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## Exhibit 11: SAR Test Report of Portable Cellular Phone FCC ID: PY7AF052043 Model : Z710i

**Date of test:** July 17 – July 10, 2006  
**Date of Report:** July 25, 2006

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

**Tested by:** Rodney Dixon  
 Eng. Technician IV, Product Verification Group

**Test Responsible:** Gerard Hayes *Gerard Hayes 25 July 2006*  
 Technical Manager

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



A2LA Certificate #1650-01

On the following types of products: Wireless communications devices.

**Statement of Compliance:** Sony Ericsson Mobile Communications, Inc declares under its sole responsibility that portable cellular telephone FCC ID PY7AF052043 model Z710i 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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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 PY7AF052043 model Z710i. 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>	PIFA- Type Antenna	
<b>Location</b>	External plastic loop, near the hinge	
<b>Dimensions</b>	Width	40.5 mm
	Length	7.7 mm
	Height	11.6 mm

**2.2 Device description**

<b>FCC ID Number / Device Model</b>	PY7AF052043 / Z710i			
<b>Serial number</b>	BD3090JUPA BD3090JLMF		BD3090JLP2	
<b>Mode(s) of Operation</b>	GSM 800		GSM 1900	
<b>Transmitting Frequency Range</b>	824-849 MHz		1850-1910 MHz	
<b>Modulation Mode(s)</b>	TDMA		TDMA	
<b>Target Value and Factory Tolerance Window for Maximum Output Power Setting</b>	$f_{low}$	31.5 dBm +0.2/-1.0 dB	$f_{low}$	29.8 dBm +0.2/-1.0 dB
	$f_{mid}$	32.1 dBm +0.2/-1.0 dB	$f_{mid}$	30.0 dBm +0.2/-1.0 dB
	$f_{high}$	32.1 dBm +0.2/-1.0 dB	$f_{high}$	30.6 dBm +0.2/-1.0 dB
<b>GSM Mode: 1/8 Duty Cycle</b>	$f_{low}$	30.2 dBm max.	$f_{low}$	Same as GSM 1:8
	$f_{mid}$	30.3 dBm max.	$f_{mid}$	Same as GSM 1:8
	$f_{high}$	30.3 dBm max	$f_{high}$	Same as GSM 1:8
<b>GPRS Mode: 2/8 Duty Cycle</b>	$f_{low}$	28.0 dBm max.	$f_{low}$	27.5 dBm max.
	$f_{mid}$	28.2 dBm max.	$f_{mid}$	27.2 dBm max.
	$f_{high}$	28.2 dBm max	$f_{high}$	27.2 dBm max
<b>EGPRS Mode: 2/8 Duty Cycle</b>	$f_{low}$	28.0 dBm max.	$f_{low}$	27.5 dBm max.
	$f_{mid}$	28.2 dBm max.	$f_{mid}$	27.2 dBm max.
	$f_{high}$	28.2 dBm max	$f_{high}$	27.2 dBm max
<b>Calibration Frequency</b>	$f_{high}$		$f_{mid}$	
<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 (Dasy4™) for adjacent to head and body-worn measurements manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. The overall RSS uncertainty of the measurement system is ±9.7% (K=1) with an expanded uncertainty of ±19.3% (K=2) for Dasy4™. The measurement uncertainty budget is given in Appendix 5 for the system. The list of calibrated equipment used for the measurements is shown in the following table.

Description	Serial Number	Cal Due Date
DASY3 DAE V1	345	10-Nov-2006
DASY3 DAE V1	416	10-Nov-2006
E-Field Probe ETDV6	1539	22-Nov-2006
E-Field Probe ETDV6	1583	22-Nov-2006
Dipole Validation Kit, DV835V2	429	21-Nov-2006
Dipole Validation Kit, DV1900V2	537	15-Nov-2006
S.A.M. Phantom used for 835MHz (Head)	1023	
S.A.M. Phantom used for 835MHz (Body)	1031	
S.A.M. Phantom used for 900MHz (Head and Body)	1251	
S.A.M. Phantom used for 1800MHz (Head and Body)	1335	
S.A.M. Phantom used for 1900MHz (Head)	1054	
S.A.M. Phantom used for 1900MHz (Body)	1020	

#### 3.2 Additional Equipment

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



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

Prior to conducting SAR measurements, the relative permittivity,  $\epsilon_r$ , 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 21.8-24.0 °C, the relative humidity was in the range 41.0 – 44.9 % and the liquid depth above the ear reference points was above 15.0 cm in all the cases. It is seen that the measured parameters are satisfactory for compliance testing.

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			$\epsilon_r$	$\sigma$ (S/m)	Simulated Tissue Temp (°C)
835	Head	Measured, 17-July-06	41.84	0.909	22.0
		<b>Recommended Limits</b>	<b>41.50</b>	<b>0.90</b>	<b>20-25</b>
	Body	Measured, 18-July-06	53.41	1.01	22.2
		<b>Recommended Limits</b>	<b>55.20</b>	<b>0.97</b>	<b>20-25</b>
1900	Head	Measured, 18-July-06	38.9	1.46	23.1
		<b>Recommended Limits</b>	<b>40.00</b>	<b>1.40</b>	<b>20-25</b>
	Body	Measured, 17-July-06	51.2	1.54	23.1
		<b>Recommended Limits</b>	<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	800/900 MHz	800MHz	1800/1900 MHz	1900MHz
	Head 900MHz		Head	
Sugar	57.99%	56.00%	--	--
DGBE	--	--	44.92%	30.82%
Water	39.72%	41.76%	54.90%	68.89%
Salt	1.18%	0.76%	0.18%	0.29%
HEC	0.92%	1.21%	--	--
Bact.	0.19%	0.27%	--	--



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### 5. System Accuracy Verification

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

A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR indicated on the dipole certification sheet. These tests were done at 835MHz/900MHz and/or 1800MHz/1900MHz. These frequencies are within 100MHz of the mid-band frequency of the test device, according to [1]. The test was conducted on the same days as the measurement of the DUT. The results from the system accuracy verification are displayed in the table below (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the ambient temperature of the laboratory was in the range 21.8-24.0 °C, the relative humidity was in the range 41.0 – 44.9 % and the liquid depth above the ear reference points was above 15.0 cm 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 0.00054 W/kg, which is below the recommended limit in [1].

f (MHz)	Tissue Type	Description	SAR (W/kg) 1g / 10g		Dielectric Parameters		Tissue Temp (°C)
			e <sub>r</sub>	s (S/m)			
835	Head	Measured, 17-July-06	8.9	5.8	41.84	0.909	22.0
		<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, 18-July-06	9.5	6.2	53.41	1.01	22.2
		<b>Recommended Limits</b>	<b>9.90</b>	<b>6.46</b>	<b>55.20</b>	<b>0.97</b>	<b>20-25</b>
1900	Head	Measured, 18-July-06	40.7	21.5	38.9	1.46	23.1
		<b>Recommended Limits</b>	<b>39.70</b>	<b>20.50</b>	<b>40.00</b>	<b>1.40</b>	<b>20-25</b>
	Body	Measured, 17-July-06	42.2	22.6	51.2	1.54	23.1
		<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 both head measurements (with a 1/8 GSM duty cycle) and body measurements (2/8 E/GPRS 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 DASy4 SAR measurement system.

The Cellular Phone FCC ID PY7AF052043 has the following battery option:  
BKB 193 203 (BST-37) Standard Lithium Polymer Battery

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

### 6.1 Head Adjacent Test Results

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

During the tests, the ambient temperature of the laboratory was in the range 21.8-24.0 °C, the relative humidity was in the range 41.0 – 44.9 % and the liquid depth above the ear reference points was above 15.0 cm in all the cases.

The test conditions indicated as bold numbers in the following 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>	<b>1.36</b>	<b>0.87</b>	Right head, cheek/touch position, 824 MHz BST-37 battery
<b>1900 GSM</b>	<b>0.93</b>	<b>0.41</b>	Right head, cheek/touch position, 1850 MHz BST-37 battery



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f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 1:8 Duty Cycle	FCC ID PY7AF052043 with Standard Battery BST-37						
			Left Head (Cheek / Touch Position)					Ambient Temp (°C)	Simulate Temp (°C)
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g			
800 GSM	<b>128 / 824</b>	<b>31.7</b>	<b>1.250</b>	<b>0.824</b>		<b>0.04</b>	<b>1.25</b>	<b>0.82</b>	22.1
	189 / 837	32.3	1.150	0.762	0.17	1.15	0.76		
	251 / 849	32.3	0.855	0.562	0.14	0.86	0.56		
1900 GSM	512 / 1850	29.9	0.574	0.274	0.16	0.57	0.27	23.6	23.2
	<b>660/1880</b>	<b>30.2</b>	<b>0.575</b>	<b>0.271</b>	<b>0.12</b>	<b>0.58</b>	<b>0.27</b>		
	810/1910	30.7	0.461	0.218	0.02	0.46	0.22		
f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 1:8 Duty Cycle	FCC ID PY7AF052043 with Standard Battery BST-37						
			Left Head (15° Tilt Position)					Ambient Temp (°C)	Simulate Temp (°C)
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g			
800 GSM	<b>128 / 824</b>	<b>31.7</b>	<b>0.311</b>	<b>0.229</b>		<b>0.01</b>	<b>0.31</b>	<b>0.23</b>	23.3
	189 / 837	32.3	0.278	0.204	0.19	0.28	0.20		
	251 / 849	32.3	0.200	0.147	0.11	0.20	0.15		
1900 GSM	512 / 1850	29.9	0.056	0.038	-0.08	0.06	0.04	24	23.4
	660/1880	30.2	0.059	0.039	-0.02	0.06	0.04		
	<b>810/1910</b>	<b>30.7</b>	<b>0.061</b>	<b>0.039</b>	<b>0.00</b>	<b>0.06</b>	<b>0.04</b>		

**Table 1: SAR measurement results for the portable cellular telephone FCC ID PY7AF052043 model Z710i at maximum output power with Standard Battery BST-37. Measured against the left head.**





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f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 1:8 Duty Cycle	FCC ID PY7AF052043 with Standard Battery BST-37						
			Right Head (Check / Touch Position)					Ambient Temp (°C)	Simulate Temp (°C)
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g			
800 GSM	<b>128 / 824</b>	<b>31.7</b>	<b>1.360</b>	<b>0.873</b>	<b>0.12</b>	<b>1.36</b>	<b>0.87</b>	23.2	22.3
	189 / 837	32.3	1.190	0.763	0.12	1.19	0.76		
	251 / 849	32.3	0.862	0.551	0.11	0.86	0.55		
Bluetooth On	128 / 824	31.7	1.28	0.828	0.09	1.28	0.83	23.3	22.4
1900 GSM	<b>512 / 1850</b>	<b>29.9</b>	<b>0.925</b>	<b>0.408</b>	<b>-0.00</b>	<b>0.93</b>	<b>0.41</b>	23.0	23.1
	660/1880	30.2	0.899	0.400	0.00	0.90	0.40		
	810/1910	30.7	0.698	0.315	0.06	0.70	0.32		
Bluetooth On	660/1880	30.2	0.813	0.375	0.05	0.81	0.38	24.0	23.4
f (MHz)	Channel/ frequency	Conducted Output Power (dBm)  GSM 1:8 Duty Cycle	FCC ID PY7AF052043 with Standard Battery BST-37						
			Right Head (15° Tilt Position)					Ambient Temp (°C)	Simulate Temp (°C)
			Measured (W/kg) 1g / 10g		Drift (dB)	Extrapolated (W/kg) 1g / 10g			
800 GSM	<b>128 / 824</b>	<b>31.7</b>	<b>0.387</b>	<b>0.285</b>	<b>0.08</b>	<b>0.39</b>	<b>0.29</b>	23.3	22.4
	189 / 837	32.3	0.317	0.233	0.08	0.32	0.23		
	251 / 849	32.3	0.236	0.173	0.07	0.24	0.17		
1900 GSM	512 / 1850	29.9	0.058	0.040	-0.03	0.06	0.04	23.2	23.1
	<b>660/1880</b>	<b>30.2</b>	<b>0.062</b>	<b>0.040</b>	<b>-0.08</b>	<b>0.06</b>	<b>0.04</b>		
	810/1910	30.7	0.062	0.039	-0.04	0.06	0.04		

**Table 2: SAR measurement results for the portable cellular telephone FCC ID PY7AF052043 model Z710i at maximum output power with Standard Battery BST-37. Measured against the right head.**



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**6.2 Body-Worn Test Results**

The SAR results shown in Tables 3 through 5 are the maximum SAR values averaged over 1gram and 10 grams of phantom tissue. Also shown are the measured conducted output powers, the temperature of the test facility during the test, the temperature of the simulated tissue after the test, the measured drift and the extrapolated SAR. The extrapolated SAR corresponds to the measured SAR scaled to the maximum conducted output power.

A “flat” phantom was used for the body-worn tests. This “flat” phantom corresponds to the flat portion of the SAM phantom. During the tests, the ambient temperature of the laboratory was in the range 21.8-24.0 °C, the relative humidity was in the range 41.0 – 44.9 % and the liquid depth above the ear reference points was above 15.0 cm in all the cases. The same device holder described in section 6 was used for positioning the phone. The cellular phone was tested with a headset (HBP-20) connected to the device for all body-worn SAR measurements.

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

- 15 mm spacer
- ICE26 Carry Case
- IAC60 Carry Case

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

Summary of Maximum Extrapolated SAR Results: Body-worn			
Frequency	Extrapolated SAR (W/kg)		Test Configuration
	1 g	10 g	
<b>800 GSM</b>	<b>0.88</b>	<b>0.60</b>	15mm SPACER Carry Accessory, back of phone facing body, 824 MHz, 2:8 Duty Cycle, BST-37 battery
<b>1900 GSM</b>	<b>0.65</b>	<b>0.39</b>	15mm SPACER Carry Accessory, back of phone facing body, 1850MHz, 2:8 Duty Cycle BST-37 battery, Bluetooth On



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f (MHz)	Operating Condition	Channel/frequency	Conducted Output Power (dBm)	FCC ID PY7AF052043 with Standard Battery BST-37						
				Body Worn			Carry Accessory: 15mm SPACER			
				Back of phone facing body						
Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g								
<b>Back of phone facing body</b>										
800 GSM	2:8 Duty Cycle	<b>128 / 824</b>	<b>30.2</b>	<b>0.876</b>	<b>0.599</b>	<b>-0.06</b>	<b>0.88</b>	<b>0.60</b>	22.0	22.2
		189 / 837	30.3	0.638	0.434	0.03	0.64	0.43		
		251 / 849	30.3	0.571	0.388	-0.02	0.57	0.39		
	Bluetooth On	128 / 824	30.2	0.834	0.569	-0.01	0.83	0.57	22.0	22.1
	1:8 Duty Cycle	128 / 824	31.7	0.415	0.282	0.00	0.42	0.28	22.0	22.1
1900 GSM	2:8 Duty Cycle	<b>512 / 1850</b>	<b>29.9</b>	<b>0.611</b>	<b>0.376</b>	<b>-0.04</b>	<b>0.61</b>	<b>0.38</b>	23.4	23.1
		660/1880	30.2	0.598	0.353	-0.12	0.60	0.35		
		810/1910	30.7	0.445	0.268	-0.12	0.45	0.27		
	Bluetooth On	<b>512 / 1850</b>	<b>29.9</b>	<b>0.651</b>	<b>0.393</b>	<b>-0.05</b>	<b>0.65</b>	<b>0.39</b>	23.0	22.9
	1:8 Duty Cycle	512 / 1850	29.9	0.364	0.215	-0.01	0.36	0.22	23.0	22.9
<b>Front of phone facing body</b>										
800 GSM	2:8 Duty Cycle	<b>128 / 824</b>	<b>30.2</b>	<b>0.229</b>	<b>0.162</b>	<b>-0.03</b>	<b>0.23</b>	<b>0.16</b>	22	22.2
		189 / 837	30.3	0.179	0.126	0.02	0.18	0.13		
		251 / 849	30.3	0.141	0.100	0.02	0.14	0.10		
1900 GSM	2:8 Duty Cycle	<b>512 / 1850</b>	<b>29.9</b>	<b>0.289</b>	<b>0.189</b>	<b>0.03</b>	<b>0.29</b>	<b>0.19</b>	22.3	22.8
		660/1880	30.2	0.227	0.150	0.03	0.23	0.15		
		810/1910	30.7	0.125	0.081	-0.10	0.13	0.08		

**Table 3: SAR measurement results for the portable cellular telephone FCC ID PY7AF052043 model Z710i at maximum output power with Standard Battery BST-37. Measured against the body with carry accessory 15mm Spacer.**



Prepared (also subject responsible if other) <b>SEM/CV/PF/P Gerard Hayes and Rodney Dixon</b>		No. <b>REP 2006 010 Z710i 02</b>	
Approved <b>SEM/CV/PF/P Gerard Hayes</b>	Checked	<b>A</b>	X:\SAR Chamber\FCC reports\Z710\Final Reports\FCCZ710I.doc

f (MHz)	Operating Condition	Channel/ frequency	Conduc ted Output Power (dBm)	FCC ID PY7AF052043 with Standard Battery BST-37						
				Body Worn			Carry Accessory: ICE26 carry case			
				Back of phone facing body						
Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g								
<b>Back of phone facing body</b>										
800 GSM	2:8 Duty Cycle	<b>128 / 824</b>	<b>30.2</b>	<b>0.626</b>	<b>0.436</b>	<b>-0.06</b>	<b>0.63</b>	<b>0.44</b>	21.8	22.1
		189 / 837	30.3	0.473	0.327	-0.01	0.47	0.33		
		251 / 849	30.3	0.441	0.307	0.06	0.44	0.31		
1900 GSM	2:8 Duty Cycle	<b>512 / 1850</b>	<b>29.9</b>	<b>0.573</b>	<b>0.349</b>	<b>-0.18</b>	<b>0.57</b>	<b>0.35</b>	23.4	23.1
		660/1880	30.2	0.461	0.296	-0.01	0.46	0.30		
		810/1910	30.7	0.406	0.253	-0.07	0.41	0.25		
<b>Front of phone facing body</b>										
800 GSM	2:8 Duty Cycle	<b>128 / 824</b>	<b>30.2</b>	<b>0.179</b>	<b>0.127</b>	<b>0.01</b>	<b>0.18</b>	<b>0.13</b>	21.8	22.1
		189 / 837	30.3	0.121	0.086	0.04	0.12	0.09		
		251 / 849	30.3	0.104	0.075	0.02	0.10	0.07		
1900 GSM	2:8 Duty Cycle	<b>512 / 1850</b>	<b>29.9</b>	<b>0.262</b>	<b>0.176</b>	<b>0.00</b>	<b>0.26</b>	<b>0.18</b>	22.3	22.8
		660/1880	30.2	0.169	0.115	-0.06	0.17	0.12		
		810/1910	30.7	0.094	0.062	-0.01	0.09	0.06		

**Table 4: SAR measurement results for the portable cellular telephone FCC ID PY7AF052043 model Z710i at maximum output power with Standard Battery BST-37. Measured against the body with carry accessory ICE26 carry case.**



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f (MHz)	Operating Condition	Channel/ frequency	Conduc ted Output Power (dBm)	FCC ID PY7AF052043 with Standard Battery BST-37						
				Body Worn			Carry Accessory: IAC60 carry case			
				Back of phone facing body						
Measured (W/kg) 1g / 10g	Drift (dB)	Extrapolated (W/kg) 1g / 10g								
<b>Back of phone facing body</b>										
800 GSM	2:8 Duty Cycle	<b>128 / 824</b>	<b>30.2</b>	<b>0.411</b>	<b>0.286</b>	<b>-0.04</b>	<b>0.41</b>	<b>0.29</b>	22	22.1
		189 / 837	30.3	0.296	0.208	0.01	0.30	0.21		
		251 / 849	30.3	0.279	0.195	0.04	0.28	0.20		
1900 GSM	2:8 Duty Cycle	<b>512 / 1850</b>	<b>29.9</b>	<b>0.491</b>	<b>0.321</b>	<b>0.03</b>	<b>0.49</b>	<b>0.32</b>	23.4	23.1
		660/1880	30.2	0.408	0.262	0.00	0.41	0.26		
		810/1910	30.7	0.430	0.255	-0.07	0.43	0.26		

**Table 5: SAR measurement results for the portable cellular telephone FCC ID PY7AF052043 model Z710i at maximum output power with Standard Battery BST-37. Measured against the body with carry accessory IAC60 carry case. Note: A front facing phone position is not supported by this accessory.**



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**References**

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



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**Appendix 1**

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



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**835 MHz SAR Distribution of Validation Dipole Antenna System Performance Check (Using head tissue).**

**Validation\_835Head\_429\_1251\_17July06\_T01**

File Name: [Validation\\_835Head\\_429\\_1251\\_17July06\\_T01.da4](#)

Phantom: SAM with CRP (Low Band Head) Phantom section: Flat Section  
 Probe: ET3DV6 - SN1583ConvF(6.82, 6.82, 6.82) Duty Cycle: 1:1 Frequency: 835 MHz  
 Medium parameters used: f = 835 MHz; s = 0.909 mho/m;  $\epsilon_r = 41.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Measurement Standard: DASy4 (High Precision Assessment)

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

Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.948 mW/g

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

Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 33.3 V/m; Power Drift = -0.004 dB  
 Peak SAR (extrapolated) = 1.34 W/kg

**SAR(1 g) = 0.885 mW/g; SAR(10 g) = 0.575 mW/g**

Maximum value of SAR (measured) = 0.954 mW/g

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

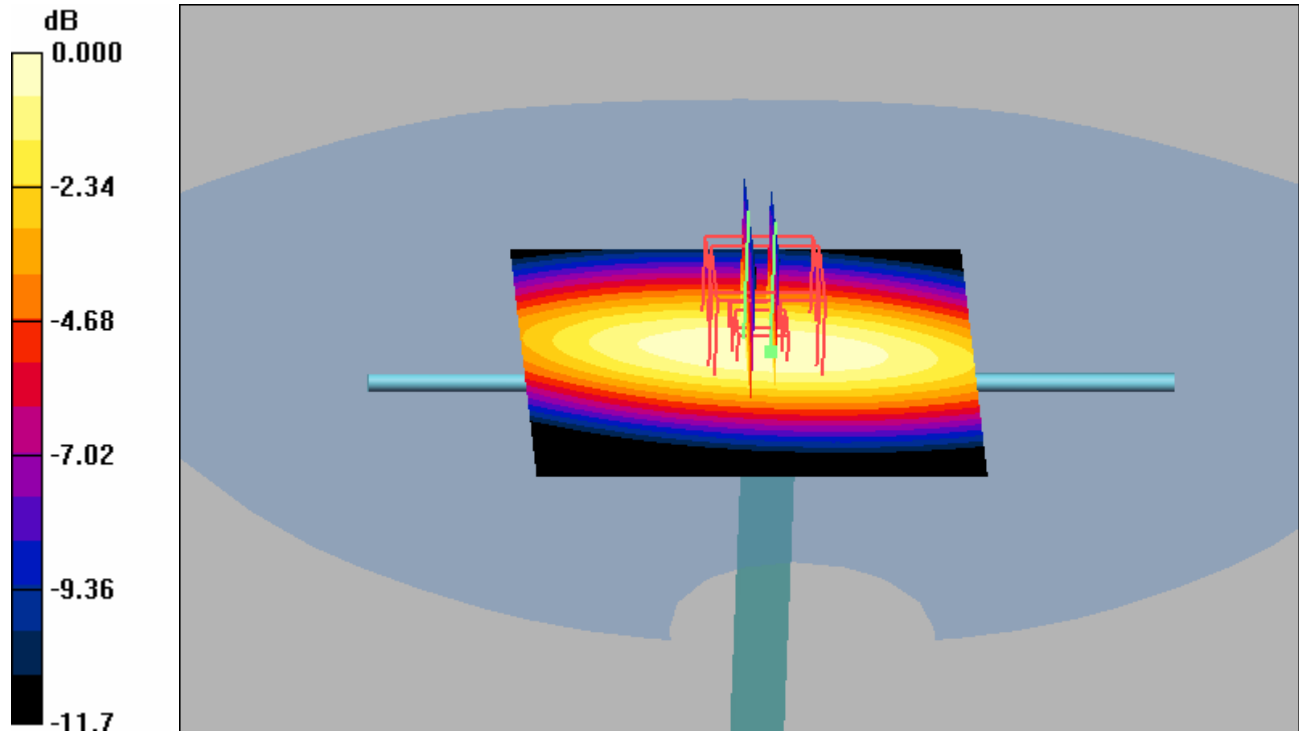
Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 33.3 V/m; Power Drift = -0.004 dB  
 Peak SAR (extrapolated) = 1.35 W/kg

**SAR(1 g) = 0.879 mW/g; SAR(10 g) = 0.570 mW/g**

Maximum value of SAR (measured) = 0.950 mW/g

Procedure Notes: Pin: before 99.6 mW / after 99.8 mW

Humidity: 44.9% Ambient Temp: 22.1 C Simulant Temp: 22 C



0 dB = 0.950mW/g





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**835 MHz SAR Distribution of Validation Dipole Antenna**

**System Performance Check (Using body tissue).**

**Validation\_835Body\_429\_1031\_18July06\_T01**

File Name: [Validation\\_835Body\\_429\\_1031\\_18July06\\_T01.da4](#)

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

Probe: ET3DV6 - SN1539ConvF(5.88, 5.88, 5.88) Duty Cycle: 1:1 Frequency: 835 MHz

Medium parameters used: f = 835 MHz; s = 1.01 mho/m;  $\epsilon_r = 53.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Measurement Standard: DASy4 (High Precision Assessment)

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

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

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

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

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

Reference Value = 32.5 V/m; Power Drift = 0.019 dB

Peak SAR (extrapolated) = 1.35 W/kg

**SAR(1 g) = 0.924 mW/g; SAR(10 g) = 0.606 mW/g**

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

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

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

Reference Value = 32.5 V/m; Power Drift = 0.019 dB

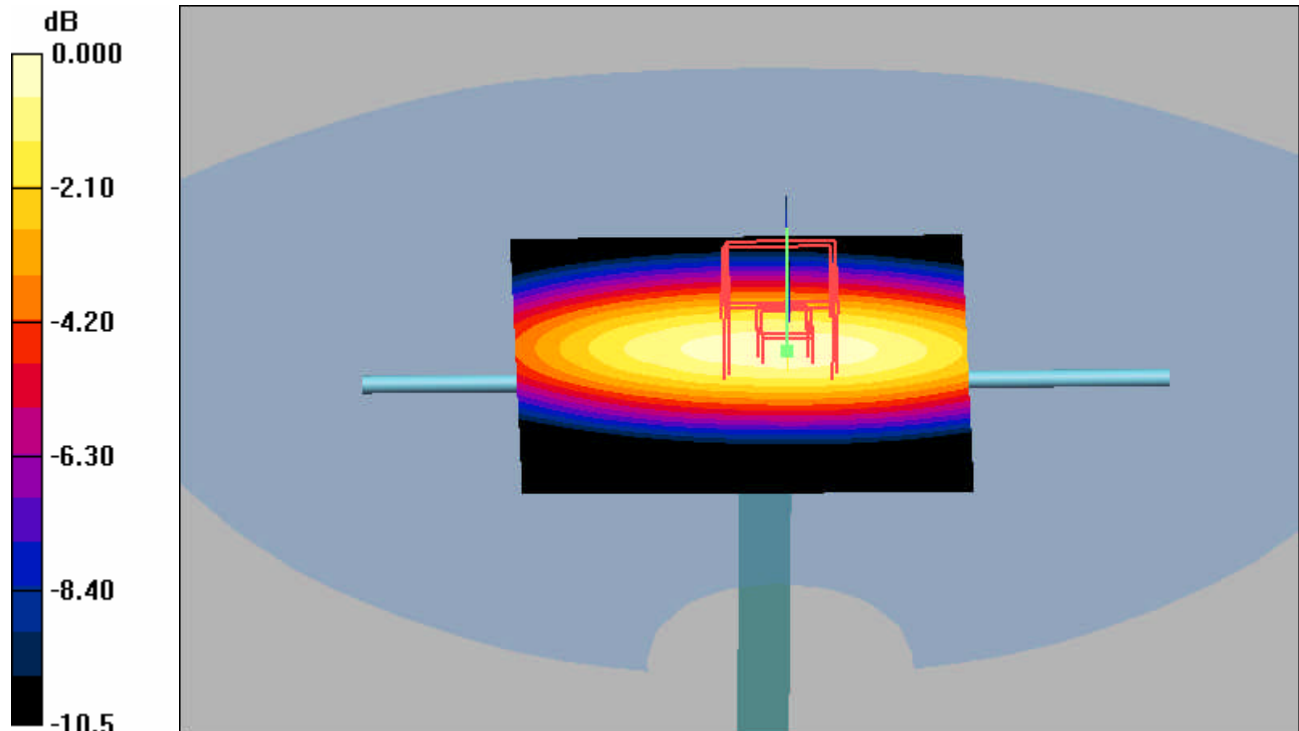
Peak SAR (extrapolated) = 1.41 W/kg

**SAR(1 g) = 0.980 mW/g; SAR(10 g) = 0.643 mW/g**

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

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

Humidity - 43.5% Ambient Temp - 22 C Simulant Temp - 22.2 C



0 dB = 1.05mW/g



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**1900 MHz SAR Distribution of Validation Dipole Antenna**

**System Performance Check (Using head tissue).**

**Validation\_1900Head\_537\_1054\_18July06\_T01**

File Name: [Validation\\_1900Head\\_537\\_1054\\_18July06\\_T01.da4](#)

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

Probe: ET3DV6 - SN1583ConvF(4.93, 4.93, 4.93) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used: f = 1900 MHz; s = 1.46 mho/m;  $\epsilon_r = 38.9$ ;  $\rho = 1000 \text{ kg/m}^3$

Measurement Standard: DASy4 (High Precision Assessment)

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

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

Maximum value of SAR (interpolated) = 5.13 mW/g

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

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

Reference Value = 59.9 V/m; Power Drift = -0.009 dB

Peak SAR (extrapolated) = 7.12 W/kg

**SAR(1 g) = 4.12 mW/g; SAR(10 g) = 2.17 mW/g**

Maximum value of SAR (measured) = 4.63 mW/g

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

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

Reference Value = 59.9 V/m; Power Drift = -0.009 dB

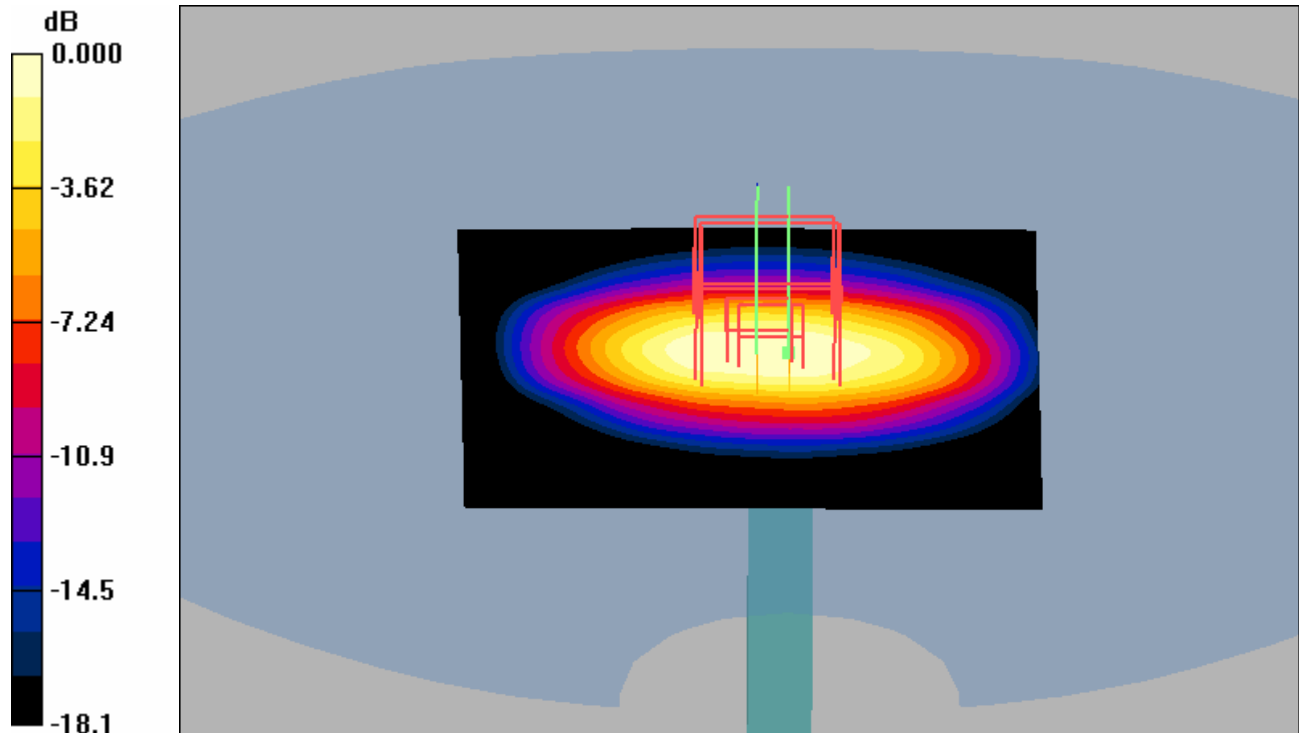
Peak SAR (extrapolated) = 6.93 W/kg

**SAR(1 g) = 4.03 mW/g; SAR(10 g) = 2.13 mW/g**

Maximum value of SAR (measured) = 4.50 mW/g

Procedure Notes: Pin: before 100 mW / after 100.1 mW

Humidity: 44% Ambient Temp: 23 C Simulant Temp: 23.1 C



0 dB = 4.50mW/g



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**1900 MHz SAR Distribution of Validation Dipole Antenna System Performance Check (Using body tissue).**

**Validation\_1900Body\_537\_1020\_17July06\_T01**

File Name: [Validation\\_1900Body\\_537\\_1020\\_17July06\\_T01.da4](#)

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

Probe: ET3DV6 - SN1539ConvF(4.12, 4.12, 4.12) Duty Cycle: 1:1 Frequency: 1900 MHz

Medium parameters used: f = 1900 MHz; s = 1.54 mho/m;  $\epsilon_r = 51.2$ ;  $\rho = 1000 \text{ kg/m}^3$

Measurement Standard: DASy4 (High Precision Assessment)

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

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

Maximum value of SAR (interpolated) = 5.32 mW/g

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

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

Reference Value = 59.3 V/m; Power Drift = 0.026 dB

Peak SAR (extrapolated) = 7.12 W/kg

**SAR(1 g) = 4.21 mW/g; SAR(10 g) = 2.25 mW/g**

Maximum value of SAR (measured) = 4.74 mW/g

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

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

Reference Value = 59.3 V/m; Power Drift = 0.026 dB

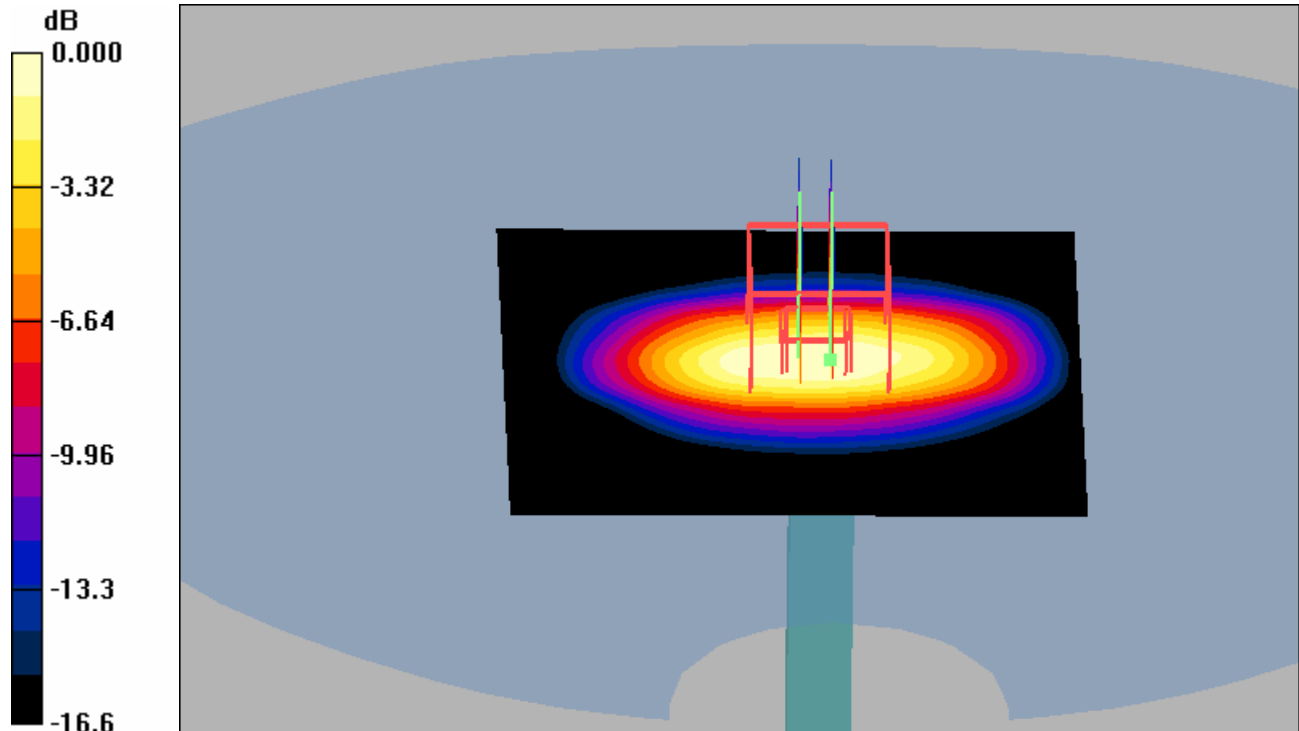
Peak SAR (extrapolated) = 7.29 W/kg

**SAR(1 g) = 4.36 mW/g; SAR(10 g) = 2.35 mW/g**

Maximum value of SAR (measured) = 4.86 mW/g

Procedure Notes: Pin: before 101.2 mW / after 101.9 mW

Humidity: 44.2% Ambient Temp: 23.4 C Simulant Temp: 23.1 C



0 dB = 4.86mW/g



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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: Z710i with Standard Battery: BST-37, Right Side, Cheek/Touch Position.**

Date/Time: 7/17/2006 10:13:44 AM

File Name: [17July06\\_Z710i\\_GSM850\\_JUPA\\_RC01.da4](#)

**DUT: Z710**

Program Notes: Battery - BST37 Humidity - 43.9% Ambient Temp - 23.2 C Simulant Temp - 22.3 C

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

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz; s = 0.898 mho/m;  $\epsilon_r = 42$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

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

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

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

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

Maximum value of SAR (interpolated) = 1.45 mW/g

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

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

Reference Value = 9.65 V/m; Power Drift = 0.118 dB

Peak SAR (extrapolated) = 2.22 W/kg

**SAR(1 g) = 1.36 mW/g; SAR(10 g) = 0.873 mW/g**

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

Maximum value of SAR (measured) = 1.49 mW/g

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

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

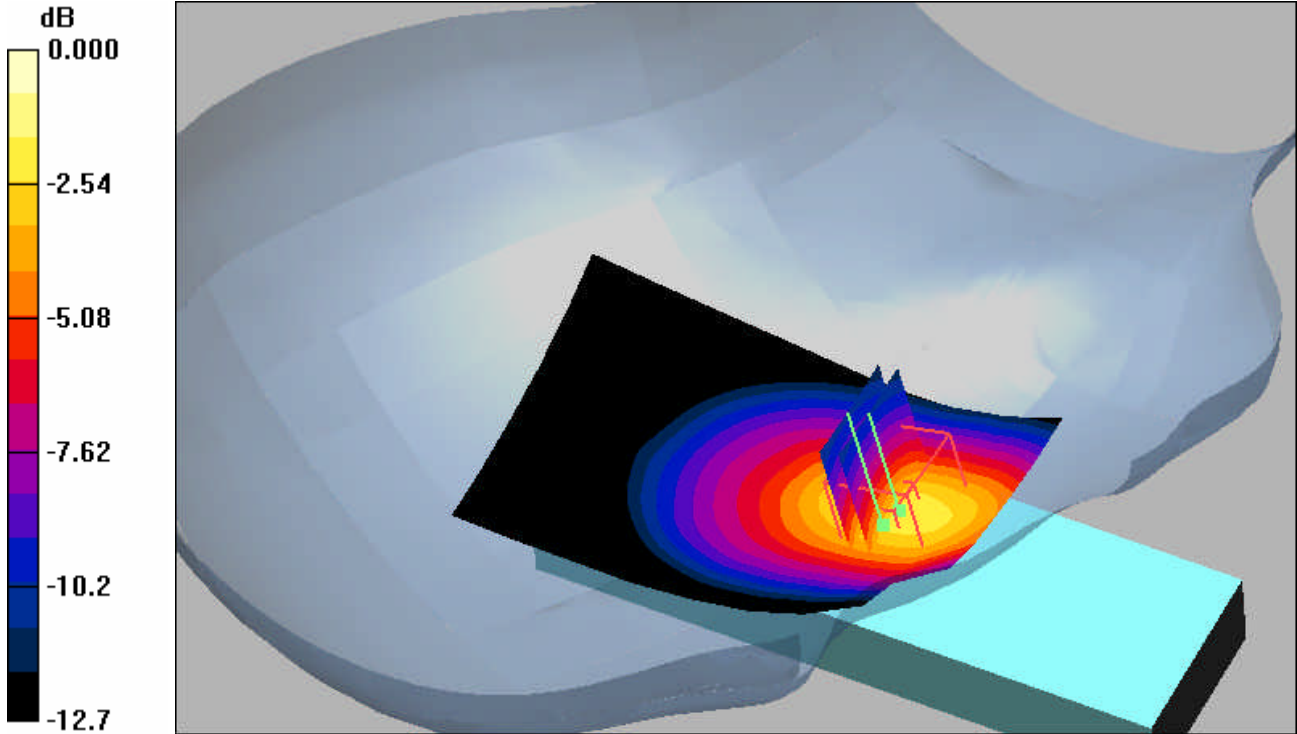
Reference Value = 9.65 V/m; Power Drift = 0.118 dB

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

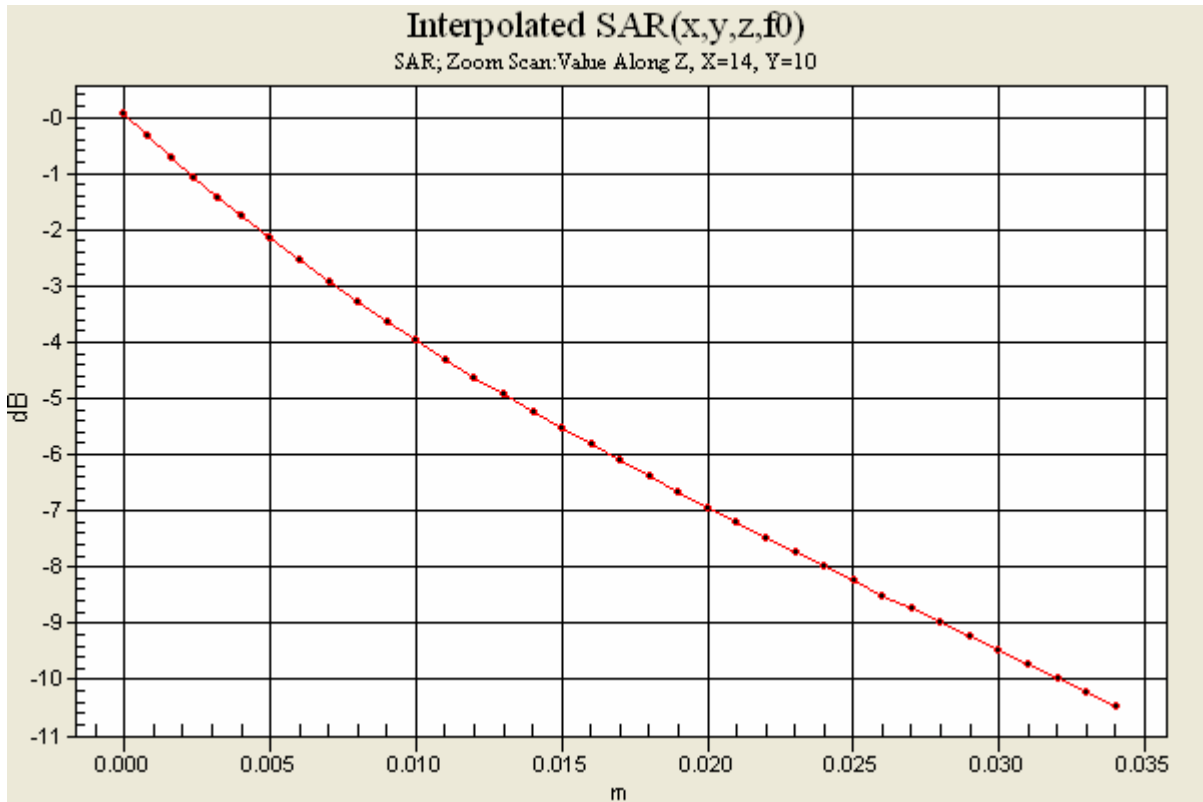
Maximum value of SAR (interpolated) = 2.22 mW/g



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0 dB = 2.22mW/g





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**800 GSM Band: Distribution and Extrapolation of Maximum SAR  
Model: Z710i with Standard Battery: BST-37, Right Side, Tilt Position.**

Date/Time: 7/17/2006 11:14:25 AM

File Name: [17July06\\_Z710i\\_GSM850\\_JUPA\\_RT01.da4](#)

**DUT: Z710**

Program Notes: Battery - BST37 Humidity - 44.1% Ambient Temp - 23.3 C Simulant Temp - 22.4 C

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

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz; s = 0.898 mho/m;  $\epsilon_r = 42$ ; ? = 1000 kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

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

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

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

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

Maximum value of SAR (interpolated) = 0.414 mW/g

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

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

Reference Value = 11.7 V/m; Power Drift = 0.085 dB

Peak SAR (extrapolated) = 0.513 W/kg

**SAR(1 g) = 0.387 mW/g; SAR(10 g) = 0.285 mW/g**

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

Maximum value of SAR (measured) = 0.413 mW/g

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

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

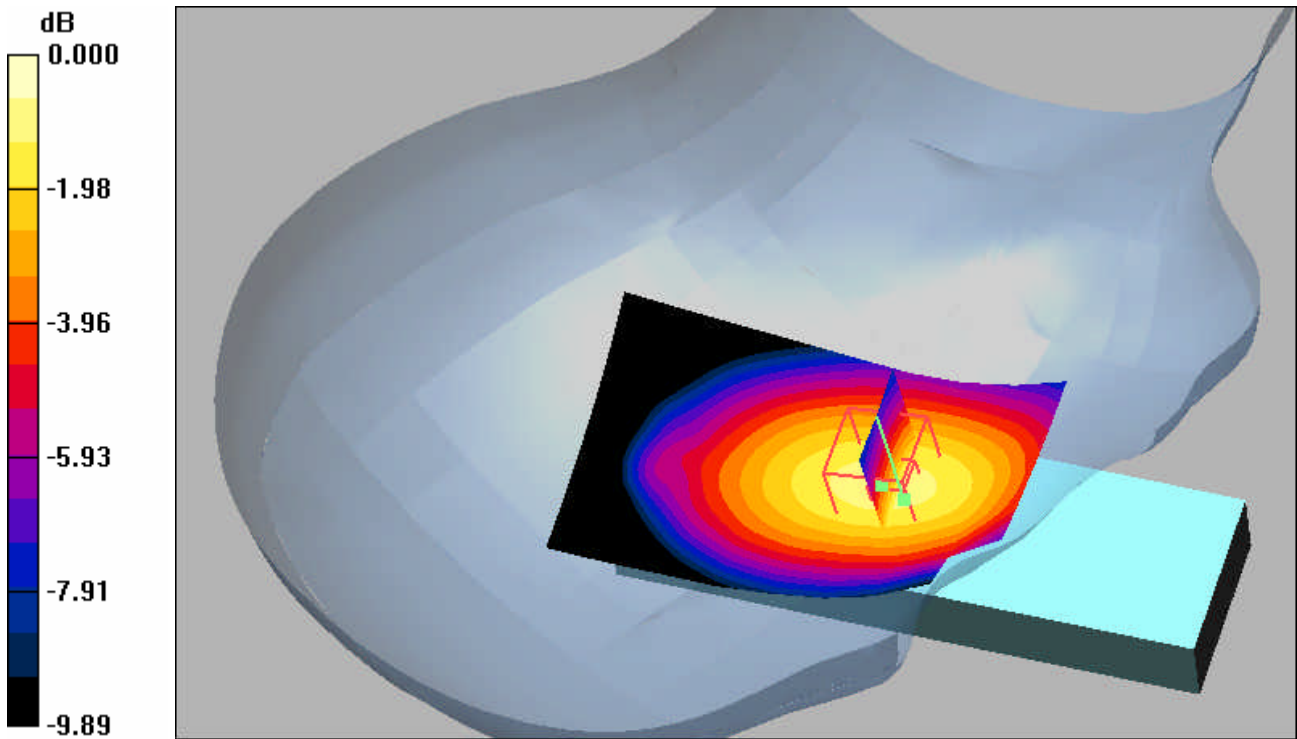
Reference Value = 11.7 V/m; Power Drift = 0.085 dB

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

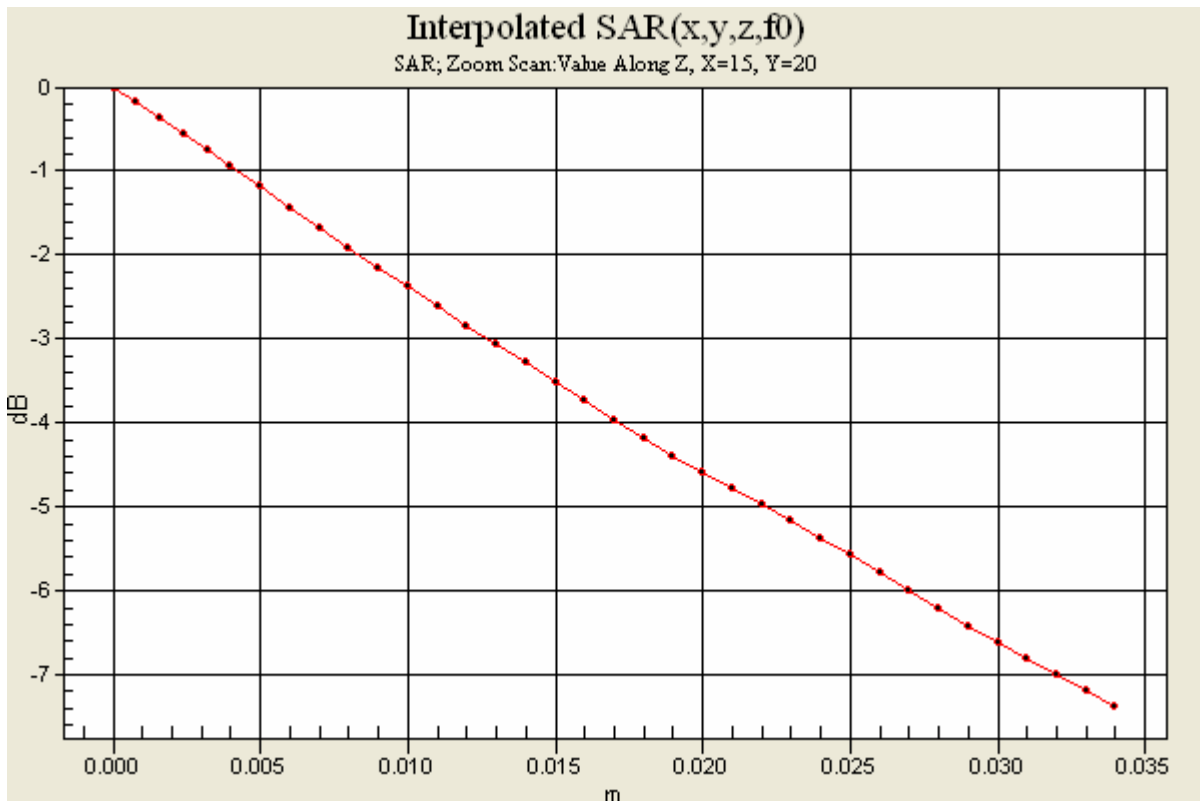
Maximum value of SAR (interpolated) = 0.513 mW/g



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0 dB = 0.513mW/g







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Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z710\Final Reports\FCCZ710I.doc

**800 GSM Band: Distribution and Extrapolation of Maximum SAR  
Model: Z710i with Standard Battery: BST-37, Left Side, Cheek/Touch Position.**

Date/Time: 7/17/2006 7:56:31 AM

File Name: [17July06\\_Z710i\\_GSM850\\_JUPA\\_LC01.da4](#)

**DUT: Z710**

Program Notes: Battery - BST37 Humidity - 44.9 % Ambient Temp - 22.1 C Simulant Temp - 22 C

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

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz; s = 0.898 mho/m;  $\epsilon_r = 42$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

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

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

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

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

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

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

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

Reference Value = 8.89 V/m; Power Drift = 0.044 dB

Peak SAR (extrapolated) = 1.98 W/kg

**SAR(1 g) = 1.25 mW/g; SAR(10 g) = 0.824 mW/g**

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

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

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

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

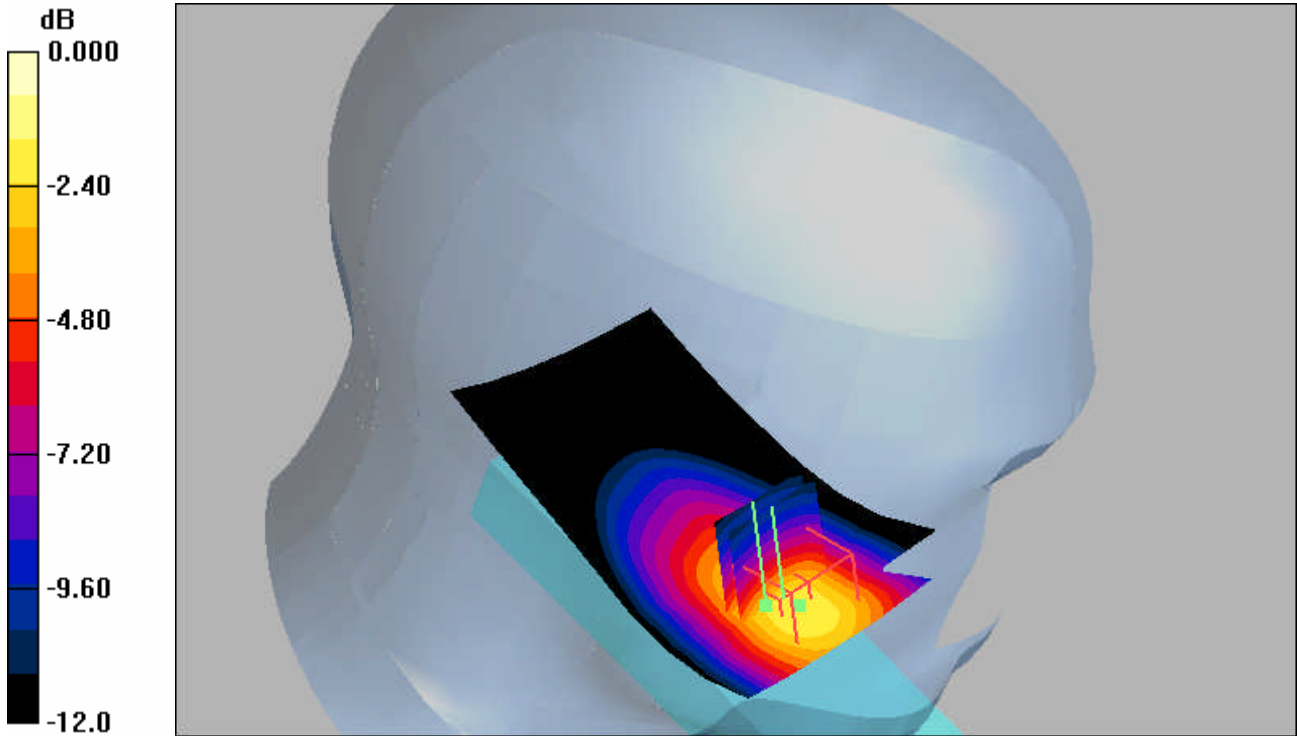
Reference Value = 8.89 V/m; Power Drift = 0.044 dB

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

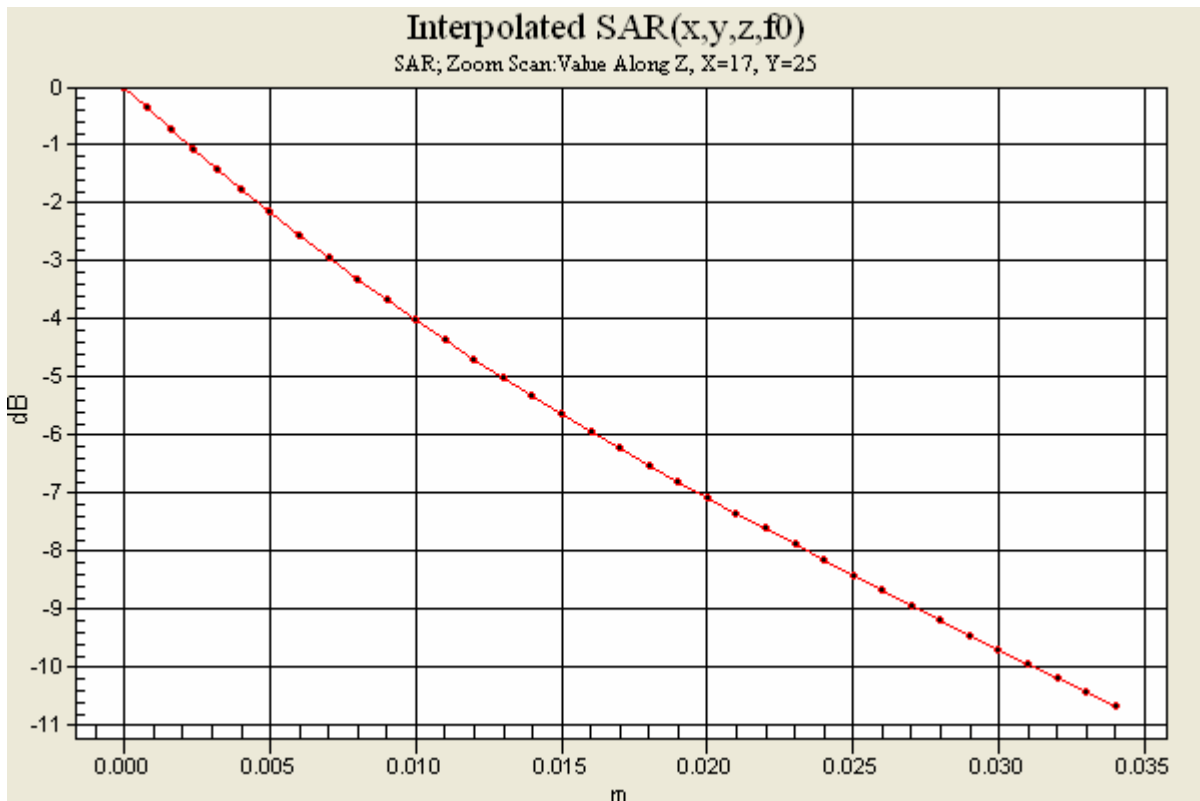
Maximum value of SAR (interpolated) = 1.98 mW/g



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0 dB = 1.98mW/g





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**800 GSM Band: Distribution and Extrapolation of Maximum SAR  
Model: Z710i with Standard Battery: BST-37, Left Side, Tilt Position.**

Date/Time: 7/17/2006 9:00:12 AM

File Name: [17July06\\_Z710i\\_GSM850\\_JUPA\\_LT01.da4](#)

**DUT: Z710**

Program Notes: Battery - BST37 Humidity - 42.5 % Ambient Temp - 23.3 C Simulant Temp - 22.3 C

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

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz; s = 0.898 mho/m;  $\epsilon_r = 42$ ; ? = 1000 kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

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

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

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

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

Maximum value of SAR (interpolated) = 0.337 mW/g

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

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

Reference Value = 9.97 V/m; Power Drift = 0.007 dB

Peak SAR (extrapolated) = 0.404 W/kg

**SAR(1 g) = 0.311 mW/g; SAR(10 g) = 0.229 mW/g**

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

Maximum value of SAR (measured) = 0.327 mW/g

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

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

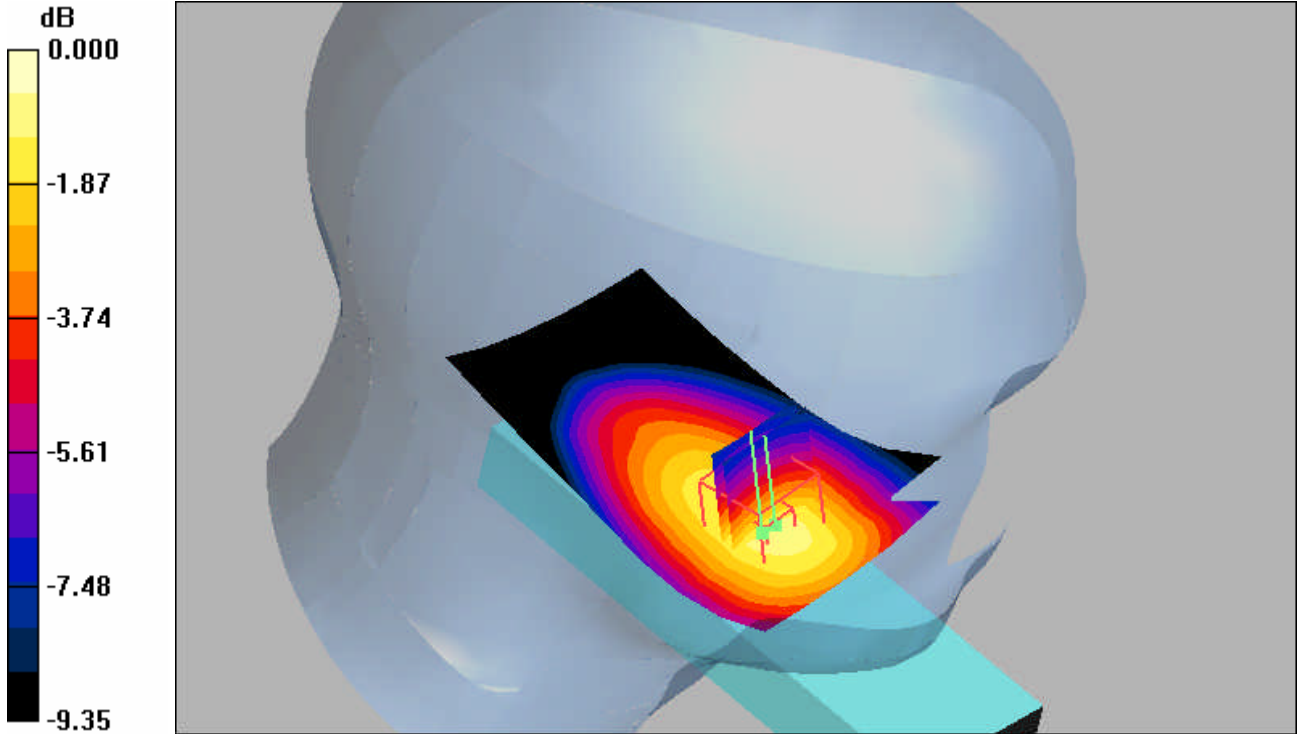
Reference Value = 9.97 V/m; Power Drift = 0.007 dB

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

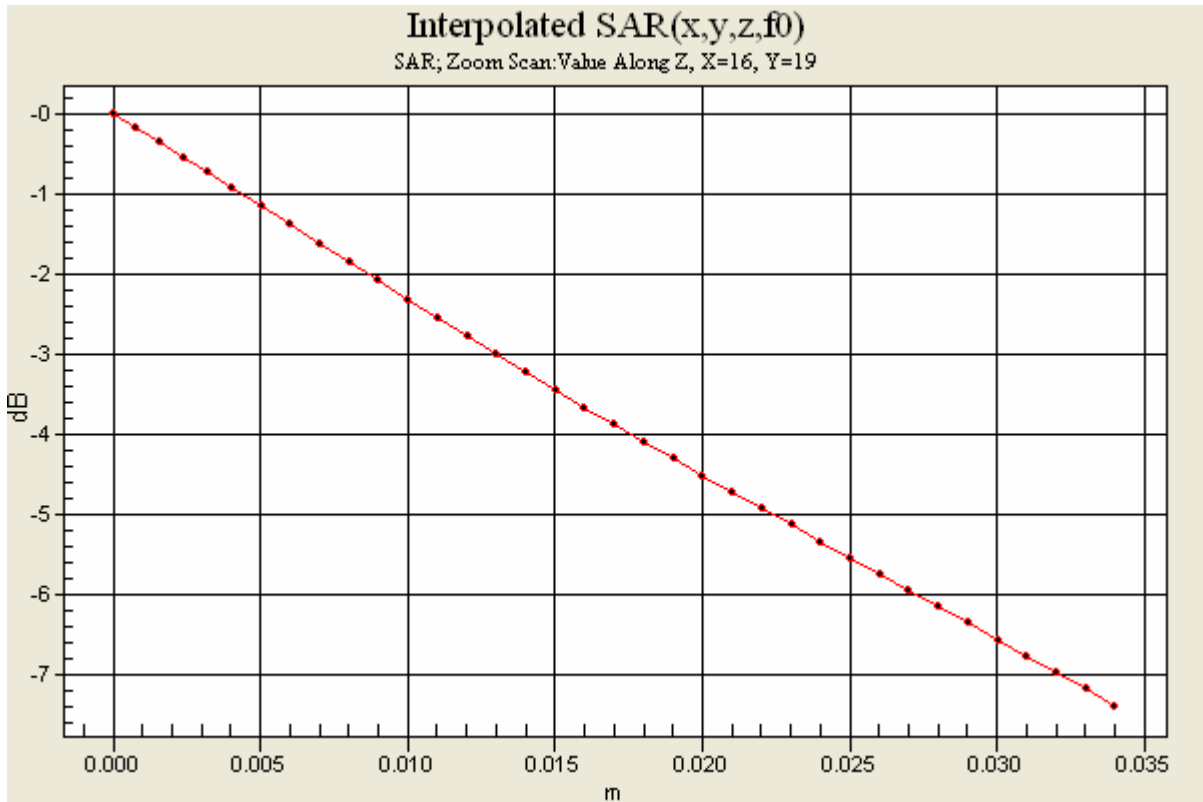
Maximum value of SAR (interpolated) = 0.404 mW/g



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0 dB = 0.404mW/g





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

**Model: Z710i with Standard Battery: BST-37, Right Side, Cheek/Touch Position with Blue Tooth.**

Date/Time: 7/17/2006 12:18:21 PM

File Name: [17July06\\_Z710i\\_GSM850\\_JUPA\\_BT\\_RC01.da4](#)

**DUT: Z710**

Program Notes: Battery - BST37 Humidity - 44.1% Ambient Temp - 23.3 C Simulant Temp - 22.4 C

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

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz; s = 0.898 mho/m;  $\epsilon_r = 42$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

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

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

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

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

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

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

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

Reference Value = 9.21 V/m; Power Drift = 0.093 dB

Peak SAR (extrapolated) = 2.04 W/kg

**SAR(1 g) = 1.28 mW/g; SAR(10 g) = 0.828 mW/g**

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

Maximum value of SAR (measured) = 1.40 mW/g

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

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

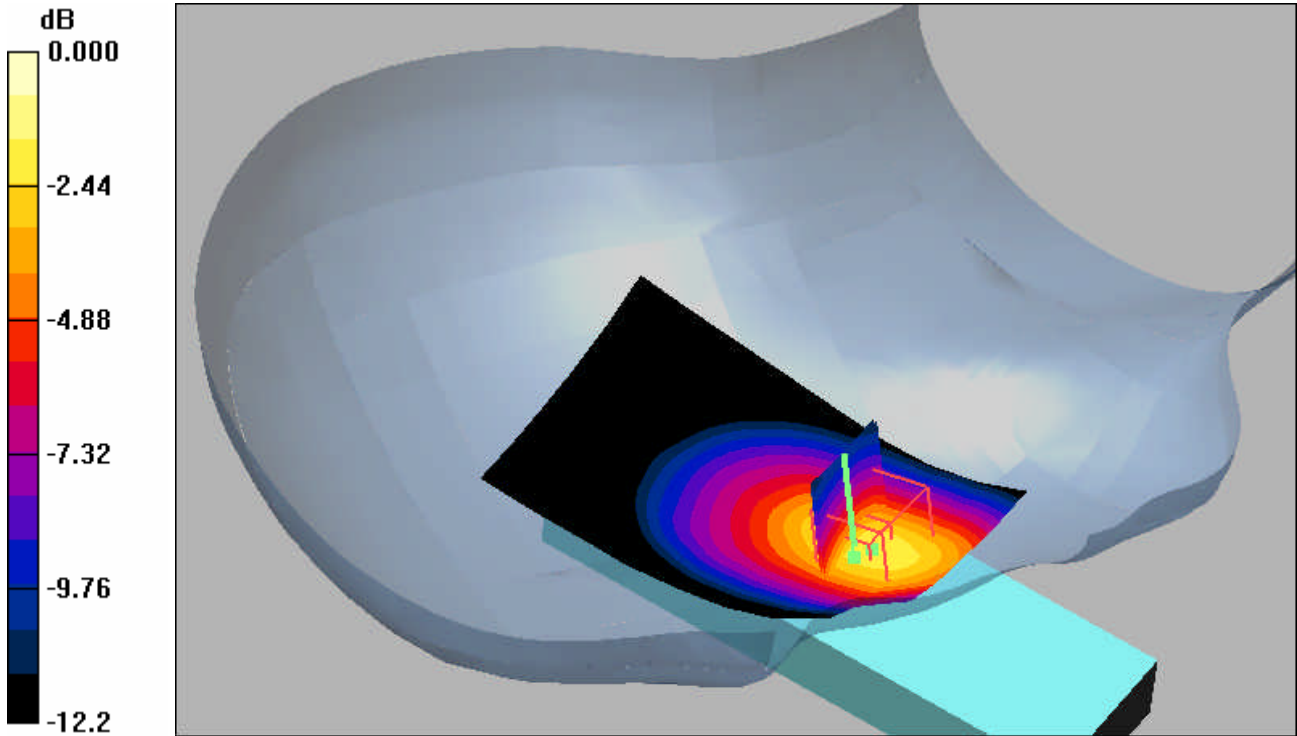
Reference Value = 9.21 V/m; Power Drift = 0.093 dB

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

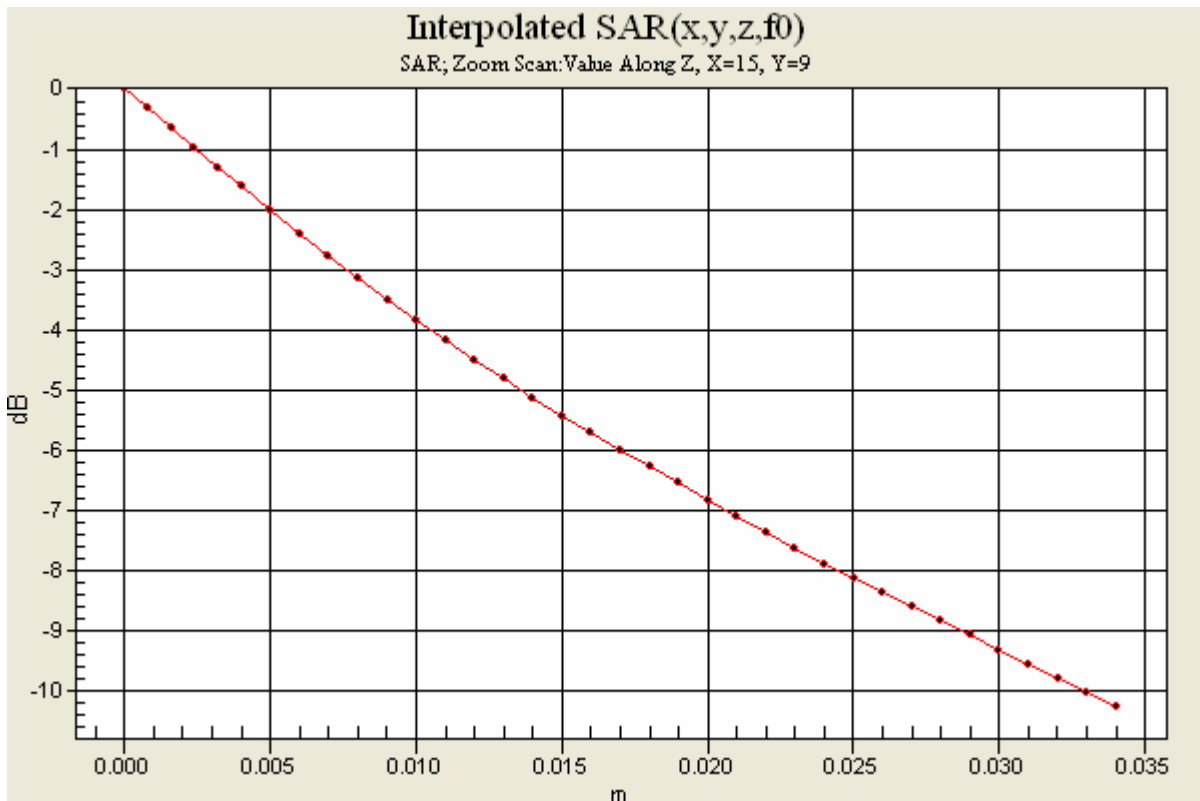
Maximum value of SAR (interpolated) = 2.04 mW/g



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0 dB = 2.04mW/g





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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR  
Model: Z710i with Standard Battery: BST-37, Right Side, Cheek/Touch Position.**

Date/Time: 7/18/2006 7:36:50 AM

File Name: [18July06\\_Z710i\\_GSM1900\\_JLP2\\_RC01.da4](#)

**DUT: Z710**

Program Notes: Battery - BST37 Humidity - 44% Ambient Temp - 23 C Simulant Tem - 23.1 C

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

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz; s = 1.41 mho/m;  $\epsilon_r = 39.1$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(4.93, 4.93, 4.93); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (61x81x1):**

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

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

Maximum value of SAR (interpolated) = 0.927 mW/g

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

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

Reference Value = 7.33 V/m; Power Drift = -0.003 dB

Peak SAR (extrapolated) = 2.52 W/kg

**SAR(1 g) = 0.925 mW/g; SAR(10 g) = 0.408 mW/g**

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

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

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

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

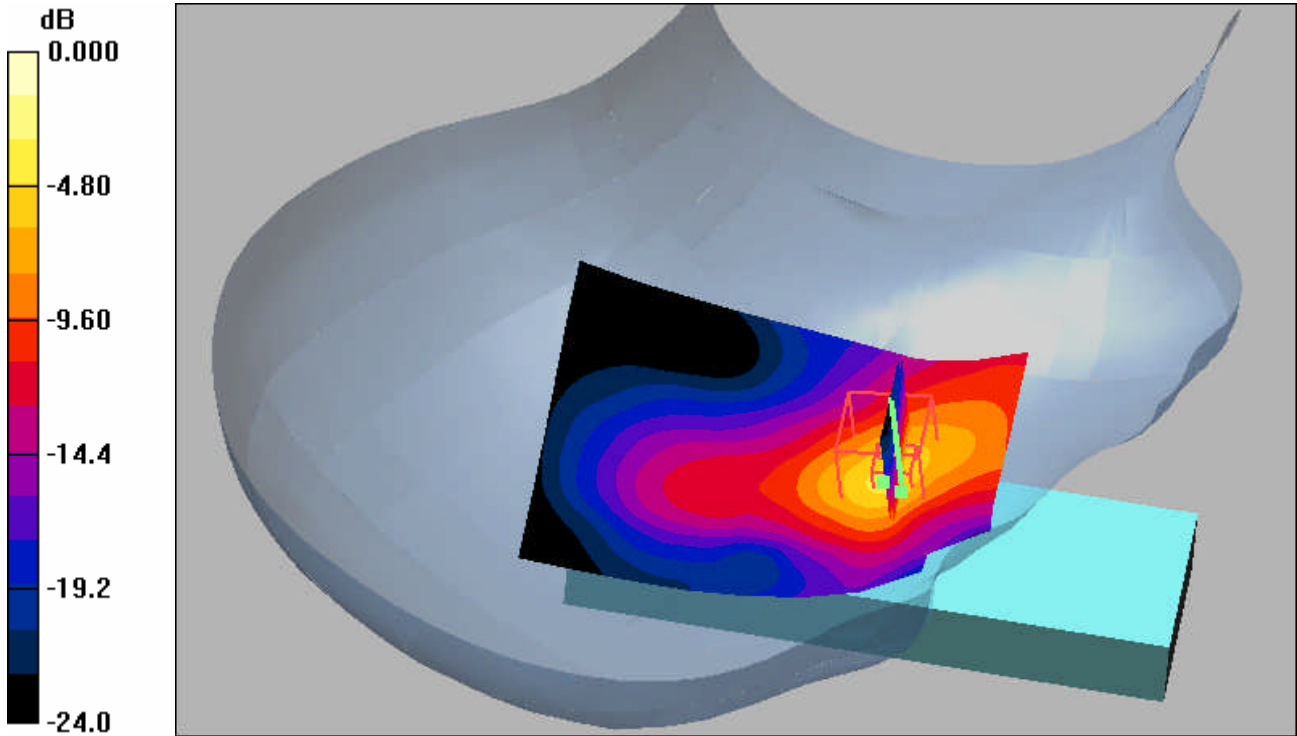
Reference Value = 7.33 V/m; Power Drift = -0.003 dB

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

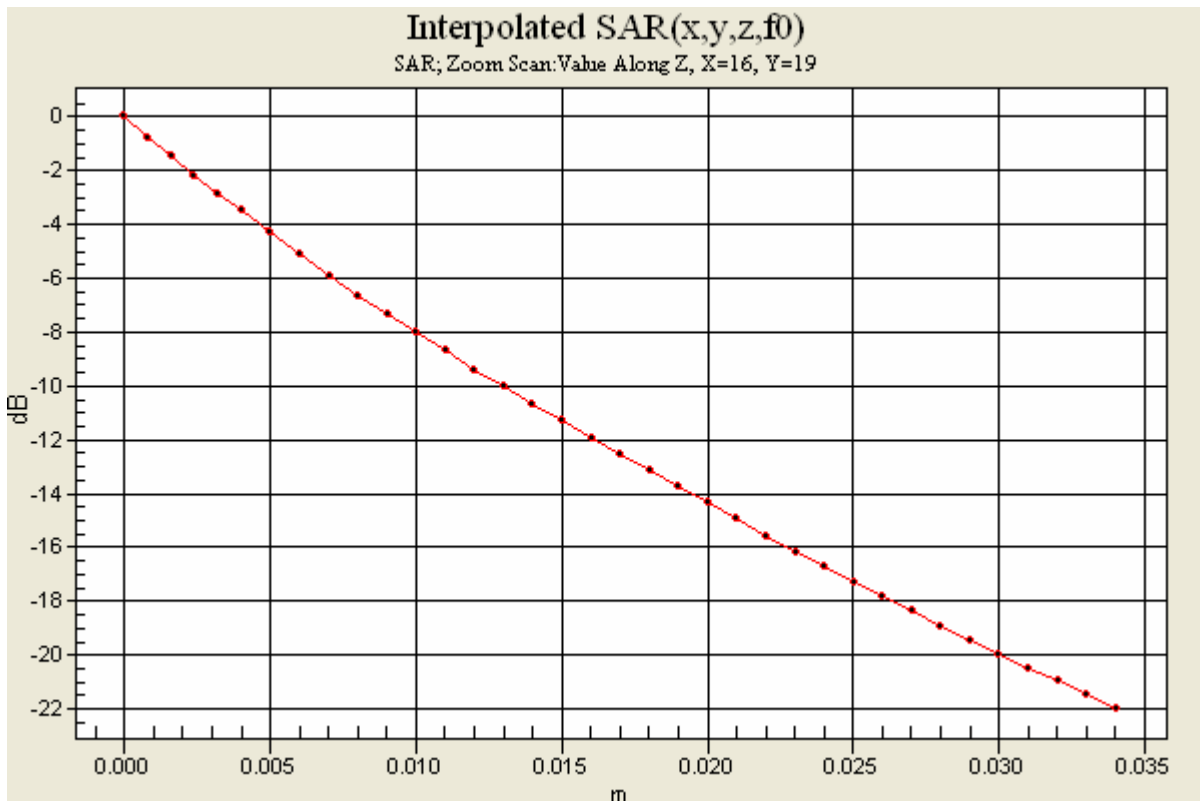
Maximum value of SAR (interpolated) = 2.52 mW/g



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0 dB = 2.52mW/g







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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR  
Model: Z710i with Standard Battery: BST-37, Right Side, Tilt Position.**

Date/Time: 7/18/2006 9:13:03 AM

File Name: [18July06\\_Z710i\\_GSM1900\\_JLP2\\_RT01.da4](#)

**DUT: Z710**

Program Notes: Battery - BST37 Humidity - 43.1% Ambient Temp - 23.2 C Simulant Tem - 23.1 C

Communication System: DCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: Head 1800/1900 MHz Medium parameters used: f = 1880 MHz; s = 1.44 mho/m;  $\epsilon_r = 39$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(4.93, 4.93, 4.93); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure 2/Area Scan (71x91x1):**

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

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

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

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

Reference Value = 5.41 V/m; Power Drift = -0.081 dB

Peak SAR (extrapolated) = 0.090 W/kg

**SAR(1 g) = 0.062 mW/g; SAR(10 g) = 0.040 mW/g**

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

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

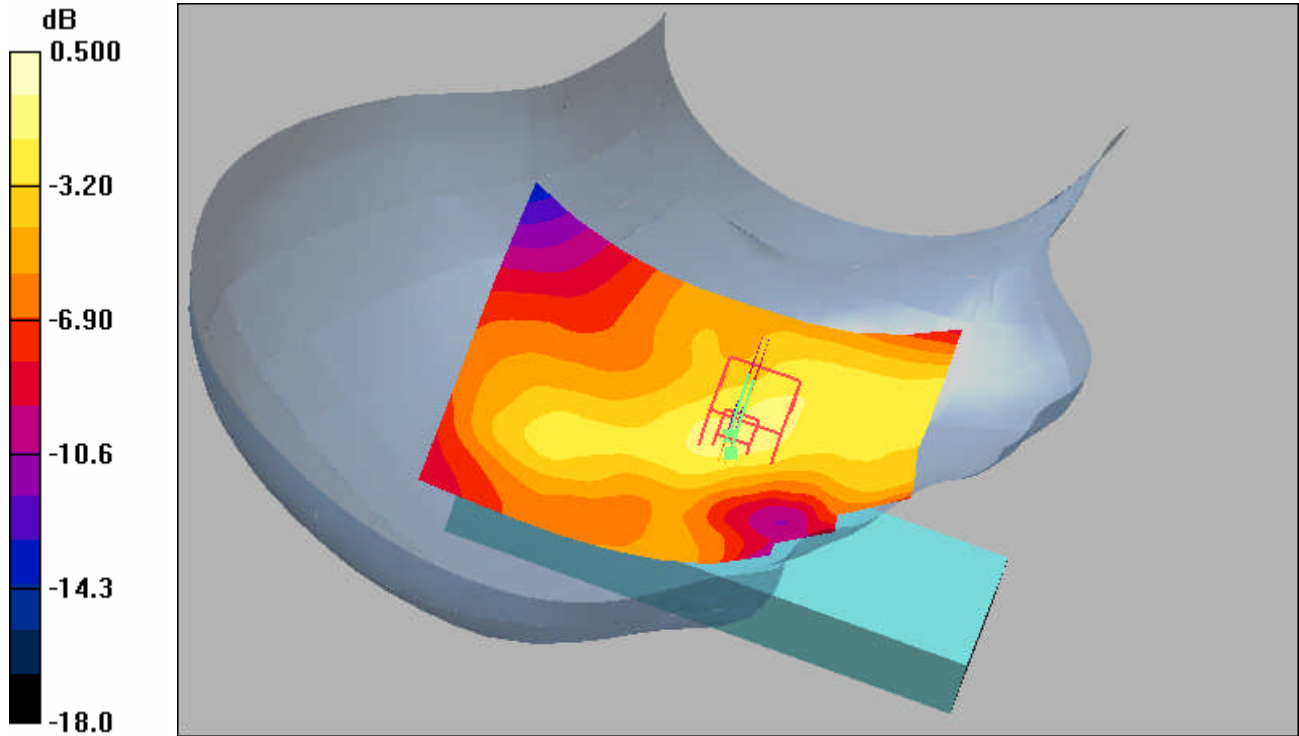
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.41 V/m; Power Drift = -0.081 dB

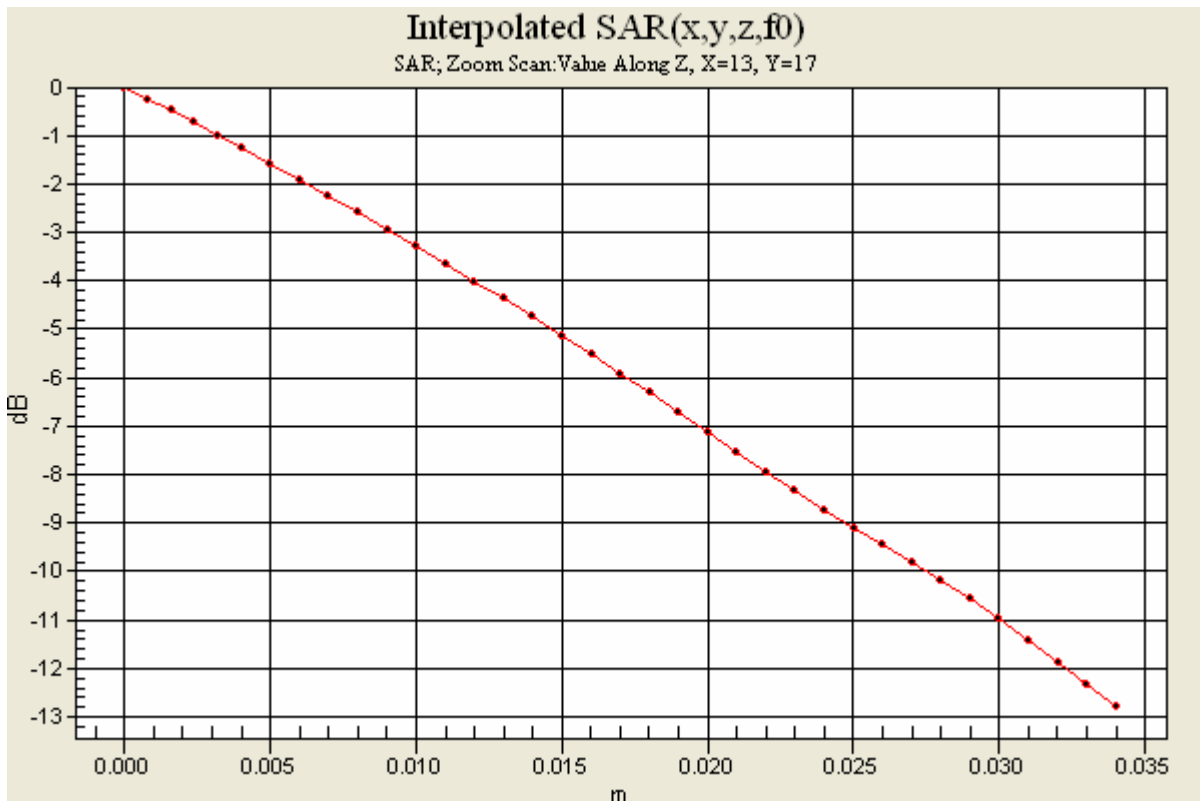
Maximum value of SAR (interpolated) = 0.090 mW/g



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0 dB = 0.090mW/g





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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR  
Model: Z710i with Standard Battery: BST-37, Left Side, Cheek/Touch Position.**

Date/Time: 7/18/2006 10:31:21 AM

File Name: [18July06\\_Z710i\\_GSM1900\\_JLP2\\_LC01.da4](#)

**DUT: Z710**

Program Notes: Battery - BST-37 Humidity: 41.9% Ambient Temp: 23.6 C Simulant Temp: 23.2 C

Communication System: DCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: Head 1800/1900 MHz Medium parameters used: f = 1880 MHz; s = 1.44 mho/m;  $\epsilon_r = 39$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(4.93, 4.93, 4.93); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure 2/Area Scan (71x81x1):**

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

Maximum value of SAR (interpolated) = 0.684 mW/g

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

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

Reference Value = 7.62 V/m; Power Drift = 0.123 dB

Peak SAR (extrapolated) = 1.32 W/kg

**SAR(1 g) = 0.575 mW/g; SAR(10 g) = 0.271 mW/g**

Maximum value of SAR (measured) = 0.680 mW/g

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

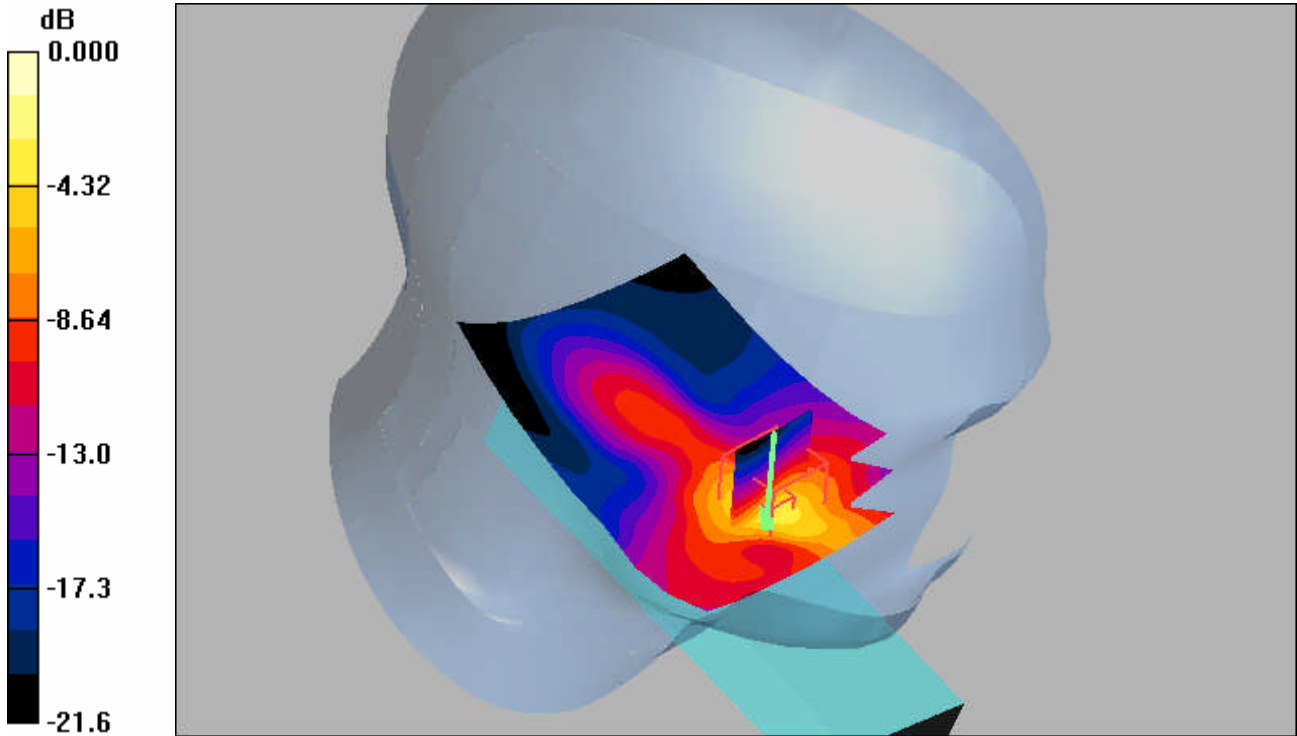
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.62 V/m; Power Drift = 0.123 dB

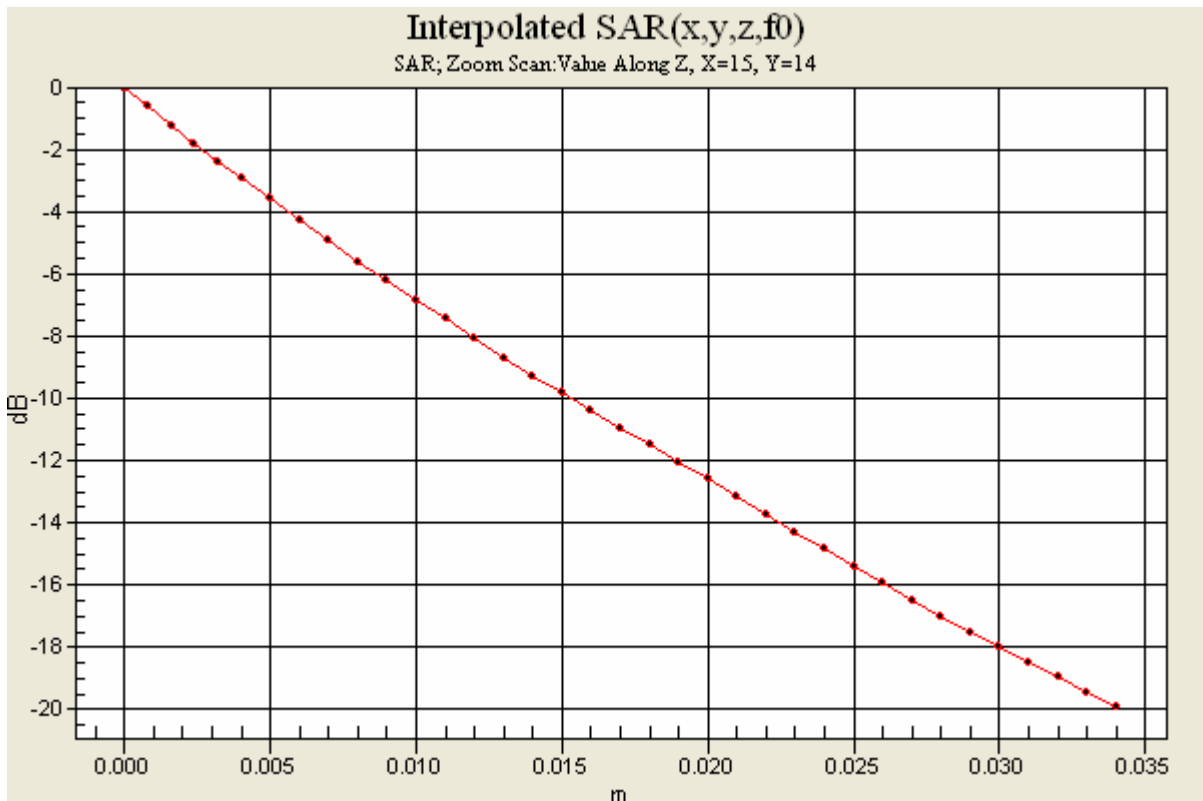
Maximum value of SAR (interpolated) = 1.32 mW/g



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0 dB = 1.32mW/g





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**1900 GSM Band: Distribution and Extrapolation of Maximum SAR  
Model: Z710i with Standard Battery: BST-37, Left Side, Tilt Position.**

Date/Time: 7/18/2006 11:55:34 AM

File Name: [18July06\\_Z710i\\_GSM1900\\_JLP2\\_LT01.da4](#)

**DUT: Z710**

Program Notes: Battery - BST-37 Humidity: 41% Ambient Temp: 24 C Simulant Temp: 23.4 C

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

Medium: Head 1800/1900 MHz Medium parameters used: f = 1910 MHz; s = 1.47 mho/m;  $\epsilon_r = 38.9$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(4.93, 4.93, 4.93); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure 3/Area Scan (71x81x1):**

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

Maximum value of SAR (interpolated) = 0.070 mW/g

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

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

Reference Value = 6.25 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 0.088 W/kg

**SAR(1 g) = 0.061 mW/g; SAR(10 g) = 0.039 mW/g**

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

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

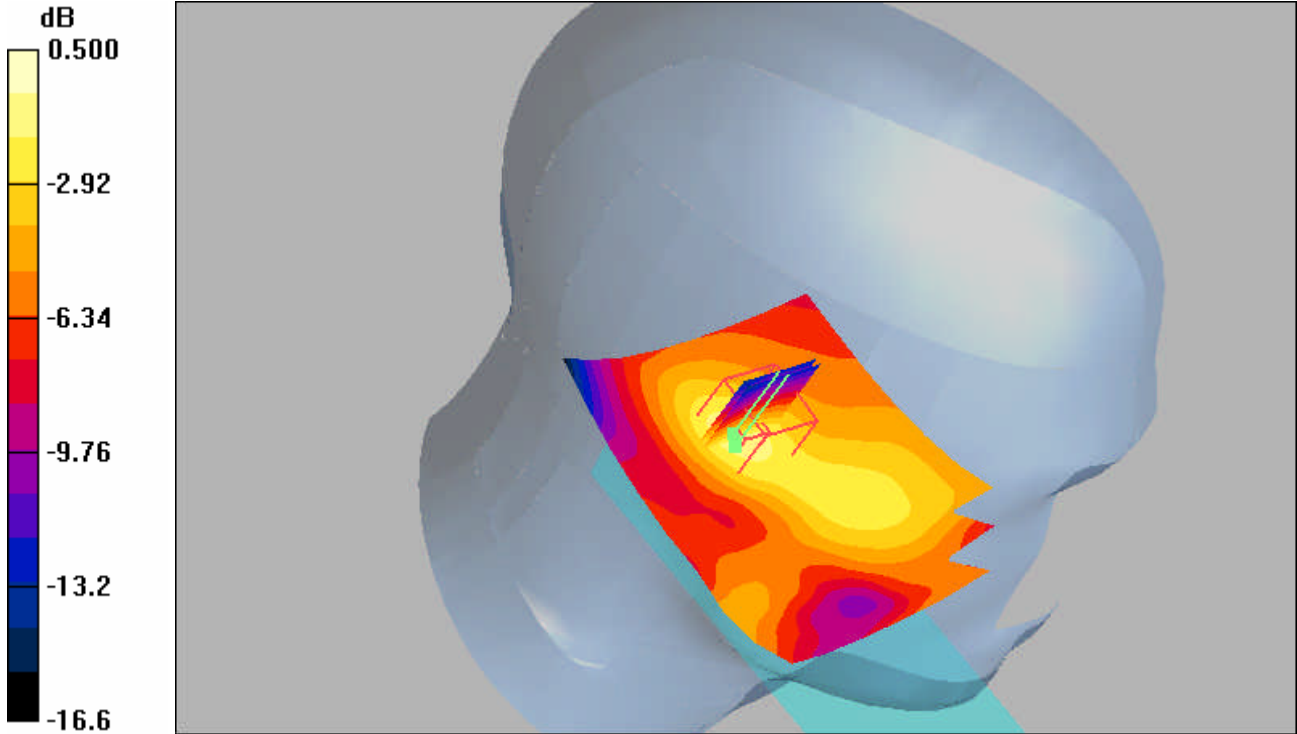
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.25 V/m; Power Drift = 0.001 dB

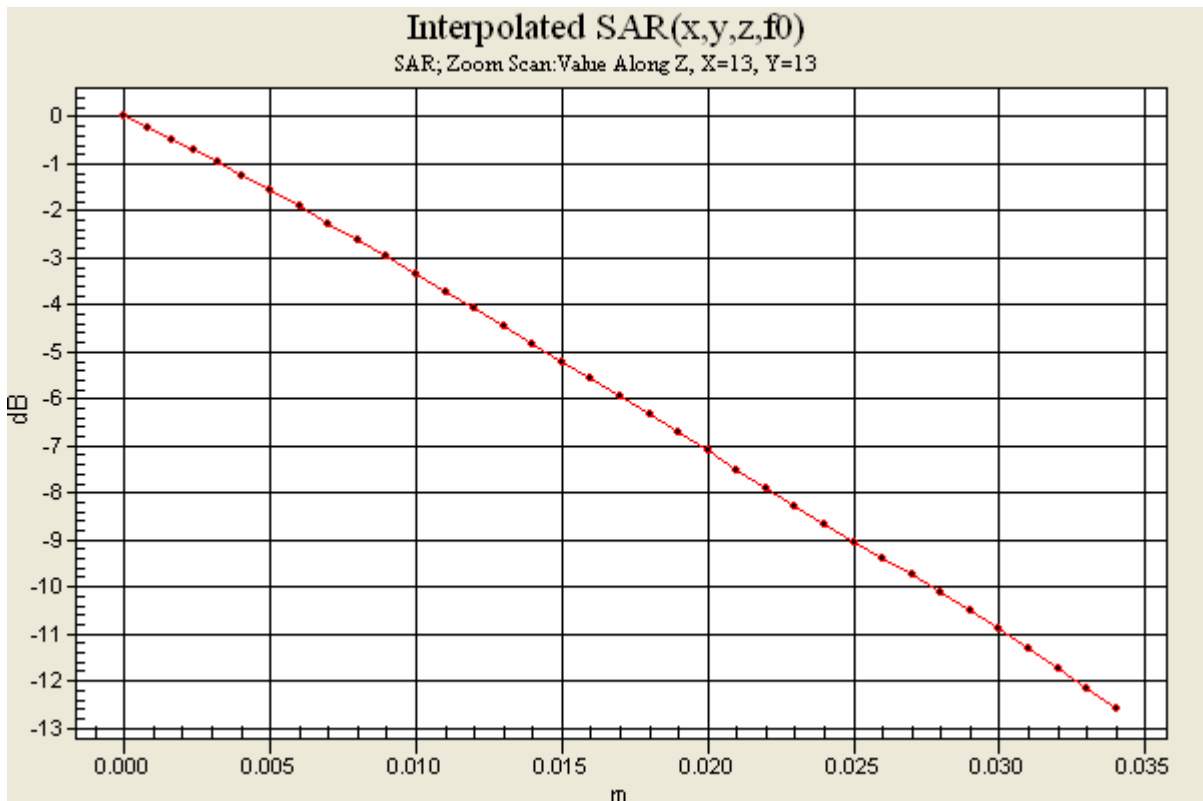
Maximum value of SAR (interpolated) = 0.088 mW/g



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0 dB = 0.088mW/g





Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 010 Z710i 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z710\Final Reports\FCCZ710I.doc

**1900 GSM Band: Distribution and Extrapolation of Maximum SAR  
Model: Z710i with Standard Battery: BST-37, Right Side, Cheek/Touch Position with Blue Tooth.**

Date/Time: 7/18/2006 1:31:41 PM

File Name: [18July06\\_Z710i\\_GSM1900\\_JLP2\\_BT\\_RC01.da4](#)

**DUT: Z710**

Program Notes: Battery - BST37 Humidity - 41% Ambient Temp - 24 C Simulant Tem - 23.4 C

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

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz; s = 1.41 mho/m;  $\epsilon_r = 39.1$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1583; ConvF(4.93, 4.93, 4.93); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn416; Calibrated: 11/10/2005
- Phantom: SAM with CRP (High Band Head); Type: SAM; Serial: TP: 1054
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (61x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.853 mW/g

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

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

Reference Value = 7.04 V/m; Power Drift = 0.054 dB

Peak SAR (extrapolated) = 2.06 W/kg

**SAR(1 g) = 0.813 mW/g; SAR(10 g) = 0.375 mW/g**

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

Maximum value of SAR (measured) = 0.883 mW/g

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

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

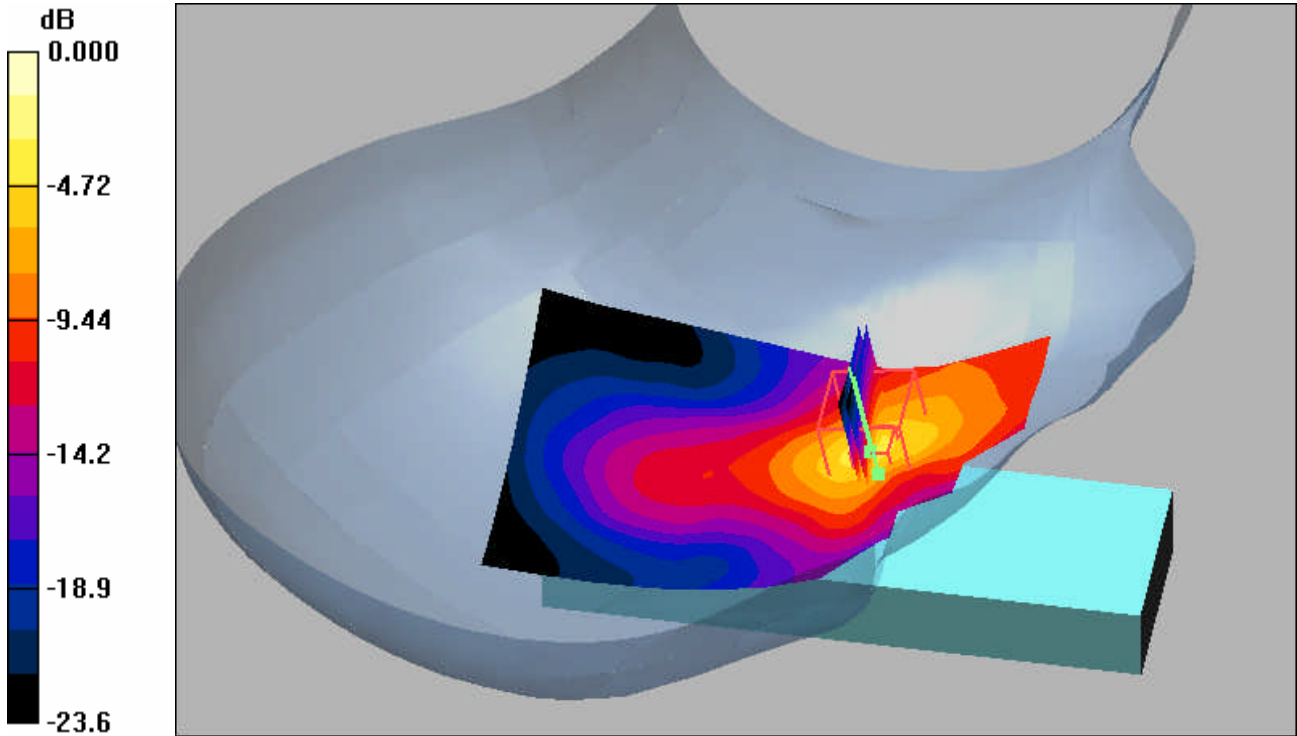
Reference Value = 7.04 V/m; Power Drift = 0.054 dB

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

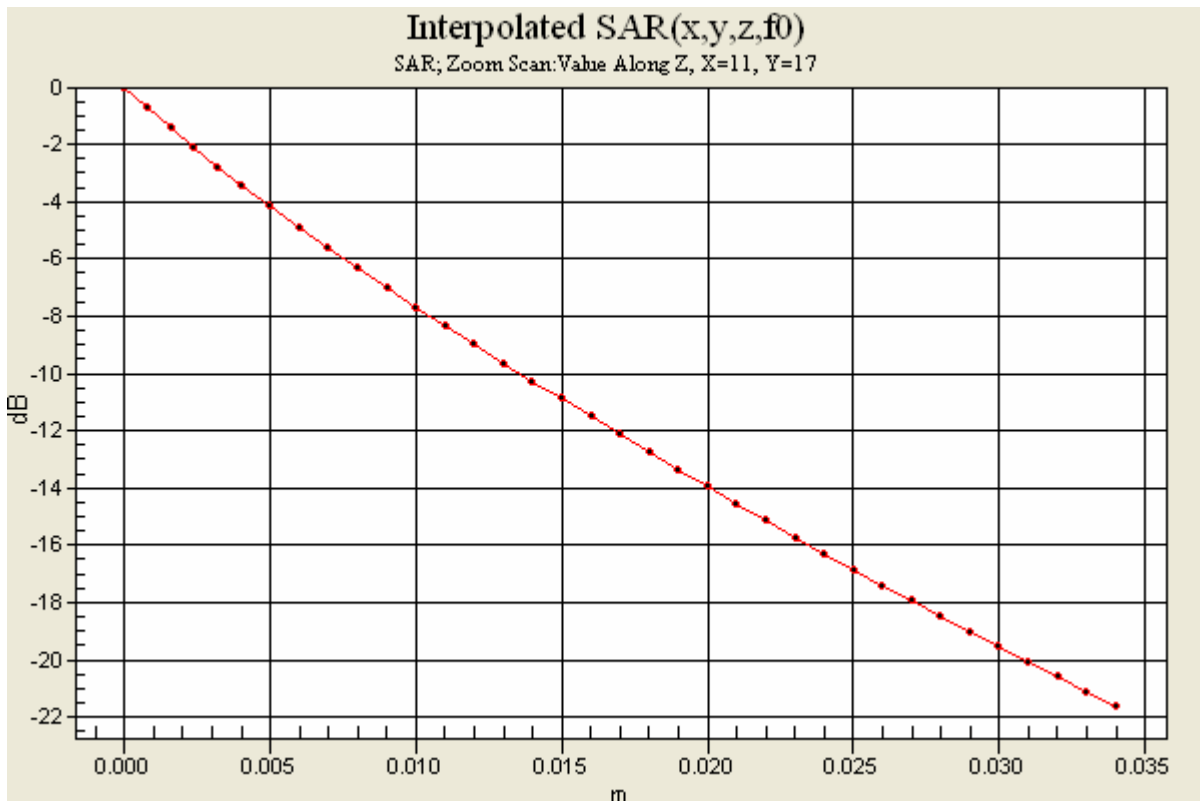
Maximum value of SAR (interpolated) = 2.06 mW/g



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 010 Z710i 02	
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0 dB = 2.06mW/g







Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 010 Z710i 02	
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### Appendix 3

### SAR distribution plots for Body Worn Configuration



Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 010 Z710i 02	
Approved SEM/CV/PF/P Gerard Hayes	Checked	A	X:\SAR Chamber\FCC reports\Z710\Final Reports\FCCZ710I.doc

**Distribution of maximum SAR in 800 GSM band. Measured with back of device facing the body using a 15mm spacer. (Standard Battery, BST-37)**

Date/Time: 7/18/2006 7:32:15 AM

File Name: [18July06\\_Z710i\\_GSM835\\_JLMF\\_15mm\\_BB01.da4](#)

**DUT: Z710 body**

Program Notes: Battery - BST37 Humidity - 43.5% Ambient Temp - 22 C Simulant Temp - 22.2 C

Communication System: GSM 850 multi-slot Body; Frequency: 824 MHz; Duty Cycle: 1:4.15

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz; s = 1 mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(5.88, 5.88, 5.88); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn417; Calibrated: 11/11/2005
- Phantom: SAM with CRP (Low Band Body); Type: SAM; Serial: TP: 1031
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (71x121x1):**

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

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

Maximum value of SAR (interpolated) = 0.938 mW/g

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

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

Reference Value = 29.8 V/m; Power Drift = -0.062 dB

Peak SAR (extrapolated) = 1.20 W/kg

**SAR(1 g) = 0.876 mW/g; SAR(10 g) = 0.599 mW/g**

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

Maximum value of SAR (measured) = 0.941 mW/g

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

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

Reference Value = 29.8 V/m; Power Drift = -0.062 dB

Peak SAR (extrapolated) = 1.17 W/kg

**SAR(1 g) = 0.760 mW/g; SAR(10 g) = 0.473 mW/g**

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

Maximum value of SAR (measured) = 0.893 mW/g

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

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

Reference Value = 29.8 V/m; Power Drift = -0.062 dB

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

Maximum value of SAR (interpolated) = 1.20 mW/g

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

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

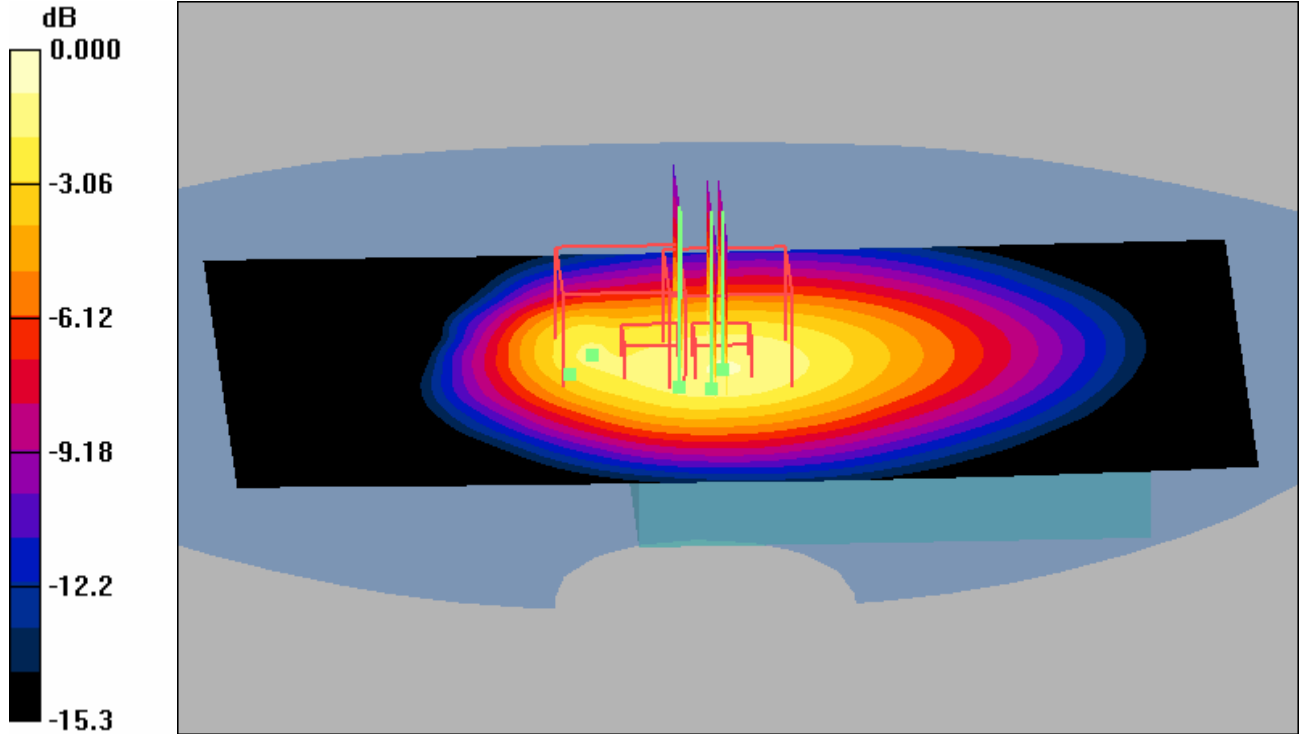
Reference Value = 29.8 V/m; Power Drift = -0.062 dB

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

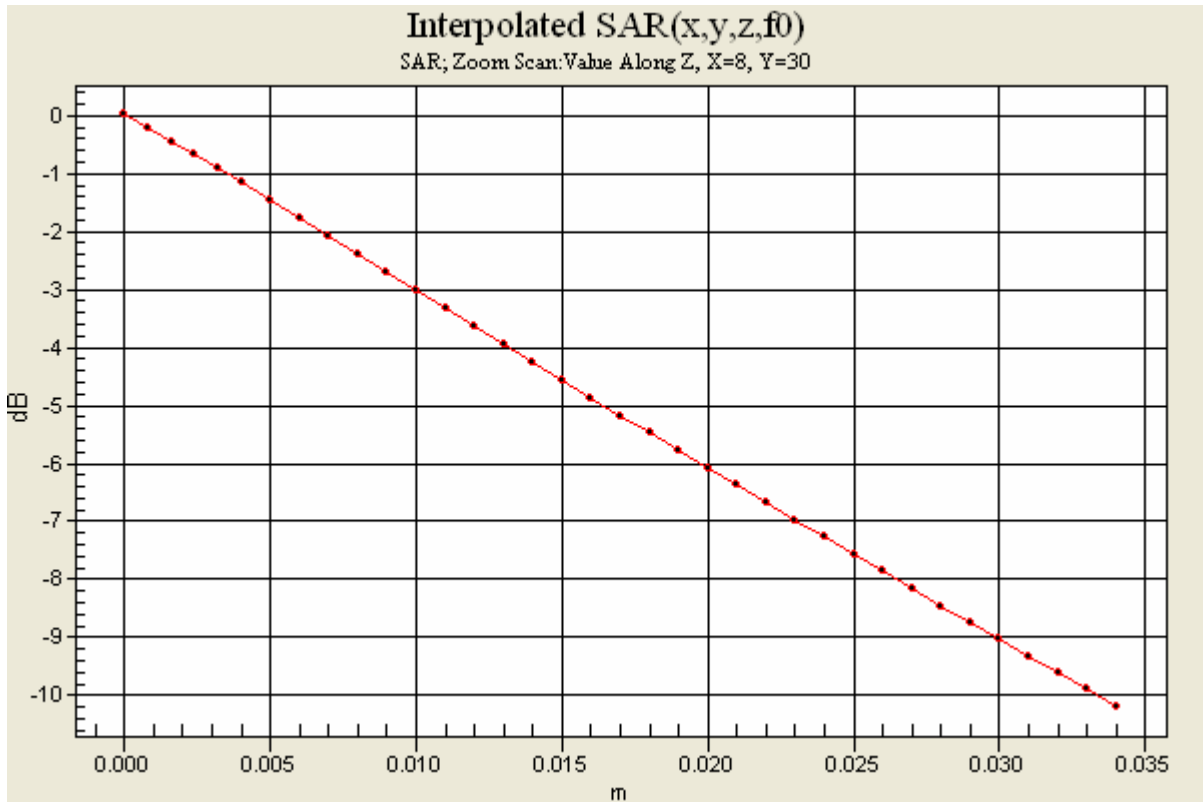
Maximum value of SAR (interpolated) = 1.17 mW/g



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0 dB = 1.17mW/g





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**Distribution of maximum SAR in 800 GSM band. Measured with back of device facing the body using an ICE26 carry case. (Standard Battery, BST-37)**

Date/Time: 7/18/2006 8:58:34 AM

File Name: [18July06\\_Z710i\\_GSM835\\_JLMF\\_ICE26\\_BB01.da4](#)

**DUT: Z710 body**

Program Notes: Battery - BST37 Humidity - 43.7% Ambient Temp - 21.8 C Simulant Temp - 22.1 C

Communication System: GSM 850 multi-slot Body; Frequency: 824 MHz; Duty Cycle: 1:4.15

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz; s = 1 mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(5.88, 5.88, 5.88); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn417; Calibrated: 11/11/2005
- Phantom: SAM with CRP (Low Band Body); Type: SAM; Serial: TP: 1031
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (61x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.659 mW/g

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

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

Reference Value = 24.6 V/m; Power Drift = -0.056 dB

Peak SAR (extrapolated) = 0.837 W/kg

**SAR(1 g) = 0.626 mW/g; SAR(10 g) = 0.436 mW/g**

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

Maximum value of SAR (measured) = 0.665 mW/g

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

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

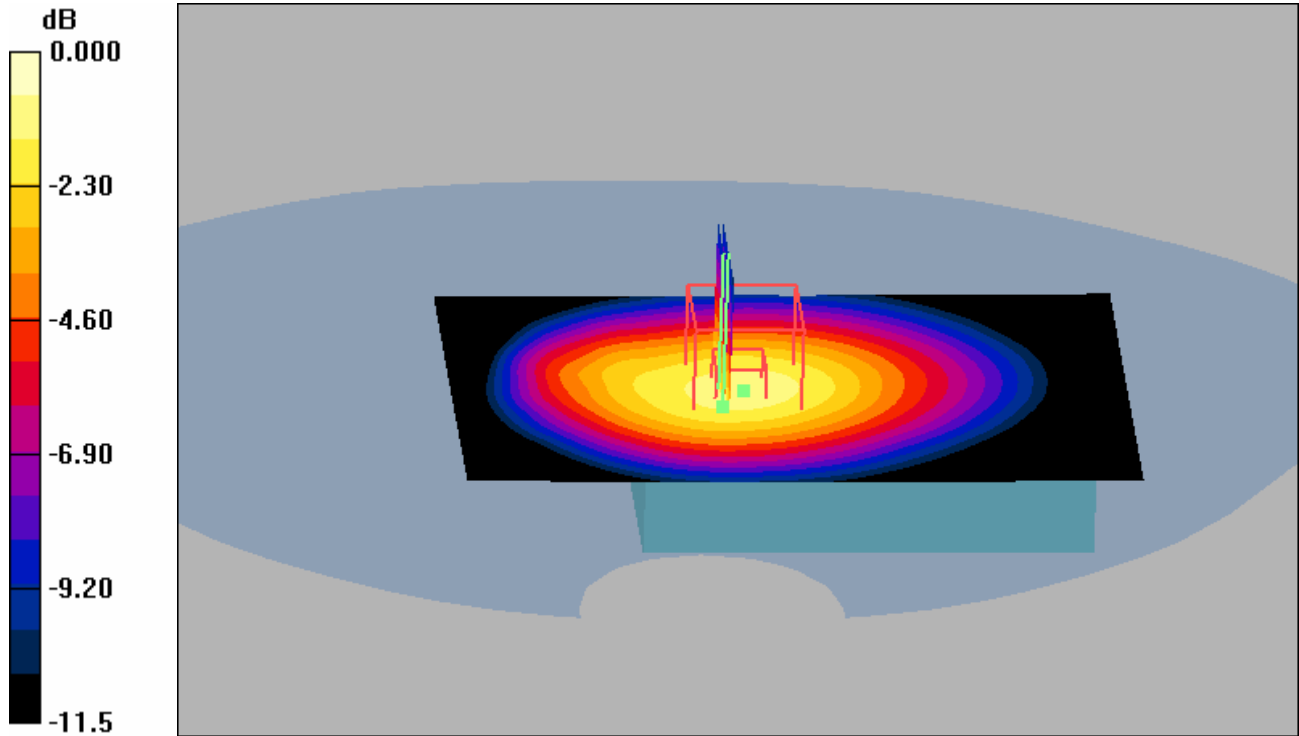
Reference Value = 24.6 V/m; Power Drift = -0.056 dB

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

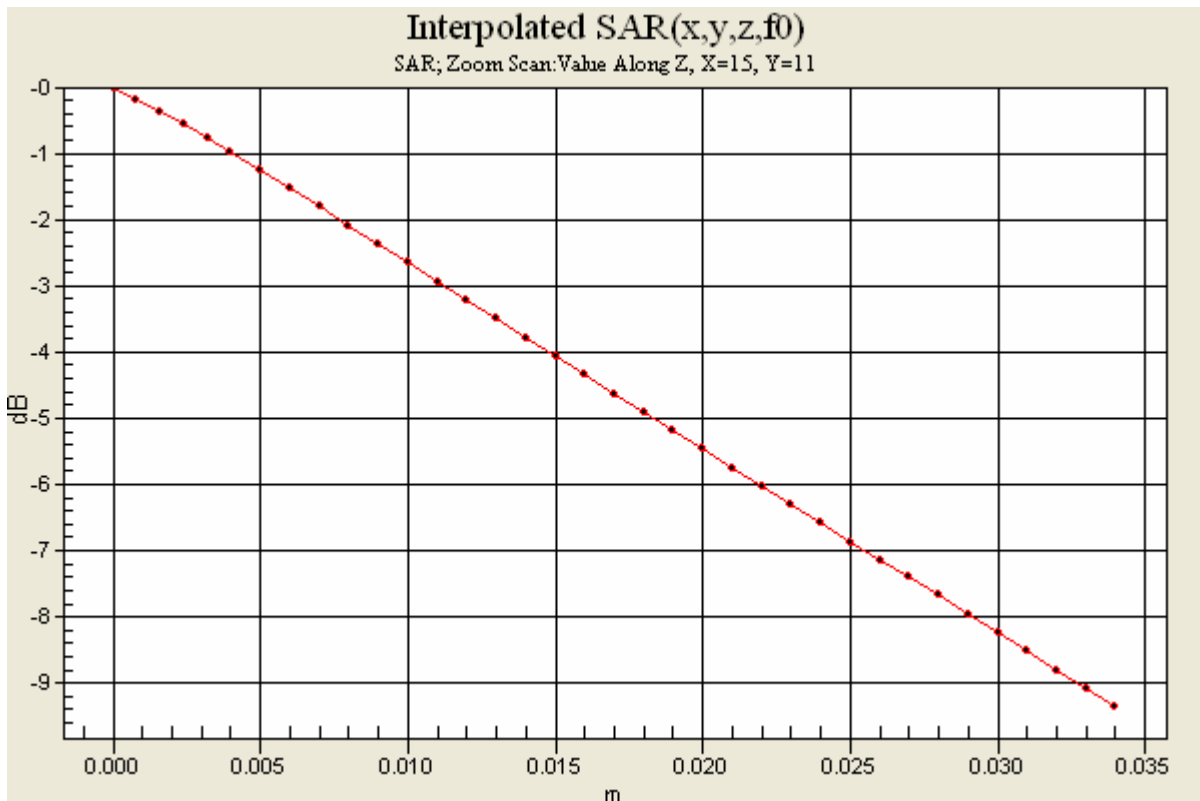
Maximum value of SAR (interpolated) = 0.837 mW/g



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0 dB = 0.837mW/g





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**Distribution of maximum SAR in 800 GSM band. Measured with back of device facing the body using an IAC60 carry case. (Standard Battery, BST-37)**

Date/Time: 7/18/2006 8:32:17 AM

File Name: [18July06\\_Z710i\\_GSM835\\_JLMF\\_IAC60\\_BB01.da4](#)

**DUT: Z710 body**

Program Notes: Battery - BST37 Humidity - 43.6% Ambient Temp - 22 C Simulant Temp - 22.1 C

Communication System: GSM 850 multi-slot Body; Frequency: 824 MHz; Duty Cycle: 1:4.15

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz; s = 1 mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(5.88, 5.88, 5.88); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn417; Calibrated: 11/11/2005
- Phantom: SAM with CRP (Low Band Body); Type: SAM; Serial: TP: 1031
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (71x121x1):**

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

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

Maximum value of SAR (interpolated) = 0.437 mW/g

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

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

Reference Value = 20.9 V/m; Power Drift = -0.036 dB

Peak SAR (extrapolated) = 0.563 W/kg

**SAR(1 g) = 0.411 mW/g; SAR(10 g) = 0.286 mW/g**

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

Maximum value of SAR (measured) = 0.438 mW/g

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

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

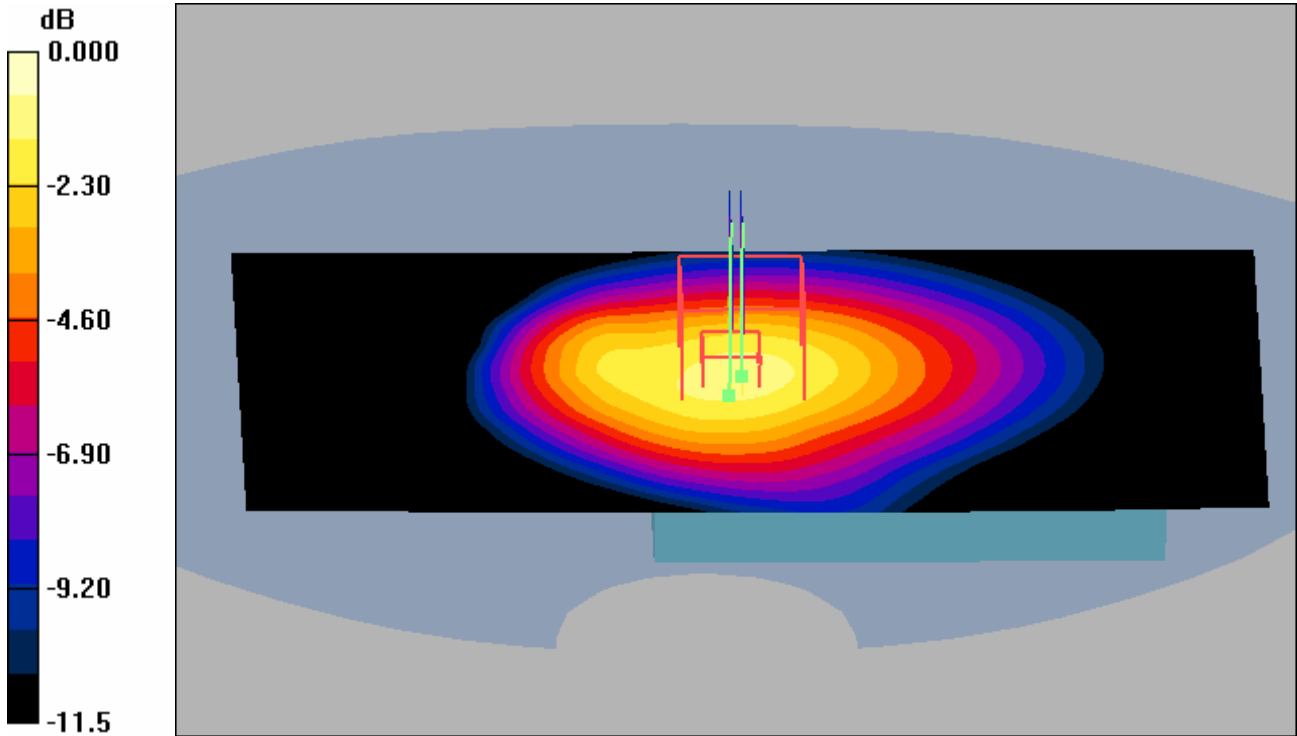
Reference Value = 20.9 V/m; Power Drift = -0.036 dB

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

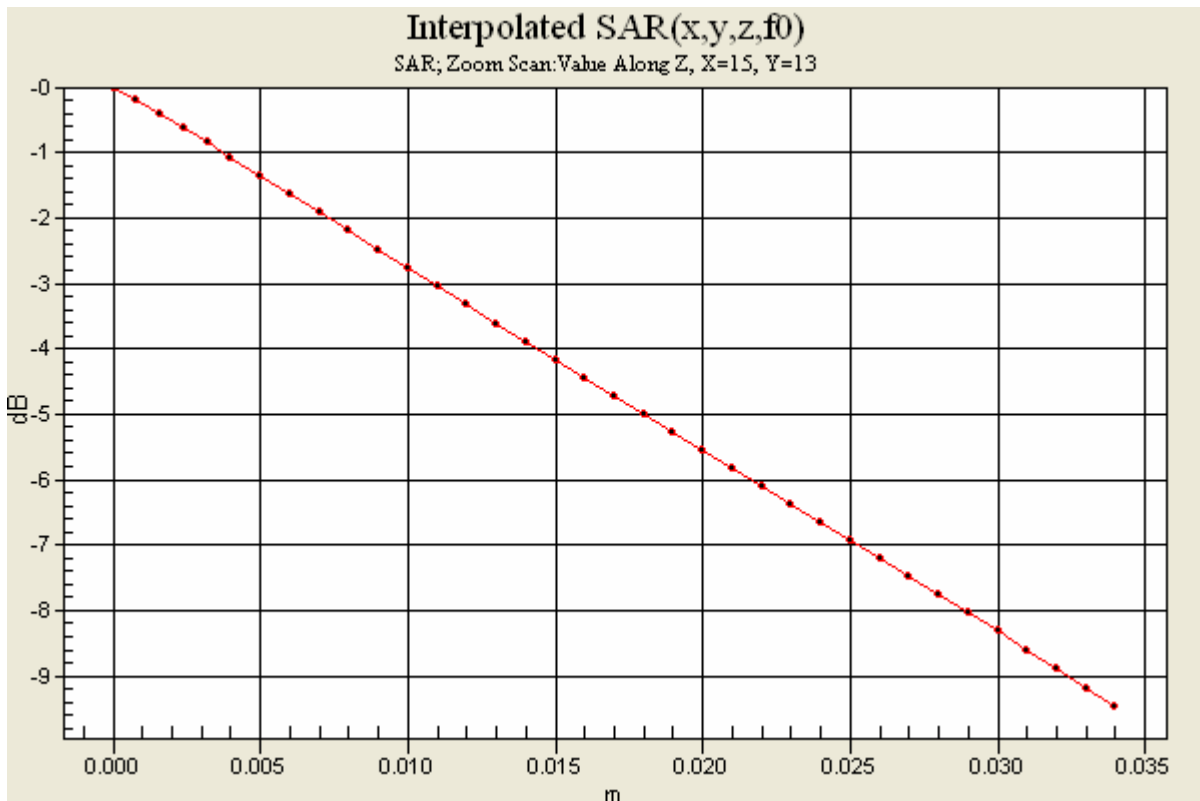
Maximum value of SAR (interpolated) = 0.563 mW/g



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0 dB = 0.563mW/g





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**Distribution of maximum SAR in 800 GSM band. Measured with front of device facing the body using a 15mm spacer. (Standard Battery, BST-37)**

Date/Time: 7/18/2006 8:08:05 AM

File Name: [18July06\\_Z710i\\_GSM835\\_JLMF\\_15mm\\_BF01.da4](#)

**DUT: Z710 body**

Program Notes: Battery - BST37 Humidity - 43.5% Ambient Temp - 22 C Simulant Temp - 22.2 C

Communication System: GSM 850 multi-slot Body; Frequency: 824 MHz; Duty Cycle: 1:4.15

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz; s = 1 mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(5.88, 5.88, 5.88); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn417; Calibrated: 11/11/2005
- Phantom: SAM with CRP (Low Band Body); Type: SAM; Serial: TP: 1031
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (71x121x1):**

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

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

Maximum value of SAR (interpolated) = 0.245 mW/g

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

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

Reference Value = 15.9 V/m; Power Drift = -0.031 dB

Peak SAR (extrapolated) = 0.306 W/kg

**SAR(1 g) = 0.229 mW/g; SAR(10 g) = 0.162 mW/g**

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

Maximum value of SAR (measured) = 0.245 mW/g

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

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

Reference Value = 15.9 V/m; Power Drift = -0.031 dB

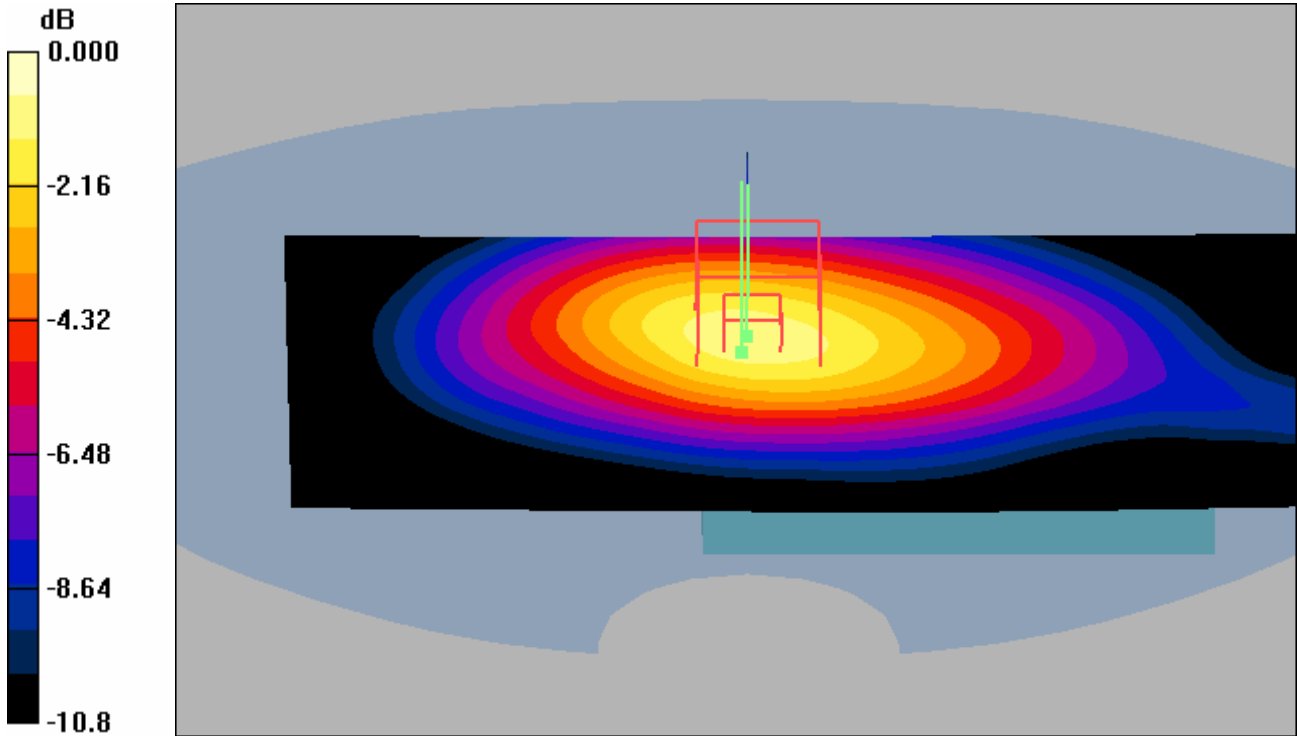
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.306 mW/g

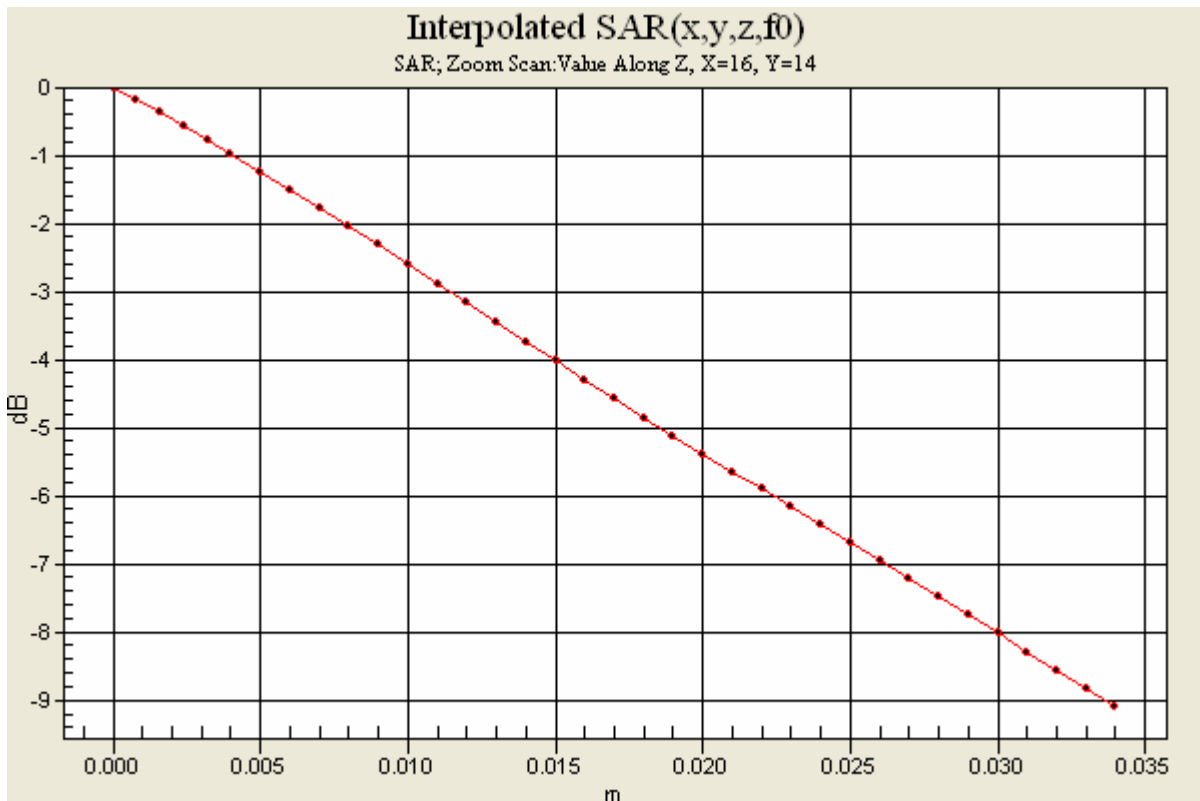




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0 dB = 0.306mW/g





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**Distribution of maximum SAR in 800 GSM band. Measured with front of device facing the body using an ICE26 carry case. (Standard Battery, BST-37)**

Date/Time: 7/18/2006 9:20:45 AM

File Name: [18July06\\_Z710i\\_GSM835\\_JLMF\\_ICE26\\_BF01.da4](#)

**DUT: Z710 body**

Program Notes: Battery - BST37 Humidity - 43.7% Ambient Temp - 21.8 C Simulant Temp - 22.1 C

Communication System: GSM 850 multi-slot Body; Frequency: 824 MHz; Duty Cycle: 1:4.15

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz; s = 1 mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(5.88, 5.88, 5.88); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn417; Calibrated: 11/11/2005
- Phantom: SAM with CRP (Low Band Body); Type: SAM; Serial: TP: 1031
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (61x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.191 mW/g

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

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

Reference Value = 14.0 V/m; Power Drift = 0.009 dB

Peak SAR (extrapolated) = 0.237 W/kg

**SAR(1 g) = 0.179 mW/g; SAR(10 g) = 0.127 mW/g**

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

Maximum value of SAR (measured) = 0.191 mW/g

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

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

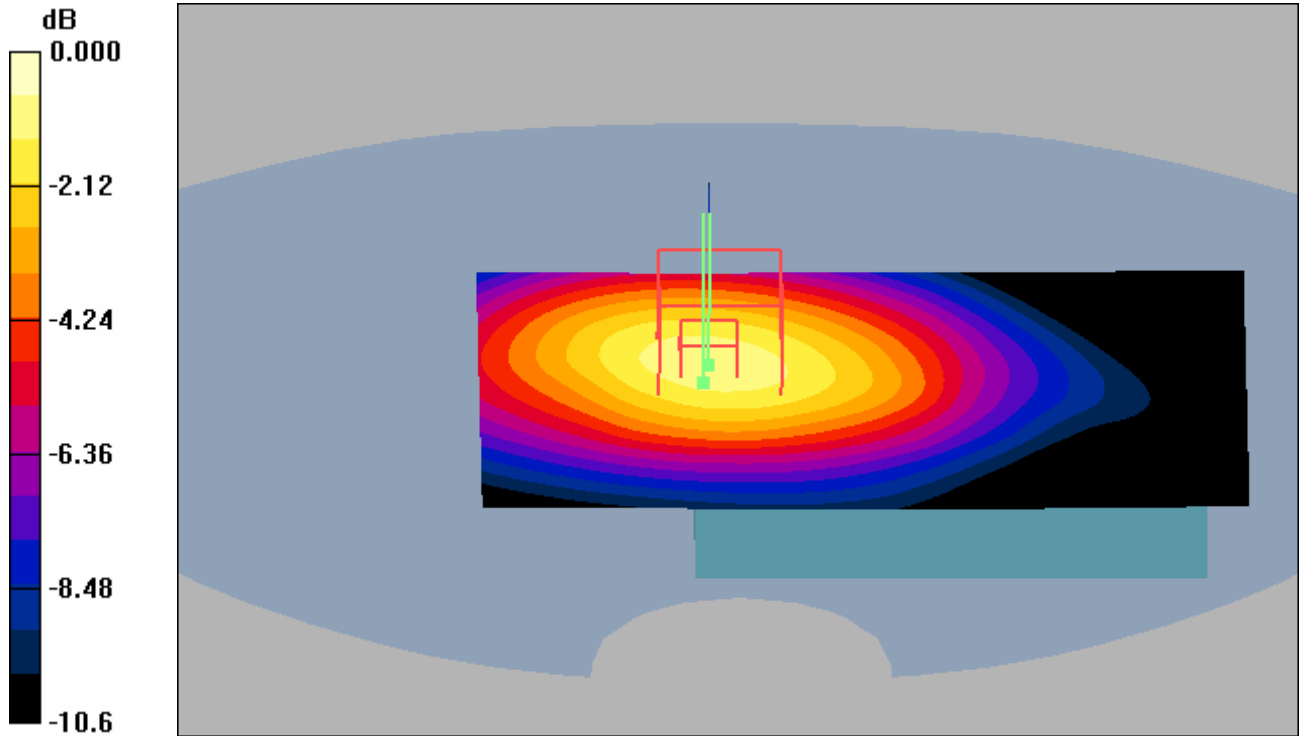
Reference Value = 14.0 V/m; Power Drift = 0.009 dB

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

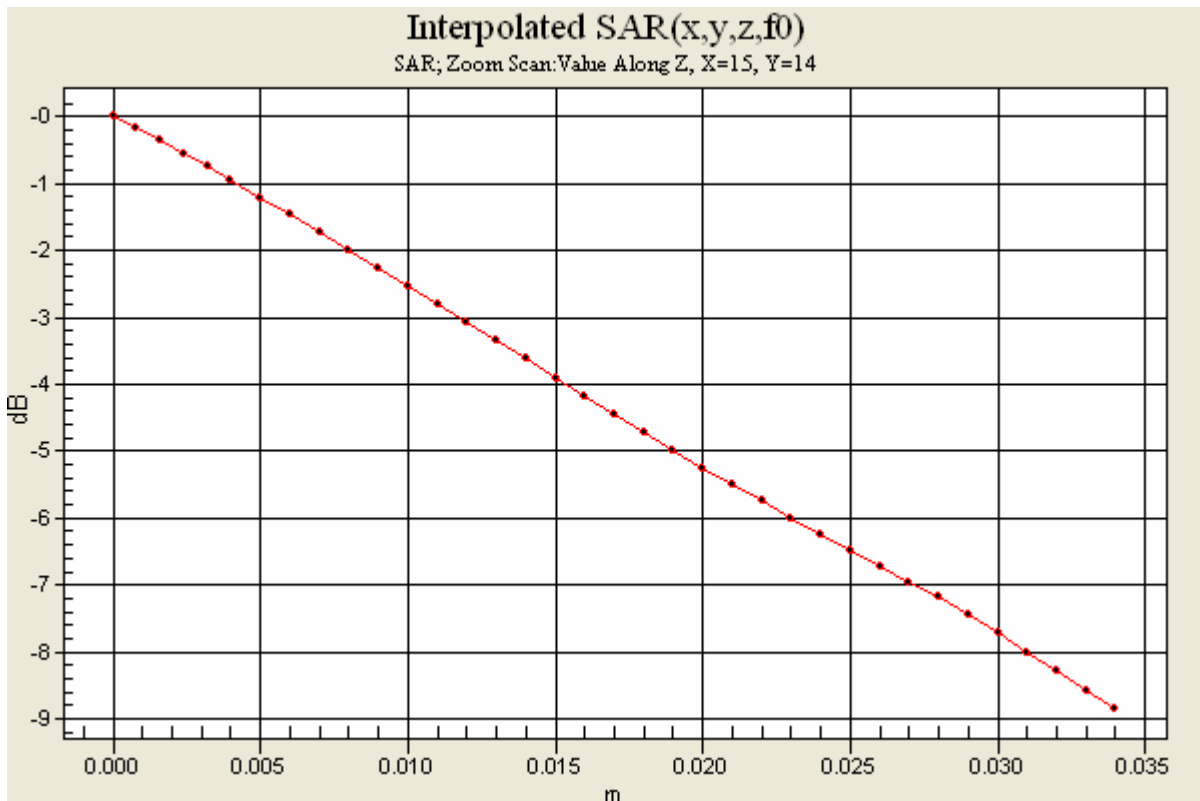
Maximum value of SAR (interpolated) = 0.237 mW/g



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0 dB = 0.237mW/g





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**Distribution of maximum SAR in 800 GSM band. Measured with back of device facing the body using a 15mm SPACER with Blue Tooth. (Standard Battery BST-37)**

Date/Time: 7/18/2006 3:31:54 PM

File Name: [18July06 Z710i GSM835 JLMF 15mm BT BB01.da4](#)

**DUT: Z710 body**

Program Notes: Battery - BST37 Humidity - 43.5% Ambient Temp - 22 C Simulant Temp - 22.2 C

Communication System: GSM 850 multi-slot Body; Frequency: 824 MHz; Duty Cycle: 1:4.15

Medium: Head 835/900 MHz Medium parameters used (interpolated): f = 824 MHz; s = 1 mho/m;  $\epsilon_r = 53.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(5.88, 5.88, 5.88); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn417; Calibrated: 11/11/2005
- Phantom: SAM with CRP (Low Band Body); Type: SAM; Serial: TP: 1031
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (61x91x1):**

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

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

Maximum value of SAR (interpolated) = 0.903 mW/g

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

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

Reference Value = 28.5 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 1.15 W/kg

**SAR(1 g) = 0.834 mW/g; SAR(10 g) = 0.569 mW/g**

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

Maximum value of SAR (measured) = 0.900 mW/g

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

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

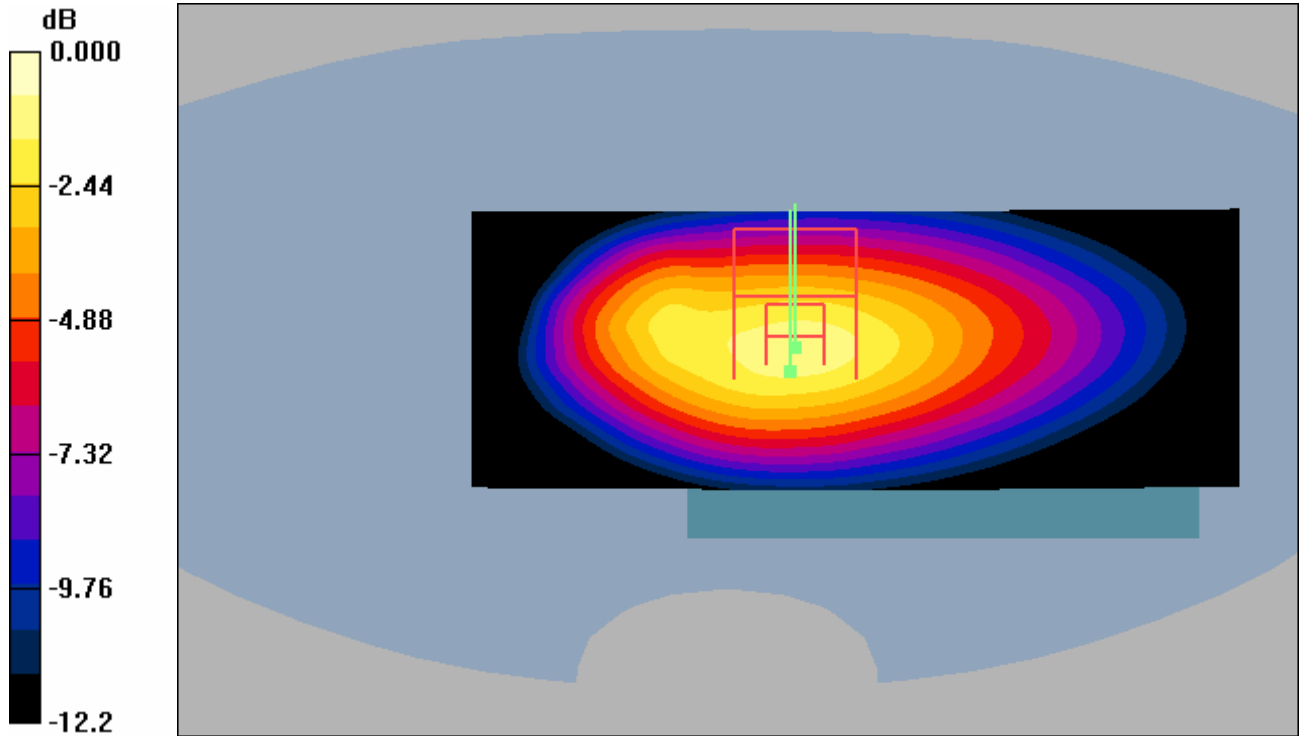
Reference Value = 28.5 V/m; Power Drift = -0.005 dB

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

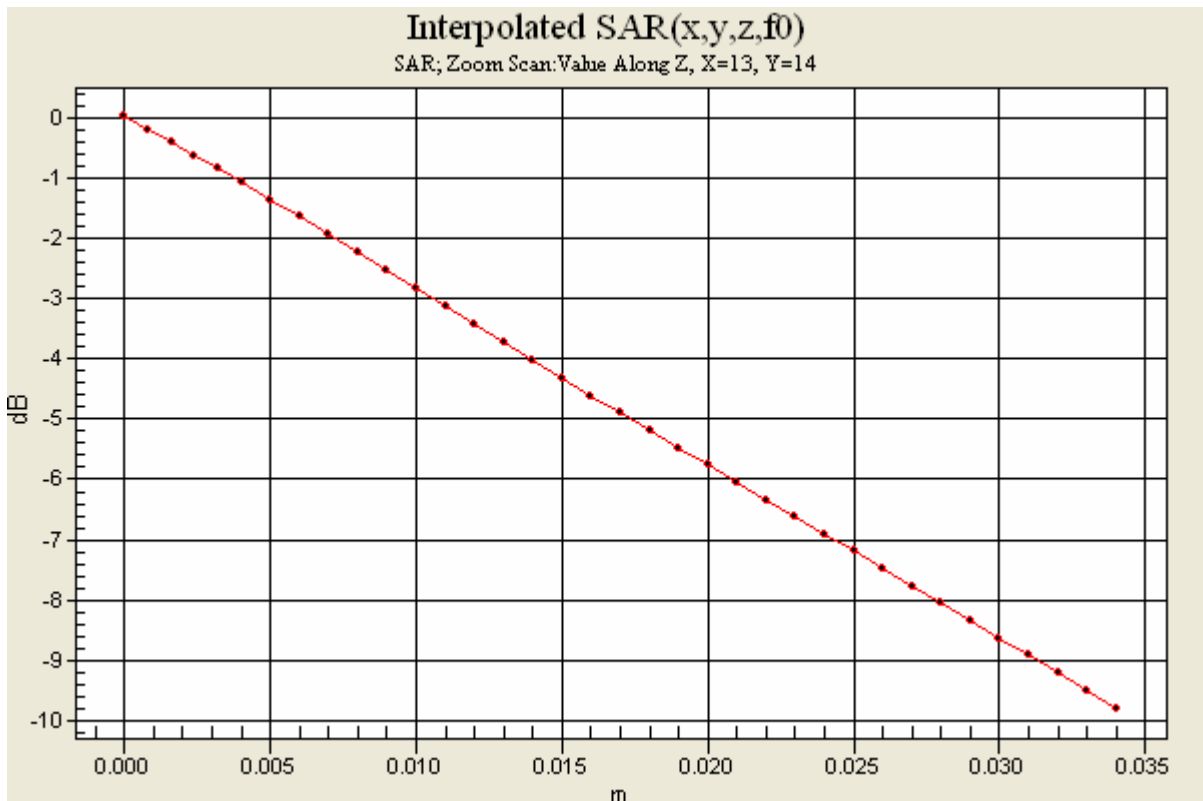
Maximum value of SAR (interpolated) = 1.15 mW/g



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0 dB = 1.15mW/g





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**Distribution of maximum SAR in 1900 GSM band. Measured with back of device facing the body using a 15mm spacer. (Standard Battery, BST-37)**

Date/Time: 7/17/2006 8:01:03 AM

File Name: [17July06\\_Z710i\\_GSM1900\\_JLP2\\_15mm\\_BB01.da4](#)

**DUT: Z710 body**

Program Notes: Battery - BST37 Humidity - 44.2% Ambient Temp - 23.4 C Simulant Temp - 23.1 C

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

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz; s = 1.49 mho/m;  $\epsilon_r = 51.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(4.12, 4.12, 4.12); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn417; Calibrated: 11/11/2005
- Phantom: SAM with CRP (High Band Body); Type: SAM; Serial: TP: 1020
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (61x101x1):**

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

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

Maximum value of SAR (interpolated) = 0.664 mW/g

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

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

Reference Value = 20.5 V/m; Power Drift = -0.043 dB

Peak SAR (extrapolated) = 0.999 W/kg

**SAR(1 g) = 0.611 mW/g; SAR(10 g) = 0.376 mW/g**

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

Maximum value of SAR (measured) = 0.661 mW/g

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

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

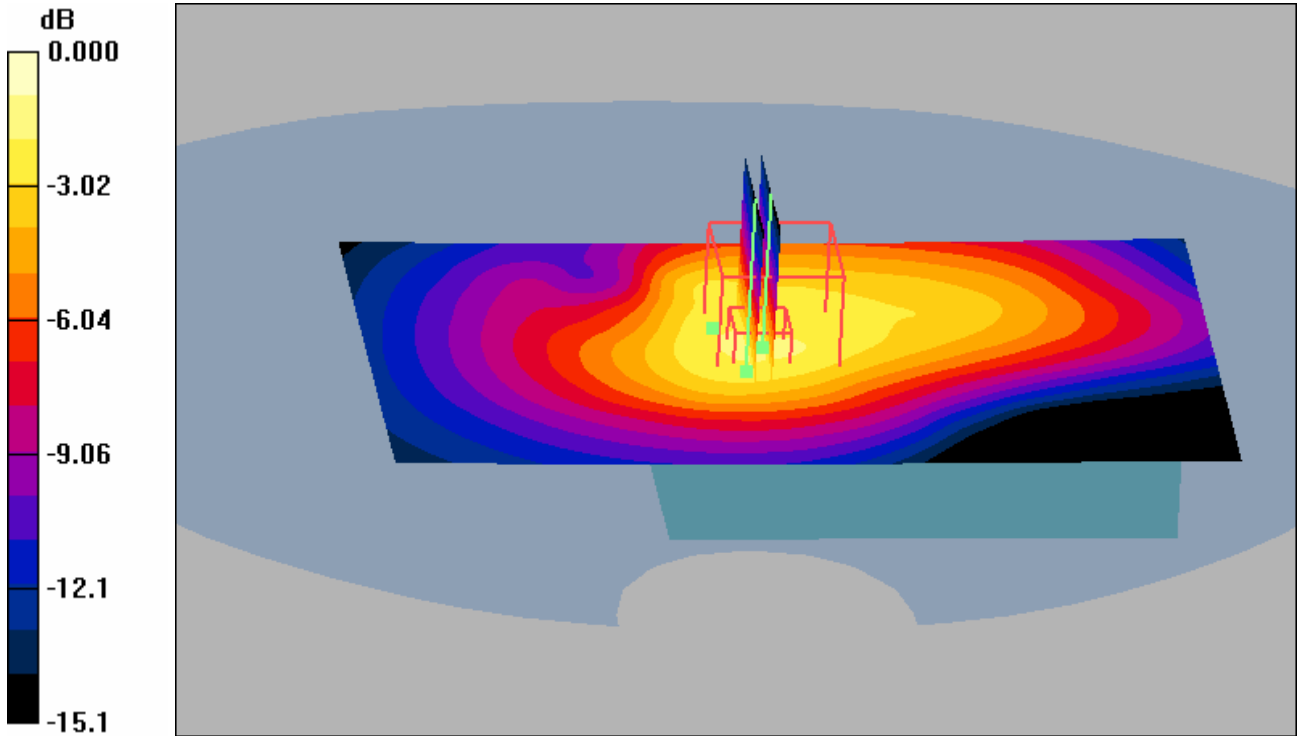
Reference Value = 20.5 V/m; Power Drift = -0.043 dB

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

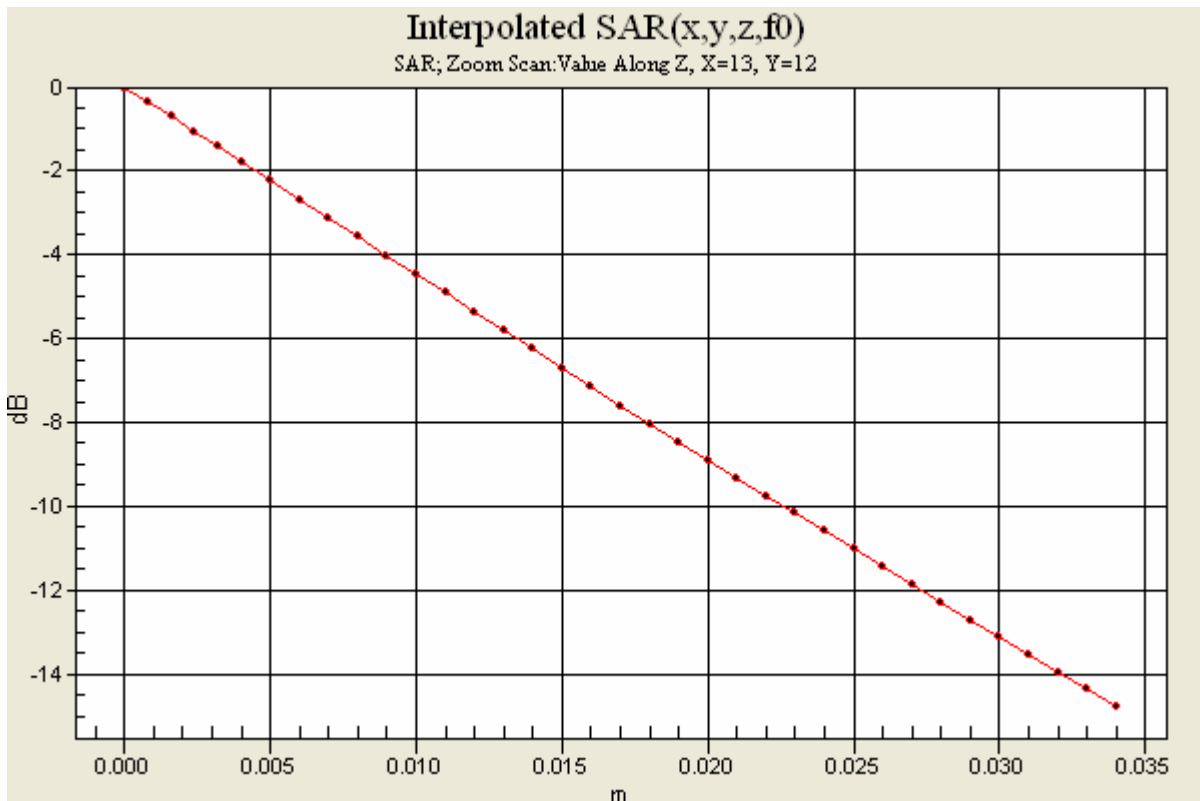
Maximum value of SAR (interpolated) = 0.999 mW/g



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0 dB = 0.999mW/g





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**Distribution of maximum SAR in 1900 GSM band. Measured with back of device facing the body using an ICE26 carry case. (Standard Battery, BST-37)**

Date/Time: 7/17/2006 9:06:42 AM

File Name: [17July06\\_Z710i\\_GSM1900\\_JLP2\\_ICE26\\_BB01.da4](#)

**DUT: Z710 body**

Program Notes: Battery - BST37 Humidity - 44.2 % Ambient Temp - 23.4 C Simulant Temp - 23.1 C

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

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz; s = 1.49 mho/m; e<sub>r</sub> = 51.4; ρ = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(4.12, 4.12, 4.12); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn417; Calibrated: 11/11/2005
- Phantom: SAM with CRP (High Band Body); Type: SAM; Serial: TP: 1020
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (61x101x1):**

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

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

Maximum value of SAR (interpolated) = 0.642 mW/g

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

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

Reference Value = 21.0 V/m; Power Drift = -0.184 dB

Peak SAR (extrapolated) = 0.911 W/kg

**SAR(1 g) = 0.573 mW/g; SAR(10 g) = 0.349 mW/g**

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

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

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

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

Reference Value = 21.0 V/m; Power Drift = -0.184 dB

Peak SAR (extrapolated) = 0.778 W/kg

**SAR(1 g) = 0.529 mW/g; SAR(10 g) = 0.352 mW/g**

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

Maximum value of SAR (measured) = 0.562 mW/g

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

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

Reference Value = 21.0 V/m; Power Drift = -0.184 dB

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

Maximum value of SAR (interpolated) = 0.911 mW/g

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

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

Reference Value = 21.0 V/m; Power Drift = -0.184 dB

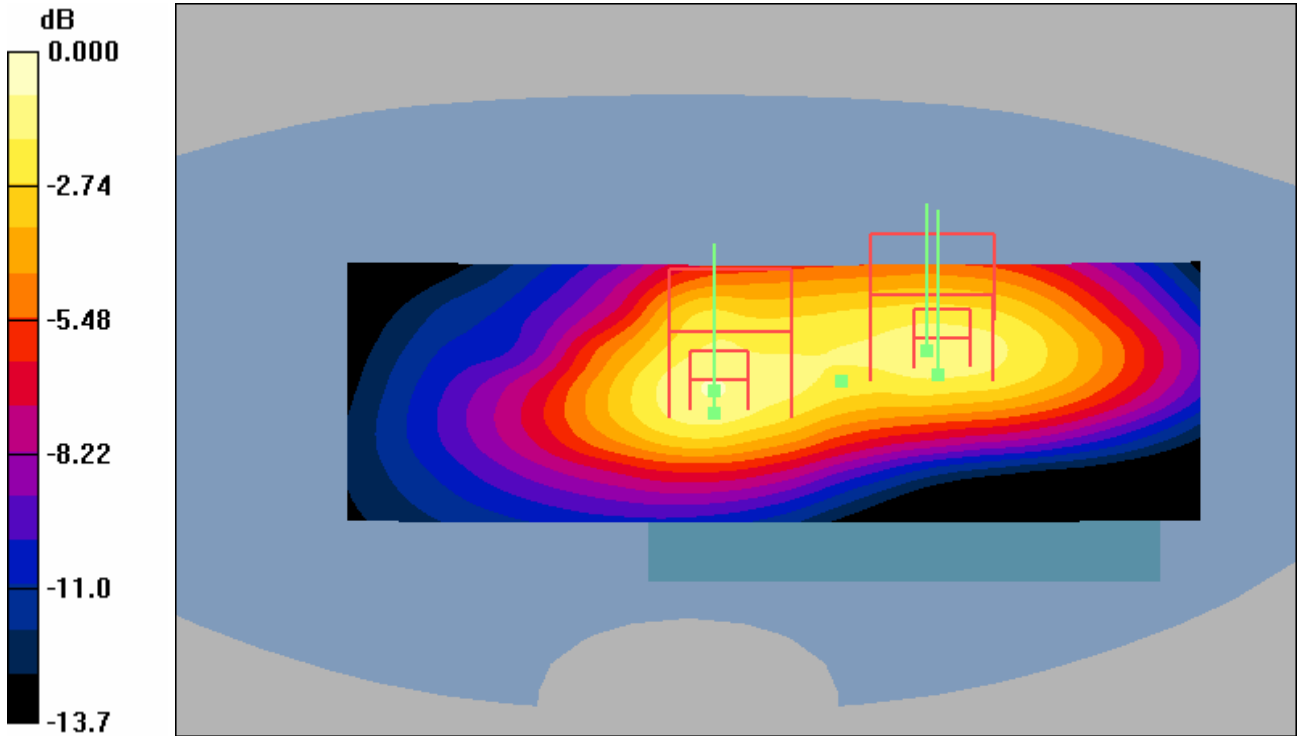
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.778 mW/g

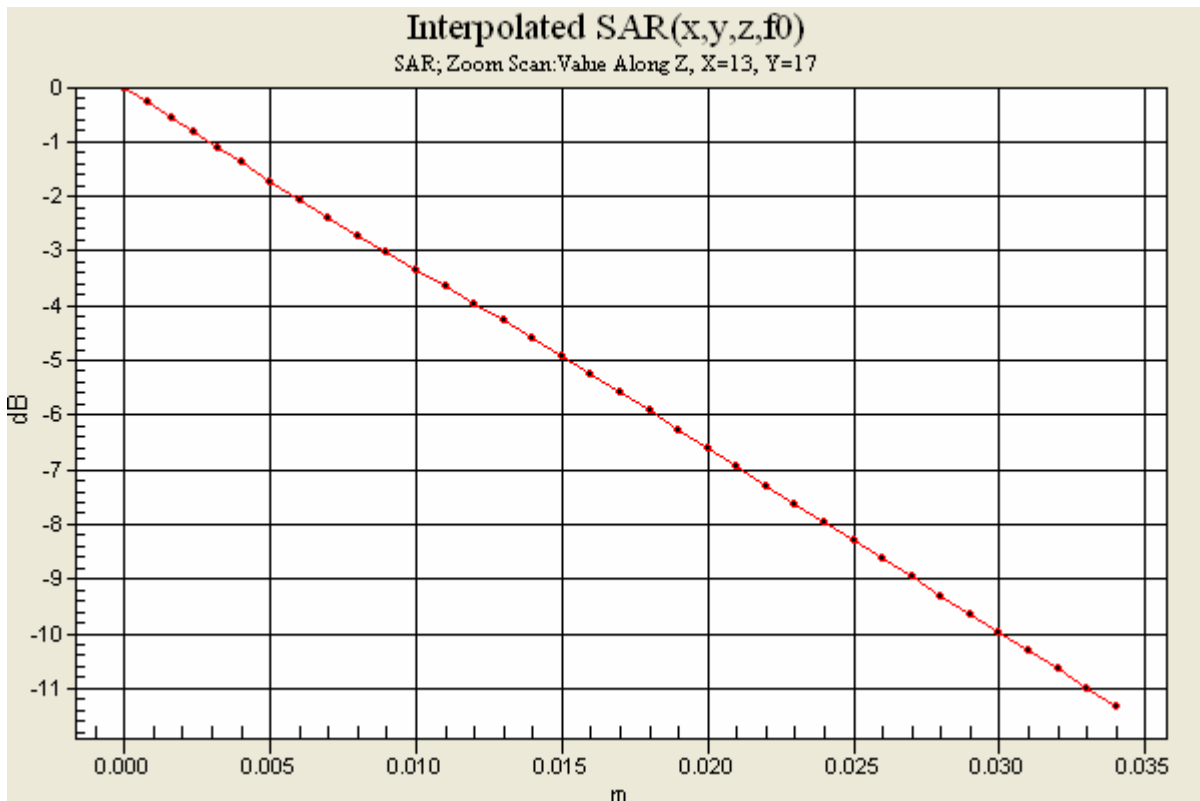




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0 dB = 0.778mW/g





Prepared (also subject responsible if other) SEM/CV/PF/P Gerard Hayes and Rodney Dixon		No. REP 2006 010 Z710i 02	
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**Distribution of maximum SAR in 1900 GSM band. Measured with back of device facing the body using an IAC60 carry case. (Standard Battery, BST-37)**

Date/Time: 7/17/2006 9:44:22 AM

File Name: [17July06\\_Z710i\\_GSM1900\\_JLP2\\_IAC60\\_BB01.da4](#)

**DUT: Z710 body**

Program Notes: Battery - BST37 Humidity - 44.2% Ambient Temp - 23.4 C Simulant Temp - 23.1 C

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

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz; s = 1.49 mho/m;  $\epsilon_r = 51.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(4.12, 4.12, 4.12); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn417; Calibrated: 11/11/2005
- Phantom: SAM with CRP (High Band Body); Type: SAM; Serial: TP: 1020
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (61x101x1):**

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

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

Maximum value of SAR (interpolated) = 0.518 mW/g

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

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

Reference Value = 17.4 V/m; Power Drift = 0.030 dB

Peak SAR (extrapolated) = 0.739 W/kg

**SAR(1 g) = 0.491 mW/g; SAR(10 g) = 0.321 mW/g**

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

Maximum value of SAR (measured) = 0.529 mW/g

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

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

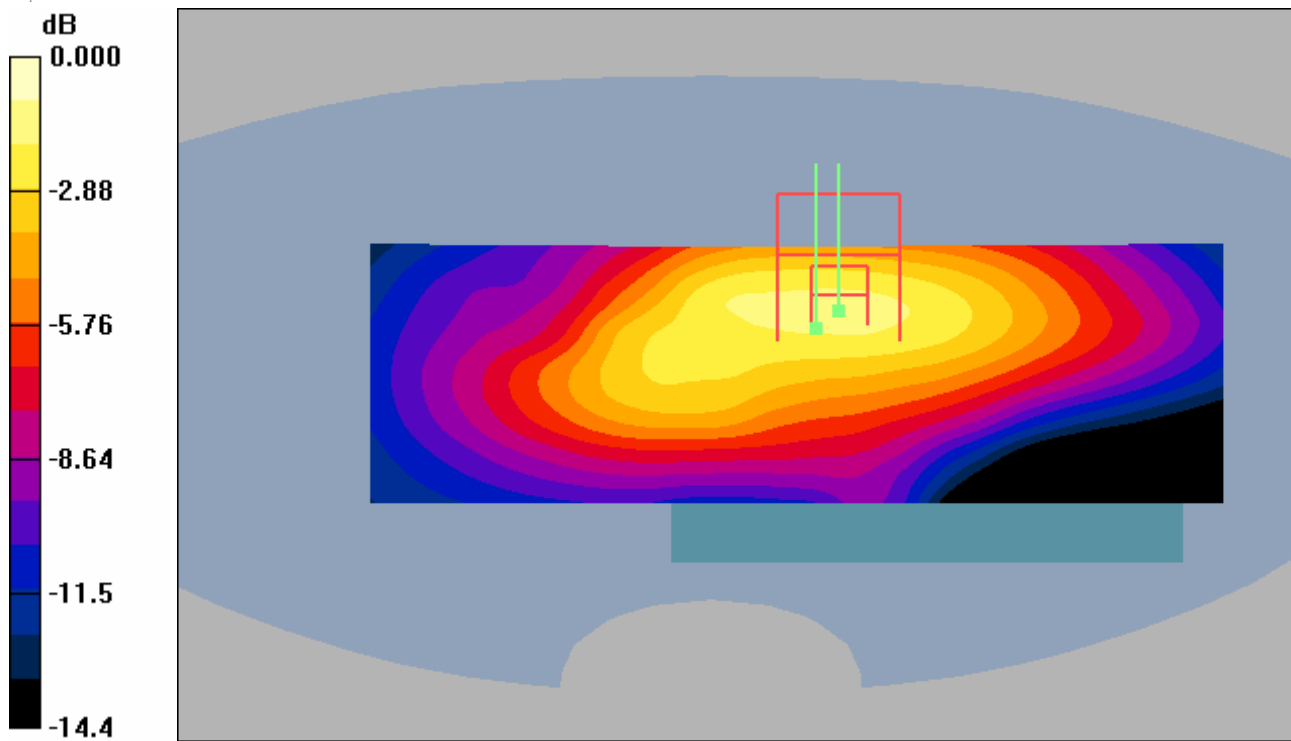
Reference Value = 17.4 V/m; Power Drift = 0.030 dB

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

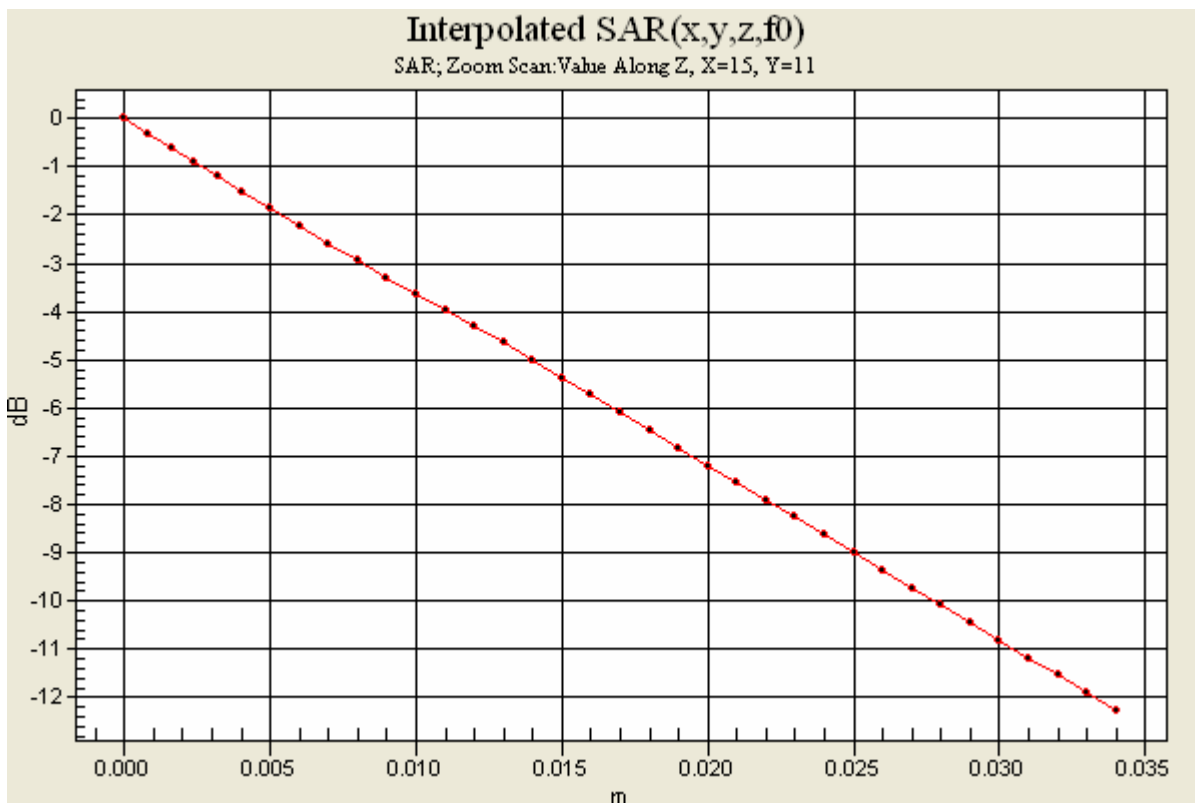
Maximum value of SAR (interpolated) = 0.739 mW/g



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0 dB = 0.739mW/g





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**Distribution of maximum SAR in 1900 GSM band. Measured with front of device facing the body using a 15mm spacer. (Standard Battery, BST-37)**

Date/Time: 7/17/2006 8:22:06 AM

File Name: [17July06\\_Z710i\\_GSM1900\\_JLP2\\_15mm\\_BF01.da4](#)

**DUT: Z710 body**

Program Notes: Battery - BST37 Humidity - 43.4 % Ambient Temp - 22.3 C Simulant Temp - 22.8 C

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

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz; s = 1.49 mho/m;  $\epsilon_r = 51.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(4.12, 4.12, 4.12); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn417; Calibrated: 11/11/2005
- Phantom: SAM with CRP (High Band Body); Type: SAM; Serial: TP: 1020
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (61x101x1):**

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

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

Maximum value of SAR (interpolated) = 0.308 mW/g

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

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

Reference Value = 11.9 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 0.420 W/kg

**SAR(1 g) = 0.289 mW/g; SAR(10 g) = 0.189 mW/g**

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

Maximum value of SAR (measured) = 0.312 mW/g

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

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

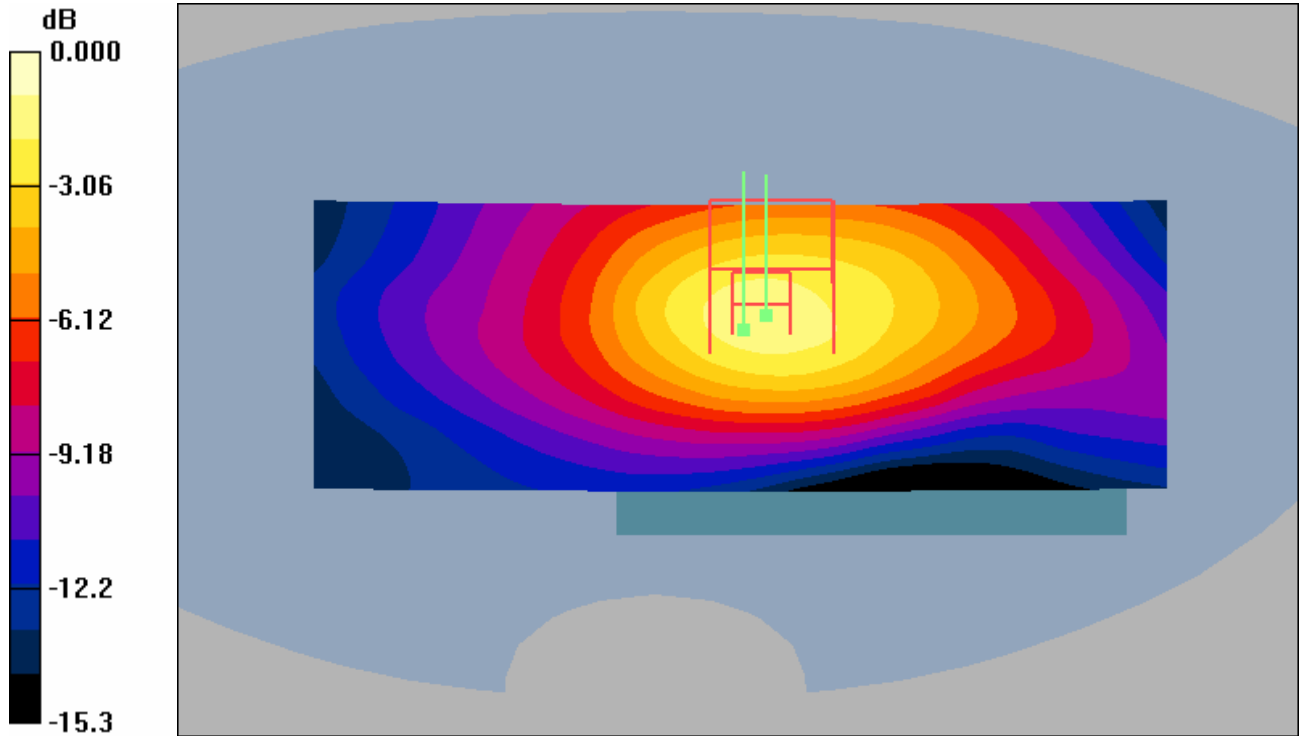
Reference Value = 11.9 V/m; Power Drift = 0.028 dB

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

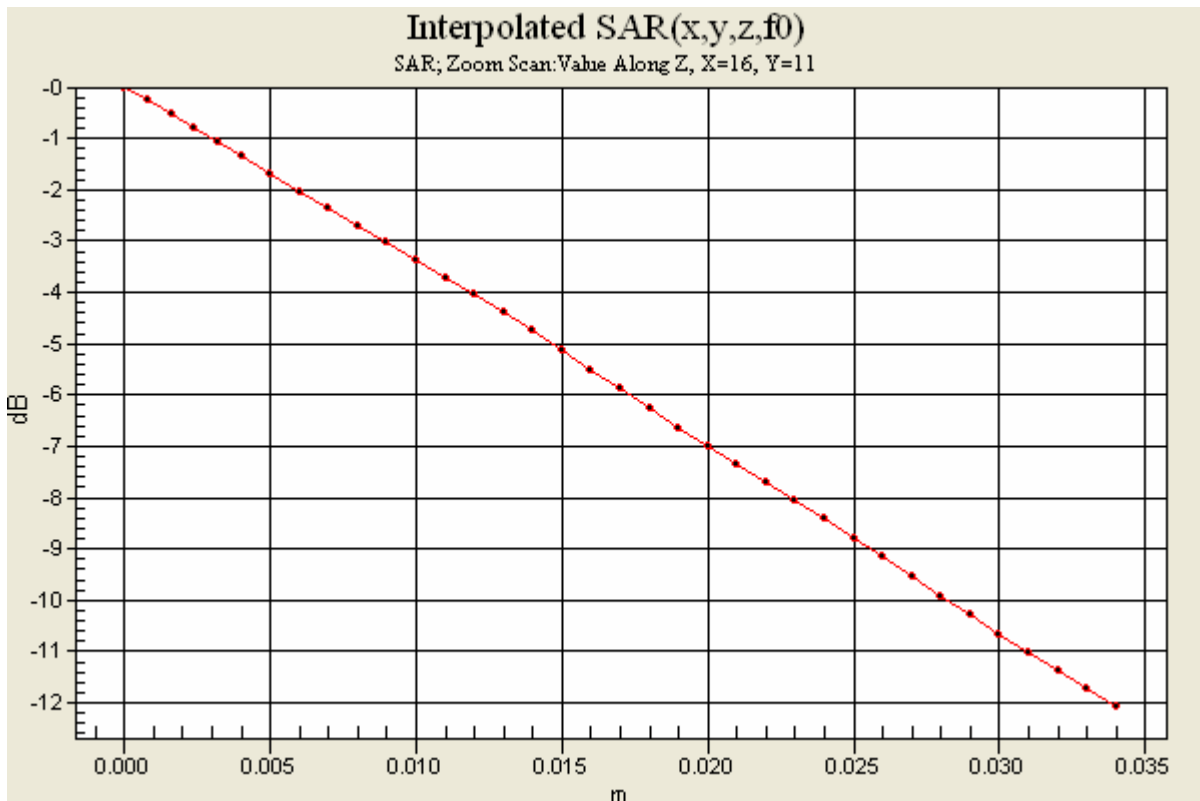
Maximum value of SAR (interpolated) = 0.420 mW/g



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0 dB = 0.420mW/g





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**Distribution of maximum SAR in 1900 GSM band. Measured with front of device facing the body using an ICE26 carry case. (Standard Battery, BST-37)**

Date/Time: 7/17/2006 8:44:42 AM

File Name: [17July06\\_Z710i\\_GSM1900\\_JLP2\\_ICE26\\_BF01.da4](#)

**DUT: Z710 body**

Program Notes: Battery - BST37 Humidity - 43.4 % Ambient Temp - 22.3 C Simulant Temp - 22.8 C

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

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz; s = 1.49 mho/m;  $\epsilon_r = 51.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(4.12, 4.12, 4.12); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn417; Calibrated: 11/11/2005
- Phantom: SAM with CRP (High Band Body); Type: SAM; Serial: TP: 1020
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (61x101x1):**

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

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

Maximum value of SAR (interpolated) = 0.282 mW/g

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

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

Reference Value = 8.30 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 0.372 W/kg

**SAR(1 g) = 0.262 mW/g; SAR(10 g) = 0.176 mW/g**

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

Maximum value of SAR (measured) = 0.280 mW/g

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

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

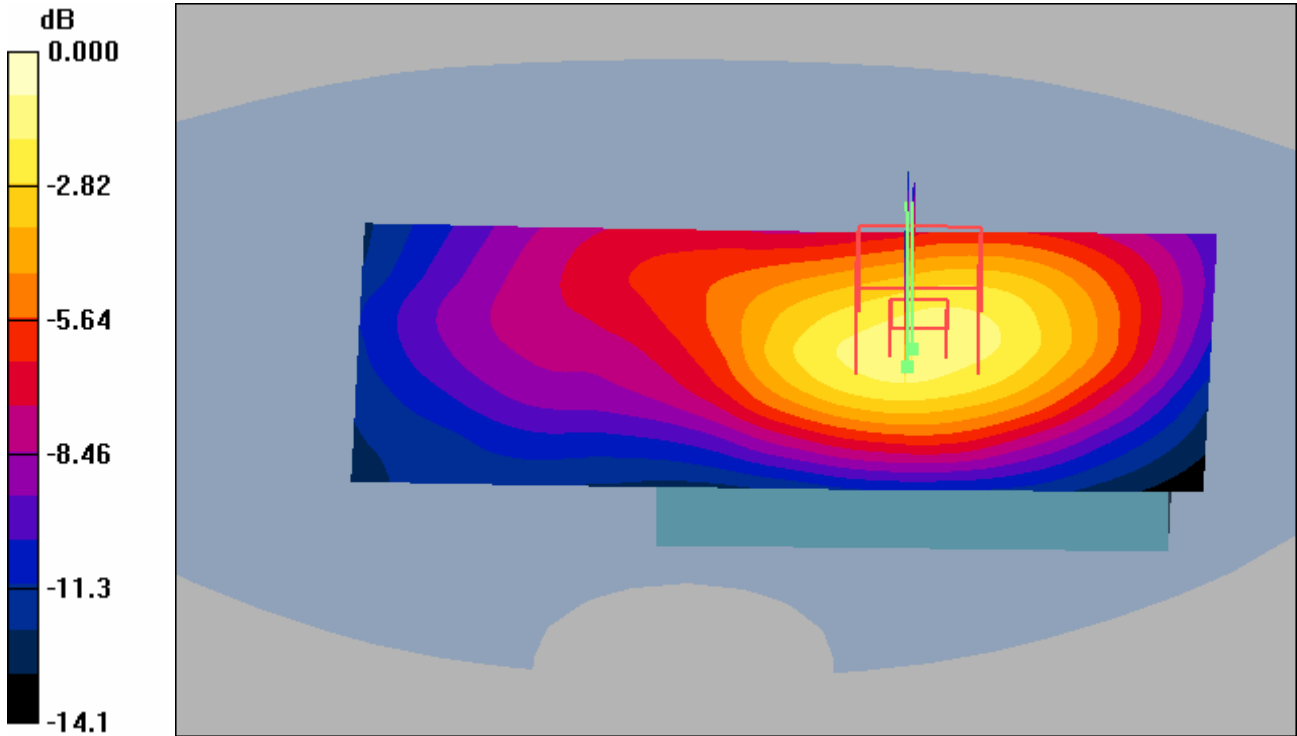
Reference Value = 8.30 V/m; Power Drift = 0.001 dB

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

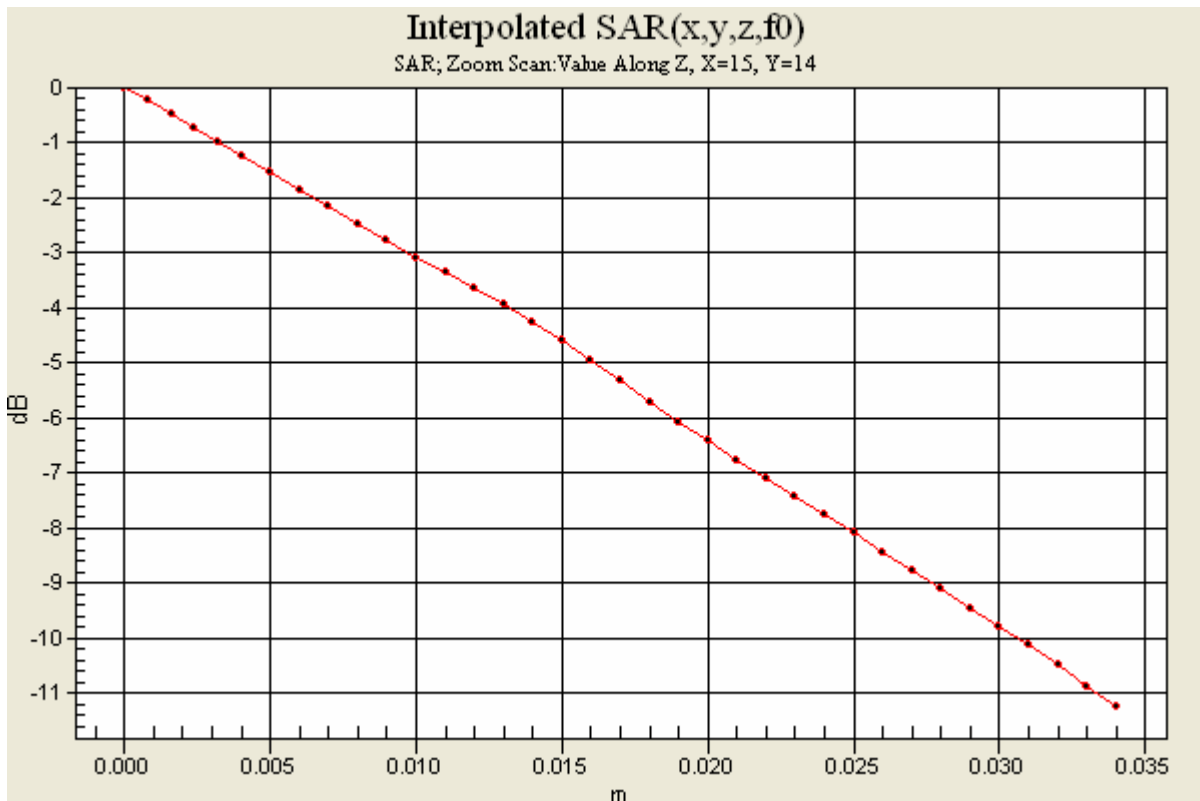
Maximum value of SAR (interpolated) = 0.372 mW/g



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0 dB = 0.372mW/g





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**Distribution of maximum SAR in 1900 GSM band. Measured with back of device facing the body using a 15mm SPACER with Blue Tooth. (Standard Battery BST-37)**

Date/Time: 7/17/2006 2:13:01 PM

File Name: [17July06 Z710i GSM1900 JLP2 15mm BT BB01.da4](#)

**DUT: Z710 body**

Program Notes: Battery - BST37 Humidity - 44.9 % Ambient Temp - 23 C Simulant Temp - 22.9 C

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

Medium: Head 1800/1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz; s = 1.49 mho/m;  $\epsilon_r = 51.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1539; ConvF(4.12, 4.12, 4.12); Calibrated: 11/22/2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn417; Calibrated: 11/11/2005
- Phantom: SAM with CRP (High Band Body); Type: SAM; Serial: TP: 1020
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Unnamed procedure/Area Scan (61x101x1):**

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

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

Maximum value of SAR (interpolated) = 0.702 mW/g

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

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

Reference Value = 21.5 V/m; Power Drift = -0.053 dB

Peak SAR (extrapolated) = 1.07 W/kg

**SAR(1 g) = 0.651 mW/g; SAR(10 g) = 0.393 mW/g**

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

Maximum value of SAR (measured) = 0.713 mW/g

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

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

Reference Value = 21.5 V/m; Power Drift = -0.053 dB

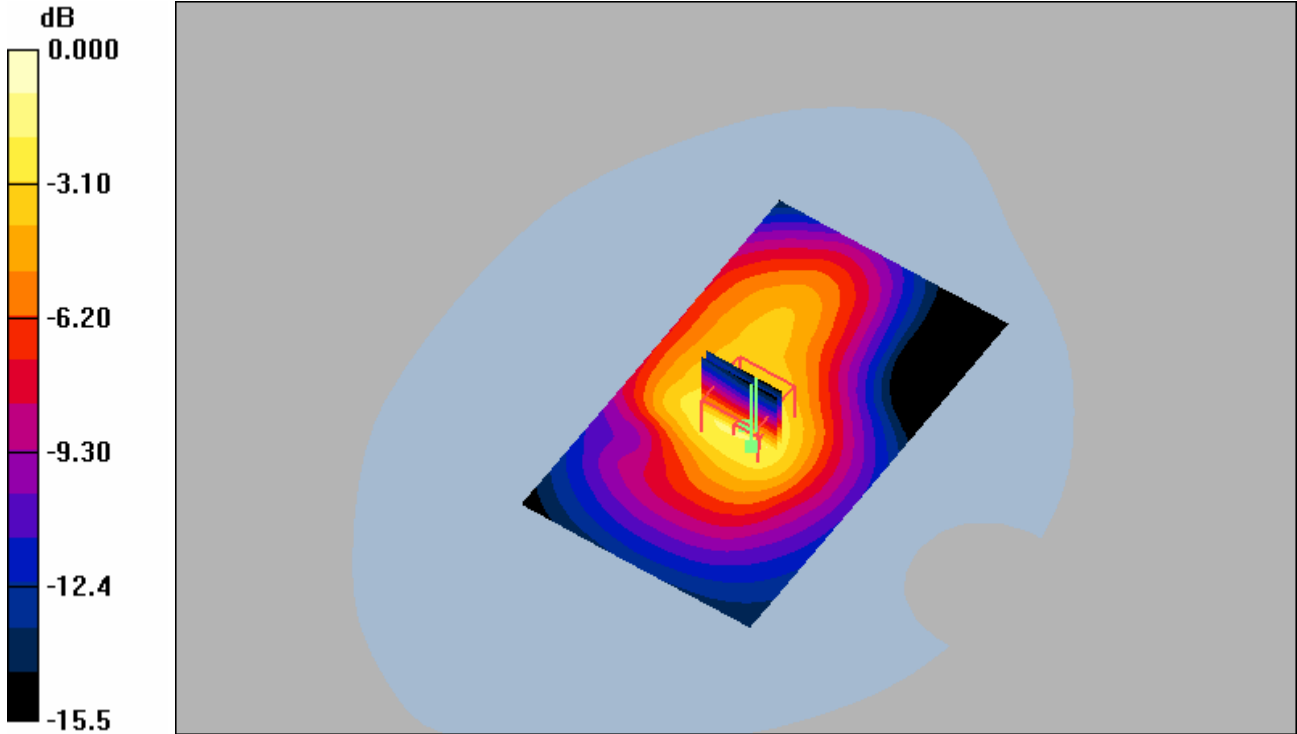
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.07 mW/g

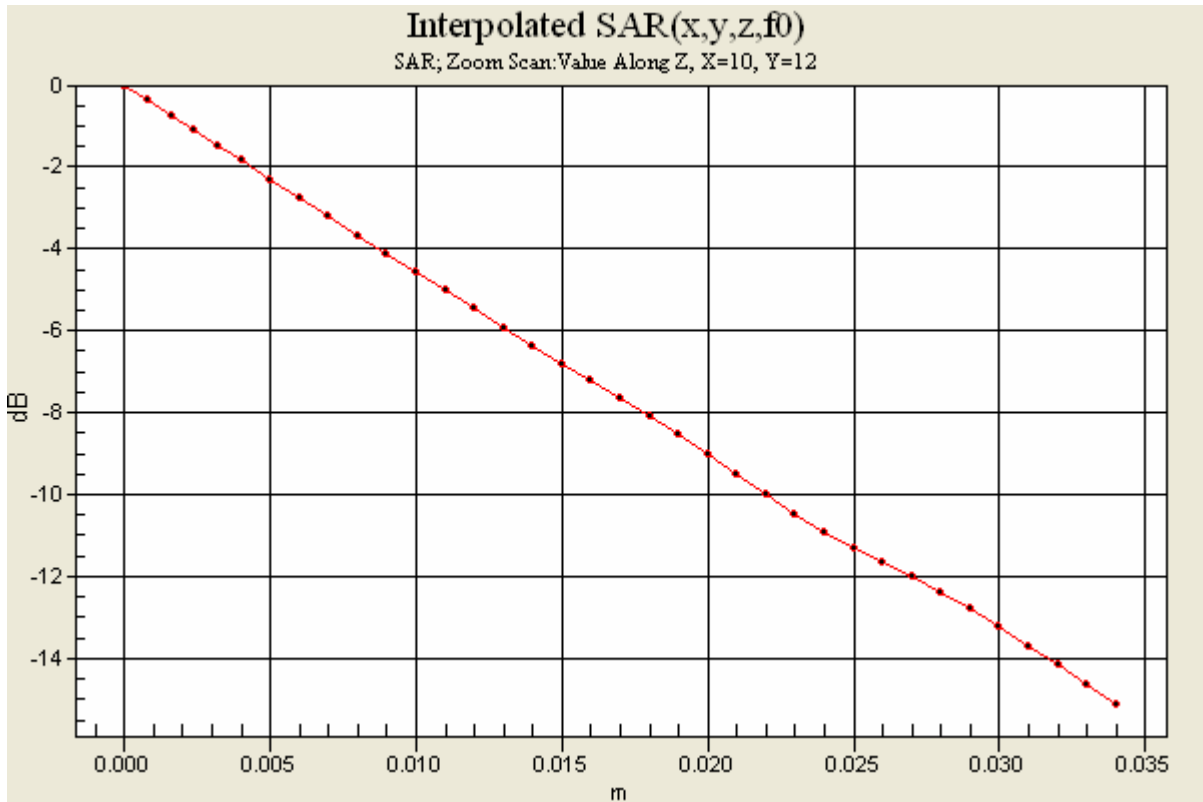




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0 dB = 1.07mW/g





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### Appendix 4

### Probe Calibration Certificates



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ET3DV6 SN:1539

November 22, 2005

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

Sensitivity in Free Space<sup>A</sup>

Diode Compression<sup>B</sup>

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

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL                    900 MHz    Typical SAR gradient: 5 % per mm

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR <sub>be</sub> [%]	Without Correction Algorithm	8.8	4.7
SAR <sub>be</sub> [%]	With Correction Algorithm	0.1	0.3

TSL                    1750 MHz    Typical SAR gradient: 10 % per mm

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR <sub>be</sub> [%]	Without Correction Algorithm	13.0	8.4
SAR <sub>be</sub> [%]	With Correction Algorithm	0.8	0.0

Sensor Offset

Probe Tip to Sensor Center                    2.7 mm

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

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

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

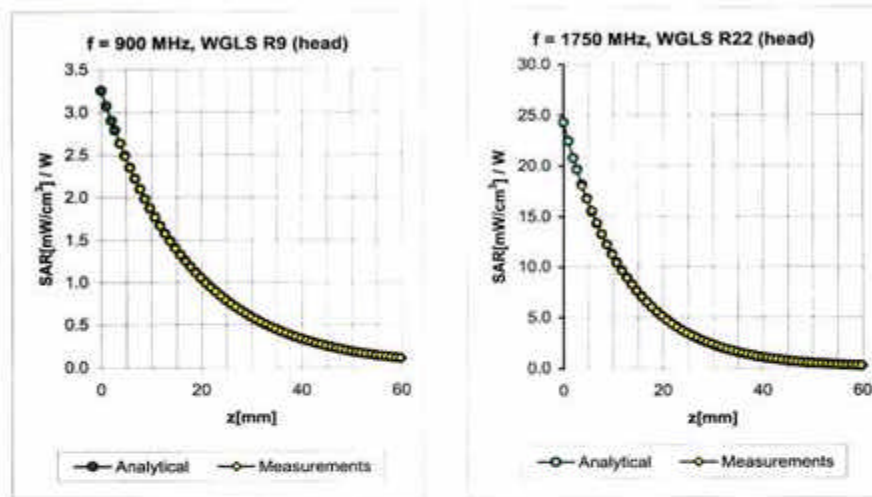


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ET3DV6 SN:1539

November 22, 2005

### Conversion Factor Assessment



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

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



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**ET3DV6 SN:1583**

**November 22, 2005**

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

**Sensitivity in Free Space<sup>A</sup>**

**Diode Compression<sup>B</sup>**

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

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

**Please see Page 8.**

**Boundary Effect**

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

Sensor Center to Phantom Surface Distance		<b>3.7 mm</b>	<b>4.7 mm</b>
SAR <sub>be</sub> [%] Without Correction Algorithm		7.7	4.3
SAR <sub>be</sub> [%] With Correction Algorithm		0.0	0.2

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

Sensor Center to Phantom Surface Distance		<b>3.7 mm</b>	<b>4.7 mm</b>
SAR <sub>be</sub> [%] Without Correction Algorithm		12.1	8.3
SAR <sub>be</sub> [%] With Correction Algorithm		0.7	0.2

**Sensor Offset**

Probe Tip to Sensor Center                    **2.7 mm**

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

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

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

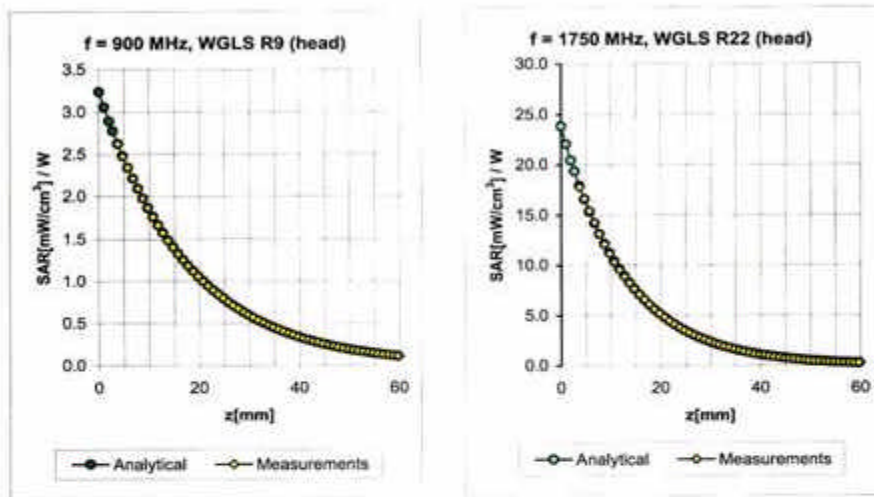


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ET3DV6 SN:1583

November 22, 2005

### Conversion Factor Assessment



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

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



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**Appendix 5**

**Measurement Uncertainty Budget**



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

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e = f(d,k)</i>	<i>f</i>	<i>g</i>	<i>h = c x f / e</i>	<i>i = c x g / e</i>	<i>k</i>
Uncertainty Component	Sec.	Tol. (± %)	Prob. Dist.	Div.	<i>c<sub>i</sub></i> (1-g)	<i>c<sub>i</sub></i> (10-g)	1-g <i>u<sub>i</sub></i> (±%)	10-g <i>u<sub>i</sub></i> (±%)	<i>v<sub>i</sub></i>
<b>Measurement System</b>									
Probe Calibration ( <i>k</i> =1)	E.2.1	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Axial Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Hemispherical Isotropy	E.2.2	1.0	R	1.73	1	1	0.6	0.6	∞
Boundary Effect	E.2.3	4.7	R	1.73	1	1	2.7	2.7	∞
Linearity	E.2.4	1.0	R	1.73	1	1	0.6	0.6	∞
System Detection Limits	E.2.5	1.0	N	1	1	1	1.0	1.0	∞
Readout Electronics	E.2.6	0.8	R	1.73	1	1	0.5	0.5	∞
Response Time	E.2.7	2.6	R	1.73	1	1	1.5	1.5	∞
Integration Time	E.2.8	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance (corresponds to the mechanical constrains of the robot)	E.6.2	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning with respect to Phantom Shell	E.6.3	2.9	R	1.73	1	1	1.7	1.7	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1	1	0.6	0.6	∞
<b>Dipole</b>									
Dipole Axis to Liquid Distance	8, E.4.2	1.0	R	1.73	1	1	0.6	0.6	∞
Input Power and SAR Drift Measurement	8, 6.6.2	5.0	R	1.73	1	1	2.9	2.9	∞
<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	∞
Liquid Conductivity - deviation from target values (5)	E.3.2	4.3	R	1.73	0.64	0.43	1.59	1.07	∞
Liquid Conductivity - measurement uncertainty (6)	E.3.3	6.20	R	1.73	0.64	0.43	2.29	1.54	∞





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Liquid Permittivity - deviation from target values (5)	E.3.2	3.7	R	1.73	0.6	0.49	1.28	1.05	∞
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 2: Uncertainty Budget for the Device Under Test with DASY4 System**

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	$e = f(d,k)$	<i>f</i>	<i>g</i>	$h = c \times f / e$	$i = c \times g / e$	<i>k</i>
Uncertainty Component	Sec.	Tol. (± %)	Prob. Dist.	Div.	$c_i$ (1-g)	$c_i$ (10-g)	1-g $u_i$ (±%)	10-g $u_i$ (±%)	$v_i$
<b>Measurement System</b>									
Probe Calibration ( $k=1$ )	E2.1	4.8	N	1	1	1	4.8	4.8	$\infty$
Axial Isotropy	E.2.2	4.7	R	1.73	0.707	0.707	1.9	1.9	$\infty$
Hemispherical Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	$\infty$
Boundary Effect	E.2.3	1.0	R	1.73	1	1	0.6	0.6	$\infty$
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	$\infty$
System Detection Limits	E.2.5	1.0	R	1.73	1	1	0.6	0.6	$\infty$
Readout Electronics	E.2.6	1.0	N	1	1	1	1.0	1.0	$\infty$
Response Time	E.2.7	0.8	R	1.73	1	1	0.5	0.5	$\infty$
Integration Time	E.2.8	2.6	R	1.73	1	1	1.5	1.5	$\infty$
RF Ambient Conditions	E.6.1	3.0	R	1.73	1	1	1.7	1.7	$\infty$
Probe Positioner Mechanical Tolerance (corresponds to the mechanical 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	1.6	N	1	1	1	1.6	1.6	4
Device Holder Uncertainty	E.4.1	3.1	R	1.73	1	1	1.8	1.8	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				<b>9.7</b>	<b>9.3</b>	
<b>Expanded Uncertainty (95% CONFIDENCE LEVEL)</b>			K=2				<b>19.3</b>	<b>18.6</b>	



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**Table 3a. Values for e'**

Uncertainty Component	Tolerance (±%)	Probability Distribution	Divisor	c <sub>i</sub>	Standard Uncertainty (±%)	v <sub>i</sub> or v <sub>eff</sub>
Repeatability (n repeats)	0.97	N	1	1	0.97	4
Network analyzer uncertainty sources	8.38	R	1.73	1	4.83	∞
Dielectric Error Sources	5.93	R	1.73	1	3.42	∞
<b>Combined standard uncertainty</b>					<b>6.08</b>	

**Table 3b. Values for s**

Uncertainty Component	Tolerance (±%)	Probability Distribution	Divisor	c <sub>i</sub>	Standard Uncertainty (±%)	v <sub>i</sub> or v <sub>eff</sub>
Repeatability (n repeats)	1.85	N	1	1	1.85	4
Network analyzer uncertainty sources	8.38	R	1.73	1	4.83	∞
Dielectric Error Sources	5.93	R	1.73	1	3.42	∞
<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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**View of Hands-free Accessory**





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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 with front of device against flat phantom using a 15mm SPACER with hands free accessory.**



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**Position with back of device against flat phantom using a 15mm SPACER with hands free accessory.**



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**Position with front of device against flat phantom using an ICE26 carry case with hands free accessory.**



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**Position with back of device against flat phantom using an ICE26 carry case with hands free accessory.**



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**Position with back of device against flat phantom using an IAC60 carry case with hands free accessory.**



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**Accessory ICE26 front.**





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**Accessory ICE26 back.**



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**Accessory IAC60 top.**



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**Accessory IAC60 front.**