

# SAR TEST REPORT

Equipment Under Test	:	PDA
Model No.	:	BM-150R
Applicant	:	Bluebird Soft., Inc.
Address of Applicant	:	558-5, Sinsa-dong, Kangnam-gu, Seoul, Korea
FCC ID	:	SS4BM150R
Device Category	:	Portable Device
Exposure Category	:	General Population/Uncontrolled Exposure
Date of Receipt	:	2007-08-10
Date of Test(s)	:	2007-09-06 ~ 2007-09-10
Date of Issue	:	2007-10-19
Max. SAR	:	0.724 W/kg (Head), 1.27 W/kg(Body)

**Standards:**

**FCC OET Bulletin 65 supplement C**  
**IEEE 1528, 2003**  
**ANSI/IEEE C95.1, C95.3**

In the configuration tested, the EUT complied with the standards specified above.

**Remarks:**

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS Testing Korea Co., Ltd. or testing done by SGS Testing Korea Co., Ltd. in connection with distribution or use of the product described in this report must be approved by SGS Testing Korea Co., Ltd. in writing.

<b>Tested by</b>	:	<b>Leo Kim</b>		<b>2007-10-19</b>
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<b>Approved by</b>	:	<b>Albert Lim</b>		<b>2007-10-19</b>
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## **Contents**

### **1. General Information**

1.1	Testing Laboratory.....	3
1.2	Details of Applicant.....	3
1.3	Version of Report.....	3
1.4	Description of EUT(s).....	3
1.5	Test Environment.....	4
1.6	Operation description.....	4
1.7	Evaluation procedures.....	4
1.8	The SAR Measurement System.....	5
1.9	System Components.....	7
1.10	SAR System Verification.....	8
1.11	Tissue Simulant Fluid for the Frequency Band.....	10
1.12	Test Standards and Limits.....	11

### **2. Instruments List..... 13**

### **3. Summary of Results..... 14**

## **APPENDIX**

- A. Photographs of EUT & EUT's Test Setup
- B. DASY4 SAR Report
- C. Uncertainty Analysis
- D. Calibration certificate

## 1. General Information

### 1.1 Testing Laboratory

SGS Testing Korea Co., Ltd.  
Wireless Div. 2FL, 18-34, Sanbon-dong, Gunpo-si, Gyeonggi-do, Korea 435-040  
Telephone : +82 +31 428 5700  
FAX : +82 +31 427 2371  
Homepage : [www.electrolab.kr.sgs.com](http://www.electrolab.kr.sgs.com)

### 1.2 Details of Applicant

Manufacturer : Bluebird Soft., Inc.  
Address : 558-5, Sinsa-dong, Kangnam-gu, Seoul, Korea  
Contact Person : KyeongJin Park  
Phone No. : 82-2-548-0740  
Fax No. : 82-2-548-0870

### 1.3 Version of Report

Version Number	Date	Revision
00	2007-10-01	Initial issue
01	2007-10-19	Revision 1

### 1.4 Description of EUT(s)

<b>EUT Type</b>	: PDA
<b>Model</b>	: BM-150R
<b>Serial Number</b>	: M150RAHGGJJ001
<b>Hardware Version</b>	: Ver 0.2
<b>Software Version</b>	: 2007.7.4(7185)
<b>Mode of Operation</b>	: GSM/GPRS 850/1900, WLAN 11b/g, Bluetooth
<b>Duty Cycle</b>	: GSM 12.5%, GPRS 25%, WLAN/BT 100%
<b>Body worn Accessory</b>	: None
<b>Tx Frequency Range</b>	: 824.2 ~ 848.8 MHz (GSM850), 1850.2 ~ 1909.8 MHz(GSM 1900) 2412 ~ 2462 MHz(WLAN), 2402~ 2480 MHz(Bluetooth)
<b>Antenna</b>	: GSM(Type : Inverted_F, Fixed) WLAN/Bluetooth(Type : PCB type SMD, Fixed)
<b>Max Power (Peak)</b>	: 28.22 dBm(GSM850, EIRP), 28.94(GPRS1900, EIRP) 16.00 dBm(WLAN 11g, Conducted)
<b>Battery Type</b>	: DC 3.7V(Li-ion Battery)

## 1.5 Test Environment

Ambient temperature	: 22 ~ 23 ° C
Tissue Simulating Liquid	: 22 ~ 23 ° C
Relative Humidity	: 40 ~ 60 %

## 1.6 Operation Configuration

The device in GSM mode was controlled by using a Communication tester(CMU200). Communication between the device and the tester was established by air link. For WLAN and BT, the client provided a special driver and test program which can control the frequency and power of the module.. Measurements were performed at the lowest, middle and highest channels of the operating band. The EUT was set to maximum power level during all tests and at the beginning of each test the battery was fully charged.

The DASY4 system measures power drift during SAR testing by comparing e-field in the same location at the beginning and at the end of measurement.

## 1.7 EVALUATION PROCEDURES

### - Power Reference Measurement Procedures

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The Minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 4 mm. This distance cannot be smaller than the Distance of sensor calibration points to probe tip as defined in the probe properties (for example, 2.7 mm for an ET3DV6 probe type).

- The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD). The system always gives the maximum values for the 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. The extraction of the measured data (grid and values) from the Zoom Scan.
2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. The generation of a high-resolution mesh within the measured volume
4. The interpolation of all measured values from the measurement grid to the high-resolution grid
5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface

6. The calculation of the averaged SAR within masses of 1g and 10g.

The probe is calibrated at the center of the dipole sensors that is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated. The angle between the probe axis and the surface normal line is less than 30 degree.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extreme of the SAR distribution. The uncertainty on the locations of the extreme is less than 1/20 of the grid size. Only local maximum within -2 dB of the global maximum are searched and passed for the Cube Scan measurement. In the Cube Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5mm.

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7x7x7 scans. The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 30x30x30mm contains about 30g of tissue. The first procedure is an extrapolation (incl. Boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume. In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is the moved around until the highest averaged SAR is found. If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

## 1.8 The SAR Measurement System

A photograph of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system ( Speag Dasy 4 professional system ). A Model ET3DV6 1782 E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation  $SAR = \sigma (|E_i|^2) / \rho$  where  $\sigma$  and  $\rho$  are the conductivity and mass density of the tissue-simulant. The DASY4 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An

arm extension for accommodating the data acquisition electronics (DAE).

- A dosimeter probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

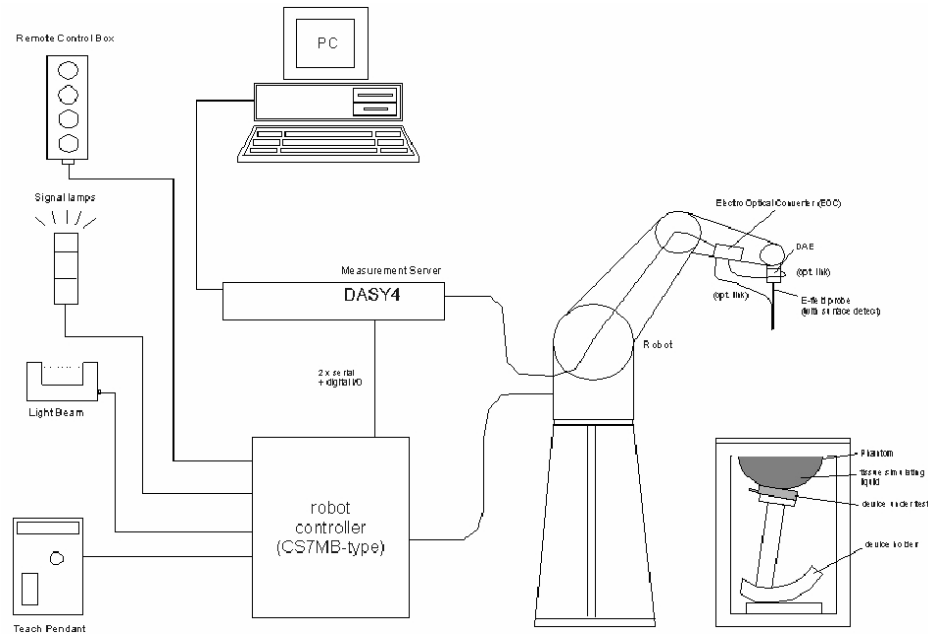


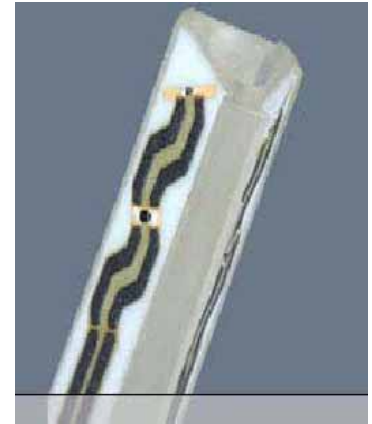
Fig a. The microwave circuit arrangement used for SAR system verification

- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 2000 or Windows XP.
- DASY4 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validate the proper functioning of the system.

## 1.9 System Components

### ET3DV6 E-Field Probe

<b>Construction</b>	: Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g. glycol).
<b>Calibration</b>	: In air from 10 MHz to 2.5 GHz In brain simulating tissue (accuracy $\pm 8\%$ )
<b>Frequency</b>	: 10 MHz to >6 GHz; Linearity: $\pm 0.2$ dB (30 MHz to 3 GHz)
<b>Directivity</b>	: $\pm 0.2$ dB in brain tissue (rotation around probe axis) $\pm 0.4$ dB in brain tissue (rotation normal to probe axis)
<b>Dynamic Range</b>	: $5 \mu\text{W/g}$ to $>100 \text{ mW/g}$ ; Linearity: $\pm 0.2$ dB
<b>Srfce. Detect</b>	: $\pm 0.2$ mm repeatability in air and clear liquids over diffuse reflecting surfaces
<b>Dimensions</b>	: Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
<b>Application</b>	: General dosimetry up to 3 GHz Compliance tests of mobile phone



ET3DV6 E-Field Probe

#### NOTE:

1. The Probe parameters have been calibrated by the SPEAG. Please reference "APPENDIX D" for the Calibration Certification Report.

## SAM Phantom

**Construction:** The SAM Phantom is constructed of a fiberglass shell integrated in a wooden table. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot



SAM Phantom

Shell Thickness:  $2.0 \pm 0.1$  mm  
 Filling Volume: Approx. 25 liters

## DEVICE HOLDER

**Construction** In combination with the Twin SAM PhantomV4.0/V4.0C or Twin SAM, the Mounting Device (made from POM) enables the rotation of the mounted transmitter in spherical coordinates, whereby the rotation point is the ear opening. The devices can be easily and accurately positioned according to IEC, IEEE, CENELEC, FCC or other specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).



Device Holder

### 1.10 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. b. 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  $\pm 10\%$  from the target SAR values. These tests were done at 835MHz, 1900MHz and 2450 MHz. The tests for EUT were conducted within 24 hours after each validation. The obtained results from the system accuracy verification are displayed in the table 1 (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 20~23 °C, the relative humidity was in the range 40~60% and the liquid depth above the ear reference points was above 15 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.



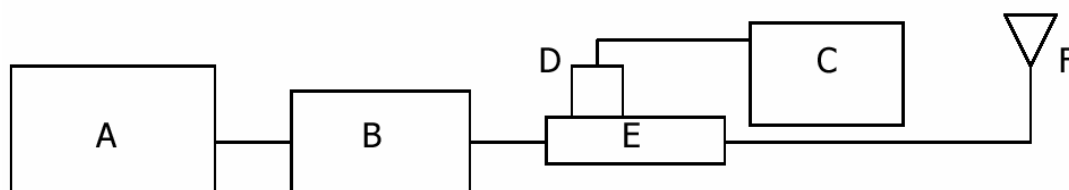


Fig b. The microwave circuit arrangement used for SAR system verification

- A. Agilent Model E4421B Signal Generator
- B. EMPOWER Model 2001-BBS3Q7ECK Amplifier
- C. Agilent Model E4419B Power Meter
- D. Agilent Model 9300H Power Sensor
- E. Agilent Model 777D/778D Dual directional coupling
- F. Reference dipole Antenna



Photo of the dipole Antenna

### System Validation Results

Validation Kit	Tissue	Target SAR 1 g from Calibration Certificate (Input Power : 250 mW)	Measured SAR 1 g (Input Power : 250 mW)	Deviation (%)	Date	Liquid Temp. (°C)
D835V2 S/N: 490	835 MHz Brain	2.27 W/kg	<b>2.37 W/kg</b>	<b>4.40</b>	2007-09-06	22.2
D1900V2 S/N: 5d033	1900 MHz Brain	9.39 W/kg	<b>9.96 W/kg</b>	<b>6.07</b>	2007-09-07	22.2
D2450V2 S/N: 734	2450 MHz Brain	13.3 W/kg	<b>13.4 W/kg</b>	<b>0.75</b>	2007-09-10	22.1

Table 1. Results system validation

### 1.11 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this simulant fluid were measured by using the Agilent Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with Agilent E5070B Network Analyzer(300 KHz-3000 MHz ) by using a procedure detailed in Section V.

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			Permittivity	Conductivity	Simulated Tissue Temp( °C)
835	Head	Measured, 2007-09-06	<b>42.4</b>	<b>0.877</b>	<b>22.2</b>
		Recommended Limits	41.5	0.90	22.0
		Deviation(%)	2.16	-2.56	-
	Body	Measured, 2007-09-06	<b>54.79</b>	<b>0.98</b>	<b>22.2</b>
		Recommended Limits	55.2	0.97	22.0
		Deviation(%)	-0.75	1.03	-
1900	Head	Measured, 2007-09-07	<b>41</b>	<b>1.38</b>	<b>22.2</b>
		Recommended Limits	40.0	1.40	22.0
		Deviation(%)	2.5	-1.43	-
	Body	Measured, 2007-09-07	<b>51.25</b>	<b>1.495</b>	<b>22.2</b>
		Recommended Limits	53.3	1.52	22.0
		Deviation(%)	-3.85	-1.65	-
2450	Head	Measured, 2007-09-10	<b>38.4</b>	<b>1.87</b>	<b>22.1</b>
		Recommended Limits	39.2	1.80	22.0
		Deviation(%)	-2.05	3.88	-
	Body	Measured, 2007-09-10	<b>53.07</b>	<b>1.917</b>	<b>22.1</b>
		Recommended Limits	52.7	1.95	22.0
		Deviation(%)	0.7	-1.7	-

## The composition of the brain tissue simulating liquid

*The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.*

Ingredients (% by weight)	Frequency (MHz)									
	450		835		915		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.8	52.5
Conductivity (S/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.88	1.78

Salt: 99+% Pure Sodium Chloride

Sugar: 98+% Pure Sucrose

Water: De-ionized, 16 MΩ<sup>+</sup> resistivity

HEC: Hydroxyethyl Cellulose

DGBE: 99+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]

Triton X-100 (ultra pure): Polyethylene glycol mono [4-(1,1, 3, 3-tetramethylbutyl)phenyl]ether

## 1.12 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (“SAR”) in Section 4.2 of “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,” ANSI/IEEE C95.3–2003, Copyright 2003 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in “Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields,” NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have

been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

(1) Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube). Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.

(2) Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.(Table .4)

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
<b>Partial Peak SAR</b> (Partial)	1.60 m W/g	8.00 m W/g
<b>Partial Average SAR</b> (Whole Body)	0.08 m W/g	0.40 m W/g
<b>Partial Peak SAR</b> (Hands/Feet/Ankle/Wrist)	4.00 m W/g	20.00 m W/g

Table .4 RF exposure limits

## 2. Instruments List

Maunfacturer	Device	Type	Serial Number	Due date of Calibration
Stäubli	Robot	RX90BL	F03/5W05A1/A/01	N/A
Schmid& Partner Engineering AG	Dosimetric E-Field Probe	ET3DV6	1782	April 23, 2008
Schmid& Partner Engineering AG	835 MHz System Validation Dipole	D835V2	490	August 27, 2008
Schmid& Partner Engineering AG	1900 MHz System Validation Dipole	D1900V2	5d033	August 28, 2008
Schmid& Partner Engineering AG	2450 MHz System Validation Dipole	D2450V2	734	August 20, 2008
Schmid& Partner Engineering AG	Data acquisition Electronics	DAE3	567	September 22, 2007
Schmid& Partner Engineering AG	Software	DASY 4 V4.7	-	N/A
Schmid& Partner Engineering AG	Phantom	SAM Phantom V4.0	TP-1299 TP-1300	N/A
Agilent	Network Analyzer	E5070B	MY42100282	May 11, 2008
Agilent	Dielectric Probe Kit	85070D	2184	N/A
Agilent	Power Meter	E4419B	GB43311126	December 8, 2007
Agilent	Power Sensor	E9300H	MY41495308 MY41495314	December 8, 2007
Agilent	Signal Generator	E4421B	MY43350132	December 8, 2007
Empower RF Systems	Power Amplifier	2001-BBS3Q7ECK	1032 D/C 0336	May 11, 2008
Agilent	Dual Directional Coupler	777D 778D	50128 50454	December 8, 2007
Microlab	LP Filter	LA-15N LA-30N	N/A	December 8, 2007
R & S	Mobile Test Unit	CMU200	GB43345198	December 28, 2007



### 3.Summary of Results

#### GSM850 Head SAR

Ambient Temperature (°C)	22.2
Liquid Temperature (°C)	22.2
Date	2007-09-06

Head	Position	Traffic Channel		Power Drift(dB)	1 g SAR (W/kg)	1 g SAR Limits (W/kg)
		Frequency (MHz)	Channel			
Left	Cheek	836.6	190	-0.053	0.519	1.6
	15°Tilt	836.6	190	-0.111	0.393	
Right	Cheek	836.6	190	-0.182	0.469	
	15°Tilt	836.6	190	-0.093	0.361	
Left	Cheek	824.2	128	-0.075	0.370	
		848.8	251	-0.125	<b>0.724</b>	



## GSM1900 Head SAR

Ambient Temperature (°C)	22.2
Liquid Temperature (°C)	22.2
Date	2007-09-07

Head	Position	Traffic Channel		Power Drift(dB)	1 g SAR (W/kg)	1 g SAR Limits (W/kg)
		Frequency (MHz)	Channel			
Left	Cheek	1880	661	-0.064	0.236	1.6
	15°Tilt	1880	661	-0.043	0.276	
Right	Cheek	1880	661	0.010	<b>0.413</b>	
	15°Tilt	1880	661	-0.064	0.331	
Right	Cheek	1850.2	512	-0.240	0.409	
		1909.8	810	0.009	0.403	



Report File No. : STROS-07-016-A1  
 Date of Issue : 2007-10-19  
 Page : 16 / 94

## GSM/GPRS 850 Body SAR

Ambient Temperature (°C)	22.2
Liquid Temperature (°C)	22.2
Date	2007-09-06

Mode	Position	Traffic Channel		Power Drift (dB)	1g SAR (W/kg)	1 g SAR Limits (W/kg)
		Frequency (MHz)	Channel			
GSM	Face Up	836.6	190	-0.011	0.724	1.6
GPRS	Face Up	836.6	190	-0.092	0.654	
GSM	Face Down	836.6	190	0.052	0.334	
GSM	Face Up	824.2	128	0.045	0.517	
GSM	Face Up	848.8	251	-0.018	1.080	
GSM + BT ON	Face Up	848.8	251	-0.207	<b>1.270</b>	





Report File No. : STROS-07-016-A1  
 Date of Issue : 2007-10-19  
 Page : 17 / 94

## GSM/GPRS 1900 Body SAR

Ambient Temperature (°C)	22.2
Liquid Temperature (°C)	22.2
Date	2007-09-07

Mode	Position	Traffic Channel		Power Drift (dB)	1g SAR (W/kg)	1 g SAR Limits (W/kg)
		Frequency (MHz)	Channel			
GSM	Face Up	1880	661	0.026	<b>0.487</b>	1.6
GPRS	Face Up	1880	661	-0.018	0.429	
GSM	Face Down	1880	661	-0.046	0.158	
GSM	Face Up	1850.2	512	0.000	0.378	
GSM	Face Up	1909.8	810	-0.028	0.350	
GSM + BT ON	Face Up	1880	661	-0.007	0.349	



## WLAN Body SAR

Ambient Temperature (°C)	22.1
Liquid Temperature (°C)	22.1
Date	2007-09-10

Mode	Position	Traffic Channel		Power Drift (dB)	1g SAR (W/kg)	1 g SAR Limits (W/kg)
		Frequency (MHz)	Channel			
11b	Face Up	2437	6	0.360	0.00979	1.6
11g	Face Up	2437	6	-0.230	0.011	
11g	Face Down	2437	6	-0.297	0.013	
11g	Face Down	2412	1	0.041	0.014	
11g	Face Down	2462	11	-0.283	0.014	
11g+ BT ON	Face Down	2412	1	0.266	<b>0.016</b>	



## Appendix

### List

Appendix A	Photographs	- EUT - Test Setup
Appendix B	DASY4 Report (Plots of the SAR Measurements)	- 835, 1900,2450 MHz Validation Test - GSM850 Test - GSM1900 Test - WLAN
Appendix C	Uncertainty Analysis	
Appendix D	Calibration Certificate	- PROBE - DAE - DIPOLE

## Appendix A

### EUT Photographs

#### Front View of EUT

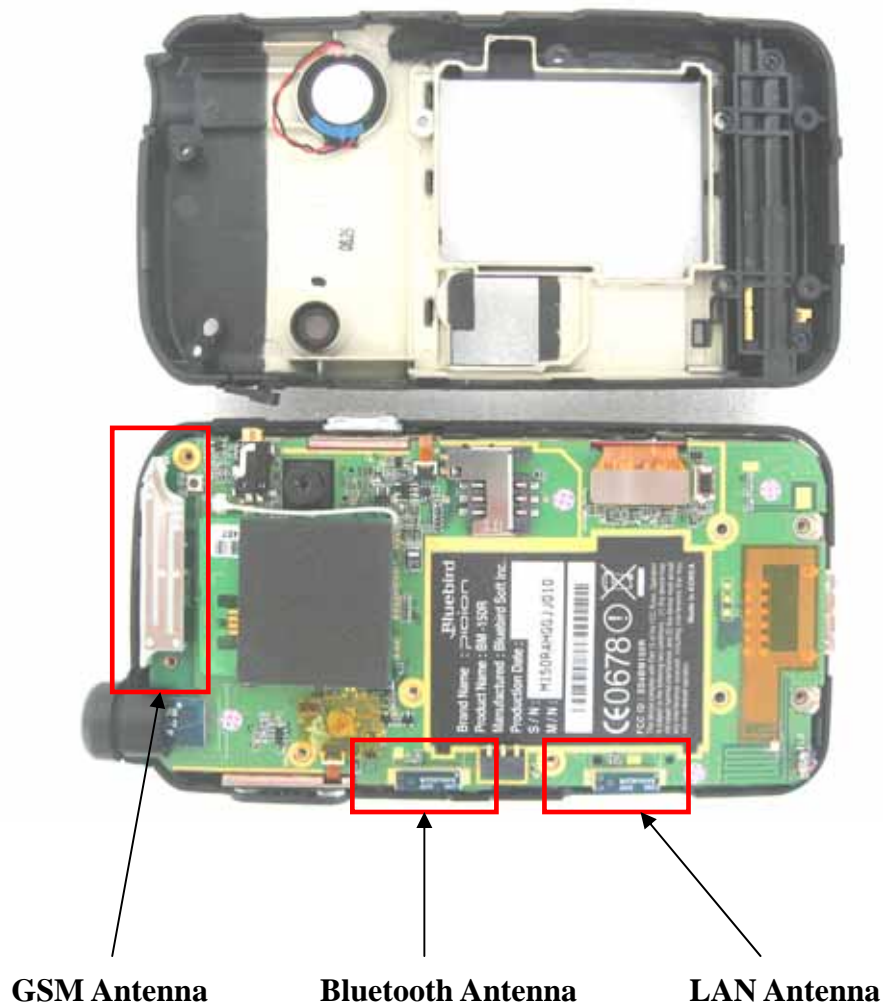


#### Rear View of EUT



**Right View of EUT****Left View of EUT**

## Inside View of EUT



## Test Setup Photographs

### Right Head Cheek Position



### Right Head Tilt Position



**Left Head Cheek Position**



**Left Head Tilt Position**





**GSM Body Face Up Position**



**GSM/GSM with Bluetooth ON Body Face Down Position**



**GPRS/WLAN Body Face Up Position**



**WLAN / WLAN with Bluetooth ON Body Face Down Position**





Report File No. :

STROS-07-016-A1

Date of Issue :

2007-10-19

Page :

27 / 94

## **Appendix B**

### **Test Plot - DASY4 Report**

## 835 MHz Validation Test

Date/Time: 2007-09-06 2:02:23

Test Laboratory: SGS Testing Korea  
File Name: [Validation850-4.da4](#)

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:490  
Program Name: Validation 835

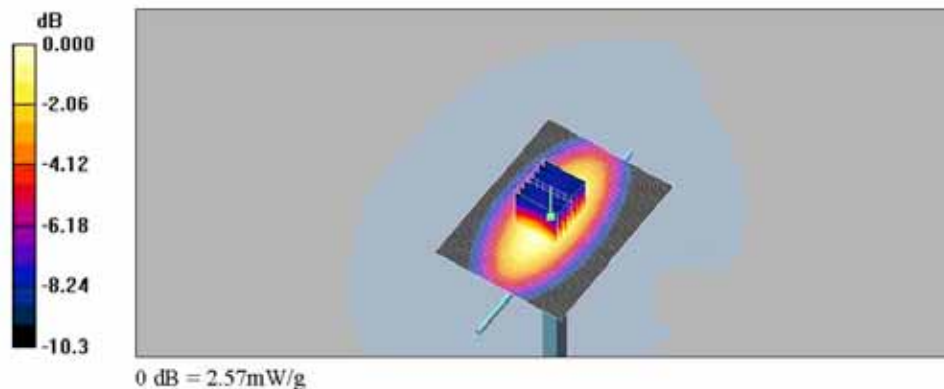
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1  
Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.877 \text{ mho/m}$ ;  $\epsilon_r = 42.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Validation 835/Area Scan (61x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 2.57 mW/g

**Validation 835/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 56.3 V/m; Power Drift = -0.025 dB  
Peak SAR (extrapolated) = 3.38 W/kg  
**SAR(1 g) = 2.37 mW/g; SAR(10 g) = 1.57 mW/g**  
Maximum value of SAR (measured) = 2.57 mW/g



## 1900 MHz Validation Test

Date/Time: 2007-09-07 1:25:50

Test Laboratory: SGS Testing Korea  
File Name: [Validation1900-5.da4](#)

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d033  
Program Name: Validation1900

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1  
Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.38$  mho/m;  $\epsilon_r = 41$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

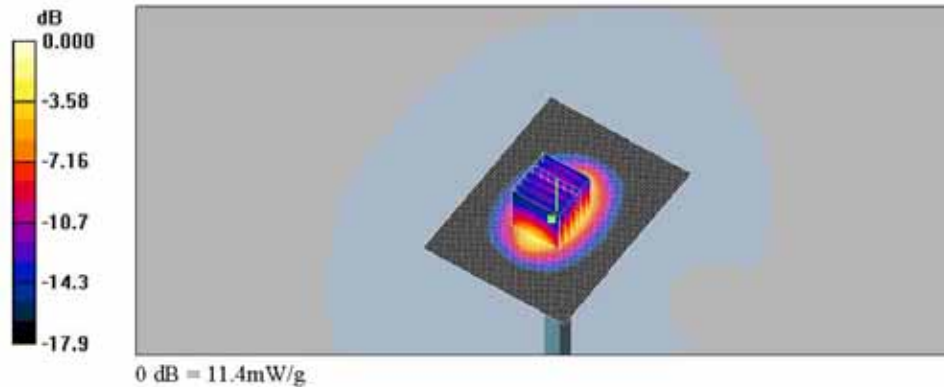
DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.16, 5.16, 5.16); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Validation1900 5/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 11.5 mW/g

**Validation1900 5/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 95.5 V/m; Power Drift = -0.011 dB  
Peak SAR (extrapolated) = 17.0 W/kg  
**SAR(1 g) = 9.96 mW/g; SAR(10 g) = 5.31 mW/g**

Maximum value of SAR (measured) = 11.4 mW/g



## 2450 MHz Validation Test

Date/Time: 2007-09-10 10:08:57

Test Laboratory: SGS Testing Korea  
 File Name: [Validation2450-2.da4](#)

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: -  
 Program Name: Validation2450

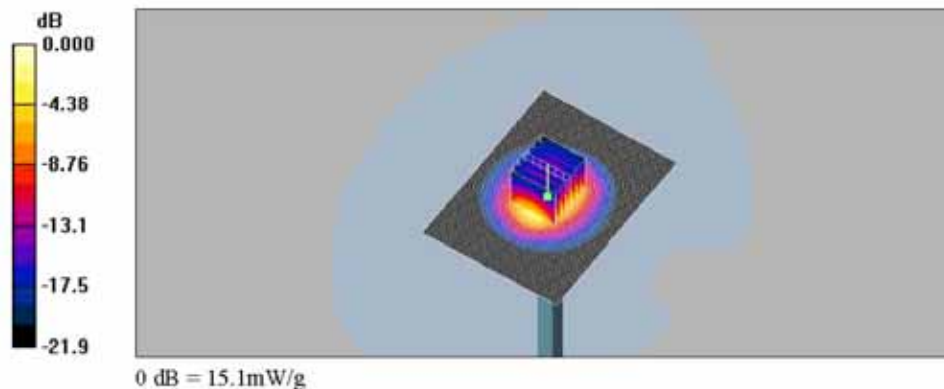
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.87$  mho/m;  $\epsilon_r = 38.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.62, 4.62, 4.62); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**Validation2450/Area Scan (61x81x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 15.1 mW/g

**Validation2450/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 95.2 V/m; Power Drift = -0.002 dB  
 Peak SAR (extrapolated) = 29.5 W/kg  
**SAR(1 g) = 13.4 mW/g; SAR(10 g) = 6.13 mW/g**  
 Maximum value of SAR (measured) = 15.1 mW/g



## GSM850 Head SAR Test

Date/Time: 2007-09-06 2:51:57

Test Laboratory: SGS Testing Korea  
File Name: [GSM850\\_Left Ear.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
Program Name: GSM850\_Left Ear

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.879$  mho/m;  $\epsilon_r = 42.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

DASY4 Configuration:

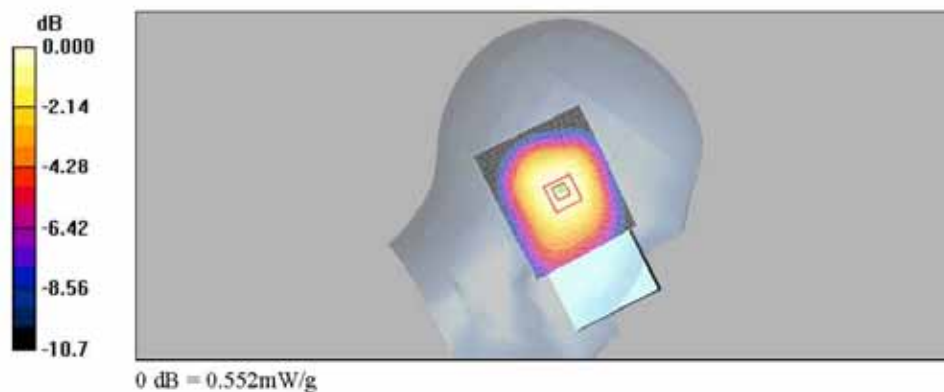
- Probe: ET3DV6 - SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM850\_LE\_Cheek\_Mid/Area Scan (61x71x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.  
Maximum value of SAR (interpolated) = 0.549 mW/g

**GSM850\_LE\_Cheek\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 22.9 V/m; Power Drift = -0.053 dB  
Peak SAR (extrapolated) = 0.657 W/kg  
SAR(1 g) = 0.519 mW/g; SAR(10 g) = 0.380 mW/g

Info: Interpolated medium parameters used for SAR evaluation.  
Maximum value of SAR (measured) = 0.552 mW/g





Date/Time: 2007-09-06 2:23:54

Test Laboratory: SGS Testing Korea  
 File Name: GSM850\_Left Ear.da4

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM850\_Left Ear

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.879 \text{ mho/m}$ ;  $\epsilon_r = 42.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

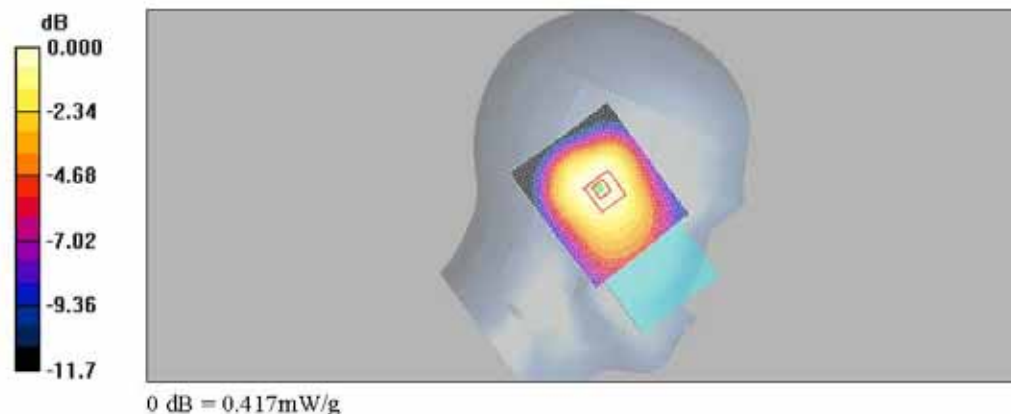
**GSM850\_LE\_Tilt\_Mid/Area Scan (61x71x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Info: Interpolated medium parameters used for SAR evaluation.  
 Maximum value of SAR (interpolated) =  $0.423 \text{ mW/g}$

**GSM850\_LE\_Tilt\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value =  $21.3 \text{ V/m}$ ; Power Drift =  $-0.111 \text{ dB}$   
 Peak SAR (extrapolated) =  $0.514 \text{ W/kg}$   
 SAR(1 g) =  $0.393 \text{ mW/g}$ ; SAR(10 g) =  $0.285 \text{ mW/g}$

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) =  $0.417 \text{ mW/g}$





Date/Time: 2007-09-06 1:39:44

Test Laboratory: SGS Testing Korea  
 File Name: [GSM850\\_Right\\_Ear.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM850\_Right Ear

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.879$  mho/m;  $\epsilon_r = 42.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Right Section

DASY4 Configuration:  
 - Probe: ET3DV6 - SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn567; Calibrated: 2006-09-22  
 - Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300  
 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

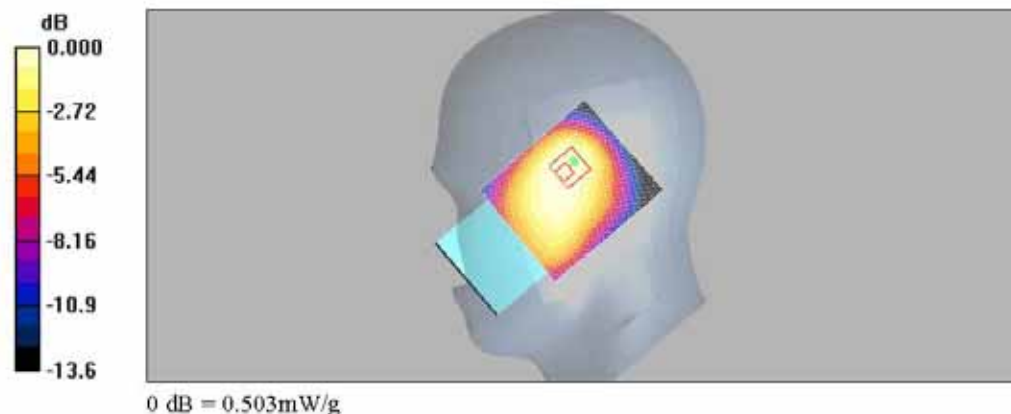
**GSM850\_RE\_Cheek\_Mid/Area Scan (61x71x1):** Measurement grid: dx=15mm, dy=15mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)  
 Maximum value of SAR (interpolated) = 0.535 mW/g

**GSM850\_RE\_Cheek\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 21.3 V/m; Power Drift = -0.182 dB  
 Peak SAR (extrapolated) = 0.665 W/kg  
 SAR(1 g) = 0.469 mW/g; SAR(10 g) = 0.323 mW/g

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

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



Date/Time: 2007-09-06 1:58:01

Test Laboratory: SGS Testing Korea  
 File Name: [GSM850\\_Right\\_Ear.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM850\_Right Ear

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.879 \text{ mho/m}$ ;  $\epsilon_r = 42.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section

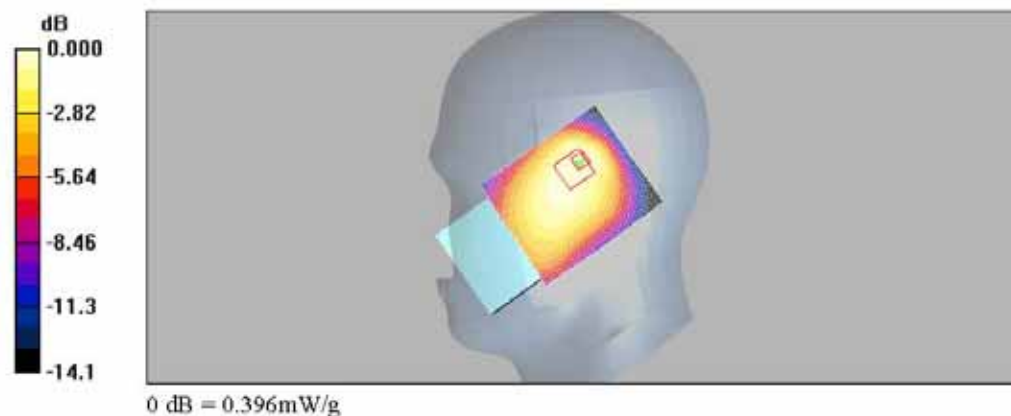
DASY4 Configuration:  
 - Probe: ET3DV6 - SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn567; Calibrated: 2006-09-22  
 - Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300  
 - Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM850\_RE\_Tilt\_Mid/Area Scan (61x71x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.  
 Maximum value of SAR (interpolated) = 0.436 mW/g

**GSM850\_RE\_Tilt\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 19.3 V/m; Power Drift = -0.093 dB  
 Peak SAR (extrapolated) = 0.607 W/kg  
 SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.246 mW/g

Info: Interpolated medium parameters used for SAR evaluation.  
 Maximum value of SAR (measured) = 0.396 mW/g



Date/Time: 2007-09-06 4:03:05

Test Laboratory: SGS Testing Korea  
 File Name: GSM850\_Left Ear.da4

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM850\_Left Ear

Communication System: GSM850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.862$  mho/m;  $\epsilon_r = 42.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM850\_LE\_Cheek\_Low/Area Scan (61x71x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.402 mW/g

**GSM850\_LE\_Cheek\_Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

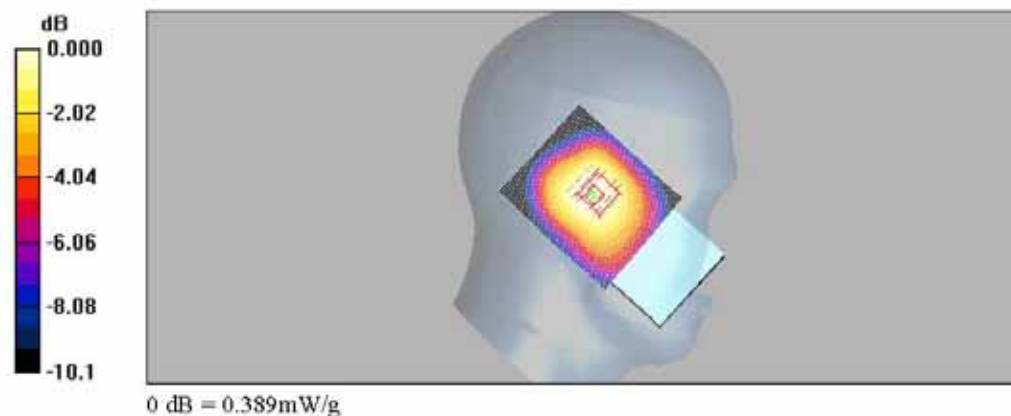
Reference Value = 20.3 V/m; Power Drift = -0.075 dB

Peak SAR (extrapolated) = 0.462 W/kg

SAR(1 g) = 0.370 mW/g; SAR(10 g) = 0.277 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.389 mW/g



Date/Time: 2007-09-06 4:29:21

Test Laboratory: SGS Testing Korea  
 File Name: [GSM850\\_Left Ear.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM850\_Left Ear

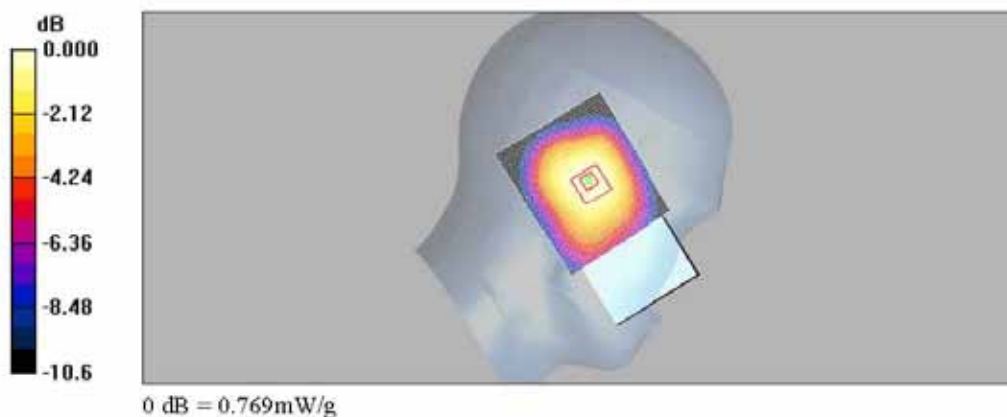
Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.896$  mho/m;  $\epsilon_r = 42.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.18, 6.18, 6.18); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM850\_LE\_Cheek\_High/Area Scan (61x71x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.775 mW/g

**GSM850\_LE\_Cheek\_High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 27.1 V/m; Power Drift = -0.125 dB  
 Peak SAR (extrapolated) = 0.912 W/kg  
**SAR(1 g) = 0.724 mW/g; SAR(10 g) = 0.533 mW/g**  
 Maximum value of SAR (measured) = 0.769 mW/g



## GSM1900 Head SAR Test

Date/Time: 2007-09-07 3:04:53

Test Laboratory: SGS Testing Korea  
 File Name: [GSM1900\\_Left Ear.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM1900\_Left Ear

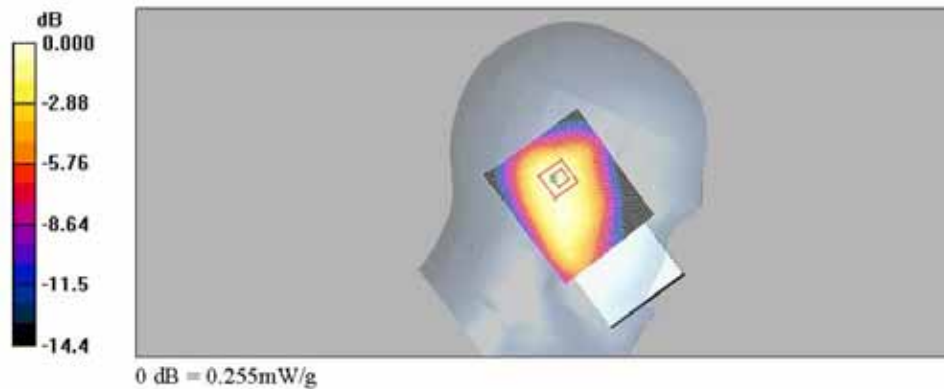
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.36 \text{ mho/m}$ ;  $\epsilon_r = 41.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.16, 5.16, 5.16); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM1900\_LE\_Cheek\_Mid/Area Scan (61x71x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Maximum value of SAR (interpolated) = 0.256 mW/g

**GSM1900\_LE\_Cheek\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 14.6 V/m; Power Drift = -0.064 dB  
 Peak SAR (extrapolated) = 0.327 W/kg  
 SAR(1 g) = 0.236 mW/g; SAR(10 g) = 0.155 mW/g  
 Maximum value of SAR (measured) = 0.255 mW/g





Date/Time: 2007-09-07 3:23:01

Test Laboratory: SGS Testing Korea  
 File Name: GSM1900\_Left Ear.da4

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM1900\_Left Ear

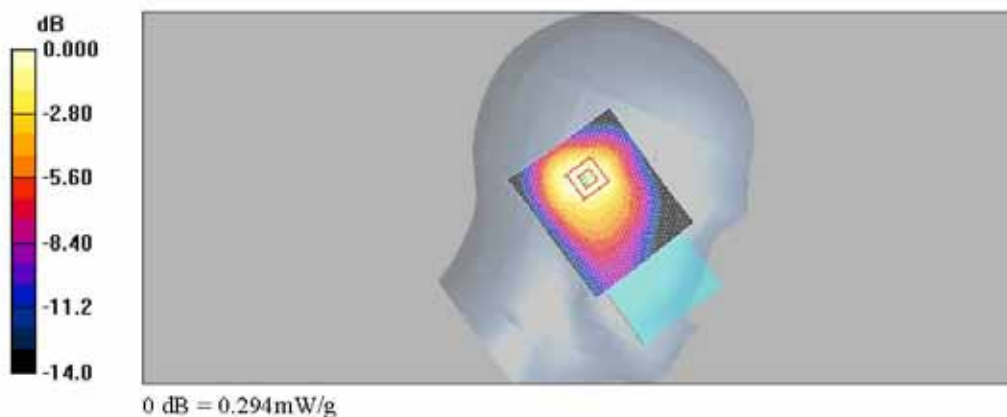
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.36 \text{ mho/m}$ ;  $\epsilon_r = 41.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.16, 5.16, 5.16); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM1900\_LE\_Tilt\_Mid/Area Scan (61x71x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Maximum value of SAR (interpolated) =  $0.301 \text{ mW/g}$

**GSM1900\_LE\_Tilt\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value =  $15.4 \text{ V/m}$ ; Power Drift =  $-0.043 \text{ dB}$   
 Peak SAR (extrapolated) =  $0.387 \text{ W/kg}$   
**SAR(1 g) =  $0.276 \text{ mW/g}$ ; SAR(10 g) =  $0.181 \text{ mW/g}$**   
 Maximum value of SAR (measured) =  $0.294 \text{ mW/g}$



Date/Time: 2007-09-07 3:46:27

Test Laboratory: SGS Testing Korea  
 File Name: [GSM1900\\_Right Ear.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM1900\_Right Ear

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.36$  mho/m;  $\epsilon_r = 41.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.16, 5.16, 5.16); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM1900\_RE\_Cheek\_Mid/Area Scan (61x71x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.504 mW/g

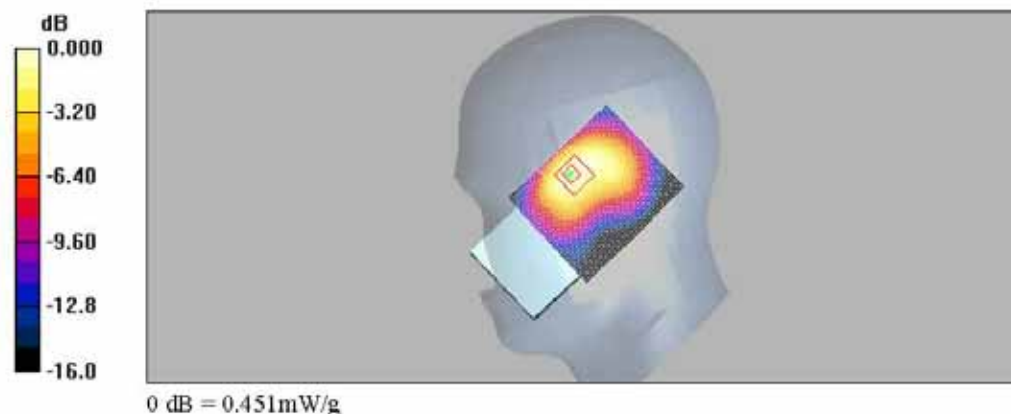
**GSM1900\_RE\_Cheek\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.5 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 0.634 W/kg

**SAR(1 g) = 0.413 mW/g; SAR(10 g) = 0.254 mW/g**

Maximum value of SAR (measured) = 0.451 mW/g



Date/Time: 2007-09-07 4:05:13

Test Laboratory: SGS Testing Korea  
 File Name: [GSM1900\\_Right Ear.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM1900\_Right Ear

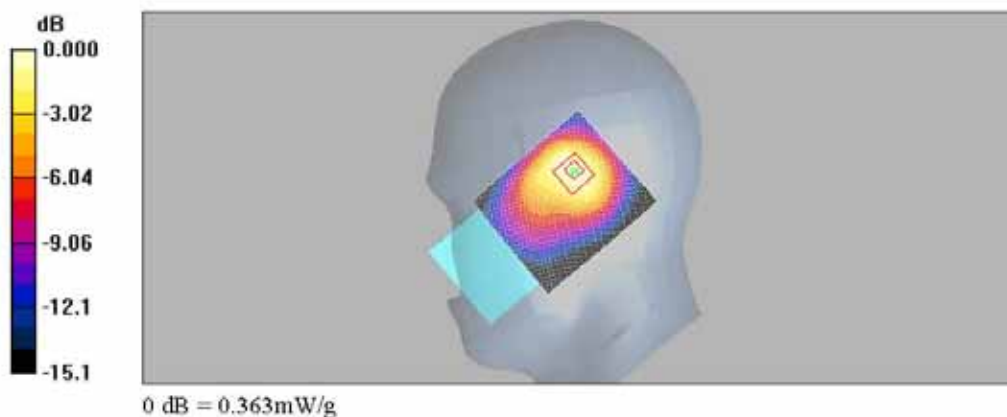
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.36$  mho/m;  $\epsilon_r = 41.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.16, 5.16, 5.16); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM1900\_RE\_Tilt\_Mid/Area Scan (61x71x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.380 mW/g

**GSM1900\_RE\_Tilt\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 15.0 V/m; Power Drift = -0.064 dB  
 Peak SAR (extrapolated) = 0.541 W/kg  
**SAR(1 g) = 0.331 mW/g; SAR(10 g) = 0.201 mW/g**  
 Maximum value of SAR (measured) = 0.363 mW/g





Date/Time: 2007-09-07 4:29:07

Test Laboratory: SGS Testing Korea  
 File Name: [GSM1900\\_Right Ear.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM1900\_Right Ear

Communication System: PCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.33 \text{ mho/m}$ ;  $\epsilon_r = 41.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section

DASY4 Configuration:

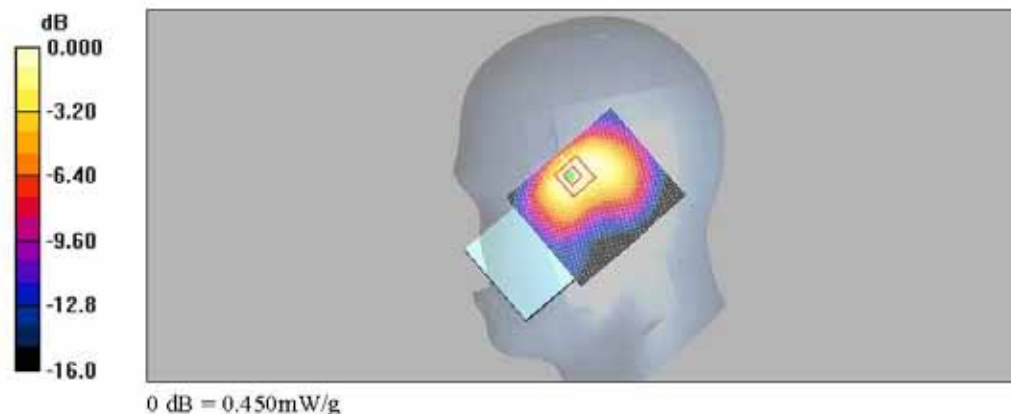
- Probe: ET3DV6 - SN1782; ConvF(5.16, 5.16, 5.16); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM1900\_RE\_Cheek\_Low/Area Scan (61x71x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Info: Interpolated medium parameters used for SAR evaluation.  
 Maximum value of SAR (interpolated) = 0.489 mW/g

**GSM1900\_RE\_Cheek\_Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 14.3 V/m; Power Drift = -0.024 dB  
 Peak SAR (extrapolated) = 0.636 W/kg  
 SAR(1 g) = 0.409 mW/g; SAR(10 g) = 0.253 mW/g

Info: Interpolated medium parameters used for SAR evaluation.  
 Maximum value of SAR (measured) = 0.450 mW/g



Date/Time: 2007-09-07 4:54:06

Test Laboratory: SGS Testing Korea  
 File Name: [GSM1900\\_Right Ear.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM1900\_Right Ear

Communication System: PCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 41$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.16, 5.16, 5.16); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM1900\_RE\_Cheek\_High/Area Scan (61x71x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.500 mW/g

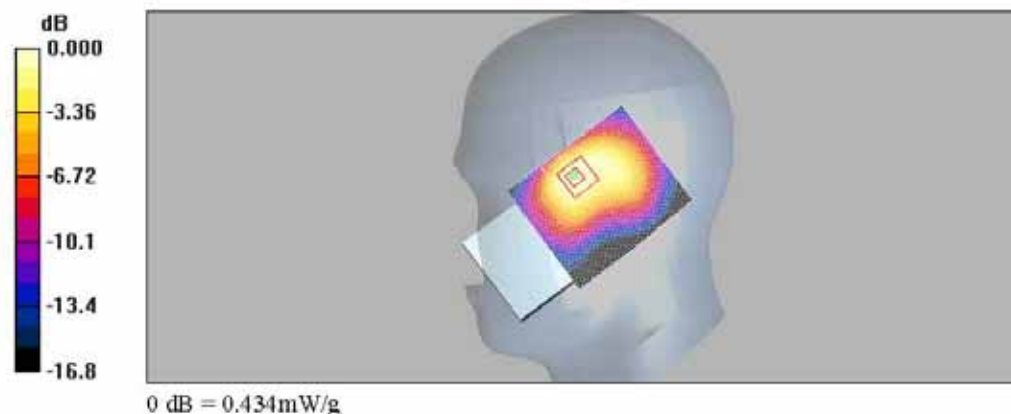
**GSM1900\_RE\_Cheek\_High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.5 V/m; Power Drift = 0.009 dB

Peak SAR (extrapolated) = 0.634 W/kg

SAR(1 g) = 0.403 mW/g; SAR(10 g) = 0.247 mW/g

Maximum value of SAR (measured) = 0.434 mW/g



## GSM/GPRS850 Body SAR Test

Date/Time: 2007-09-06 6:03:34

Test Laboratory: SGS Testing Korea  
File Name: [GSM850\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
Program Name: GSM850\_Body

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.981 \text{ mho/m}$ ;  $\epsilon_r = 54.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.96, 5.96, 5.96); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

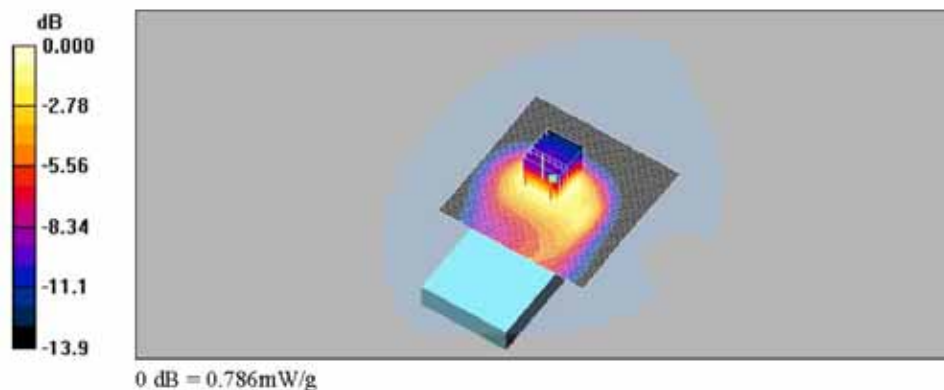
**GSM850\_Body\_Face Up\_Mid/Area Scan (81x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Info: [Interpolated medium parameters used for SAR evaluation.](#)  
Maximum value of SAR (interpolated) = 0.789 mW/g

**GSM850\_Body\_Face Up\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 26.5 V/m; Power Drift = -0.011 dB  
Peak SAR (extrapolated) = 1.22 W/kg  
SAR(1 g) = 0.724 mW/g; SAR(10 g) = 0.452 mW/g

Info: [Interpolated medium parameters used for SAR evaluation.](#)  
Maximum value of SAR (measured) = 0.786 mW/g



Date/Time: 2007-09-06 8:02:15

Test Laboratory: SGS Testing Korea  
 File Name: [GPRS850\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GPRS850\_Body

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:4.15  
 Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.981$  mho/m;  $\epsilon_r = 54.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.96, 5.96, 5.96); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

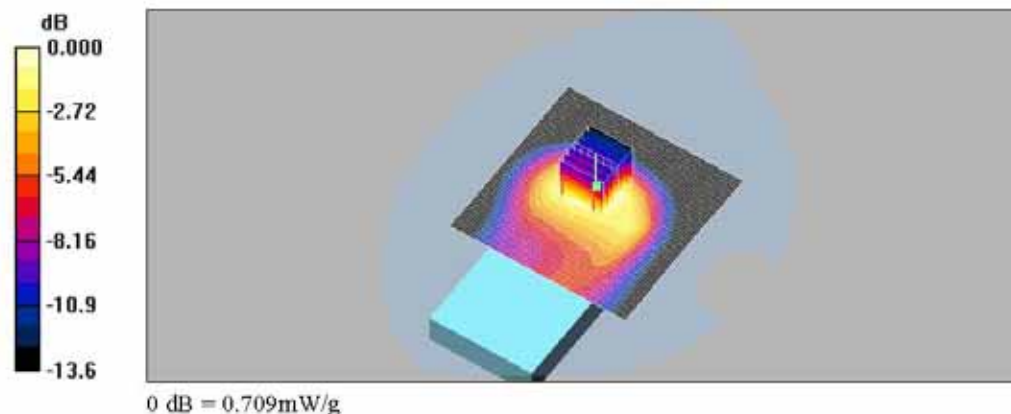
**GPRS850\_Body\_Face Up\_Mid/Area Scan (81x81x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.  
 Maximum value of SAR (interpolated) = 0.764 mW/g

**GPRS850\_Body\_Face Up\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.5 V/m; Power Drift = -0.092 dB  
 Peak SAR (extrapolated) = 1.05 W/kg  
 SAR(1 g) = 0.654 mW/g; SAR(10 g) = 0.406 mW/g

Info: Interpolated medium parameters used for SAR evaluation.  
 Maximum value of SAR (measured) = 0.709 mW/g





Date/Time: 2007-09-06 8:34:28

Test Laboratory: SGS Testing Korea  
 File Name: [GSM850\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM850\_Body

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.981$  mho/m;  $\epsilon_r = 54.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

DASY4 Configuration:

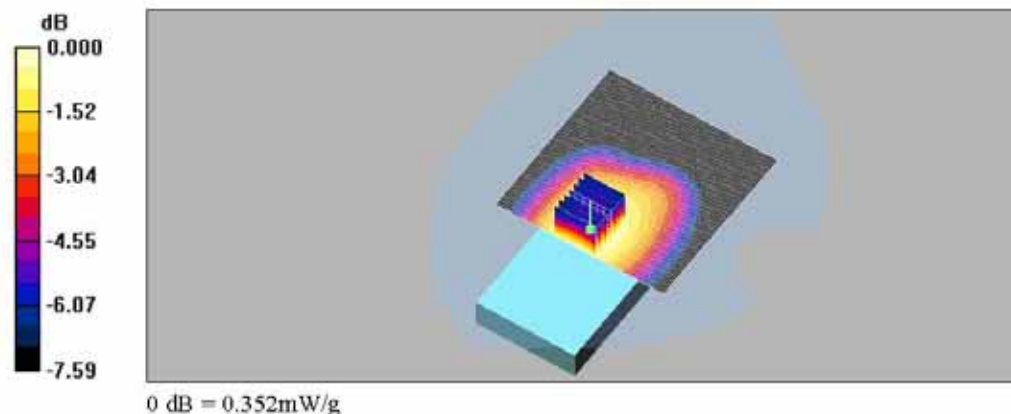
- Probe: ET3DV6 - SN1782; ConvF(5.96, 5.96, 5.96); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM850\_Body\_Face Down\_Mid/Area Scan (81x81x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.  
 Maximum value of SAR (interpolated) = 0.341 mW/g

**GSM850\_Body\_Face Down\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 14.8 V/m; Power Drift = 0.052 dB  
 Peak SAR (extrapolated) = 0.406 W/kg  
 SAR(1 g) = 0.334 mW/g; SAR(10 g) = 0.255 mW/g

Info: Interpolated medium parameters used for SAR evaluation.  
 Maximum value of SAR (measured) = 0.352 mW/g



Date/Time: 2007-09-06 9:09:27

Test Laboratory: SGS Testing Korea  
 File Name: [GSM850\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM850\_Body

Communication System: GSM850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.97$  mho/m;  $\epsilon_r = 54.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.96, 5.96, 5.96); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

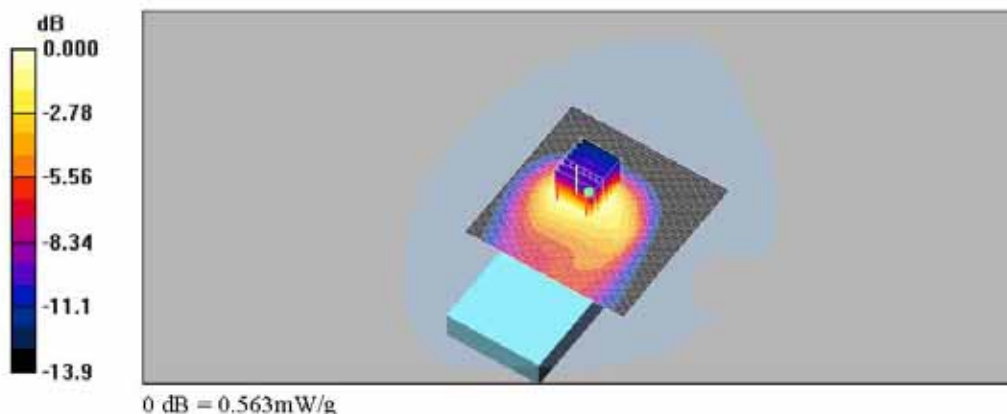
**GSM850\_Body\_Face Up\_Low/Area Scan (81x81x1):** Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.  
 Maximum value of SAR (interpolated) = 0.612 mW/g

**GSM850\_Body\_Face Up\_Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.8 V/m; Power Drift = 0.045 dB  
 Peak SAR (extrapolated) = 0.858 W/kg  
 SAR(1 g) = 0.517 mW/g; SAR(10 g) = 0.318 mW/g

Info: Interpolated medium parameters used for SAR evaluation.  
 Maximum value of SAR (measured) = 0.563 mW/g



Date/Time: 2007-09-06 9:50:20

Test Laboratory: SGS Testing Korea  
 File Name: [GSM850\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM850\_Body

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.994$  mho/m;  $\epsilon_r = 54.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.96, 5.96, 5.96); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM850\_Body\_Face Up\_High/Area Scan (81x81x1):** Measurement grid: dx=15mm, dy=15mm

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

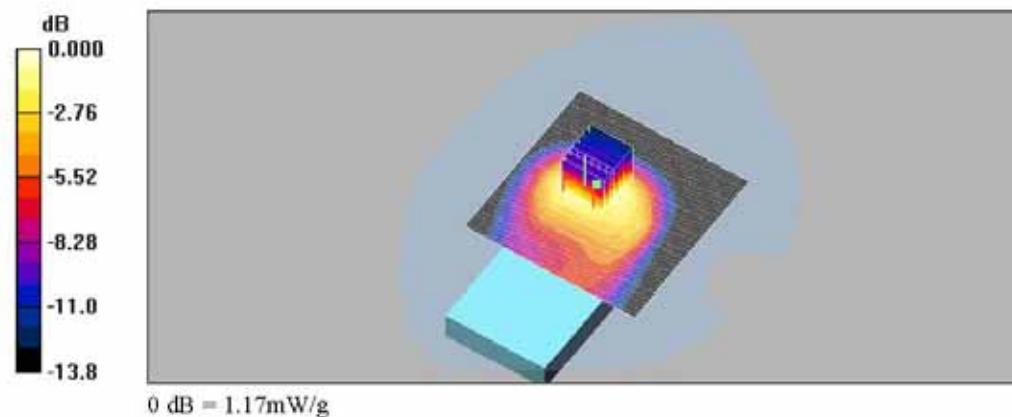
**GSM850\_Body\_Face Up\_High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 29.8 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 1.75 W/kg

SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.662 mW/g

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



Date/Time: 2007-09-06 10:23:01

Test Laboratory: SGS Testing Korea  
 File Name: [GSM850\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM850\_Body

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.994$  mho/m;  $\epsilon_r = 54.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

DASY4 Configuration:

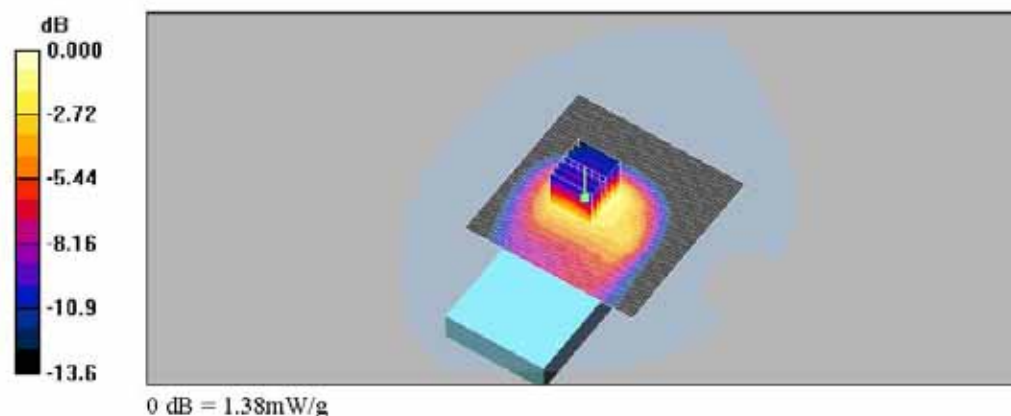
- Probe: ET3DV6 - SN1782; ConvF(5.96, 5.96, 5.96); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

### GSM850\_Body\_Face Up\_High with Bluetooth ON/Area Scan (81x81x1):

Measurement grid:  $dx=15$ mm,  $dy=15$ mm  
 Maximum value of SAR (interpolated) = 1.45 mW/g

### GSM850\_Body\_Face Up\_High with Bluetooth ON/Zoom Scan (7x7x7)/Cube 0:

Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm  
 Reference Value = 33.1 V/m; Power Drift = -0.207 dB  
 Peak SAR (extrapolated) = 2.11 W/kg  
**SAR(1 g) = 1.27 mW/g; SAR(10 g) = 0.756 mW/g**  
 Maximum value of SAR (measured) = 1.38 mW/g





## GSM/GPRS1900 Body SAR Test

Date/Time: 2007-09-07 5:27:20

Test Laboratory: SGS Testing Korea  
 File Name: [GSM1900\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM1900\_Body

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.48$  mho/m;  $\epsilon_r = 51.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

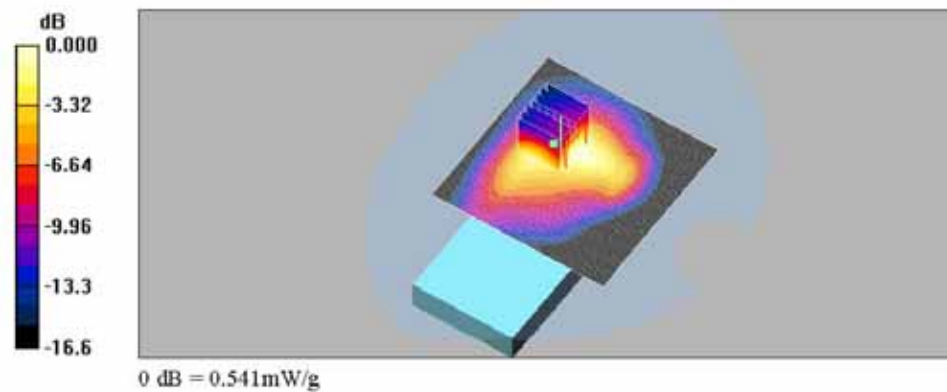
DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.84, 4.84, 4.84); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM1900\_Body\_Face Up\_Mid/Area Scan (81x81x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.524 mW/g

**GSM1900\_Body\_Face Up\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 14.3 V/m; Power Drift = 0.026 dB  
 Peak SAR (extrapolated) = 0.782 W/kg  
 SAR(1 g) = 0.487 mW/g; SAR(10 g) = 0.290 mW/g

Maximum value of SAR (measured) = 0.541 mW/g



Date/Time: 2007-09-07 5:51:07

Test Laboratory: SGS Testing Korea  
 File Name: [GPRS1900\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GPRS1900\_Body

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:4.15  
 Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.48 \text{ mho/m}$ ;  $\epsilon_r = 51.3$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.84, 4.84, 4.84); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GPRS1900\_Body\_Face Up\_Mid/Area Scan (81x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.485 mW/g

**GPRS1900\_Body\_Face Up\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

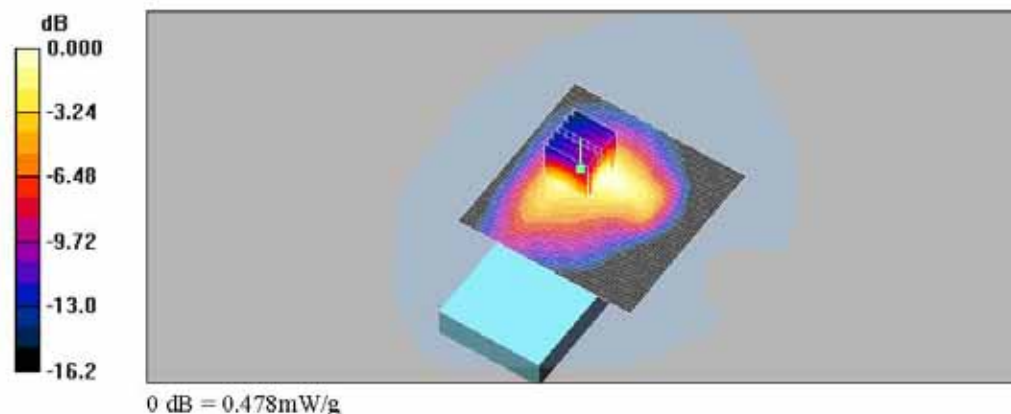
$dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 13.9 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 0.683 W/kg

**SAR(1 g) = 0.429 mW/g; SAR(10 g) = 0.263 mW/g**

Maximum value of SAR (measured) = 0.478 mW/g



Date/Time: 2007-09-07 6:15:31

Test Laboratory: SGS Testing Korea  
 File Name: [GSM1900\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM1900\_Body

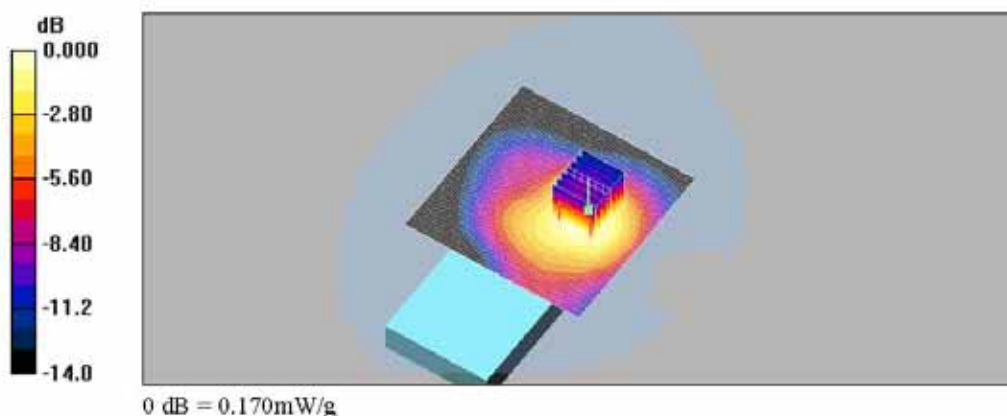
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.48$  mho/m;  $\epsilon_r = 51.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.84, 4.84, 4.84); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM1900\_Body\_Face Down\_Mid/Area Scan (81x81x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.175 mW/g

**GSM1900\_Body\_Face Down\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 8.36 V/m; Power Drift = -0.046 dB  
 Peak SAR (extrapolated) = 0.235 W/kg  
**SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.103 mW/g**  
 Maximum value of SAR (measured) = 0.170 mW/g



Date/Time: 2007-09-07 6:35:55

Test Laboratory: SGS Testing Korea  
 File Name: [GSM1900\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM1900\_Body

Communication System: PCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.45 \text{ mho/m}$ ;  $\epsilon_r = 51.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.84, 4.84, 4.84); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

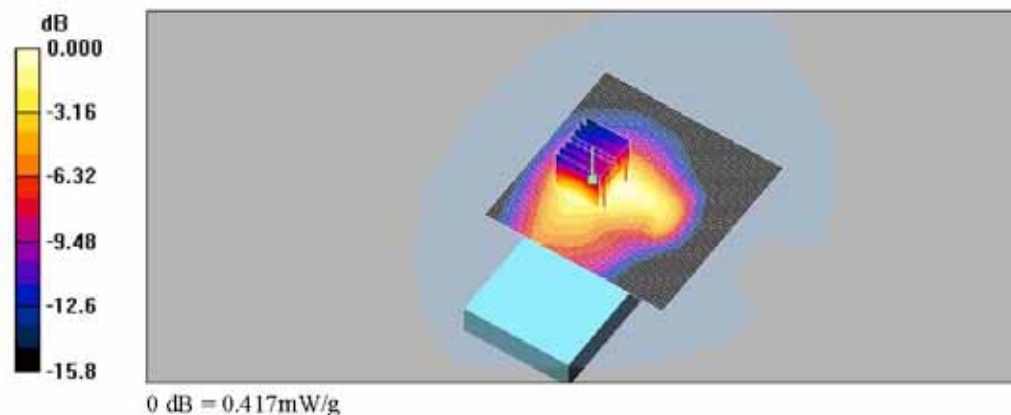
**GSM1900\_Body\_Face Up\_Low/Area Scan (81x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Info: Interpolated medium parameters used for SAR evaluation.  
 Maximum value of SAR (interpolated) =  $0.420 \text{ mW/g}$

**GSM1900\_Body\_Face Up\_Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  
 $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value =  $16.3 \text{ V/m}$ ; Power Drift =  $0.000 \text{ dB}$   
 Peak SAR (extrapolated) =  $0.579 \text{ W/kg}$   
 SAR(1 g) =  $0.378 \text{ mW/g}$ ; SAR(10 g) =  $0.233 \text{ mW/g}$

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) =  $0.417 \text{ mW/g}$



Date/Time: 2007-09-07 7:13:03

Test Laboratory: SGS Testing Korea  
 File Name: [GSM1900\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM1900\_Body

Communication System: PCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.51$  mho/m;  $\epsilon_r = 51.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.84, 4.84, 4.84); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**GSM1900\_Body\_Face Up\_High/Area Scan (81x81x1):** Measurement grid: dx=15mm, dy=15mm

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

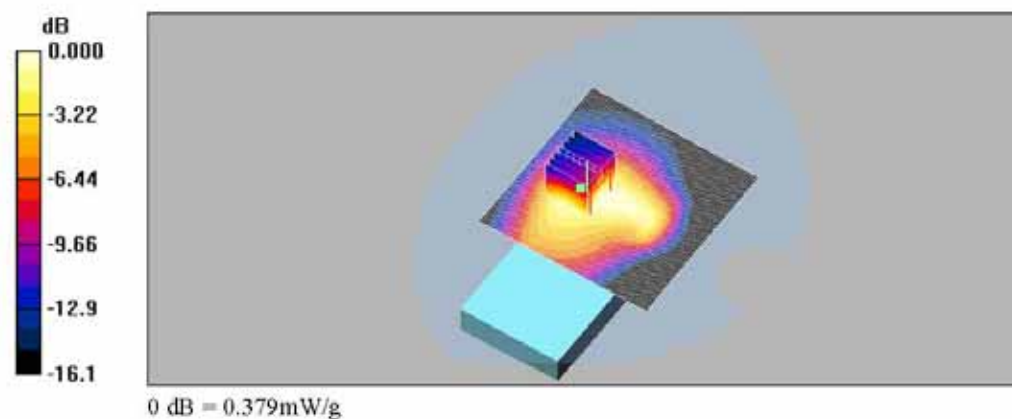
**GSM1900\_Body\_Face Up\_High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.4 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 0.537 W/kg

SAR(1 g) = 0.350 mW/g; SAR(10 g) = 0.220 mW/g

Maximum value of SAR (measured) = 0.379 mW/g





Date/Time: 2007-09-07 7:33:21

Test Laboratory: SGS Testing Korea  
 File Name: [GSM1900\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: GSM1900\_Body

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.48$  mho/m;  $\epsilon_r = 51.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

DASY4 Configuration:

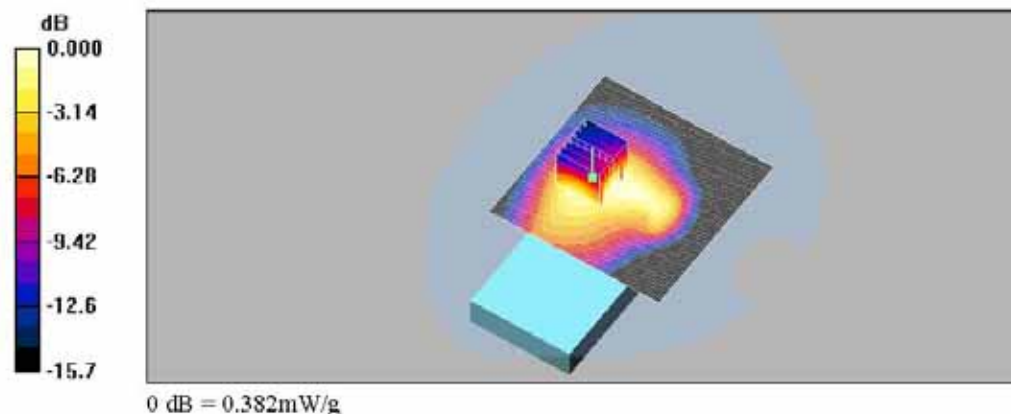
- Probe: ET3DV6 - SN1782; ConvF(4.84, 4.84, 4.84); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

### GSM1900\_Body\_Face Up\_Mid with Bluetooth ON/Area Scan (81x81x1):

Measurement grid:  $dx=15$ mm,  $dy=15$ mm  
 Maximum value of SAR (interpolated) = 0.394 mW/g

### GSM1900\_Body\_Face Up\_Mid with Bluetooth ON/Zoom Scan (7x7x7)/Cube 0:

Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm  
 Reference Value = 16.3 V/m; Power Drift = -0.007 dB  
 Peak SAR (extrapolated) = 0.525 W/kg  
**SAR(1 g) = 0.349 mW/g; SAR(10 g) = 0.218 mW/g**  
 Maximum value of SAR (measured) = 0.382 mW/g



## WLAN Body SAR Test

Date/Time: 2007-09-10 4:04:43

Test Laboratory: SGS Testing Korea  
File Name: [WLAN\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
Program Name: WLAN\_Body

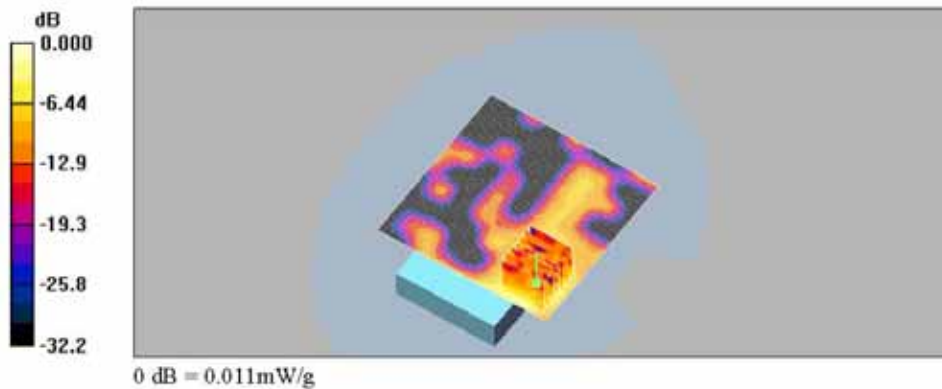
Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.9$  mho/m;  $\epsilon_r = 53.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.14, 4.14, 4.14); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**WLAN\_11b\_Body\_Face Up\_Mid/Area Scan (81x81x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.009 mW/g

**WLAN\_11b\_Body\_Face Up\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 0.490 V/m; Power Drift = 0.36 dB  
Peak SAR (extrapolated) = 0.020 W/kg  
SAR(1 g) = 0.00979 mW/g; SAR(10 g) = 0.00443 mW/g  
Maximum value of SAR (measured) = 0.011 mW/g



Date/Time: 2007-09-10 4:30:59

Test Laboratory: SGS Testing Korea  
 File Name: [WLAN\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: WLAN\_Body

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 1.9 \text{ mho/m}$ ;  $\epsilon_r = 53.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.14, 4.14, 4.14); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**WLAN\_11g\_Body\_Face Up\_Mid/Area Scan (81x61x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.010 mW/g

**WLAN\_11g\_Body\_Face Up\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

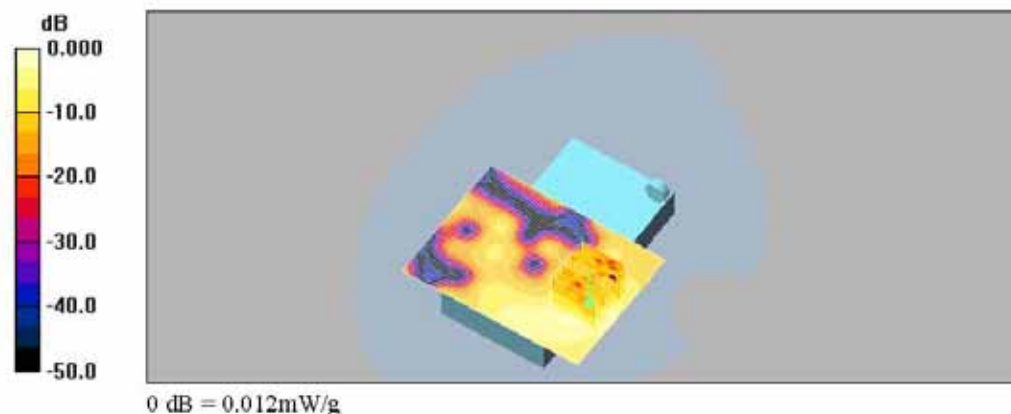
$dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 0.533 V/m; Power Drift = -0.23 dB

Peak SAR (extrapolated) = 0.023 W/kg

**SAR(1 g) = 0.011 mW/g; SAR(10 g) = 0.00491 mW/g**

Maximum value of SAR (measured) = 0.012 mW/g





Date/Time: 2007-09-10 4:51:14

Test Laboratory: SGS Testing Korea  
 File Name: [WLAN\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: WLAN\_Body

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 2437 \text{ MHz}$ ;  $\sigma = 1.9 \text{ mho/m}$ ;  $\epsilon_r = 53.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.14, 4.14, 4.14); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**WLAN\_11g\_Body\_Face Down\_Mid/Area Scan (81x61x1);** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.016 mW/g

**WLAN\_11g\_Body\_Face Down\_Mid/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

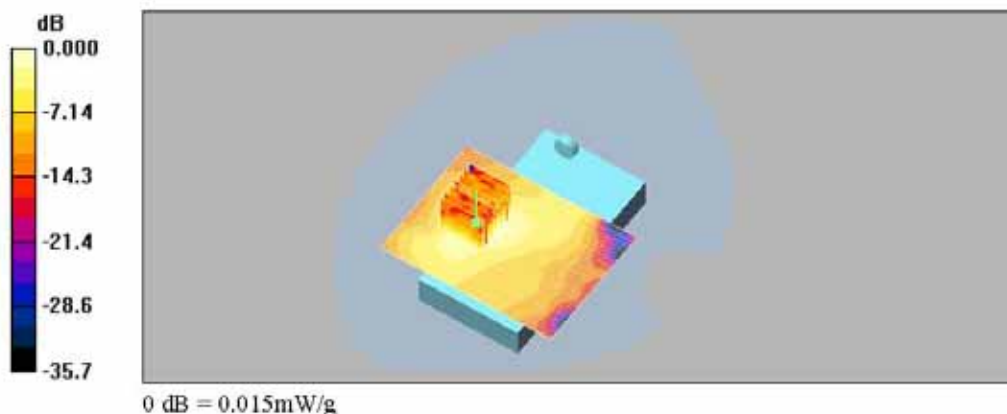
dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.47 V/m; Power Drift = -0.297 dB

Peak SAR (extrapolated) = 0.033 W/kg

**SAR(1 g) = 0.013 mW/g; SAR(10 g) = 0.00694 mW/g**

Maximum value of SAR (measured) = 0.015 mW/g



Date/Time: 2007-09-10 5:13:47

Test Laboratory: SGS Testing Korea  
 File Name: [WLAN\\_Body.da4](#)

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: WLAN\_Body

Communication System: WLAN; Frequency: 2412 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.86 \text{ mho/m}$ ;  $\epsilon_r = 53.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.14, 4.14, 4.14); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**WLAN\_11g\_Body\_Face Down\_Low/Area Scan (81x61x1):** Measurement grid:

$dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.016 mW/g

**WLAN\_11g\_Body\_Face Down\_Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

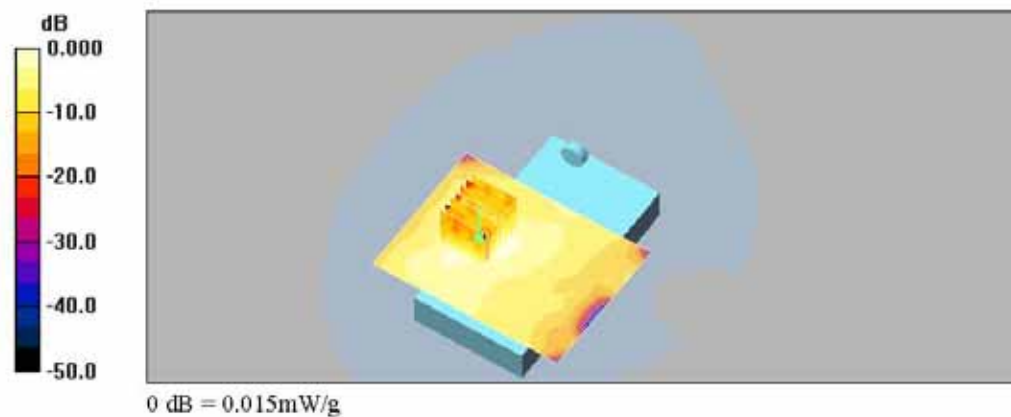
$dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 1.39 V/m; Power Drift = 0.041 dB

Peak SAR (extrapolated) = 0.030 W/kg

SAR(1 g) = 0.014 mW/g; SAR(10 g) = 0.00727 mW/g

Maximum value of SAR (measured) = 0.015 mW/g



Date/Time: 2007-09-10 5:33:46

Test Laboratory: SGS Testing Korea  
 File Name: WLAN\_Body.da4

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: WLAN\_Body

Communication System: WLAN; Frequency: 2462 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 2462 \text{ MHz}$ ;  $\sigma = 1.94 \text{ mho/m}$ ;  $\epsilon_r = 53.1$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.14, 4.14, 4.14); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

**WLAN\_11g\_Body\_Face Down\_High/Area Scan (81x61x1):** Measurement grid:

$dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.016 mW/g

**WLAN\_11g\_Body\_Face Down\_High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:

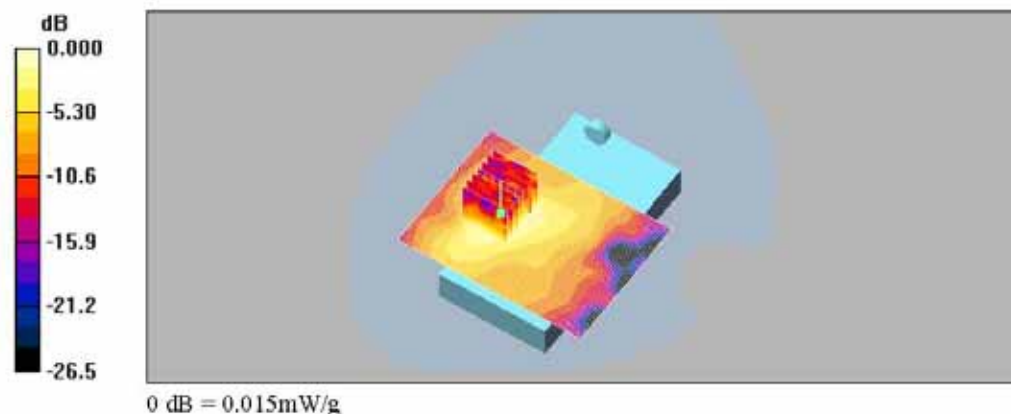
$dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 1.43 V/m; Power Drift = -0.283 dB

Peak SAR (extrapolated) = 0.028 W/kg

**SAR(1 g) = 0.014 mW/g; SAR(10 g) = 0.00696 mW/g**

Maximum value of SAR (measured) = 0.015 mW/g



Date/Time: 2007-09-10 5:54:17

Test Laboratory: SGS Testing Korea  
 File Name: WLAN\_Body.da4

DUT: BM-150R; Type: Bar; Serial: M150RAHGGJJ001  
 Program Name: WLAN\_Body

Communication System: WLAN; Frequency: 2412 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.86 \text{ mho/m}$ ;  $\epsilon_r = 53.2$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.14, 4.14, 4.14); Calibrated: 2007-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

### WLAN\_11g\_Body\_Face Down\_Low with Bluetooth ON/Area Scan (81x61x1):

Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Maximum value of SAR (interpolated) = 0.017 mW/g

### WLAN\_11g\_Body\_Face Down\_Low with Bluetooth ON/Zoom Scan (7x7x7)/Cube 0:

Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 1.51 V/m; Power Drift = 0.266 dB  
 Peak SAR (extrapolated) = 0.039 W/kg  
 $\text{SAR}(1 \text{ g}) = 0.016 \text{ mW/g}$ ;  $\text{SAR}(10 \text{ g}) = 0.00844 \text{ mW/g}$   
 Maximum value of SAR (measured) = 0.017 mW/g

