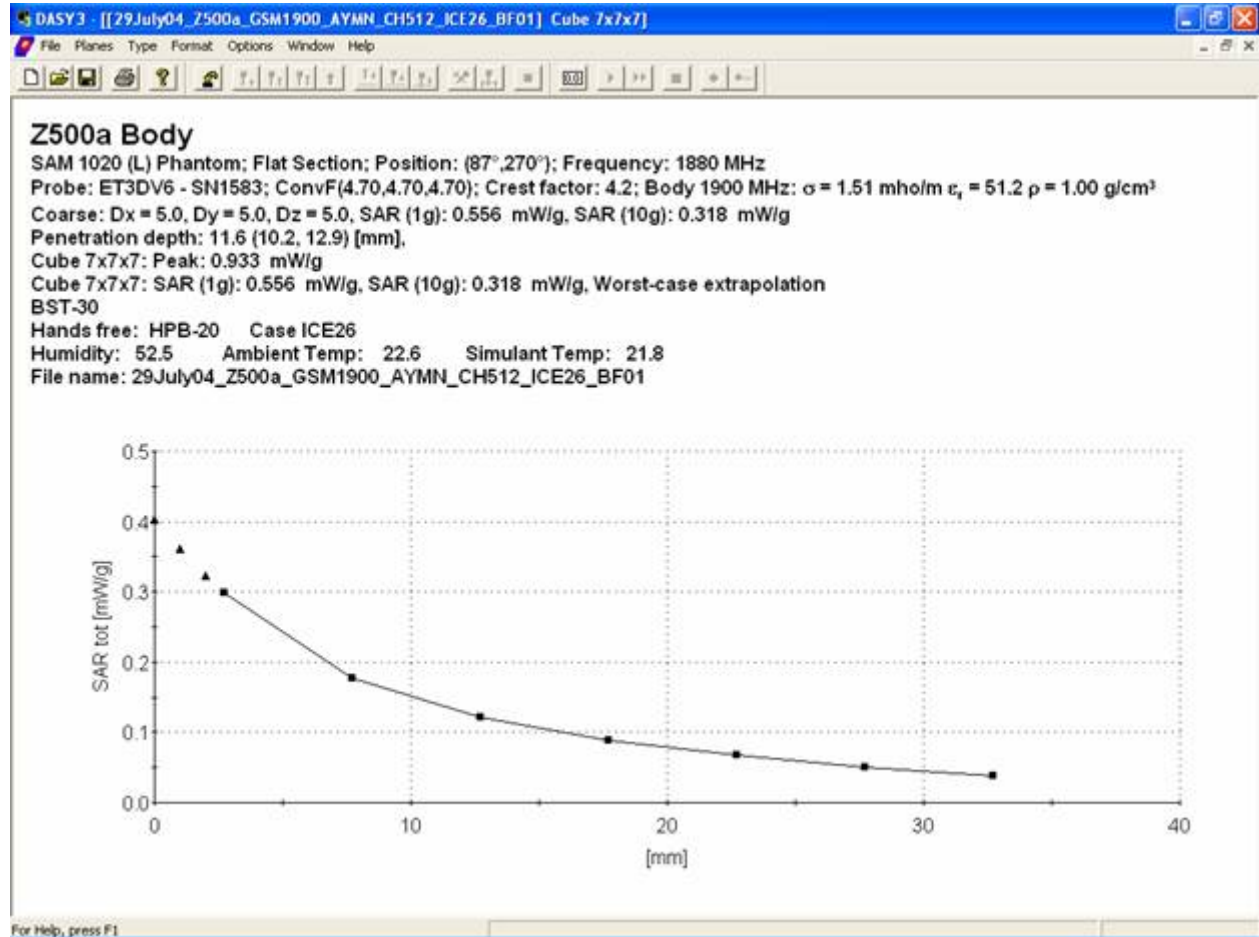
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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



**Distribution of maximum SAR in 1900 GSM band. Measured for maximum SAR in 1900 GSM band, while front of the phone is against the body using carry accessory ICE-26 and hands free accessory HPB-20. (Optional Battery, BST-30)**



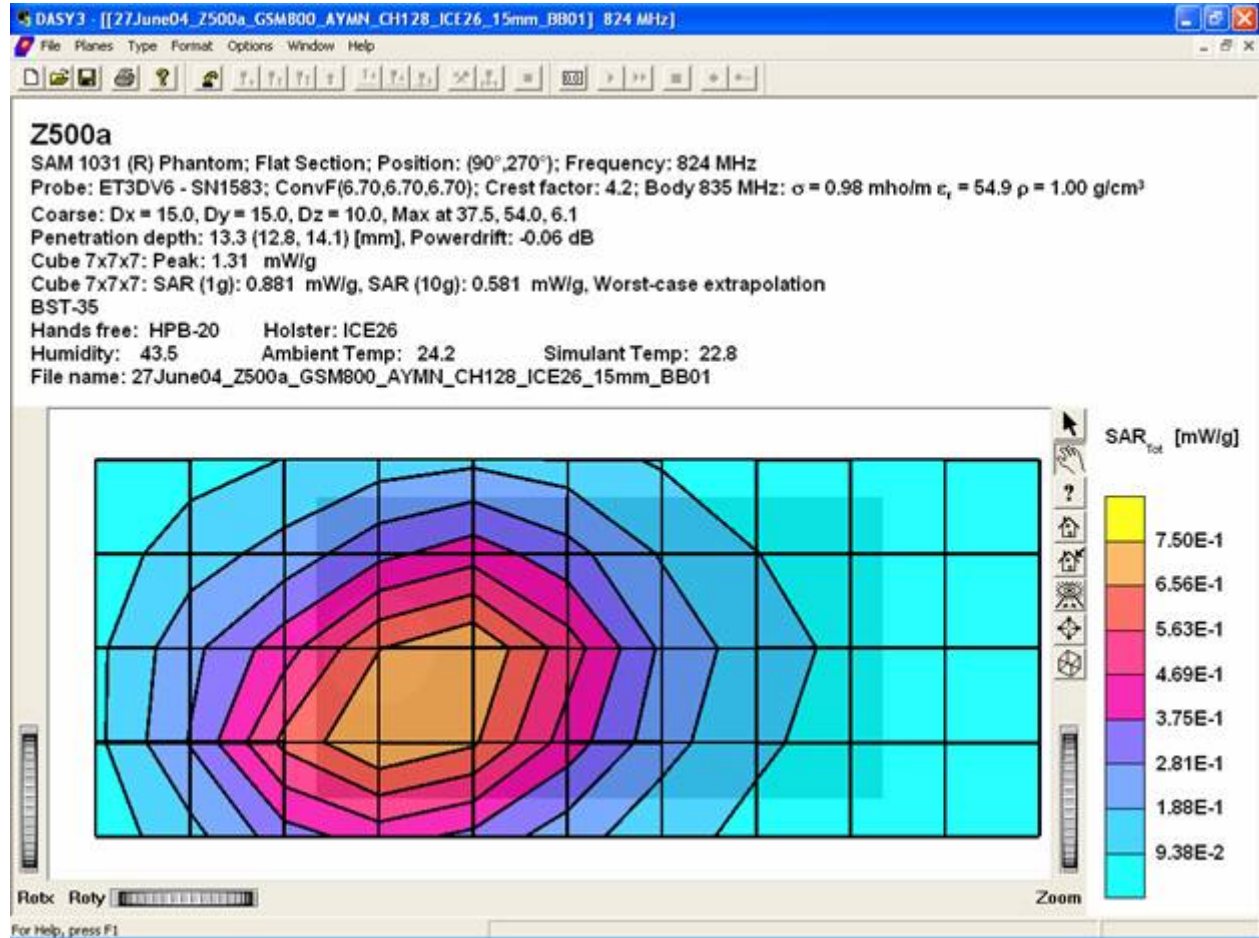
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**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 1900 GSM band, while front of the phone is against the body using carry accessory ICE-26 and hands free accessory HPB-20. (Optional Battery, BST-30)**



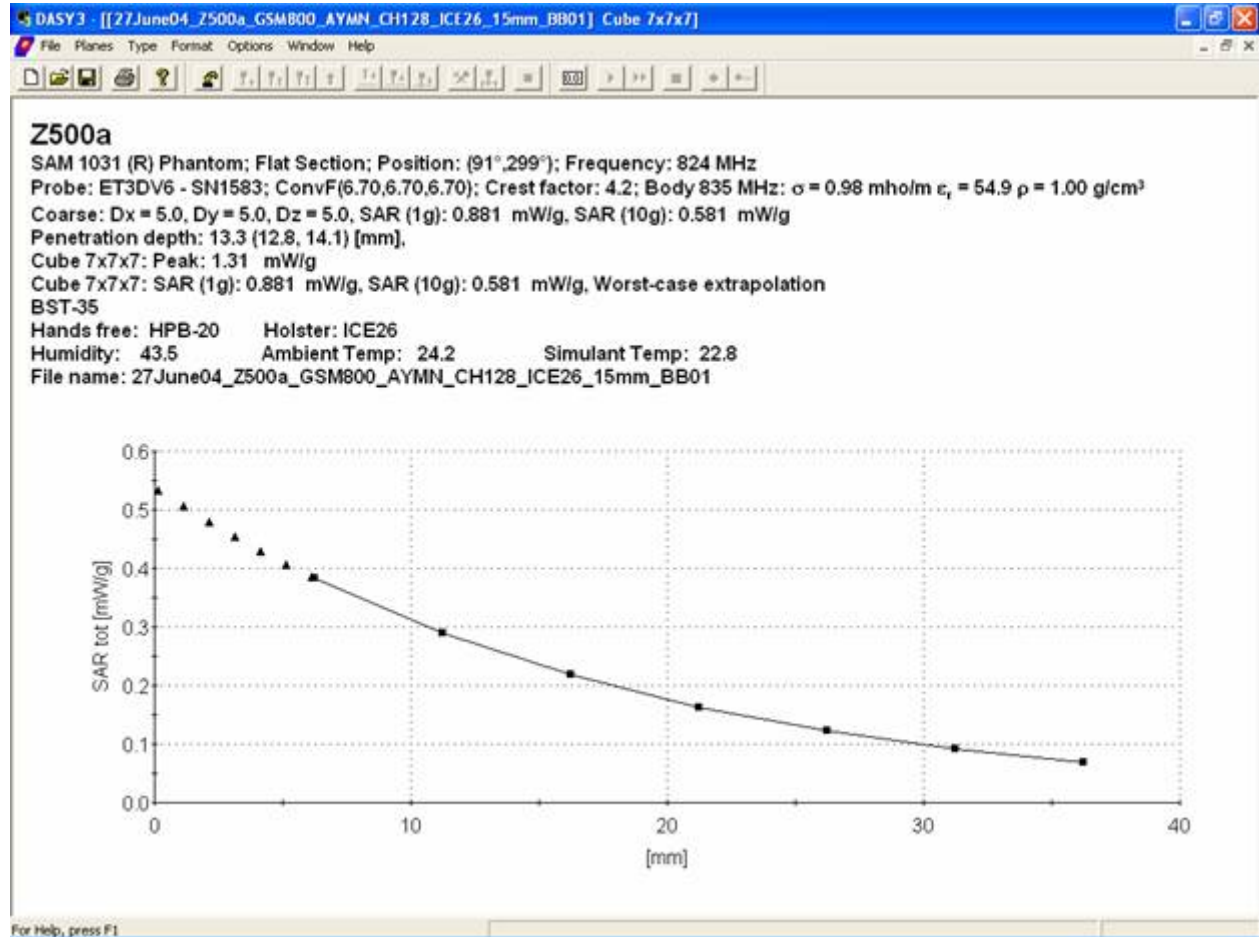
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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



**Distribution of maximum SAR in 800 GSM band. Measured with back of device facing the body using a 15 mm spacer and hands free accessory HPB-20. (Standard Battery, BST-35)**



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



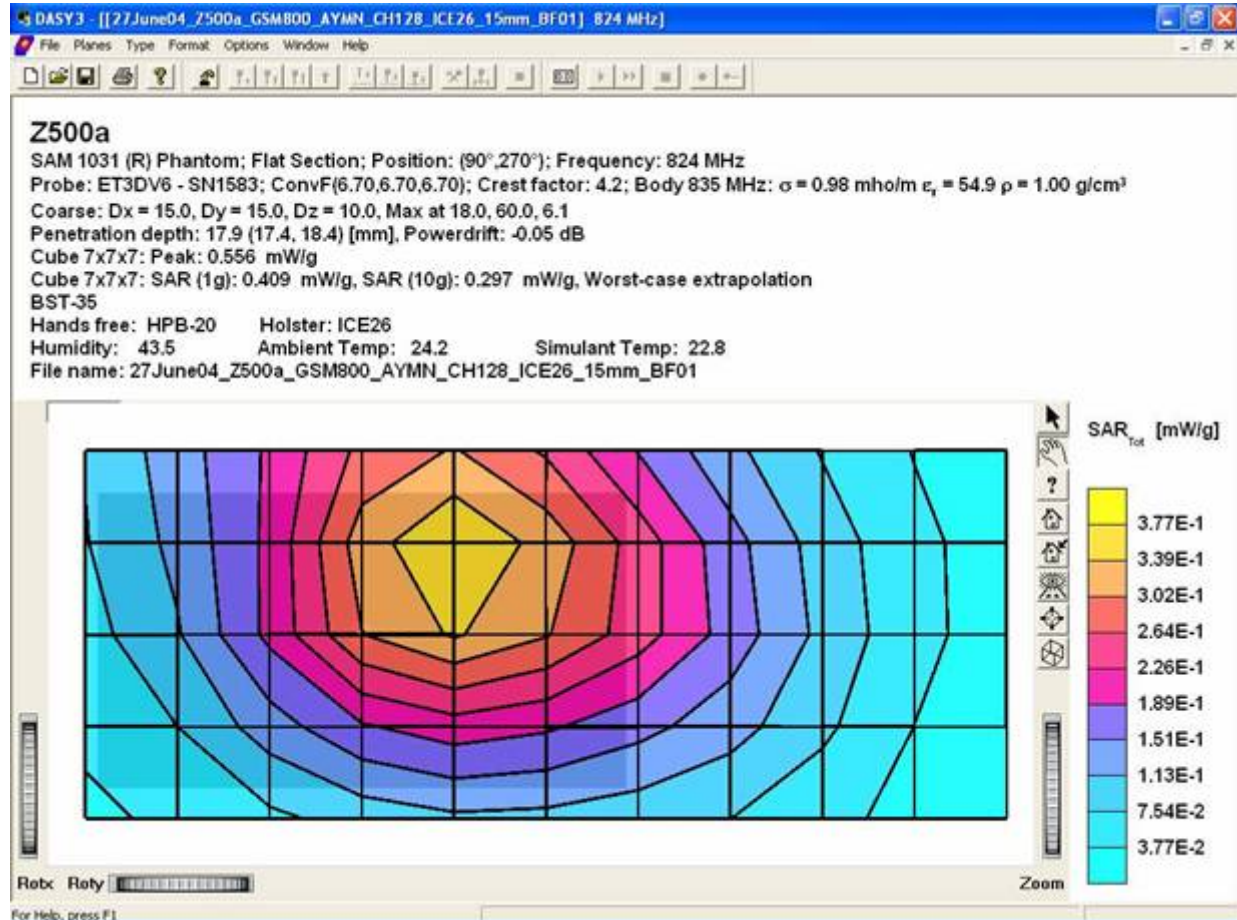
**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 800 GSM band, while back of the phone is against the body using a 15 mm spacer and hands free accessory HPB-20. (Standard Battery, BST-35)**





REPORT

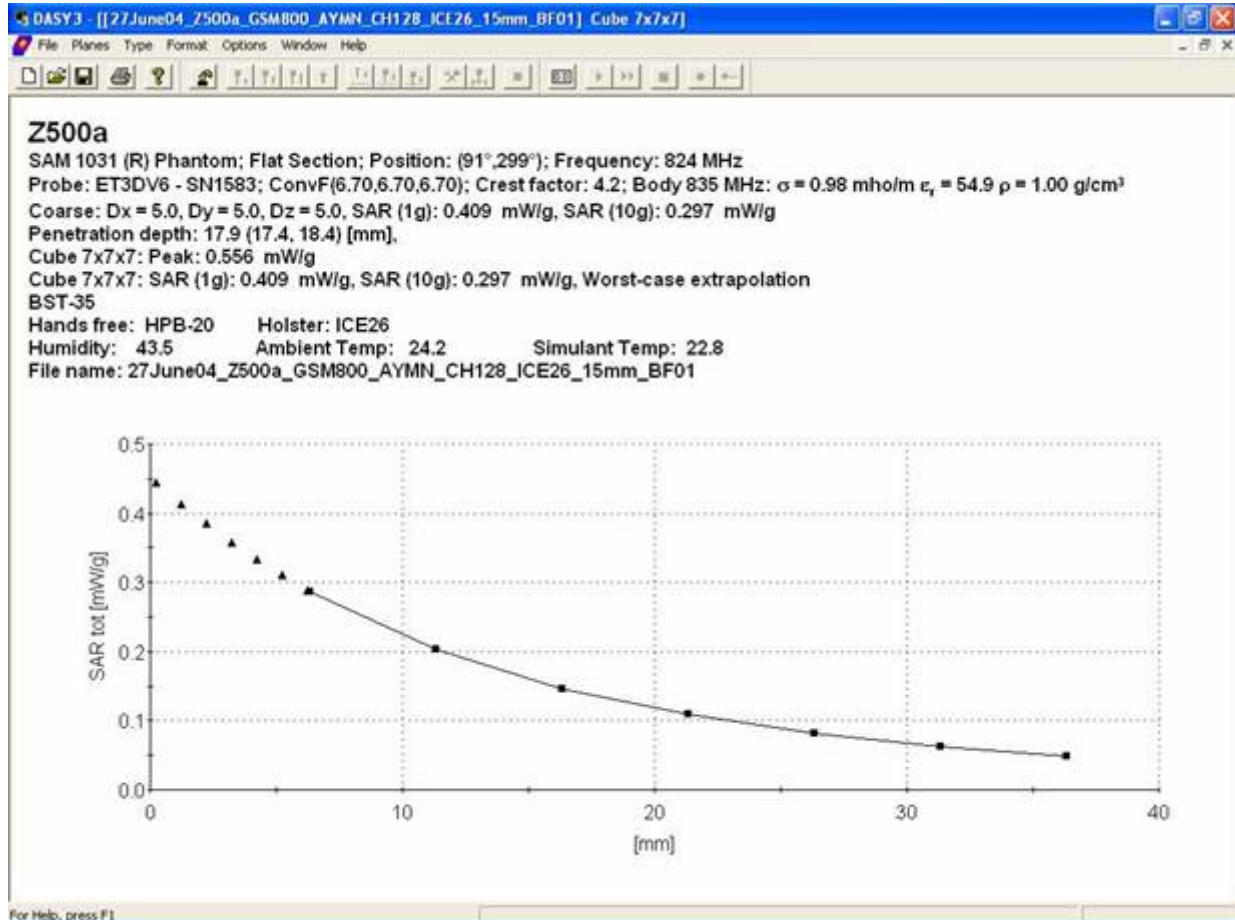
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**Distribution of maximum SAR in 800 GSM band. Measured with front of device facing the body using a 15 mm spacer and hands free accessory HPB-20. (Standard Battery, BST-35)**



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
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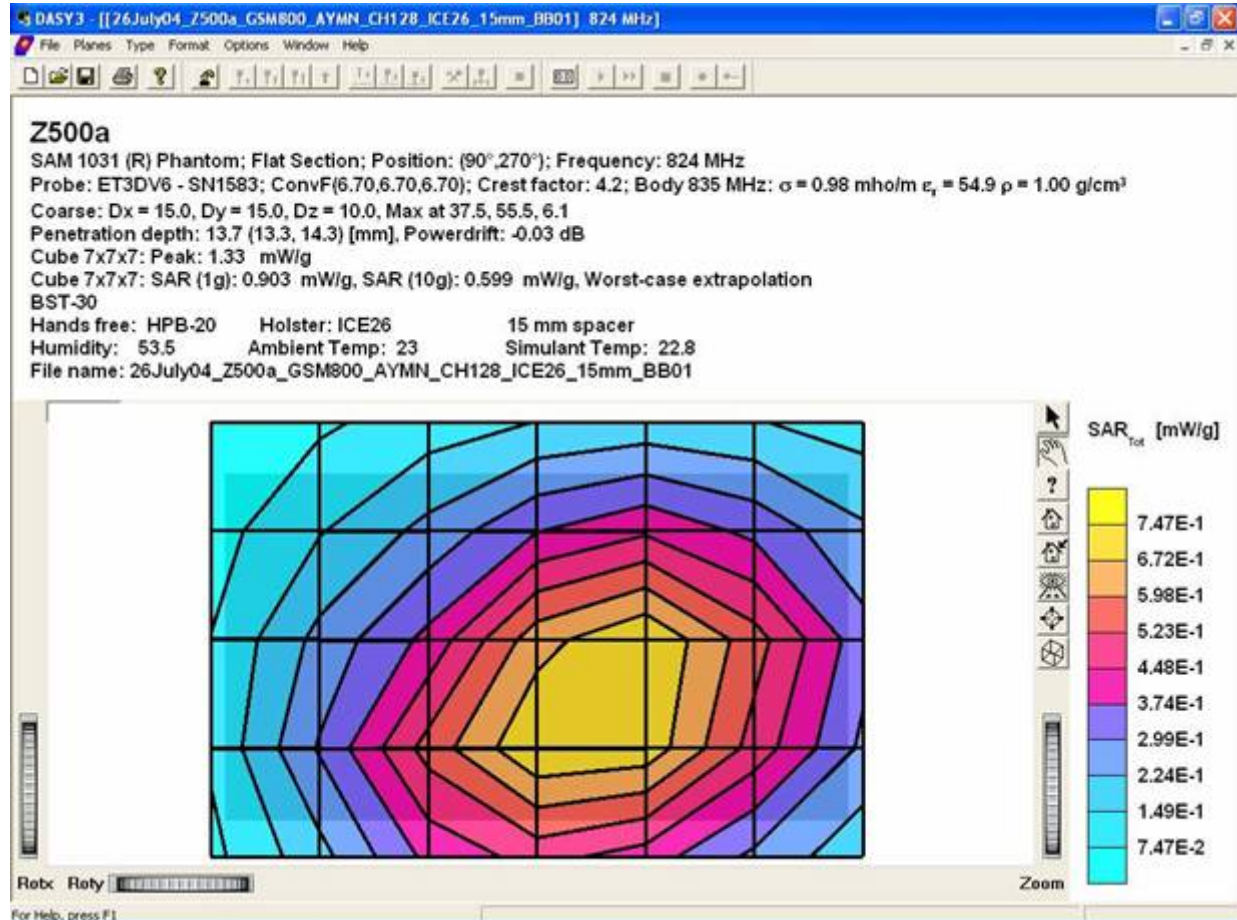


**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 800 GSM band, while front of the phone is against the body using a 15 mm spacer and hands free accessory HPB-20. (Standard Battery, BST-35)**



REPORT

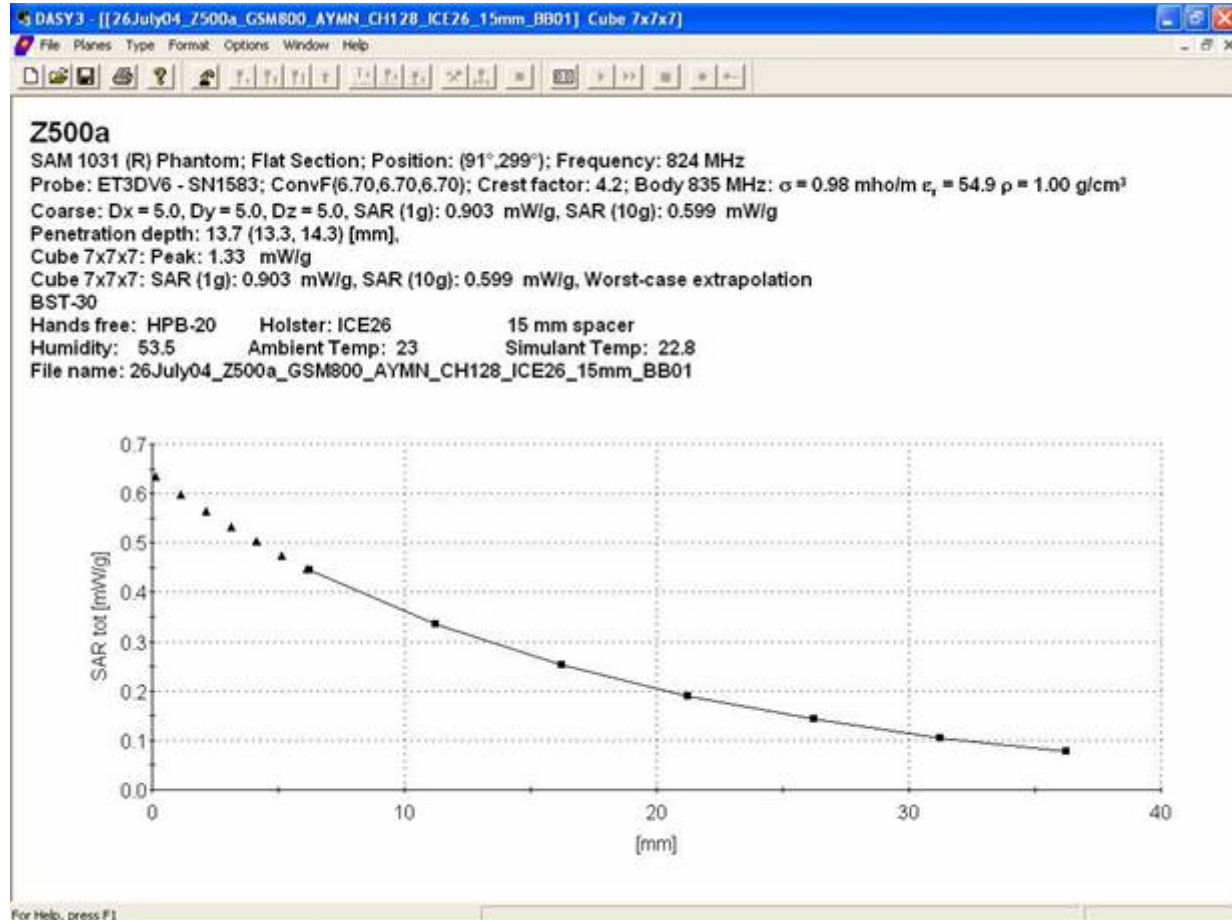
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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



**Distribution of maximum SAR in 800 GSM band. Measured with back of device facing the body using a 15 mm spacer and hands free accessory HPB-20. (Optional Battery, BST-30)**



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
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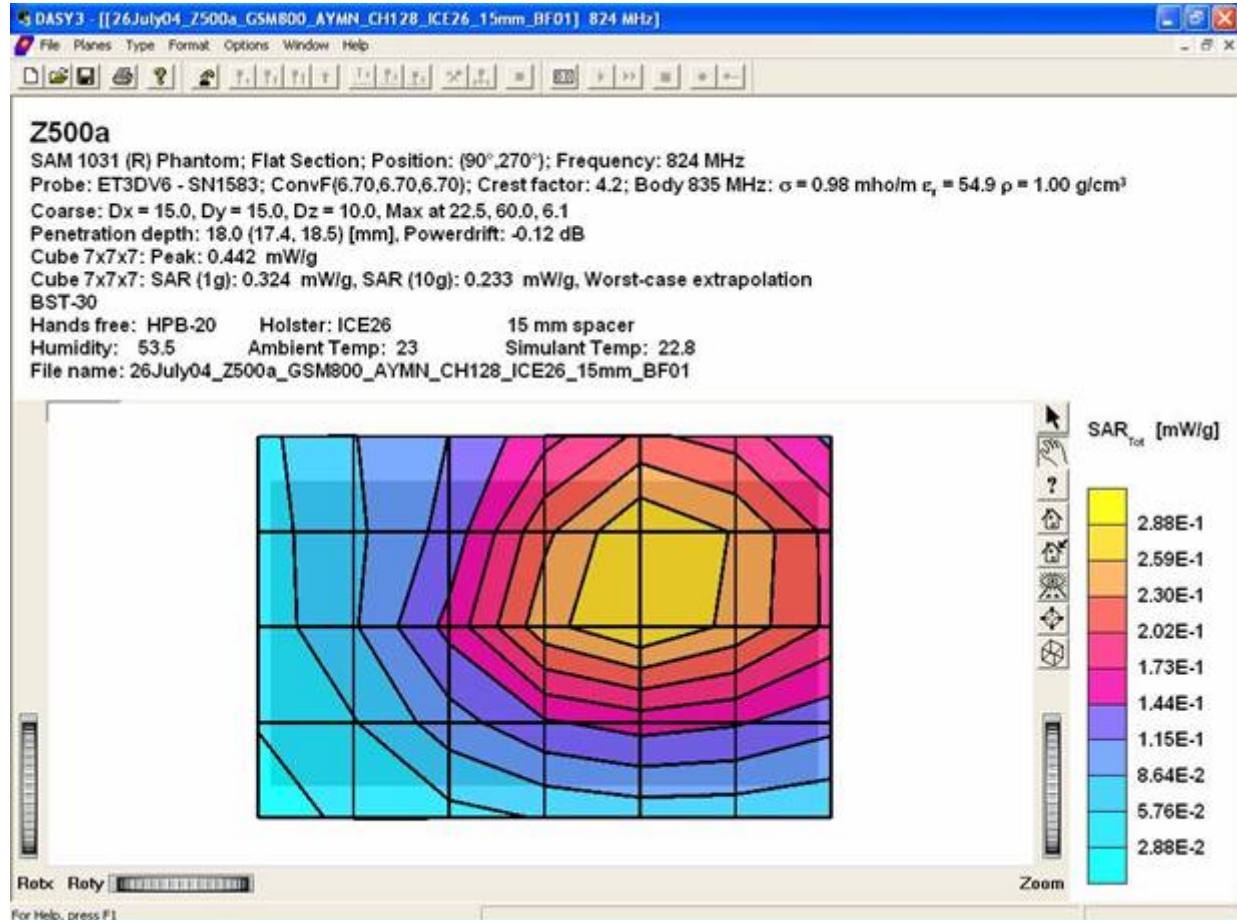


**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 800 GSM band, while back of the phone is against the body using a 15 mm spacer and hands free accessory HPB-20. (Optional Battery, BST-30)**



REPORT

Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
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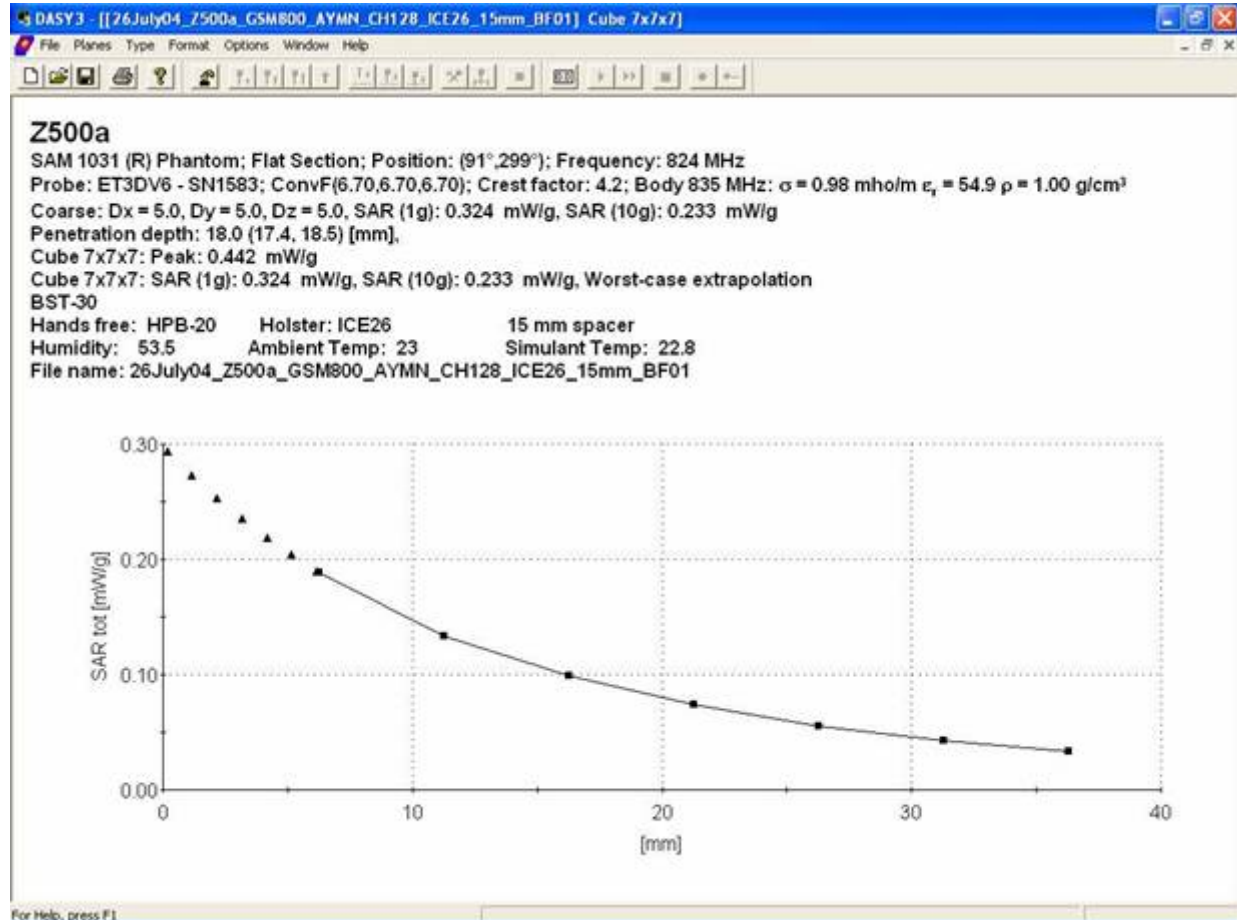


**Distribution of maximum SAR in 800 GSM band. Measured with front of device facing the body using a 15 mm spacer and hands free accessory HPB-20. (Optional Battery, BST-30)**



REPORT

Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc

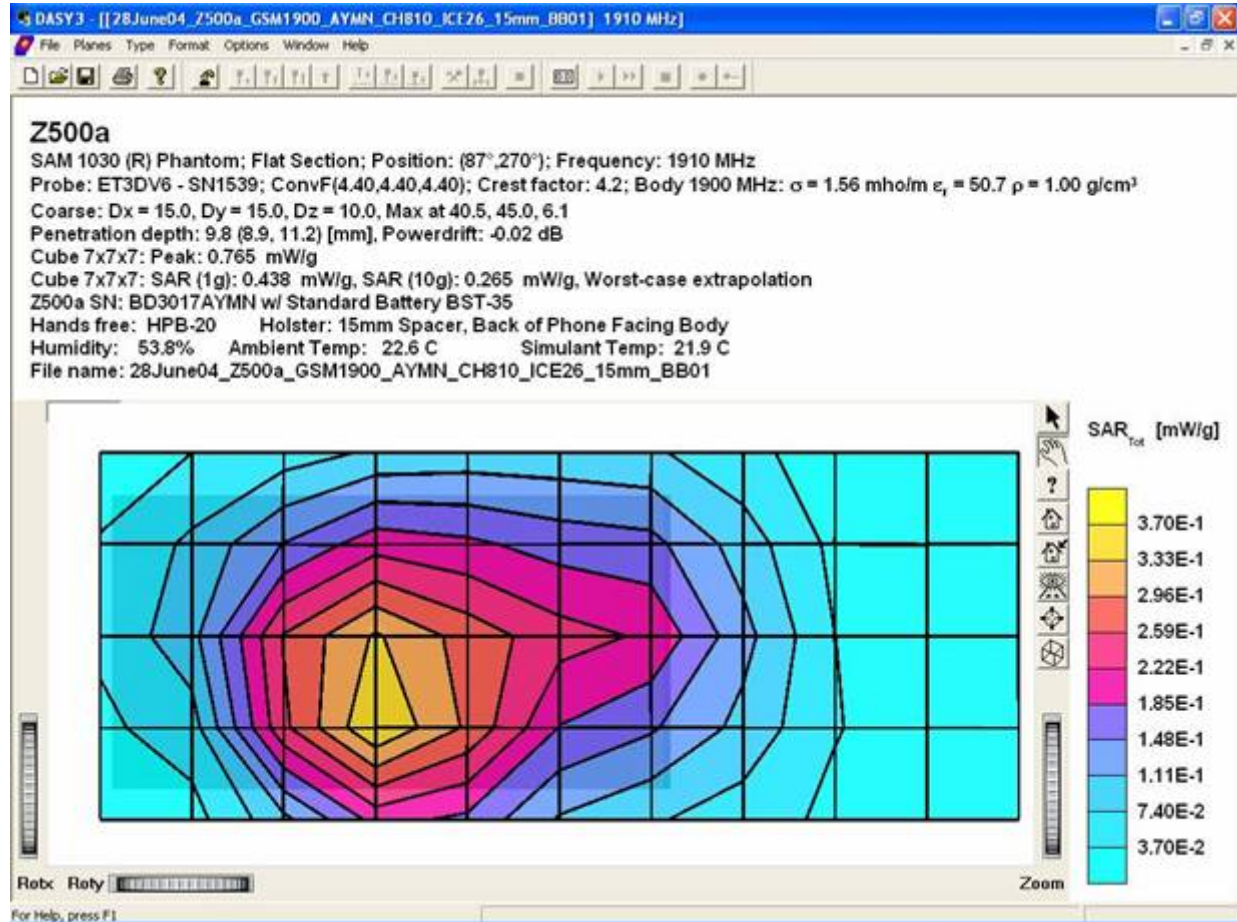


**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 800 GSM band, while front of the phone is against the body using a 15 mm spacer and hands free accessory HPB-20. (Optional Battery, BST-30)**



REPORT

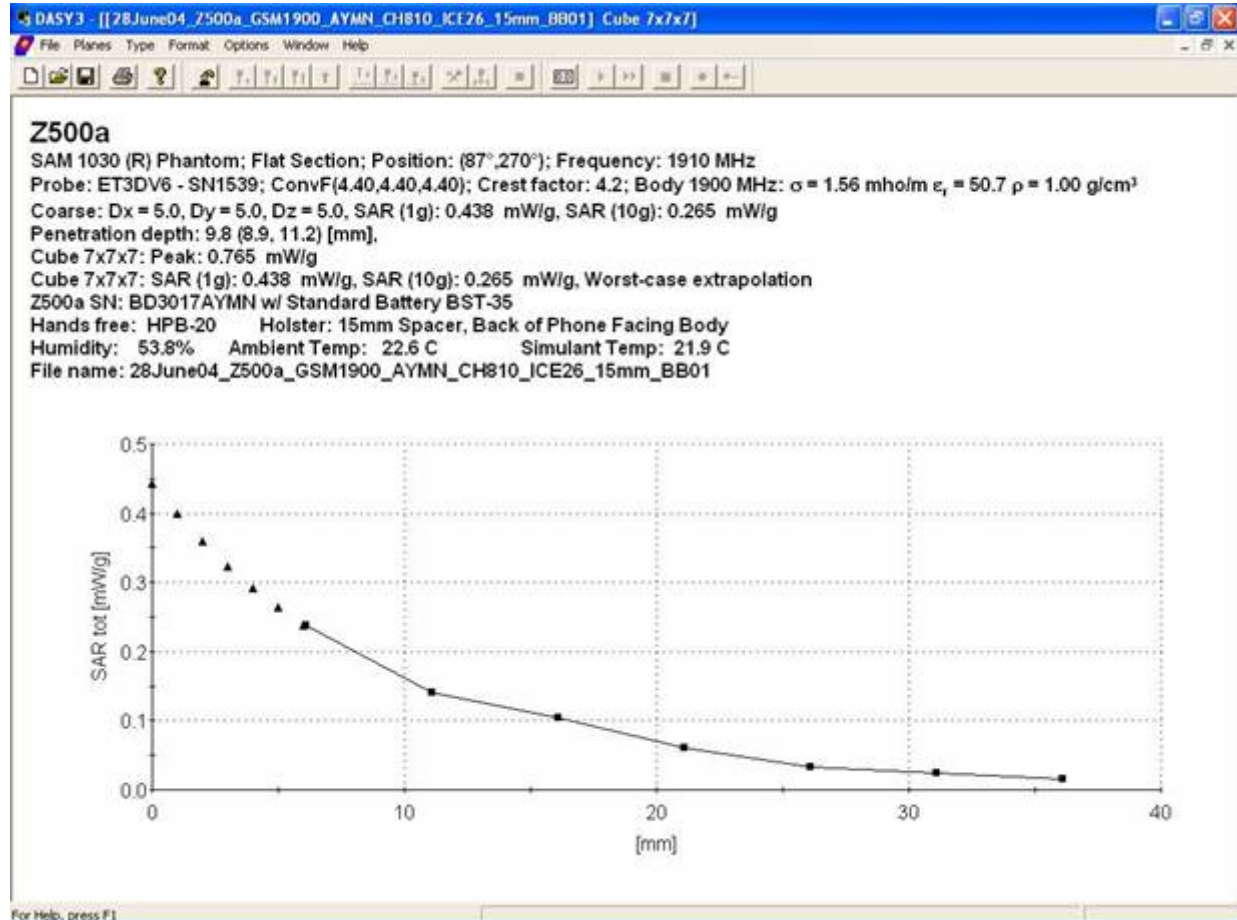
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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



**Distribution of maximum SAR in 1900 GSM band. Measured with back of device facing the body using a 15 mm spacer and hands free accessory HPB-20. (Standard Battery, BST-35)**



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes		No. REP 2004 001 Z500A 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



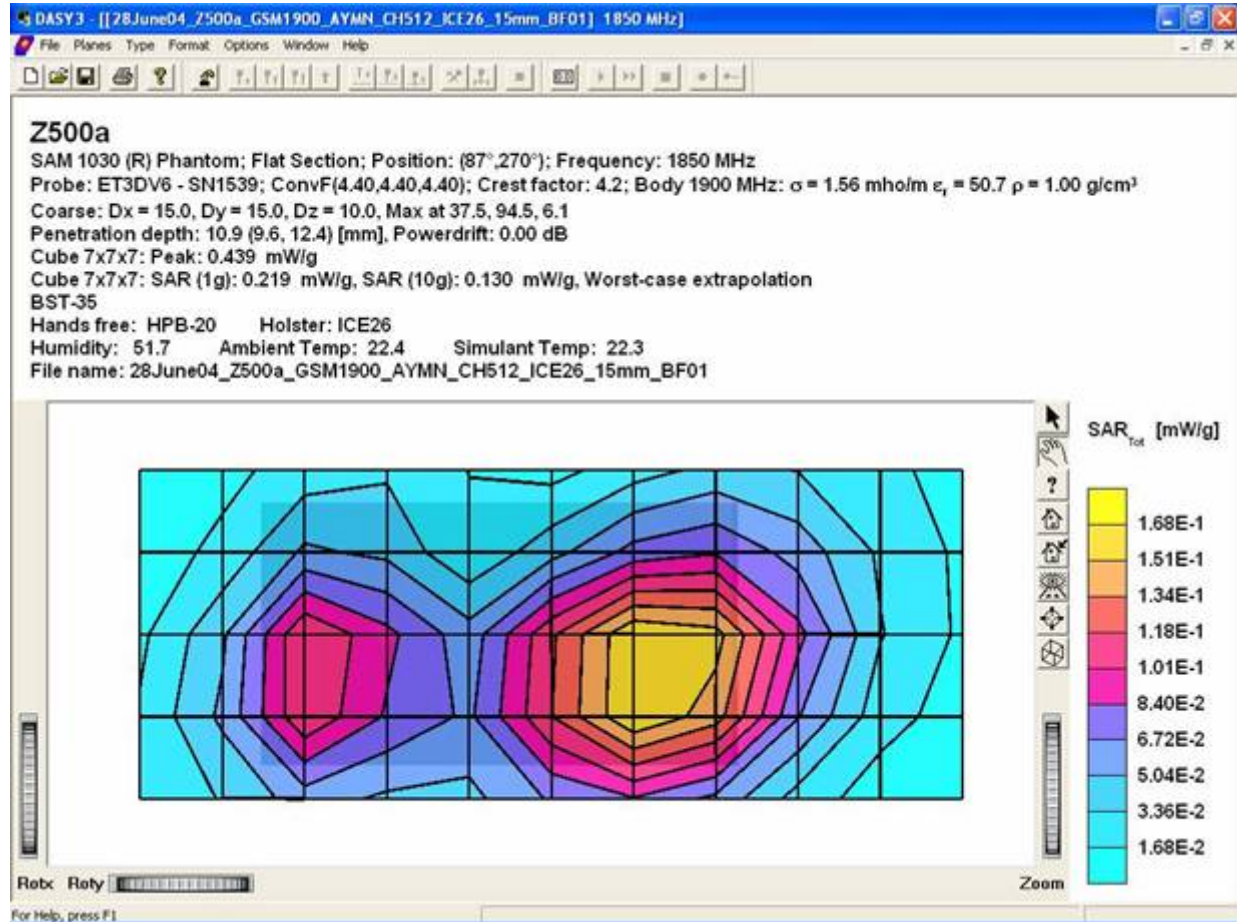
**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 1900 GSM band, while back of the phone is against the body using a 15 mm spacer and hands free accessory HPB-20. (Standard Battery, BST-35)**





REPORT

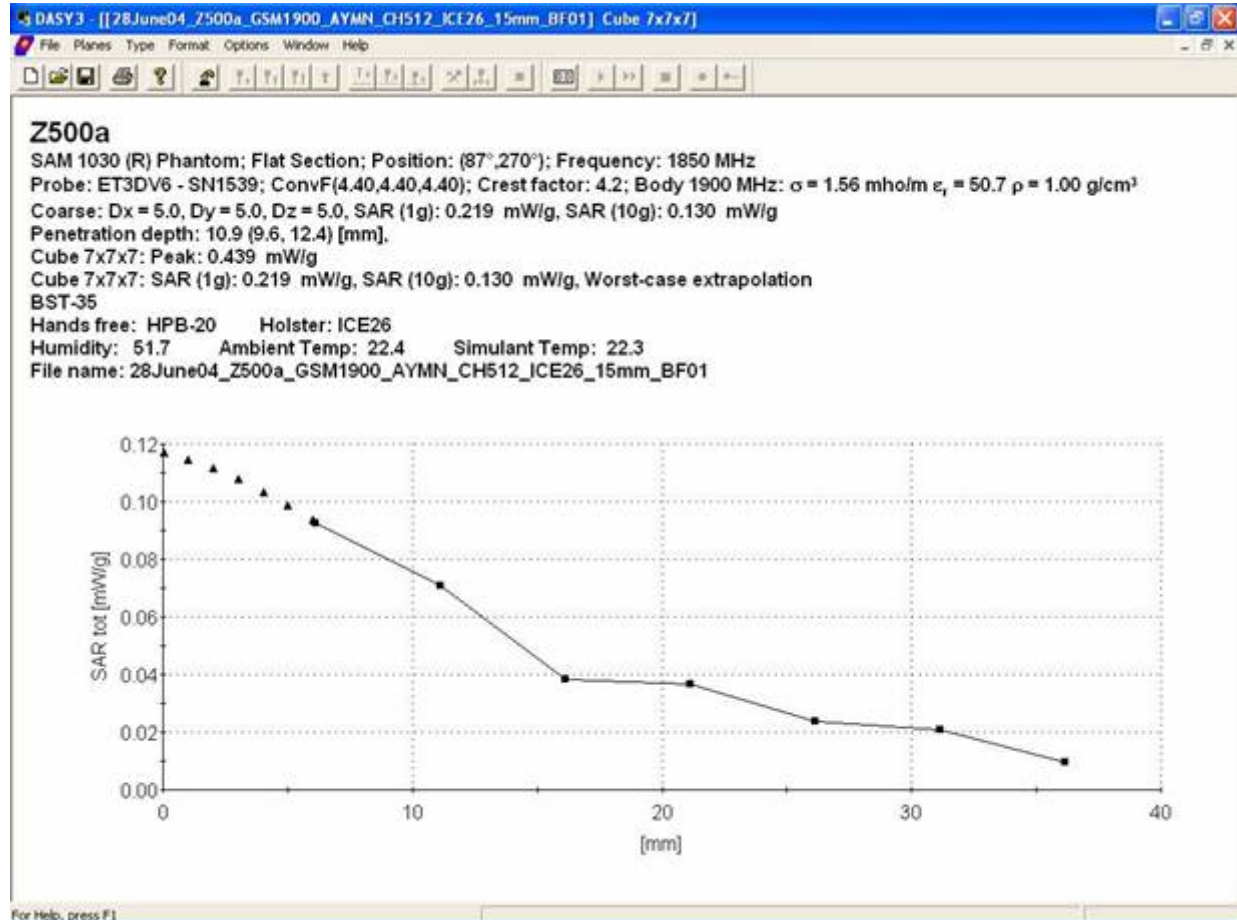
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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z500A\Final Reports\FCCZ500A.doc



**Distribution of maximum SAR in 1900 GSM band. Measured with front of device facing the body using a 15 mm spacer and hands free accessory HPB-20. (Standard Battery, BST-35)**



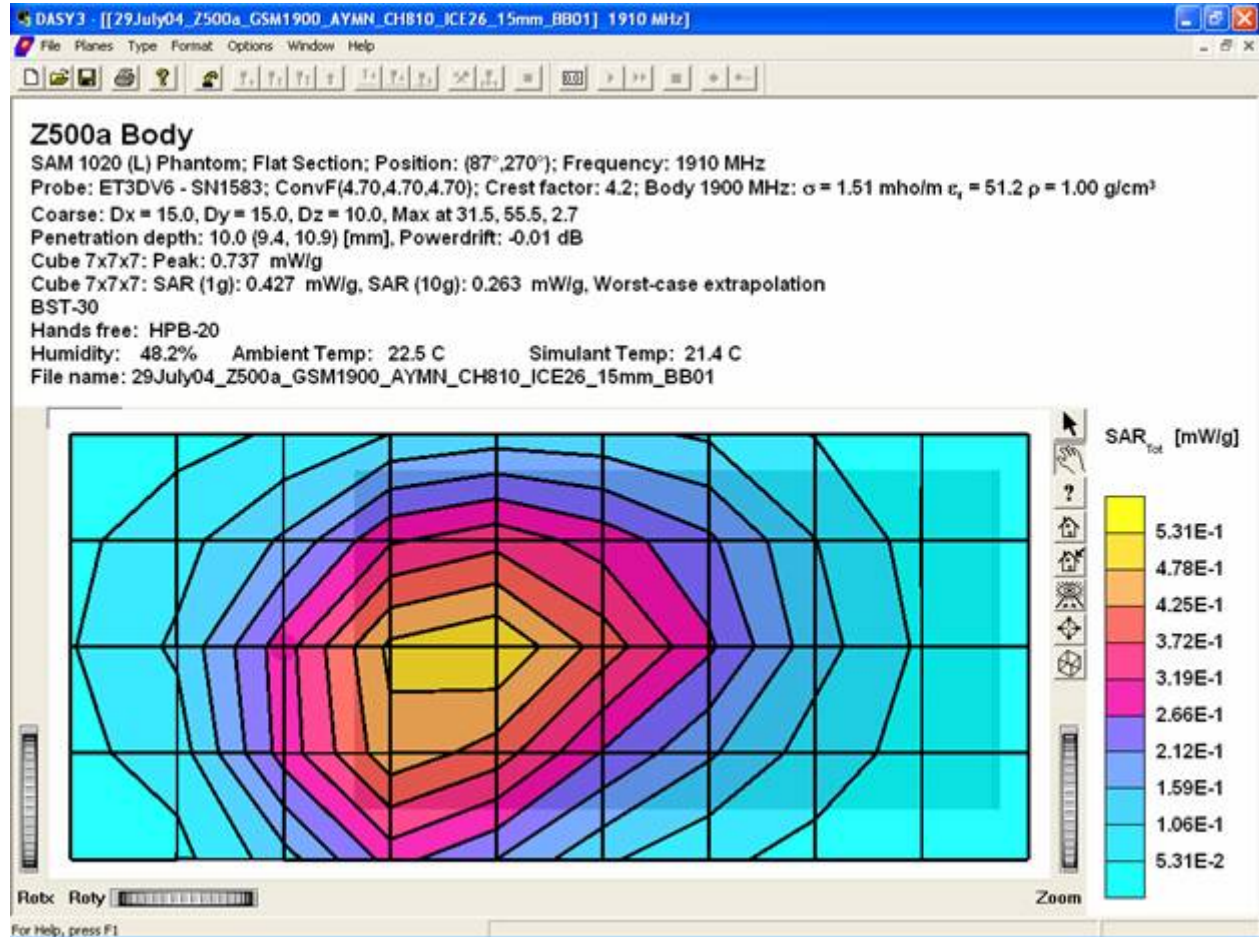
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**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 1900 GSM band, while front of the phone is against the body using a 15 mm spacer and hands free accessory HPB-20. (Standard Battery, BST-35)**



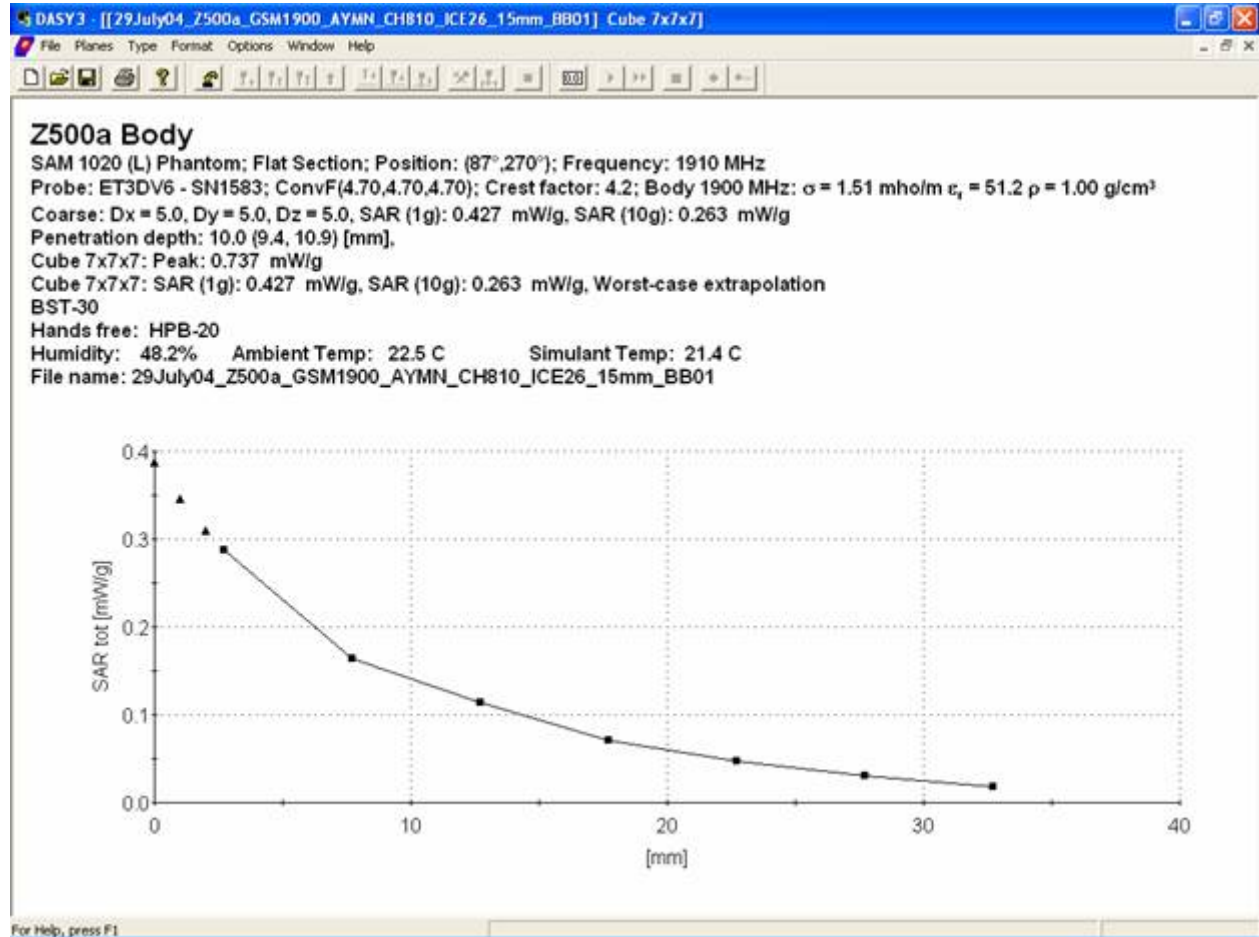
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**Distribution of maximum SAR in 1900 GSM band. Measured with back of device facing the body using a 15 mm spacer and hands free accessory HPB-20. (Optional Battery, BST-30)**



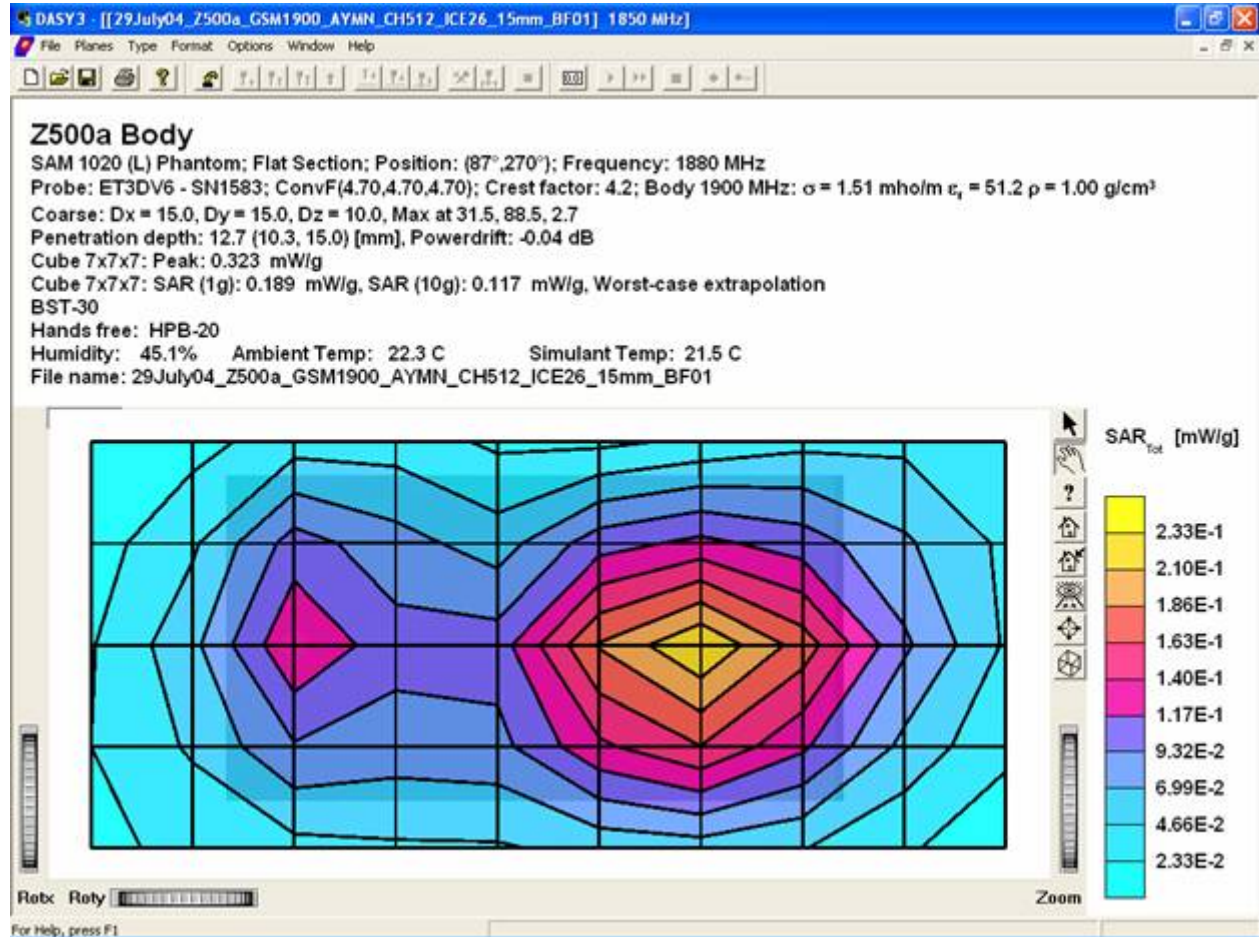
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**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 1900 GSM band, while back of the phone is against the body using a 15 mm spacer and hands free accessory HPB-20. (Optional Battery, BST-30)**



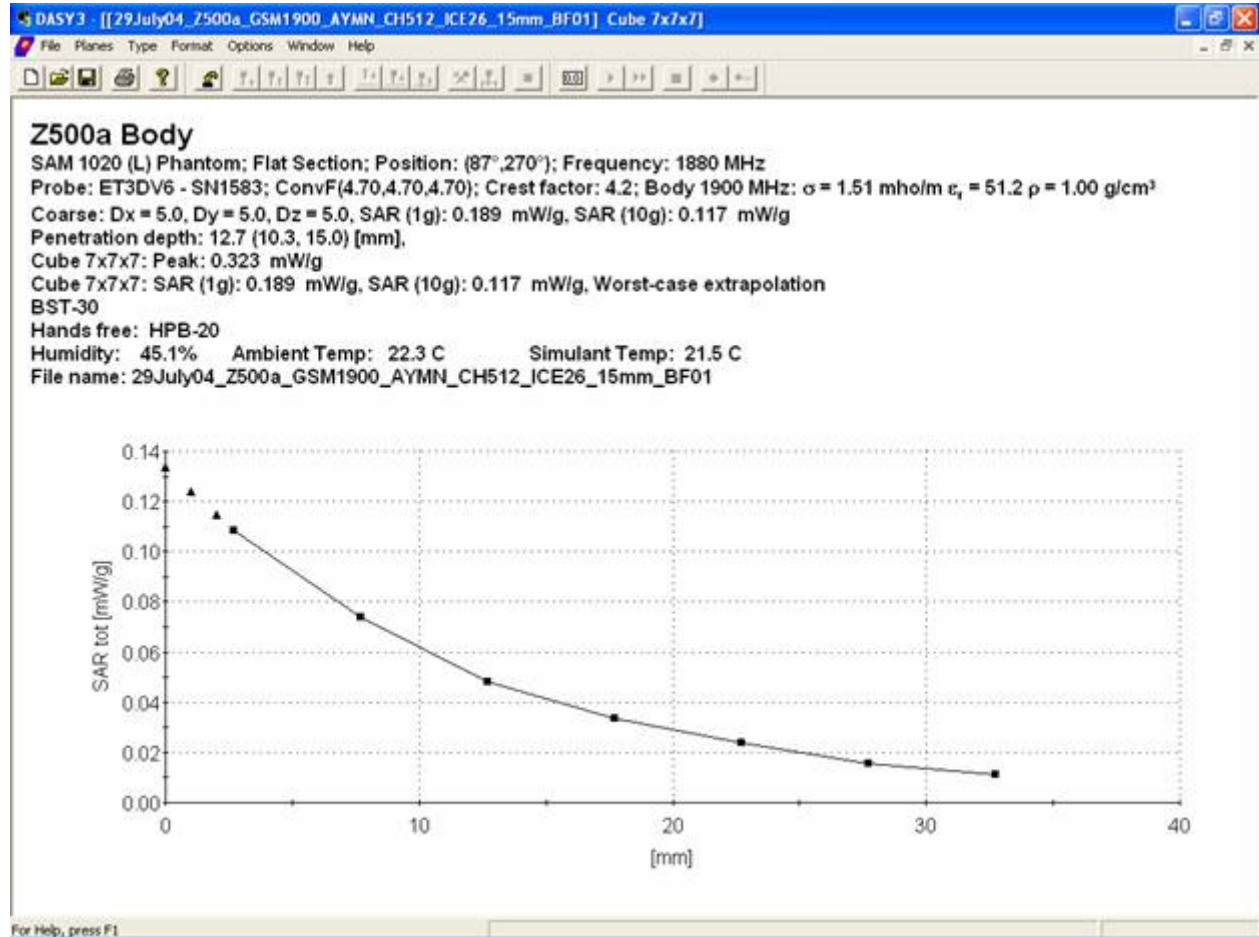
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**Distribution of maximum SAR in 1900 GSM band. Measured with front of device facing the body using a 15 mm spacer and hands free accessory HPB-20. (Optional Battery, BST-30)**



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**SAR Extrapolation to the phantom inner surface. Measured for maximum SAR in 1900 GSM band, while front of the phone is against the body using a 15 mm spacer and hands free accessory HPB-20. (Optional Battery, BST-30)**



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## Appendix 4

### Probe Calibration Certificates

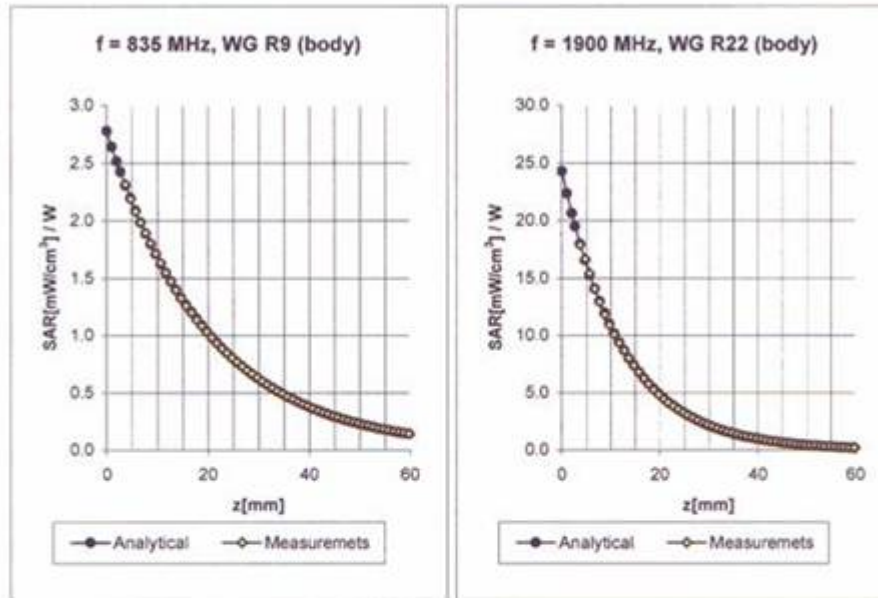


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ET3DV6 SN:1539

December 16, 2003

### Conversion Factor Assessment



Body            835 MHz             $\epsilon_r = 55.2 \pm 5\%$              $\sigma = 0.97 \pm 5\%$  mho/m

Valid for f=750-950 MHz with Body Tissue Simulating Liquid according to OET 65 Suppl. C

ConvF X	<b>6.0</b> $\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	<b>6.0</b> $\pm 9.5\%$ (k=2)	Alpha <b>0.46</b>
ConvF Z	<b>6.0</b> $\pm 9.5\%$ (k=2)	Depth <b>2.36</b>

Body            1900 MHz             $\epsilon_r = 53.3 \pm 5\%$              $\sigma = 1.52 \pm 5\%$  mho/m

Valid for f=1800-2000 MHz with Body Tissue Simulating Liquid according to OET 65 Suppl. C

ConvF X	<b>4.4</b> $\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	<b>4.4</b> $\pm 9.5\%$ (k=2)	Alpha <b>0.67</b>
ConvF Z	<b>4.4</b> $\pm 9.5\%$ (k=2)	Depth <b>2.47</b>



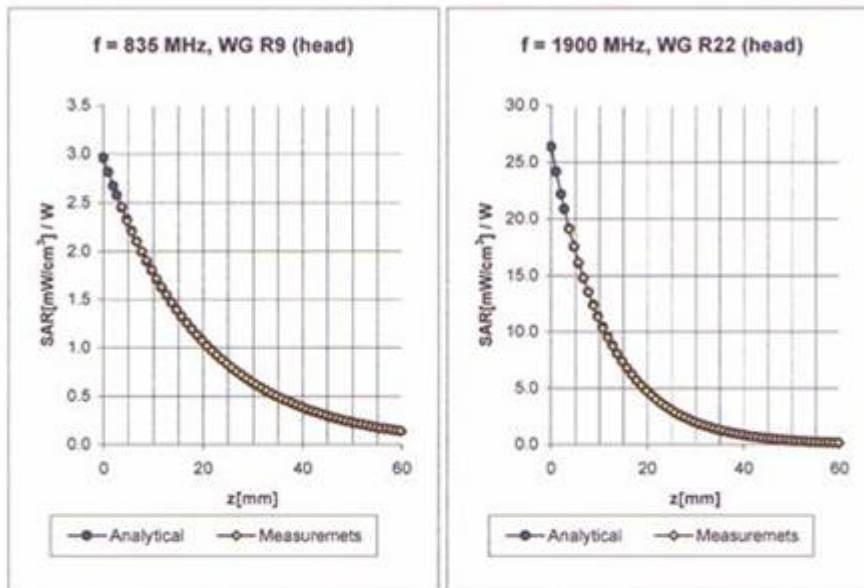


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ET3DV6 SN:1539

December 16, 2003

### Conversion Factor Assessment



<b>Head</b>	<b>835 MHz</b>	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.90 \pm 5\%$ mho/m
Valid for f=750-950 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X			
ConvF X	<b>6.4</b>	$\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	<b>6.4</b>	$\pm 9.5\%$ (k=2)	Alpha <b>0.38</b>
ConvF Z	<b>6.4</b>	$\pm 9.5\%$ (k=2)	Depth <b>2.54</b>
<b>Head</b>	<b>1900 MHz</b>	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\%$ mho/m
Valid for f=1800-2000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X			
ConvF X	<b>4.9</b>	$\pm 9.5\%$ (k=2)	Boundary effect:
ConvF Y	<b>4.9</b>	$\pm 9.5\%$ (k=2)	Alpha <b>0.53</b>
ConvF Z	<b>4.9</b>	$\pm 9.5\%$ (k=2)	Depth <b>2.66</b>



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ET3DV6 SN:1539

December 16, 2003

### DASY - Parameters of Probe: ET3DV6 SN:1539

#### Sensitivity in Free Space

NormX	1.32 $\mu\text{V}/(\text{V}/\text{m})^2$
NormY	1.23 $\mu\text{V}/(\text{V}/\text{m})^2$
NormZ	1.35 $\mu\text{V}/(\text{V}/\text{m})^2$

#### Diode Compression

DCP X	92	mV
DCP Y	92	mV
DCP Z	92	mV

#### Sensitivity in Tissue Simulating Liquid

Head                      835 MHz                       $\epsilon_r = 41.5 \pm 5\%$                        $\sigma = 0.90 \pm 5\%$  mho/m  
Valid for f=750-950 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	6.4 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	6.4 $\pm 9.5\%$ (k=2)	Alpha	0.38
ConvF Z	6.4 $\pm 9.5\%$ (k=2)	Depth	2.54

Head                      1900 MHz                       $\epsilon_r = 40.0 \pm 5\%$                        $\sigma = 1.40 \pm 5\%$  mho/m  
Valid for f=1800-2000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X

ConvF X	4.9 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	4.9 $\pm 9.5\%$ (k=2)	Alpha	0.53
ConvF Z	4.9 $\pm 9.5\%$ (k=2)	Depth	2.66

#### Boundary Effect

Head                      835 MHz                      Typical SAR gradient: 5 % per mm

Probe Tip to Boundary	1 mm	2 mm
SAR <sub>tot</sub> [%] Without Correction Algorithm	10.2	5.7
SAR <sub>tot</sub> [%] With Correction Algorithm	0.4	0.6

Head                      1900 MHz                      Typical SAR gradient: 10 % per mm

Probe Tip to Boundary	1 mm	2 mm
SAR <sub>tot</sub> [%] Without Correction Algorithm	14.9	10.3
SAR <sub>tot</sub> [%] With Correction Algorithm	0.2	0.3

#### Sensor Offset

Probe Tip to Sensor Center	2.7	mm
Optical Surface Detection	1.8 $\pm 0.2$	mm

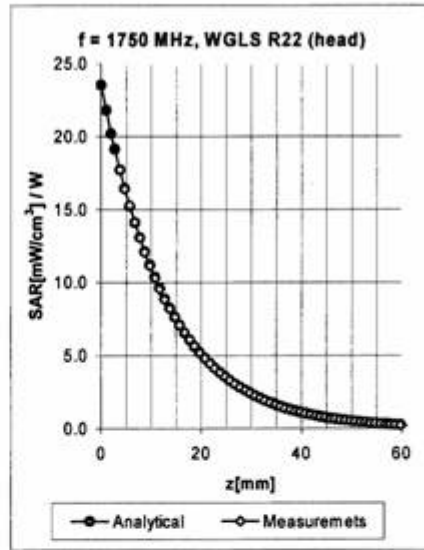
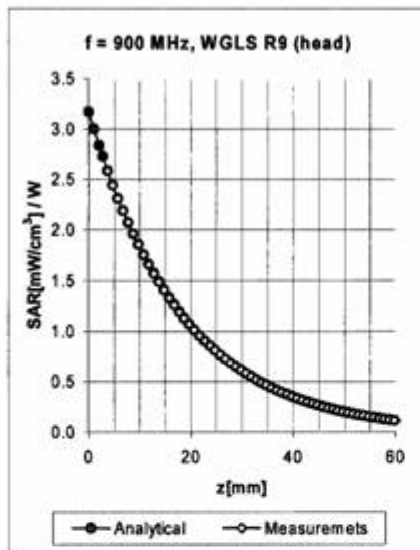


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ET3DV6 SN:1538

May 27, 2004

### Conversion Factor Assessment



f [MHz]	Validity [MHz] <sup>a</sup>	Tissue	Permittivity	Conductivity	Alpha	Depth	ConvF	Uncertainty
835	785-885	Head	41.5 ± 5%	0.90 ± 5%	0.69	1.82	6.27 ± 9.7%	(k=2)
900	850-950	Head	41.5 ± 5%	0.97 ± 5%	0.79	1.72	6.22 ± 9.7%	(k=2)
1750	1700-1800	Head	40.0 ± 5%	1.40 ± 5%	0.52	2.55	5.17 ± 9.7%	(k=2)
1900	1850-1950	Head	40.0 ± 5%	1.40 ± 5%	0.54	2.64	4.95 ± 9.7%	(k=2)
2450	2400-2500	Head	39.2 ± 5%	1.80 ± 5%	1.01	2.01	4.48 ± 9.7%	(k=2)
835	785-885	Body	55.2 ± 5%	0.97 ± 5%	0.83	1.68	6.17 ± 9.7%	(k=2)
900	850-950	Body	55.0 ± 5%	1.05 ± 5%	0.61	2.01	5.97 ± 9.7%	(k=2)
1750	1700-1800	Body	54.0 ± 5%	1.30 ± 5%	0.60	2.73	4.60 ± 9.7%	(k=2)
1900	1850-1950	Body	53.3 ± 5%	1.52 ± 5%	0.67	2.59	4.47 ± 9.7%	(k=2)
2450	2400-2500	Body	52.7 ± 5%	1.95 ± 5%	1.51	1.42	4.38 ± 9.7%	(k=2)

<sup>a</sup> The total standard uncertainty is calculated as root-sum-square of standard uncertainty of the Conversion Factor at calibration frequency and the standard uncertainty for the indicated frequency band.



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**ET3DV6 SN:1538**

**May 27, 2004**

**DASY - Parameters of Probe: ET3DV6 SN:1538**

**Sensitivity in Free Space**

NormX	<b>1.34</b> $\mu\text{V}/(\text{V}/\text{m})^2$
NormY	<b>1.20</b> $\mu\text{V}/(\text{V}/\text{m})^2$
NormZ	<b>1.41</b> $\mu\text{V}/(\text{V}/\text{m})^2$

**Diode Compression<sup>A</sup>**

DCP X	<b>94</b>	mV
DCP Y	<b>94</b>	mV
DCP Z	<b>94</b>	mV

**Sensitivity in Tissue Simulating Liquid (Conversion Factors)**

Please see Page 7.

**Boundary Effect**

**Head                    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>ts</sub> [%]	Without Correction Algorithm	10.2	5.4
SAR <sub>ts</sub> [%]	With Correction Algorithm	0.0	0.1

**Head                    1800 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>ts</sub> [%]	Without Correction Algorithm	14.4	9.3
SAR <sub>ts</sub> [%]	With Correction Algorithm	0.1	0.1

**Sensor Offset**

Probe Tip to Sensor Center	<b>2.7</b> mm
Optical Surface Detection	<b>in tolerance</b>

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> numerical linearization parameter: uncertainty not required

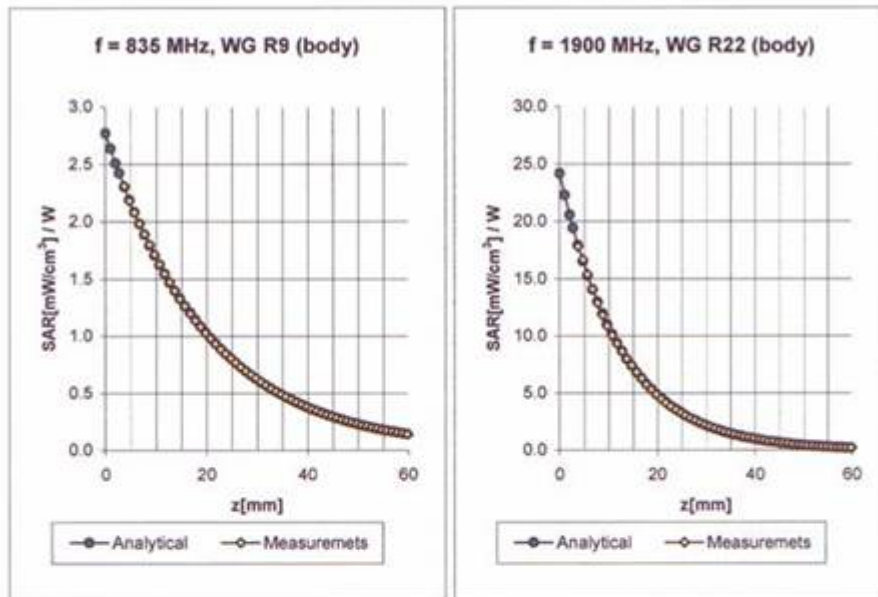


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ET3DV6 SN:1583

December 16, 2003

### Conversion Factor Assessment



<b>Body</b>	<b>835 MHz</b>	$\epsilon_r = 55.2 \pm 5\%$	$\sigma = 0.97 \pm 5\% \text{ mho/m}$
Valid for f=750-950 MHz with Body Tissue Simulating Liquid according to OET 65 Suppl. C			
ConvF X	<b>6.7</b>	$\pm 9.5\% (k=2)$	Boundary effect:
ConvF Y	<b>6.7</b>	$\pm 9.5\% (k=2)$	Alpha <b>0.32</b>
ConvF Z	<b>6.7</b>	$\pm 9.5\% (k=2)$	Depth <b>2.70</b>

<b>Body</b>	<b>1900 MHz</b>	$\epsilon_r = 53.3 \pm 5\%$	$\sigma = 1.52 \pm 5\% \text{ mho/m}$
Valid for f=1800-2000 MHz with Body Tissue Simulating Liquid according to OET 65 Suppl. C			
ConvF X	<b>4.7</b>	$\pm 9.5\% (k=2)$	Boundary effect:
ConvF Y	<b>4.7</b>	$\pm 9.5\% (k=2)$	Alpha <b>0.60</b>
ConvF Z	<b>4.7</b>	$\pm 9.5\% (k=2)$	Depth <b>2.58</b>

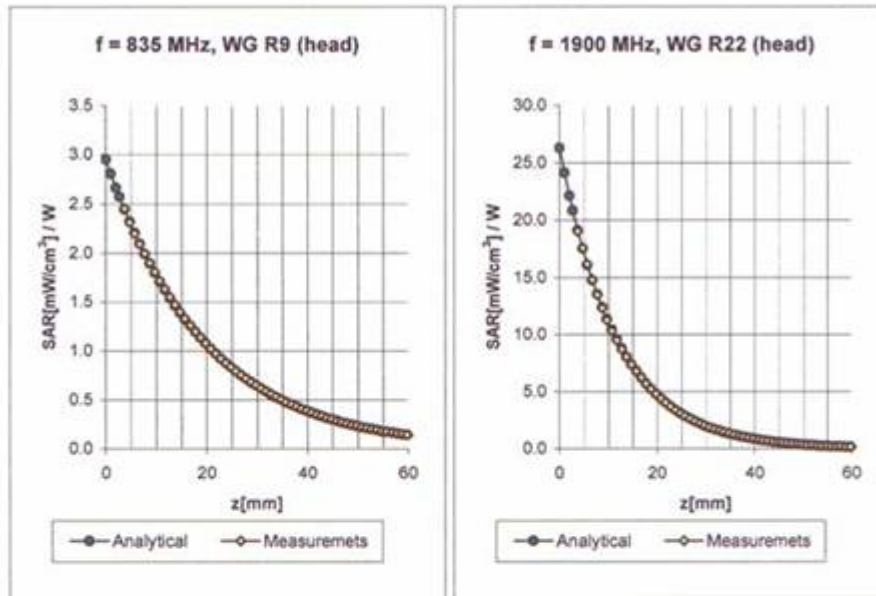


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ET3DV6 SN:1583

December 16, 2003

### Conversion Factor Assessment



<b>Head</b>	<b>835 MHz</b>	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.90 \pm 5\% \text{ mho/m}$
Valid for f=750-950 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X			
	ConvF X	$7.1 \pm 9.5\% (k=2)$	Boundary effect:
	ConvF Y	$7.1 \pm 9.5\% (k=2)$	Alpha <b>0.29</b>
	ConvF Z	$7.1 \pm 9.5\% (k=2)$	Depth <b>2.76</b>

<b>Head</b>	<b>1900 MHz</b>	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\% \text{ mho/m}$
Valid for f=1800-2000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X			
	ConvF X	$5.2 \pm 9.5\% (k=2)$	Boundary effect:
	ConvF Y	$5.2 \pm 9.5\% (k=2)$	Alpha <b>0.47</b>
	ConvF Z	$5.2 \pm 9.5\% (k=2)$	Depth <b>2.82</b>



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ET3DV6 SN:1583

December 16, 2003

### DASY - Parameters of Probe: ET3DV6 SN:1583

#### Sensitivity in Free Space

NormX	1.76 $\mu\text{V}/(\text{V}/\text{m})^2$
NormY	1.95 $\mu\text{V}/(\text{V}/\text{m})^2$
NormZ	1.92 $\mu\text{V}/(\text{V}/\text{m})^2$

#### Diode Compression

DCP X	95	mV
DCP Y	95	mV
DCP Z	95	mV

#### Sensitivity in Tissue Simulating Liquid

Head	835 MHz	$\epsilon_r = 41.5 \pm 5\%$	$\sigma = 0.90 \pm 5\% \text{ mho}/\text{m}$
Valid for f=750-950 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X			
ConvF X	7.1 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	7.1 $\pm 9.5\%$ (k=2)	Alpha	0.29
ConvF Z	7.1 $\pm 9.5\%$ (k=2)	Depth	2.76

Head	1900 MHz	$\epsilon_r = 40.0 \pm 5\%$	$\sigma = 1.40 \pm 5\% \text{ mho}/\text{m}$
Valid for f=1800-2000 MHz with Head Tissue Simulating Liquid according to EN 50361, P1528-200X			
ConvF X	5.2 $\pm 9.5\%$ (k=2)	Boundary effect:	
ConvF Y	5.2 $\pm 9.5\%$ (k=2)	Alpha	0.47
ConvF Z	5.2 $\pm 9.5\%$ (k=2)	Depth	2.82

#### Boundary Effect

Head	835 MHz	Typical SAR gradient: 5 % per mm	
Probe Tip to Boundary			
SAR <sub>be</sub> [%]	Without Correction Algorithm	1 mm	2 mm
SAR <sub>be</sub> [%]	With Correction Algorithm	8.8	5.1
		0.4	0.5

Head	1900 MHz	Typical SAR gradient: 10 % per mm	
Probe Tip to Boundary			
SAR <sub>be</sub> [%]	Without Correction Algorithm	1 mm	2 mm
SAR <sub>be</sub> [%]	With Correction Algorithm	14.1	10.1
		0.3	0.3

#### Sensor Offset

Probe Tip to Sensor Center	2.7	mm
Optical Surface Detection	1.8 $\pm 0.2$	mm



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ET3DV6 SN:1586

May 27, 2004

**DASY - Parameters of Probe: ET3DV6 SN:1586**

**Sensitivity in Free Space**

**Diode Compression<sup>A</sup>**

NormX	<b>1.91</b> $\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	<b>95</b>	mV
NormY	<b>1.86</b> $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	<b>95</b>	mV
NormZ	<b>1.88</b> $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	<b>95</b>	mV

**Sensitivity in Tissue Simulating Liquid (Conversion Factors)**

Please see Page 7.

**Boundary Effect**

**Head                    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>loc</sub> [%]	Without Correction Algorithm	<b>9.3</b>	<b>4.9</b>
SAR <sub>loc</sub> [%]	With Correction Algorithm	<b>0.1</b>	<b>0.3</b>

**Head                    1800 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>loc</sub> [%]	Without Correction Algorithm	<b>11.6</b>	<b>7.7</b>
SAR <sub>loc</sub> [%]	With Correction Algorithm	<b>0.2</b>	<b>0.1</b>

**Sensor Offset**

Probe Tip to Sensor Center	<b>2.7</b> mm
Optical Surface Detection	<b>in tolerance</b>

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> numerical linearization parameter: uncertainty not required



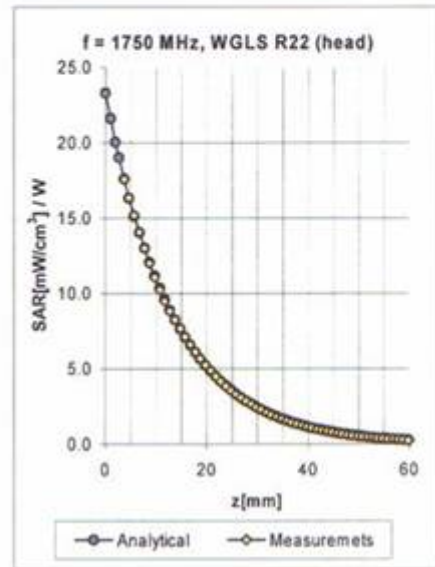
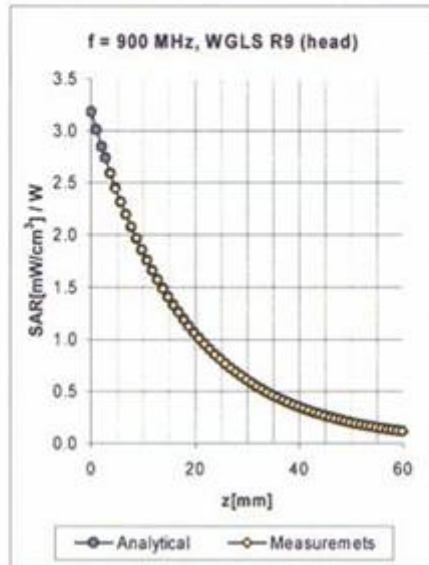


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ET3DV6 SN:1586

May 27, 2004

### Conversion Factor Assessment



f [MHz]	Validity [MHz] <sup>®</sup>	Tissue	Permittivity	Conductivity	Alpha	Depth	ConvF	Uncertainty
835	785-885	Head	41.5 ± 5%	0.90 ± 5%	0.77	1.63	6.62 ± 9.7% (k=2)	
900	850-950	Head	41.5 ± 5%	0.97 ± 5%	0.58	1.92	6.49 ± 9.7% (k=2)	
1750	1700-1800	Head	40.0 ± 5%	1.40 ± 5%	0.48	2.48	5.32 ± 9.7% (k=2)	
1900	1850-1950	Head	40.0 ± 5%	1.40 ± 5%	0.50	2.64	5.14 ± 9.7% (k=2)	
2450	2400-2500	Head	39.2 ± 5%	1.80 ± 5%	0.94	1.89	4.56 ± 9.7% (k=2)	
835	785-885	Body	55.2 ± 5%	0.97 ± 5%	0.52	2.05	6.32 ± 9.7% (k=2)	
900	850-950	Body	55.0 ± 5%	1.05 ± 5%	0.51	2.20	6.16 ± 9.7% (k=2)	
1750	1700-1800	Body	53.3 ± 5%	1.52 ± 5%	0.54	2.82	4.60 ± 9.7% (k=2)	
1900	1850-1950	Body	53.3 ± 5%	1.52 ± 5%	0.57	2.76	4.53 ± 9.7% (k=2)	
2450	2400-2500	Body	52.7 ± 5%	1.95 ± 5%	1.21	1.56	4.36 ± 9.7% (k=2)	

<sup>®</sup> The total standard uncertainty is calculated as root-sum-square of standard uncertainty of the Conversion Factor at calibration frequency and the standard uncertainty for the indicated frequency band.



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## Appendix 5

### Measurement Uncertainty Budget



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**Table 1a. Uncertainty Budget for System Performance Check (Dipole & flat phantom) DASy3 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 ( $k=1$ )	E.2.1	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	8.3	R	1.73	1	1	4.8	4.8	$\infty$
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	0.0	R	1.73	1	1	0.0	0.0	$\infty$
Integration Time	E.2.8	0.0	R	1.73	1	1	0.0	0.0	$\infty$
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 constrains 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	3.9	R	1.73	1	1	2.3	2.3	$\infty$
<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	$\infty$



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Liquid Conductivity - measurement uncertainty (6)	E.3.3	6.20	R	1.73	0.64	0.43	2.29	1.54	∞
Liquid Permittivity - deviation from target values (5)	E.3.2	3.7	R	1.73	0.6	0.49	1.28	1.05	∞
Liquid Permittivity - measurement uncertainty (6)	E.3.3	6.08	R	1.73	0.6	0.49	2.11	1.72	∞
<b>Combined Standard Uncertainty</b>			RSS				10.61	10.31	
<b>Expanded Uncertainty (95% C.L.)</b>							21.22	20.62	



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**Table 1b. 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 ( $k=1$ )	E.2.1	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 constrains 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 -	E.3.3	6.20	R	1.73	0.64	0.43	2.29	1.54	$\infty$



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measurement uncertainty (6)									
Liquid Permittivity - deviation from target values (5)	E.3.2	3.7	R	1.73	0.6	0.49	1.28	1.05	∞
Liquid Permittivity - measurement uncertainty (6)	E.3.3	6.08	R	1.73	0.6	0.49	2.11	1.72	∞
<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 2a: Uncertainty Budget for the Device Under Test with DASY3 System**

a	b	c	d	$e = f(d,k)$	f	g	$h = c \times f / e$	$i = c \times g / e$	k
Uncertainty Component	Sec.	Tol. (± %)	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	8.3	R	1.73	1	1	4.8	4.8	$\infty$
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	1.4	R	1.73	1	1	0.8	0.8	$\infty$
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 constrains 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	3.9	R	1.73	1	1	2.3	2.3	$\infty$
<b>Test sample Related</b>									
Test Sample Positioning	E.4.2	2.1	N	1	1	1	2.1	2.1	4
Device Holder Uncertainty	E.4.1	5.7	R	1.73	1	1	3.3	3.3	4
Output Power Variation - SAR drift measurement (4)	6.6.2	5.0	R	1.73	1	1	2.9	2.9	$\infty$
<b>Phantom and Tissue Parameters</b>									
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	∞
Liquid Conductivity - measurement uncertainty (6)	E.3.3	6.20	R	1.73	0.64	0.43	2.3	1.5	∞
Liquid Permittivity - deviation from target values (5)	E.3.2	3.7	R	1.73	0.6	0.49	1.3	1.0	∞
Liquid Permittivity - measurement uncertainty (6)	E.3.3	6.08	R	1.73	0.6	0.49	2.1	1.7	∞
<b>Combined Standard Uncertainty</b>			RSS				11.33	11.04	
<b>Expanded Uncertainty</b> (95% CONFIDENCE LEVEL)			K=2				22.67	22.08	





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

a	b	c	d	$e = f(d,k)$	f	g	$h = c \times f / e$	$i = c \times g / e$	k
Uncertainty Component	Sec.	Tol. (± %)	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 constrains 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	2.1	N	1	1	1	2.1	2.1	4
Device Holder Uncertainty	E.4.1	5.7	R	1.73	1	1	3.3	3.3	4
Output Power Variation - SAR drift measurement (4)	6.6.2	5.0	R	1.73	1	1	2.9	2.9	$\infty$
<b>Phantom and Tissue Parameters</b>									
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	∞
Liquid Conductivity - measurement uncertainty (6)	E.3.3	6.20	R	1.73	0.64	0.43	2.3	1.5	∞
Liquid Permittivity - deviation from target values (5)	E.3.2	3.7	R	1.73	0.6	0.49	1.3	1.0	∞
Liquid Permittivity - measurement uncertainty (6)	E.3.3	6.08	R	1.73	0.6	0.49	2.1	1.7	∞
<b>Combined Standard Uncertainty</b>			RSS				10.14	9.82	
<b>Expanded Uncertainty (95% CONFIDENCE LEVEL)</b>			K=2				20.27	19.64	



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

Uncertainty Component	Tolerance (±%)	Probability Distribution	Divisor	$c_i$	Standard Uncertainty (±%)	$v_i$ 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 (±%)	Probability Distribution	Divisor	$c_i$	Standard Uncertainty (±%)	$v_i$ 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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a. Front



b. Back



c. Side

**View of Device (Open)**



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a. Front



b. Back



c. Side

**View of Device (Closed)**



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Front View



Back View

**Front and Back views of carry accessory model ICE-26.**



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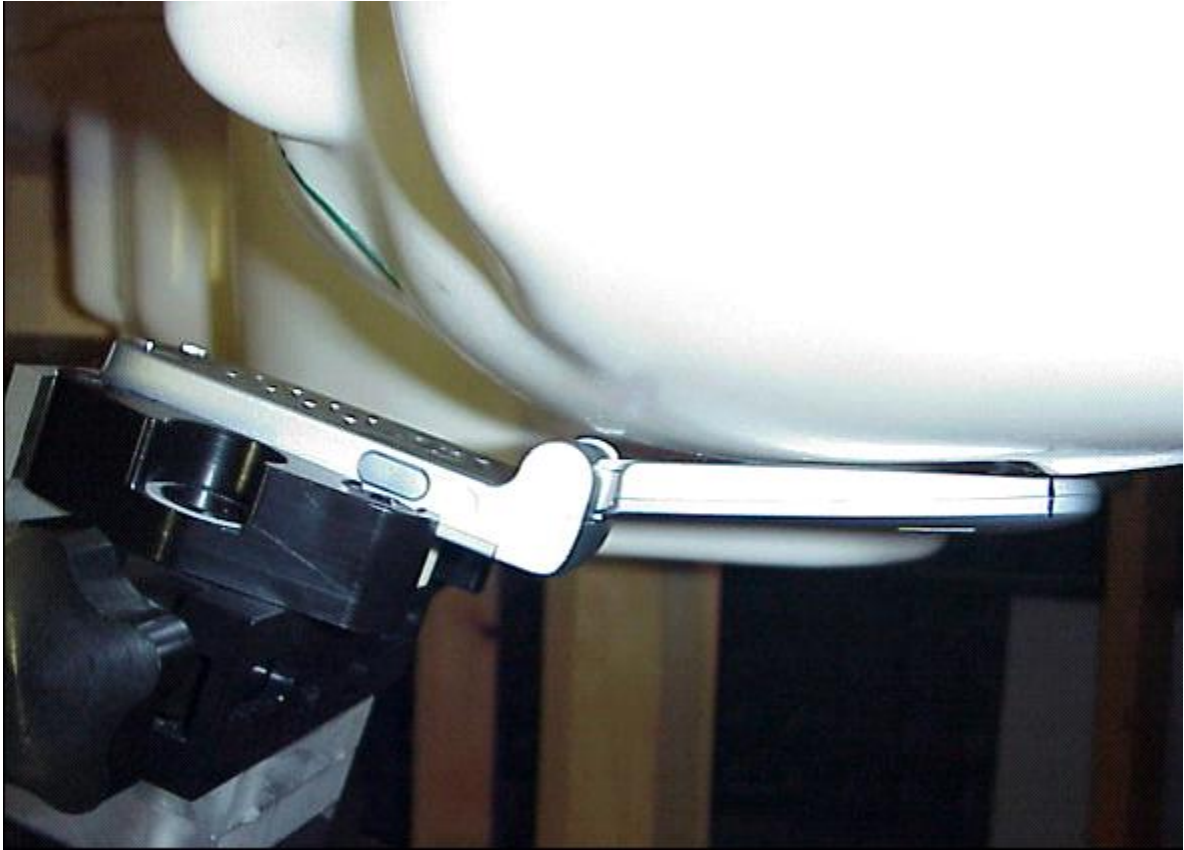


**View of Hands-free Accessory HPB-20**





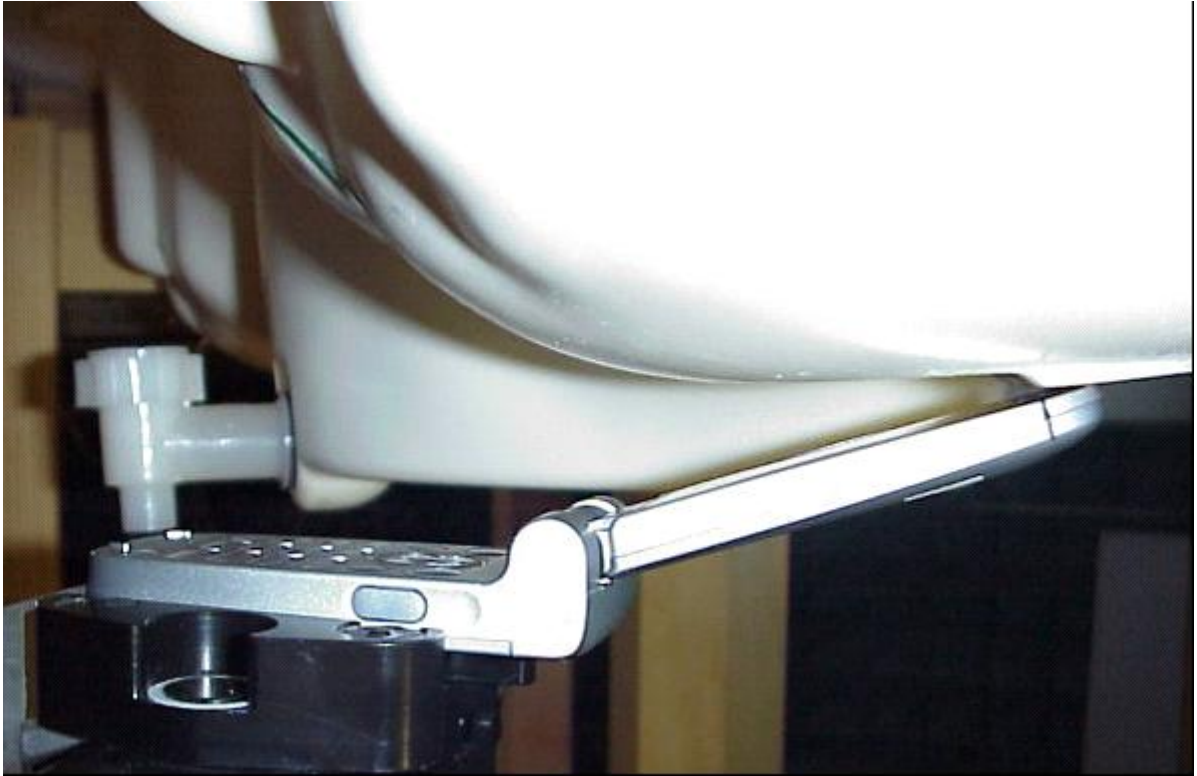
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**Position of device against head phantom using the “cheek” position**



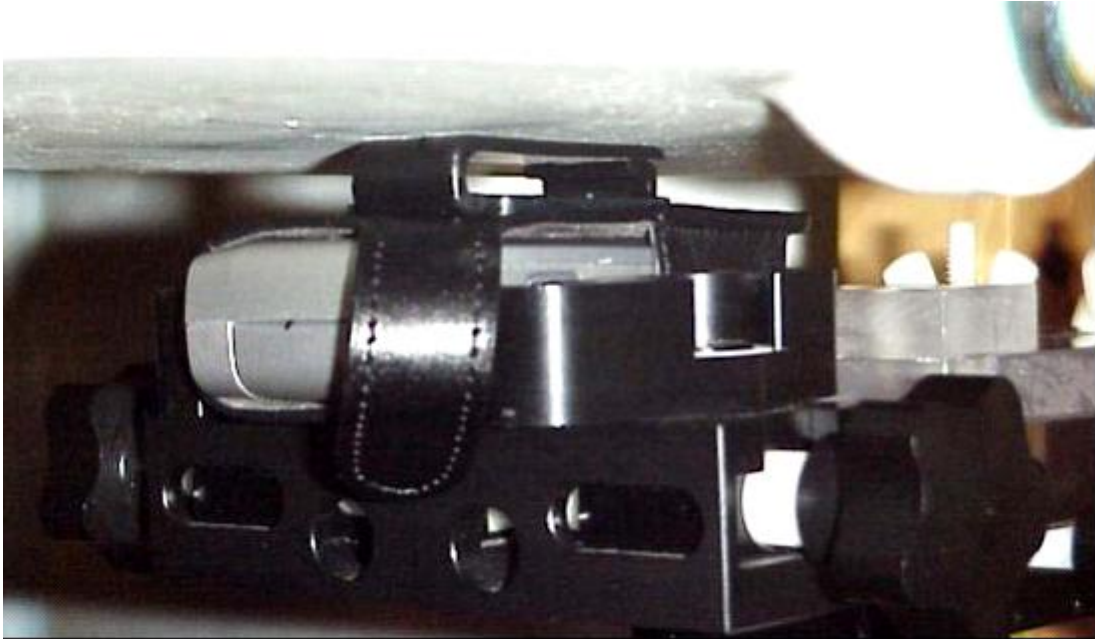
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**Position of device against head phantom using the “tilt” position**



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**Position of device against flat phantom using carry accessory ICE-26 with hands free accessory (HPB-20).**



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Back of Device Facing Body



Front of Device Facing Body

**Position of device against flat phantom using 15mm spacer with hands free accessory (HPB-20).**