SAR TEST REPORT

Equipment Under Test	:	GSM Mobile Phone
Model No.	:	DB830
Applicant	:	B2WIN Corporation
Address of Applicant	:	Rm. 1809, LG Twintel Bldg.1, 157-8, Samsung-dong, Kangam-gu, Seoul, 135-090, Korea
FCC ID		U2UDB830
Device Category	:	Portable Device
Exposure Category	:	General Population/Uncontrolled Exposure
Date of Receipt	:	2007-02-12
Date of Test(s)	:	2007-02-27 ~ 2007-03-02
Date of Issue	:	2007-03-07
Max. SAR	:	0.426 W/kg (GSM1900_Left Ear_Cheek_Low Channel) 0.912 W/kg (GPRS1900_Body_Face Up_High Channel + BT ON)

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:

Tested by	:	**Leo Kim**	**2007-03-07**
Approved by	:	**Albert Lim**	**2007-03-07**

Contents

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

1.2 Details of Applicant

Manufacturer : **B**2WIN Corporation
Address : Rm.1809, LG Twintel Bldg.1, 157-8, Samsung-dong Kangnam-gu, Seoul, 135-090, Korea
Contact Person : O.J. Sim
Phone No. : 82-70-7012-2678
Fax No. : 82-2-566-3621

1.3 Version of Report

Version Number	Date	Revision
00	2007-03-07	Initial issue

1.4 Description of EUT(s)

EUT Type	: GSM Mobile Phone
Model	: DB830
Serial Number	: -
Hardware Version	: DB830_REVA0_1012
Software Version	: DB830_MP01_CC52_061207_M26M
Mode of Operation	: GSM/GPRS Dual-band (GSM850,1900) : Bluetooth
Mobile Phone capabilities	: Claas B
Duty Cycle	: GSM 12.5%, GPRS 25%, BT 100%
Body worn Accessory	: None
Tx Frequency Range	: 824.2~848.8 MHz (GSM850), 1850.2~1909.8 MHz(GSM 1900) 2402 ~ 2480 MHz(Bluetooth)
Antenna	: GSM : Monopole Antenna, model : KH-GMDI-GP002 Bluetooth : Dielectric Chip Antenna, model : AMAN542012KM02
Battery Type	: 3.8 VDC Lithium-Ion Battery

1.5 Test Environment

Ambient temperature	: 22.1 ° C
Tissue Simulating Liquid	: 22.0 ° C
Relative Humidity	: 48 %

1.6 Operation Configuration

The device in GSM mode was controlled by using a Communication tester(E5515C). Communication between the device and the tester was established by air link. The device in BT mode was controlled by using a Bluetooth tester(TC-3000B). Communication between the device and the tester was established by air link. 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= σ (|Ei|2)/ ρ where σ and ρ 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.

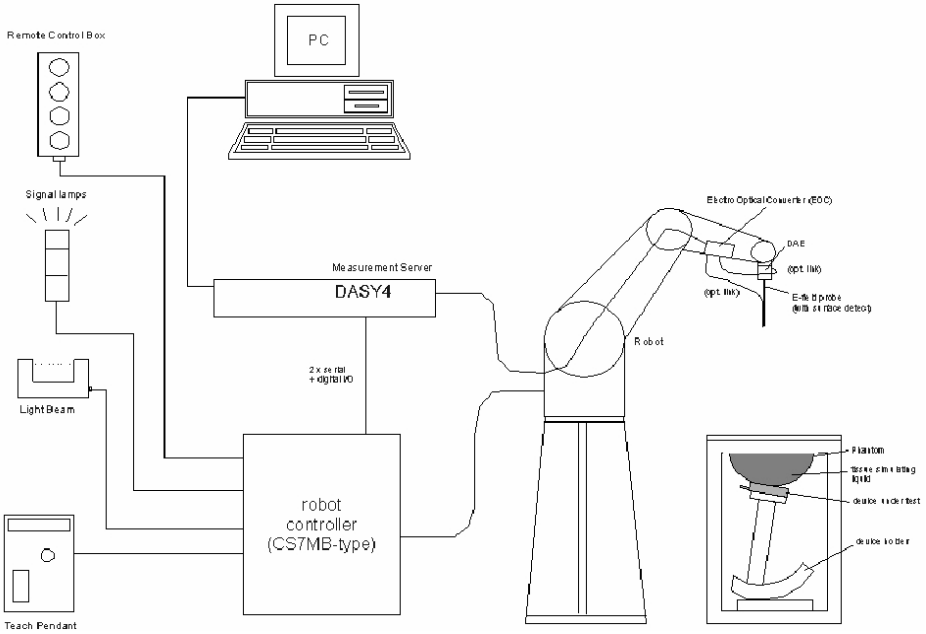


Fig a. The microwave circuit arrangement used for SAR system verification

• 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.

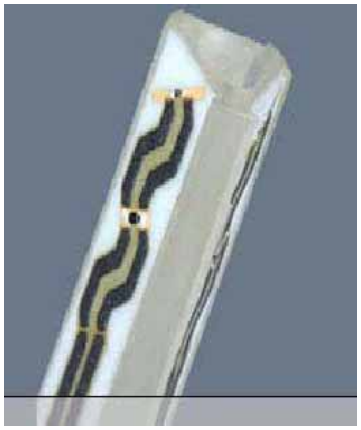
• Tissue simulating liquid mixed according to the given recipes.

• Validation dipole kits allowing to validate the proper functioning of the system.

1.9 System Components

ET3DV6 E-Field Probe

Construction	**:**	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g. glycol).
Calibration	**:**	In air from 10 MHz to 2.5 GHz In brain simulating tissue (accuracy ± 8%)
Frequency	**:**	10 MHz to >6 GHz; Linearity: ±0.2 dB (30 MHz to 3 GHz)
Directivity	**:**	±0.2 dB in brain tissue (rotation around probe axis) ±0.4 dB in brain tissue (rotation normal to probe axis)
Dynamic Range	**:**	5 µW/g to >100 mW/g; Linearity: ±0.2 dB
Srfce. Detect	**:**	±0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Dimensions	**:**	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
Application	:	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 ± 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 +/- 10% from the target SAR values. These tests were done at 835MHz, 1900MHz. The tests were conducted on the same days as the measurement of the EUT. 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.

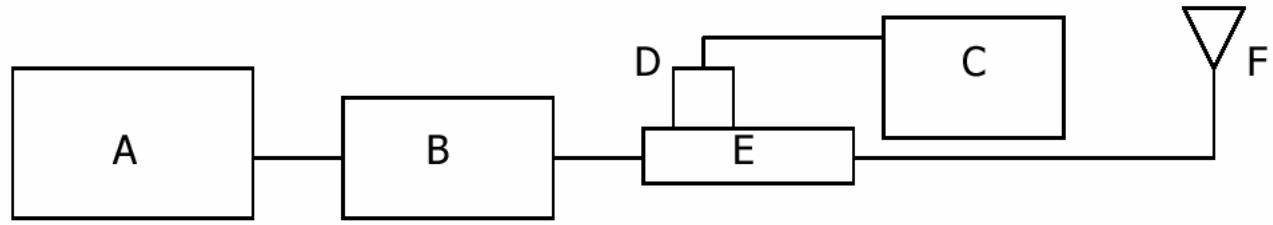


Fig b. The microwave circuit arrangement used for SAR system verification

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 (1 W)	Measured SAR 1 g (1 W)	Deviation (%)	Date	Liquid Temp. (°C)
D835V2 S/N: 490	835 MHz Brain	9.5 W/kg	**9.72 W/kg**	**2.32**	Feb. 27, 2007	22.1
D835V2 S/N: 490	835 MHz Brain	9.5 W/kg	**9.8 W/kg**	**3.16**	Mar. 2, 2007	22.0
D1900V2 S/N: 5d033	1900 MHz Brain	39.7 W/kg	**37 W/kg**	**-6.8**	Feb. 27, 2007	22.0
D1900V2 S/N: 5d033	1900 MHz Brain	39.7 W/kg	**37.72 W/kg**	**-4.99**	Feb. 28, 2007	22.2

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 frequence 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(℃)
835	Head	Measured, 2007-02-27	**43.1**	**0.935**	**22.1**
		Recommended Limits	41.5	0.90	22.0
		Deviation(%)	3.86	3.89	-
	Head	Measured, 2007-03-02	**43.1**	**0.934**	**22.2**
		Recommended Limits	41.5	0.90	22.0
		Deviation(%)	3.86	3.78	-
	Body	Measured, 2007-03-02	**54.05**	**0.94**	**22.0**
		Recommended Limits	55.2	0.97	22.0
		Deviation(%)	-2.08	-3.09	-

f (MHz)	Tissue type	Limits / Measured	Dielectric Parameters		
			Permittivity	Conductivity	Simulated Tissue Temp(℃)
1900	Head	Measured, 2007-02-27	**39.5**	**1.36**	**22.0**
		Recommended Limits	40.0	1.40	22.0
		Deviation(%)	-1.25	-2.86	-
	Head	Measured, 2007-02-28	**39.5**	**1.36**	**22.2**
		Recommended Limits	40.0	1.40	22.0
		Deviation(%)	-1.25	-2.86	-
	Body	Measured, 2007-02-28	**52.26**	**1.56**	**22.2**
		Recommended Limits	53.3	1.52	22.0
		Deviation(%)	-1.95	2.63	-

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^{+} 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
Partial Peak SAR (Partial)	1.60 m W/g	8.00 m W/g
Partial Average SAR (Whole Body)	0.08 m W/g	0.40 m W/g
Partial Peak SAR (Hands/Feet/Ankle/Wrist)	4.00 m W/g	20.00 m W/g

Table .4 RF exposure limits

2. Instruments List

Manufacturer	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	May 2, 2007
Schmid& Partner Engineering AG	835 MHz System Validation Dipole	D835V2	490	August 14, 2007
Schmid& Partner Engineering AG	1900 MHz System Validation Dipole	D1900V2	5d033	August 16, 2007
Schmid& Partner Engineering AG	Data acquisition Electronics	DAE3	567	September 22, 2007
Schmid& Partner Engineering AG	Software	DASY 4 V4.5	-	N/A
Schmid& Partner Engineering AG	Phantom	SAM Phantom V4.0	TP-1299 TP-1300	N/A
Agilent	Network Analyzer	E5070B	MY42100282	May 30, 2007
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	Mobile Test Unit	E5515C	GB43345198	May 20, 2007
TESCOM	Bluetooth Tester	TC-3000B	3000B630010	April 15, 2007

3.Summary of Results

Ambient Temperature (°C)	22.1
Liquid Temperature (°C)	22.1
Date	February 27, 2007

GSM850 Head SAR

Head	Test Position	Traffic Channel		Conducted Power(dBm)		1 g SAR (W/kg)
		Frequency (MHz)	Channel	Before	After	
Right	Cheek	836.6	190	31.08	31.08	0.137
	Tilt	836.6	190	31.07	31.08	0.081
	-	-	-	-	-	
Left	Cheek	836.6	190	31.07	31.08	0.140
	Tilt	836.6	190	31.07	31.07	0.091
	Cheek	824.2	128	31.04	31.04	**0.174**
	Cheek	848.8	251	31.00	31.00	0.125

Ambient Temperature (°C)	22.0
Liquid Temperature (°C)	22.0
Date	March 2, 2007

GSM/GPRS 850 Body SAR

Mode	Test Position	Traffic Channel		Conducted Power(dBm)		1 g SAR (W/kg)
		Frequency (MHz)	Channel	Before	After	
GSM	Face Up	836.6	190	31.07	31.06	0.104
	Face Down	836.6	190	31.07	31.07	0.030
	Face Up	824.2	128	31.04	31.04	0.134
	Face Up	848.8	251	31.00	31.00	0.087
GSM+BT ON	Face Up	824.2	128	31.04	31.04	0.146
GPRS	Face Up	836.6	190	31.04	31.04	0.151
	Face Down	836.6	190	31.04	31.04	0.040
	Face Up	824.2	128	31.02	31.00	0.195
	Face Up	848.8	251	31.00	31.01	0.126
GPRS + BT ON	Face Up	824.2	128	31.01	31.02	**0.190**

Ambient Temperature (°C)	22.0
Liquid Temperature (°C)	22.0
Date	February 27, 2007

GSM1900 Head SAR

Head	Test Position	Traffic Channel		Conducted Power(dBm)		1 g SAR (W/kg)
		Frequency (MHz)	Channel	Before	After	
Right	Cheek	1880	661	28.15	28.14	0.337
	Tilt	1880	661	28.15	28.14	0.260
	-	-	-	-	-	
Left	Cheek	1880	661	28.14	28.14	0.423
	Tilt	1880	661	28.14	28.13	0.272
	Cheek	1850.2	512	28.17	28.18	**0.426**
	Cheek	1909.8	810	28.38	28.38	0.406

Ambient Temperature (°C)	22.2
Liquid Temperature (°C)	22.2
Date	February 28, 2007

GSM/GPRS 1900 Body SAR

Mode	Test Position	Traffic Channel		Conducted Power(dBm)		1 g SAR (W/kg)
		Frequency (MHz)	Channel	Before	After	
GSM	Face Up	1880	661	28.15	28.15	0.629
	Face Down	1880	661	28.14	28.15	0.087
	Face Up	1850.2	512	28.17	28.17	0.641
	Face Up	1909.8	810	28.36	28.38	0.644
GSM+BT ON	Face Up	1909.8	810	28.37	28.38	0.656
GPRS	Face Up	1880	661	28.12	28.12	0.856
	Face Down	1880	661	28.13	28.12	0.144
	Face Up	1850.2	512	28.14	28.13	0.856
	Face Up	1909.8	810	28.38	28.37	0.901
GPRS + BT ON	Face Up	1909.8	810	28.38	28.38	**0.912**

Appendix

List

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

Appendix A

EUT Photographs

Front View of EUT

Rear View of EUT

Inside View of EUT

Right View of EUT

Left View of EUT

Top View of EUT

Bottom View of EUT

Test Setup Photographs

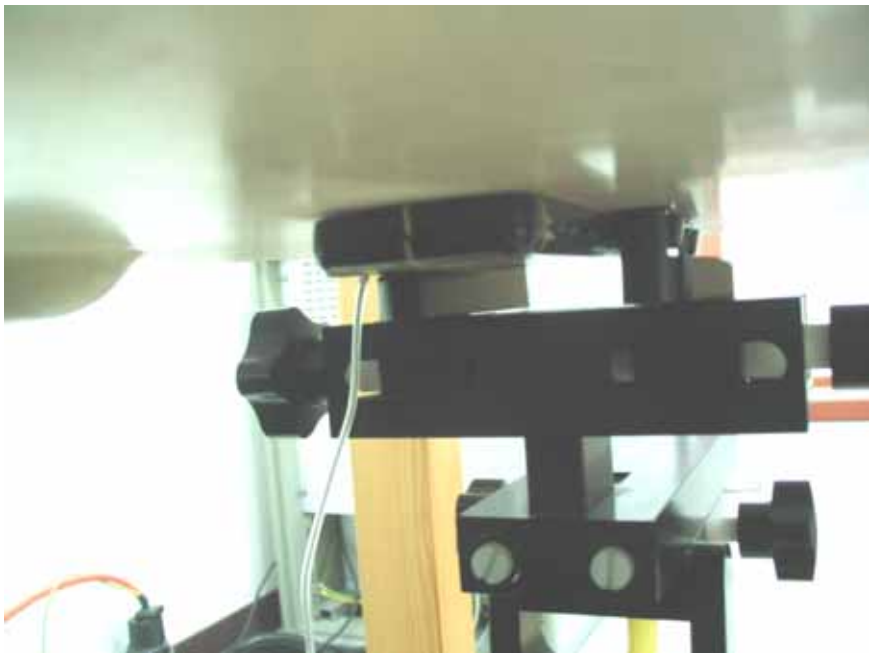
Left Cheek Position

Left Tilt Position

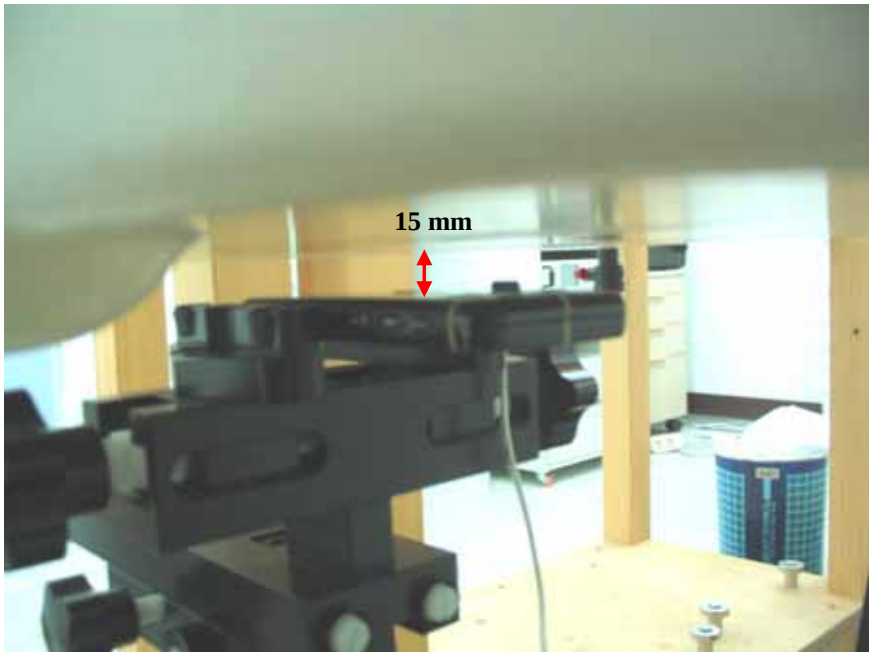
Right Cheek Position

Right Tilt Position

Body Face Up Position_GSM Mode

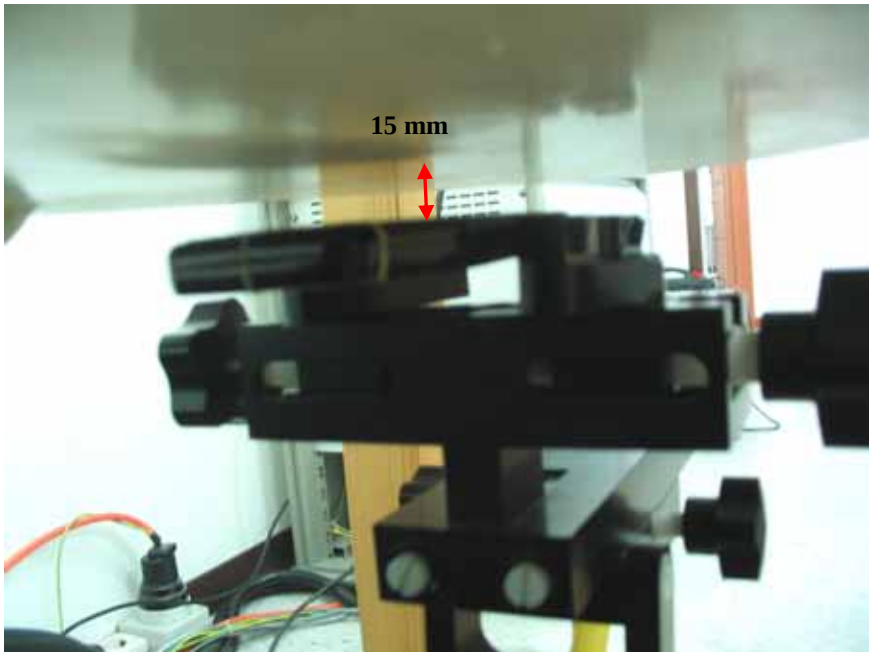


Body Face Down Position_GSM Mode



Body Face Up Position_GPRS Mode

Body Face Down Position_GPRS Mode



Appendix B

Test Plot - DASY4 Report

835 MHz Validation Test

Date/Time: 2007-02-27 8:27:39

Test Laboratory: SGS Testing Korea
File Name: Validation 850.da4

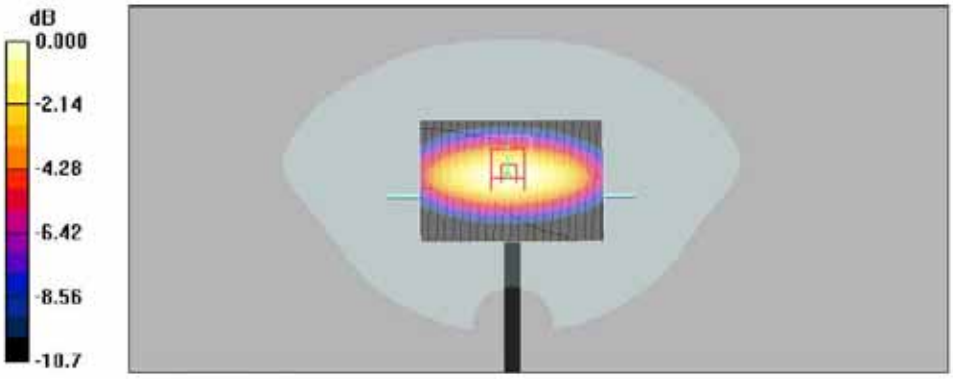
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:xxx
Program Name: Validation_850MHz

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.935 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.34, 6.34, 6.34); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Validation_850MHz/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.63 mW/g

Validation_850MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.6 V/m; Power Drift = -0.063 dB
Peak SAR (extrapolated) = 3.73 W/kg
SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.57 mW/g
Maximum value of SAR (measured) = 2.63 mW/g



0 dB = 2.63mW/g

Date/Time: 2007-03-02 10:07:36

Test Laboratory: SGS Testing Korea
File Name: Validation 850-1.da4

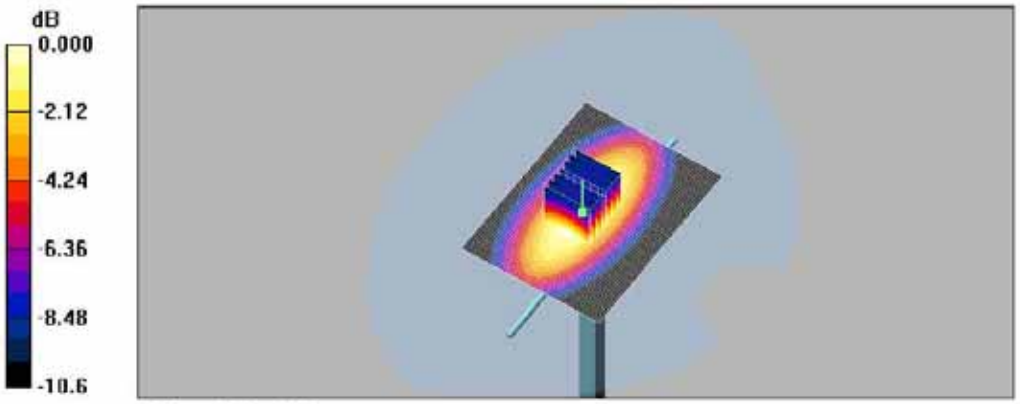
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:xxx
Program Name: Validation_850MHz

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.934 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.34, 6.34, 6.34); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Validation_850MHz/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.62 mW/g

Validation_850MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.6 V/m; Power Drift = 0.009 dB
Peak SAR (extrapolated) = 3.76 W/kg
SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.58 mW/g
Maximum value of SAR (measured) = 2.65 mW/g



0 dB = 2.65mW/g

1900 MHz Validation Test

Date/Time: 2007-02-27 10:22:07

Test Laboratory: SGS Testing Korea
File Name: Validation1900.da4

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d033
Program Name: Validation_1900MHz

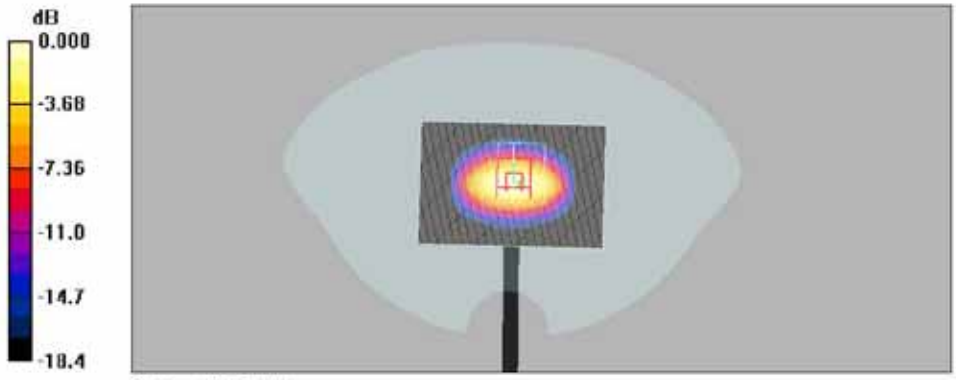
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.36 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(5.19, 5.19, 5.19); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Validation_1900MHz/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 10.8 mW/g

Validation_1900MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.8 V/m; Power Drift = -0.085 dB
Peak SAR (extrapolated) = 15.8 W/kg
SAR(1 g) = 9.25 mW/g; SAR(10 g) = 4.9 mW/g

Maximum value of SAR (measured) = 10.5 mW/g



0 dB = 10.5mW/g

Date/Time: 2007-02-28 12:53:24

Test Laboratory: SGS Testing Korea
File Name: Validation1900-1.da4

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d033
Program Name: Validation_1900MHz

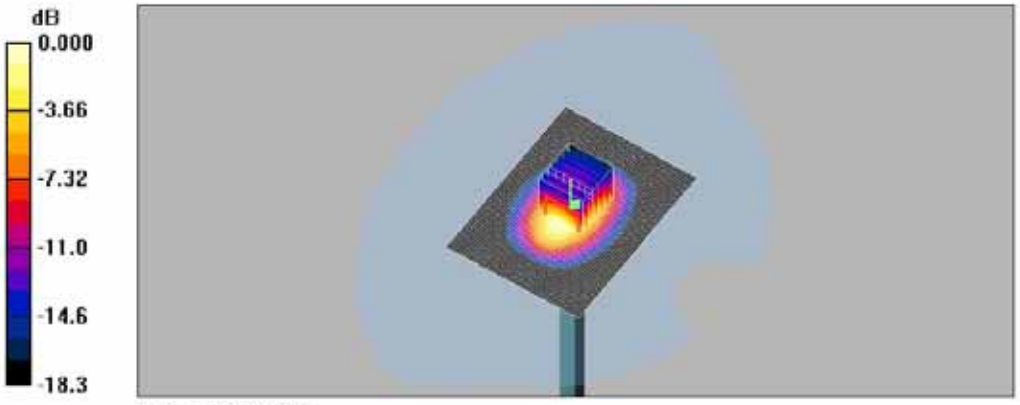
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.36 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(5.19, 5.19, 5.19); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Validation_1900MHz/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.0 mW/g

Validation_1900MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.1 V/m; Power Drift = -0.008 dB
Peak SAR (extrapolated) = 16.1 W/kg
SAR(1 g) = 9.43 mW/g; SAR(10 g) = 5 mW/g

Maximum value of SAR (measured) = 10.8 mW/g



0 dB = 10.8mW/g

GSM850 SAR Test

Date/Time: 2007-02-27 10:06:17

Test Laboratory: SGS Testing Korea
File Name: GSM 850_Head_RE.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Head_GSM 850MHz

Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.936 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3
Phantom section: Right Section

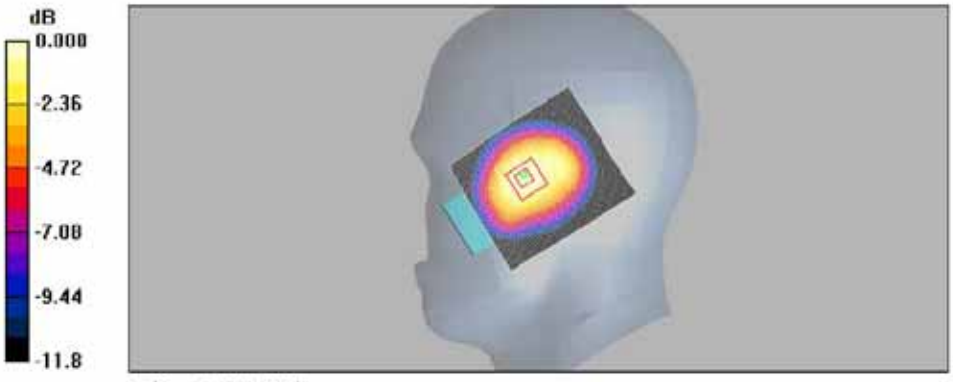
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.34, 6.34, 6.34); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM 850_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) = 0.149 mW/g

GSM 850_RE_Cheek_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.4 V/m; Power Drift = 0.027 dB
Peak SAR (extrapolated) = 0.198 W/kg
SAR(1 g) = 0.137 mW/g; SAR(10 g) = 0.092 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.147 mW/g



0 dB = 0.147mW/g

Date/Time: 2007-02-27 10:27:40

Test Laboratory: SGS Testing Korea
File Name: GSM 850_Head_RE.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Head_GSM 850MHz

Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.936 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3
Phantom section: Right Section

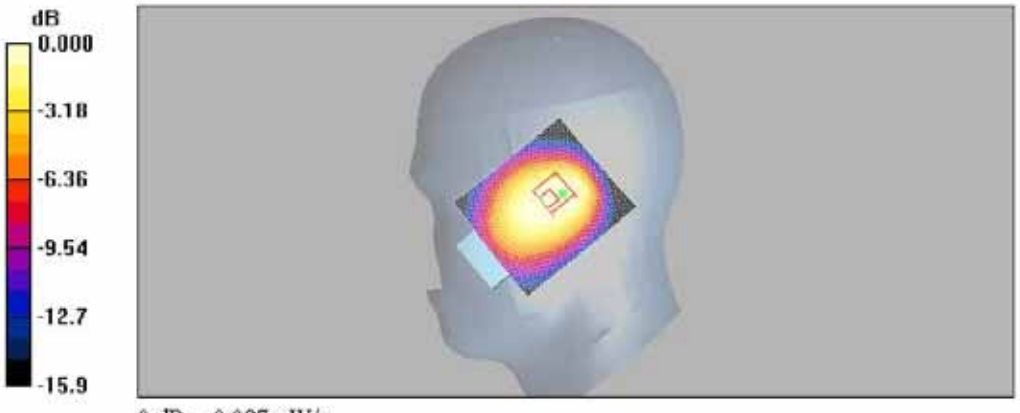
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.34, 6.34, 6.34); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM 850_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) = 0.097 mW/g

GSM 850_RE_Tilt_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.83 V/m; Power Drift = -0.052 dB
Peak SAR (extrapolated) = 0.165 W/kg
SAR(1 g) = 0.081 mW/g; SAR(10 g) = 0.056 mW/g

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



0 dB = 0.087mW/g

Date/Time: 2007-02-27 9:09:13

Test Laboratory: SGS Testing Korea
File Name: GSM 850_Head_LE.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Head_GSM 850MHz

Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.936 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3
Phantom section: Left Section

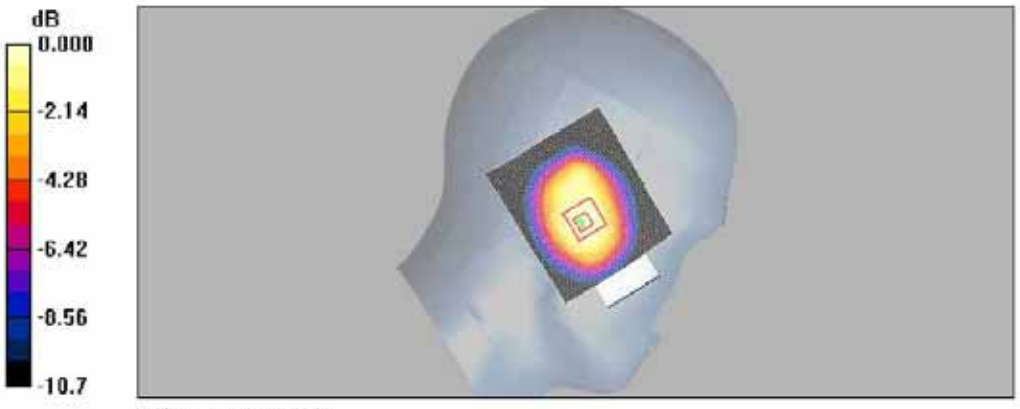
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.34, 6.34, 6.34); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM 850_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) = 0.152 mW/g

GSM 850_LE_Cheek_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.2 V/m; Power Drift = 0.209 dB
Peak SAR (extrapolated) = 0.196 W/kg
SAR(1 g) = 0.140 mW/g; SAR(10 g) = 0.096 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.149 mW/g



0 dB = 0.149mW/g

Date/Time: 2007-02-27 9:35:04

Test Laboratory: SGS Testing Korea
File Name: GSM 850_Head_LE.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Head_GSM 850MHz

Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.936 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3
Phantom section: Left Section

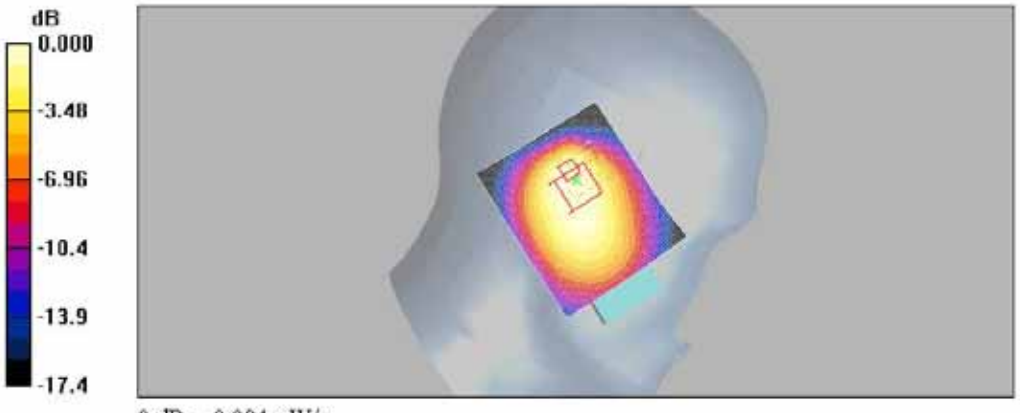
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.34, 6.34, 6.34); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM 850_LE_Tilt_Mid/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.107 mW/g

GSM 850_LE_Tilt_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.95 V/m; Power Drift = 0.000 dB
Peak SAR (extrapolated) = 0.242 W/kg
SAR(1 g) = 0.091 mW/g; SAR(10 g) = 0.057 mW/g

Maximum value of SAR (measured) = 0.094 mW/g



0 dB = 0.094mW/g

Date/Time: 2007-02-27 11:35:30

Test Laboratory: SGS Testing Korea
File Name: GSM 850_Head_LE.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Head_GSM 850MHz

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.928 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Left Section

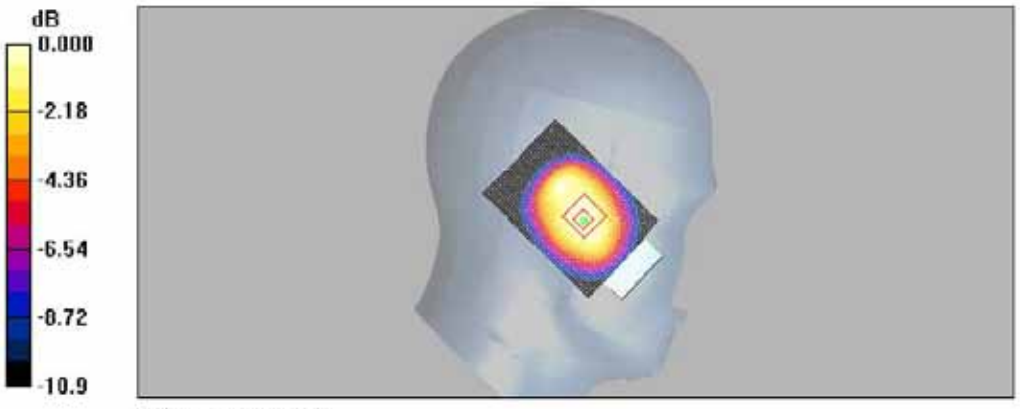
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.34, 6.34, 6.34); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM 850_LE_Cheek_Low/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.188 mW/g

GSM 850_LE_Cheek_Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.3 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 0.240 W/kg
SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.120 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.187 mW/g



0 dB = 0.187mW/g

Date/Time: 2007-02-27 11:14:24

Test Laboratory: SGS Testing Korea
File Name: GSM 850_Head_LE.da4

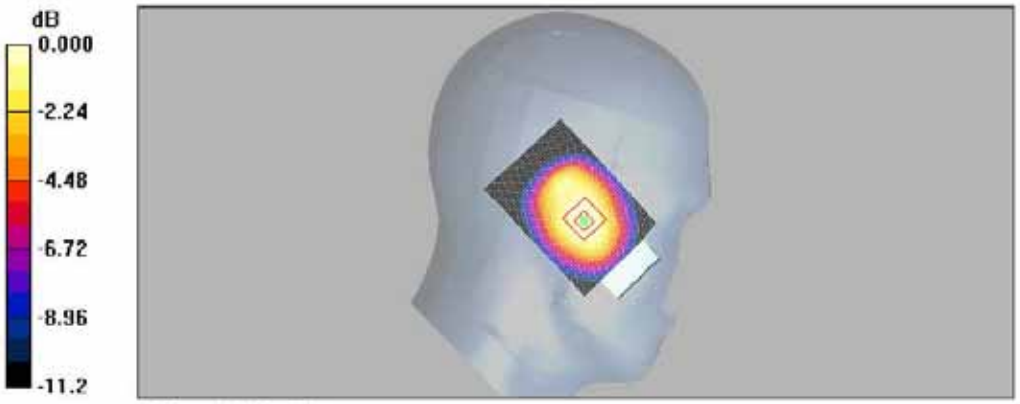
DUT: DB830; Type: Bar; Serial: -
Program Name: Head_GSM 850MHz

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.945 mho/m; ε_r = 42.9; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.34, 6.34, 6.34); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM 850_LE_Cheek_High/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.137 mW/g

GSM 850_LE_Cheek_High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.04 V/m; Power Drift = -0.163 dB
Peak SAR (extrapolated) = 0.172 W/kg
SAR(1 g) = 0.125 mW/g; SAR(10 g) = 0.085 mW/g
Maximum value of SAR (measured) = 0.132 mW/g



0 dB = 0.132mW/g

Date/Time: 2007-03-02 11:50:10

Test Laboratory: SGS Testing Korea
File Name: GSM850_Body.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Body_GSM850

Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.99 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

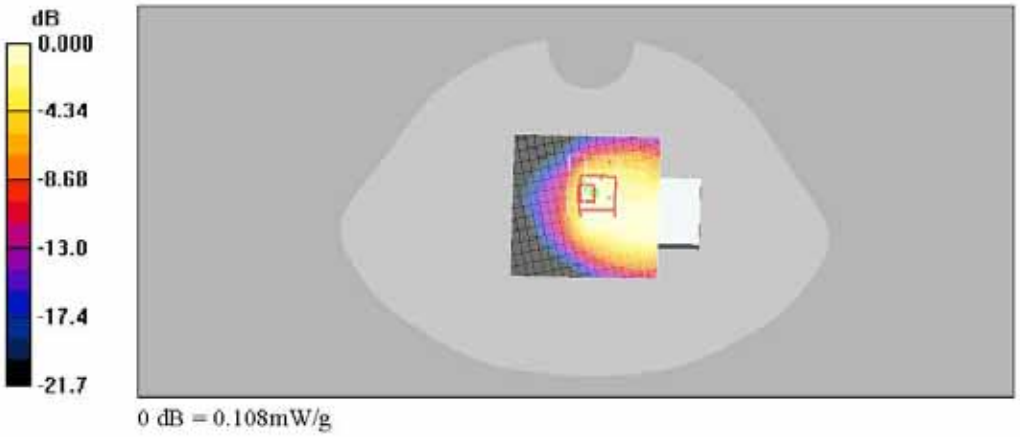
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.05, 6.05, 6.05); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body_GSM850_Face Up_Mid/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.137 mW/g

Body_GSM850_Face Up_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.6 V/m; Power Drift = -0.049 dB
Peak SAR (extrapolated) = 0.348 W/kg
SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.056 mW/g

Maximum value of SAR (measured) = 0.108 mW/g



0 dB = 0.108mW/g

Date/Time: 2007-03-02 2:13:27

Test Laboratory: SGS Testing Korea
File Name: GSM850_Body.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Body_GSM850

Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.99 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

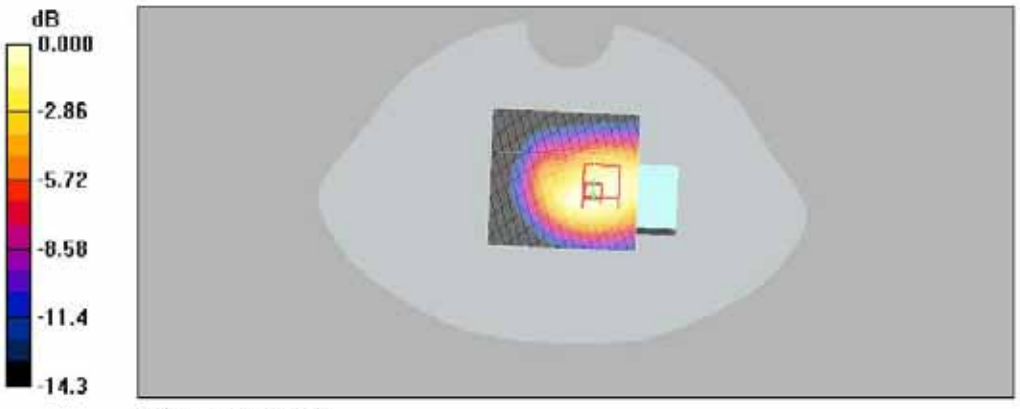
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.05, 6.05, 6.05); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body_GSM850_Face Down_Mid_15mm/Area Scan (61x61x1): Measurement grid:
dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.033 mW/g

Body_GSM850_Face Down_Mid_15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.35 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 0.048 W/kg
SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.020 mW/g

Maximum value of SAR (measured) = 0.033 mW/g



0 dB = 0.033mW/g

Date/Time: 2007-03-02 1:31:02

Test Laboratory: SGS Testing Korea
File Name: GSM850_Body.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Body_GSM850

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.981 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

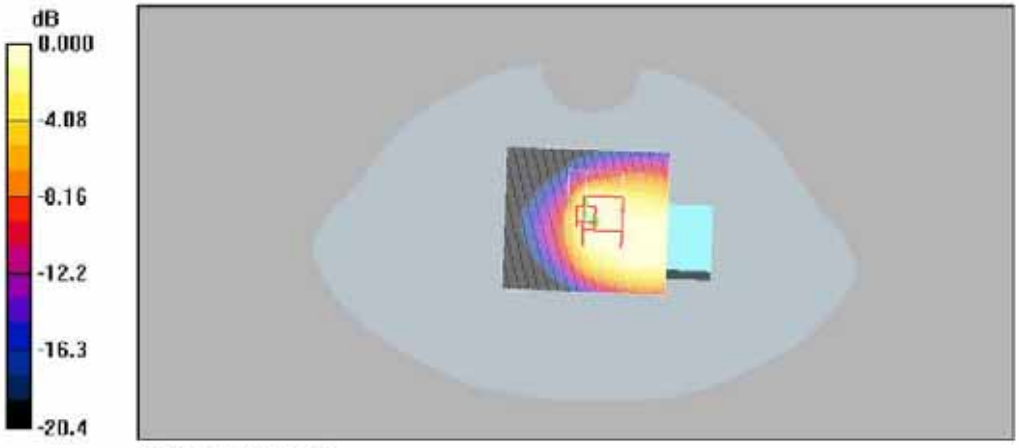
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.05, 6.05, 6.05); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body_GSM850_Face Up_Low/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.173 mW/g

Body_GSM850_Face Up_Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.0 V/m; Power Drift = -0.098 dB
Peak SAR (extrapolated) = 0.453 W/kg
SAR(1 g) = 0.134 mW/g; SAR(10 g) = 0.077 mW/g

Maximum value of SAR (measured) = 0.139 mW/g



0 dB = 0.139mW/g

Date/Time: 2007-03-02 12:59:12

Test Laboratory: SGS Testing Korea
File Name: GSM850_Body.da4

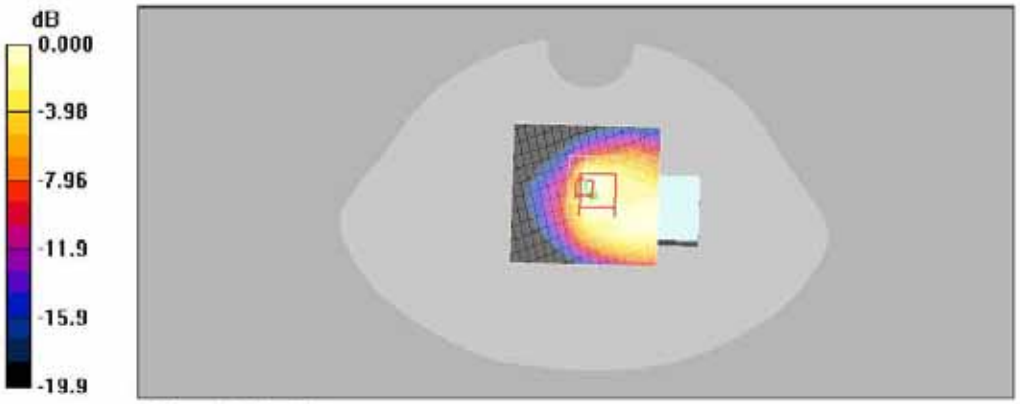
DUT: DB830; Type: Bar; Serial: -
Program Name: Body_GSM850

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.999 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.05, 6.05, 6.05); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body_GSM850_Face Up_High/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.109 mW/g

Body_GSM850_Face Up_High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.44 V/m; Power Drift = -0.049 dB
Peak SAR (extrapolated) = 0.302 W/kg
SAR(1 g) = 0.087 mW/g; SAR(10 g) = 0.046 mW/g
Maximum value of SAR (measured) = 0.090 mW/g



0 dB = 0.090mW/g

Date/Time: 2007-03-02 4:59:43

Test Laboratory: SGS Testing Korea
File Name: GSM850_Body.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Body_GSM850

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.981 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

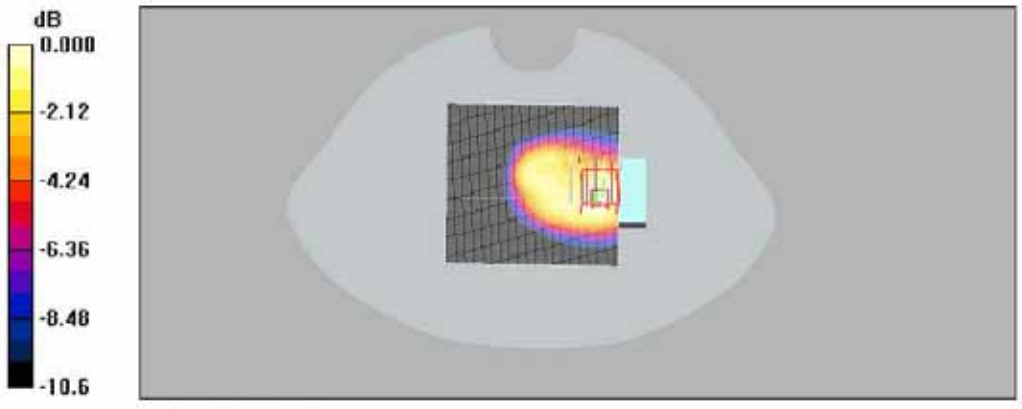
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.05, 6.05, 6.05); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body_GSM850_Face Up_Low_B/T On/Area Scan (71x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.149 mW/g

Body_GSM850_Face Up_Low_B/T On/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.9 V/m; Power Drift = -0.106 dB
Peak SAR (extrapolated) = 0.228 W/kg
SAR(1 g) = 0.146 mW/g; SAR(10 g) = 0.097 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.156 mW/g



0 dB = 0.156mW/g

Date/Time: 2007-03-02 2:42:37

Test Laboratory: SGS Testing Korea
File Name: GPRS 850_Body.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Body_GPRS850

Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.99 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

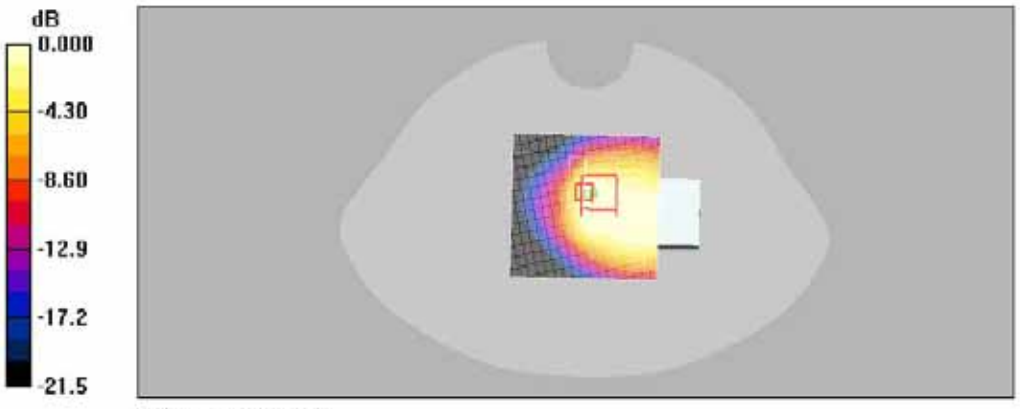
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.05, 6.05, 6.05); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body_GPRS850_Face Up_Mid/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.193 mW/g

Body_GPRS850_Face Up_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.0 V/m; Power Drift = -0.078 dB
Peak SAR (extrapolated) = 0.499 W/kg
SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.086 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.154 mW/g



0 dB = 0.154mW/g

Date/Time: 2007-03-02 3:41:58

Test Laboratory: SGS Testing Korea
File Name: GPRS 850_Body.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Body_GPRS850

Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.99 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

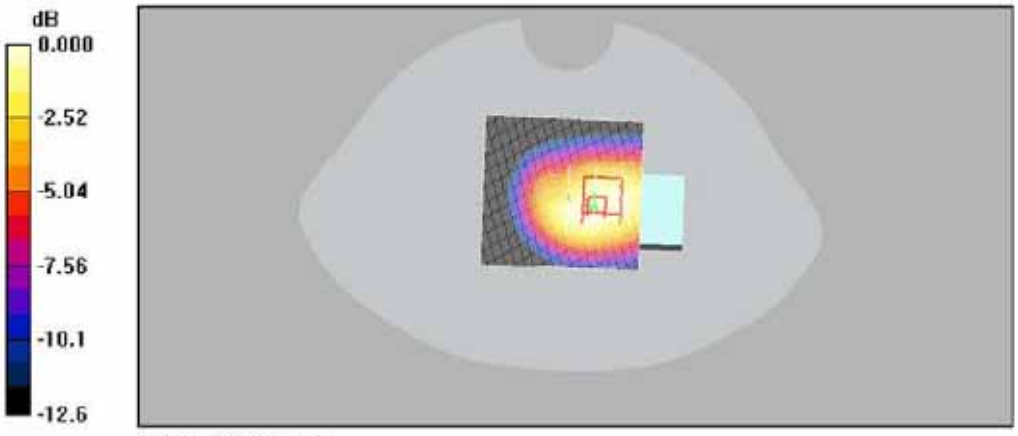
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.05, 6.05, 6.05); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body_GPRS850_Face Down_Mid_15mm/Area Scan (61x61x1): Measurement grid:
dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.043 mW/g

Body_GPRS850_Face Down_Mid_15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.05 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 0.062 W/kg
SAR(1 g) = 0.040 mW/g; SAR(10 g) = 0.026 mW/g

Maximum value of SAR (measured) = 0.043 mW/g



0 dB = 0.043mW/g

Date/Time: 2007-03-02 3:19:46

Test Laboratory: SGS Testing Korea
File Name: GPRS 850_Body.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Body_GPRS850

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.981 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

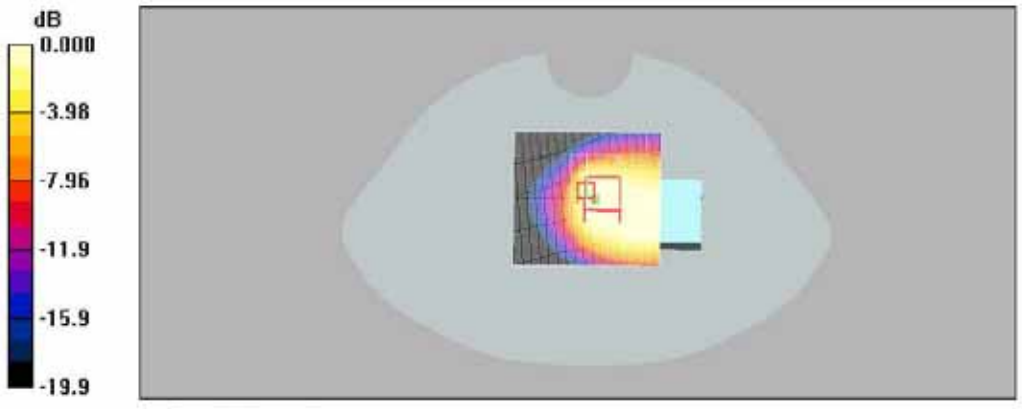
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.05, 6.05, 6.05); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body_GPRS850_Face Up_Low/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.246 mW/g

Body_GPRS850_Face Up_Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.5 V/m; Power Drift = -0.089 dB
Peak SAR (extrapolated) = 0.664 W/kg
SAR(1 g) = 0.195 mW/g; SAR(10 g) = 0.118 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.201 mW/g



0 dB = 0.201mW/g

Date/Time: 2007-03-02 3:01:37

Test Laboratory: SGS Testing Korea
File Name: GPRS 850_Body.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Body_GPRS850

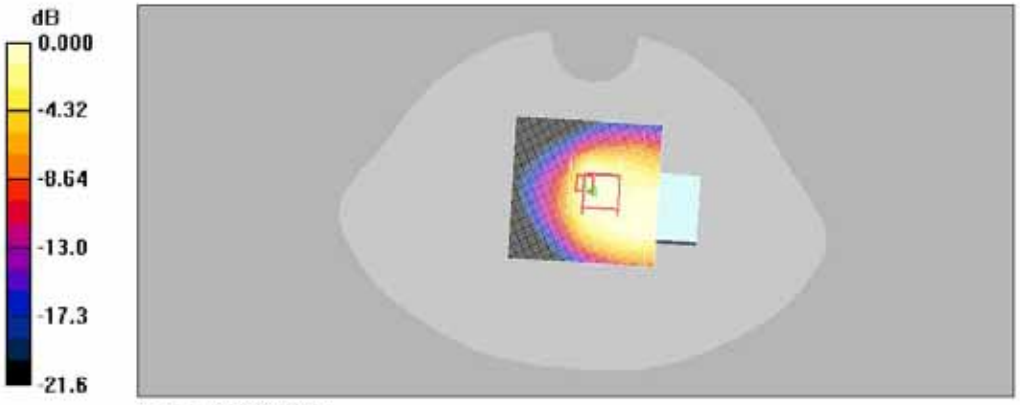
Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:4.15
Medium parameters used: f = 849 MHz; σ = 0.999 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.05, 6.05, 6.05); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body_GPRS850_Face Up_High/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.153 mW/g

Body_GPRS850_Face Up_High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.5 V/m; Power Drift = 0.085 dB
Peak SAR (extrapolated) = 0.434 W/kg
SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.071 mW/g

Maximum value of SAR (measured) = 0.128 mW/g



0 dB = 0.128mW/g

Date/Time: 2007-03-02 4:15:13

Test Laboratory: SGS Testing Korea
File Name: GPRS 850_Body.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Body_GPRS850

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.981 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

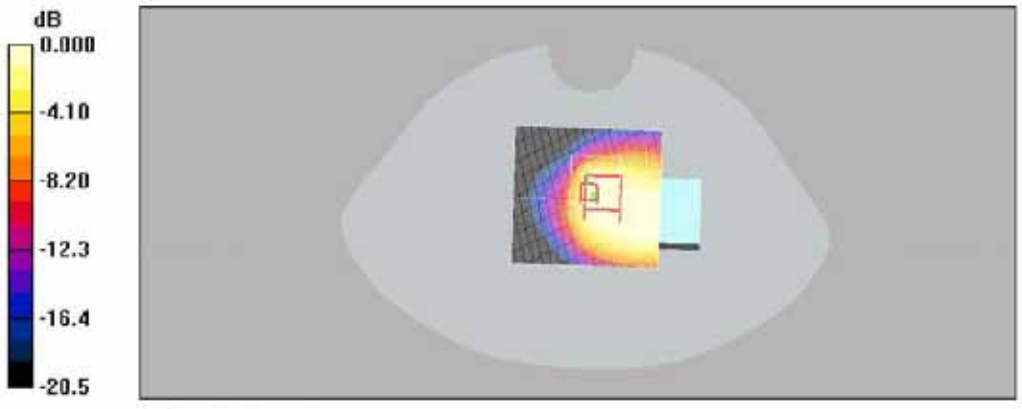
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(6.05, 6.05, 6.05); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body_GPRS850_Face Up_Low_B/T On/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.251 mW/g

Body_GPRS850_Face Up_Low_B/T On/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 0.615 W/kg
SAR(1 g) = 0.190 mW/g; SAR(10 g) = 0.115 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.199 mW/g



0 dB = 0.199mW/g

GSM1900 SAR Test

Date/Time: 2007-02-27 12:09:35

Test Laboratory: SGS Testing Korea
File Name: GSM1900_Head_RE.da4

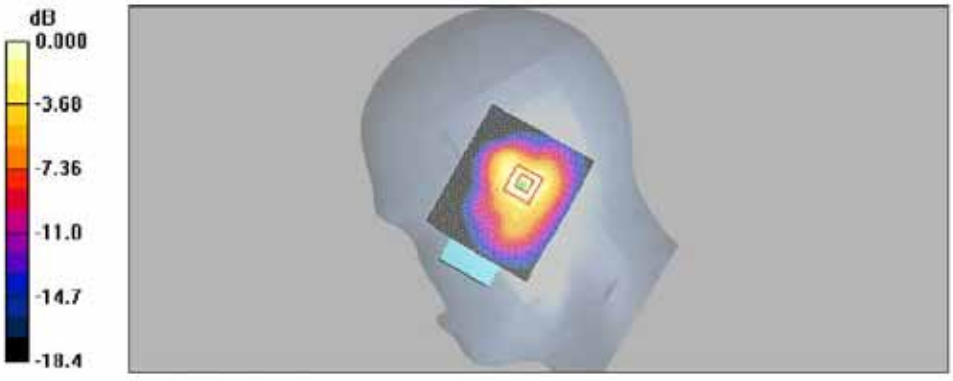
DUT: DB830; Type: Bar; Serial: -
Program Name: Head_GSM1900MHz

Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.36 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(5.19, 5.19, 5.19); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM1900_RE_Cheek_Mid/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.367 mW/g

GSM1900_RE_Cheek_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.0 V/m; Power Drift = -0.106 dB
Peak SAR (extrapolated) = 0.518 W/kg
SAR(1 g) = 0.337 mW/g; SAR(10 g) = 0.188 mW/g
Maximum value of SAR (measured) = 0.372 mW/g



0 dB = 0.372mW/g

Date/Time: 2007-02-27 12:55:11

Test Laboratory: SGS Testing Korea
File Name: GSM1900_Head_RE.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Head_GSM1900MHz

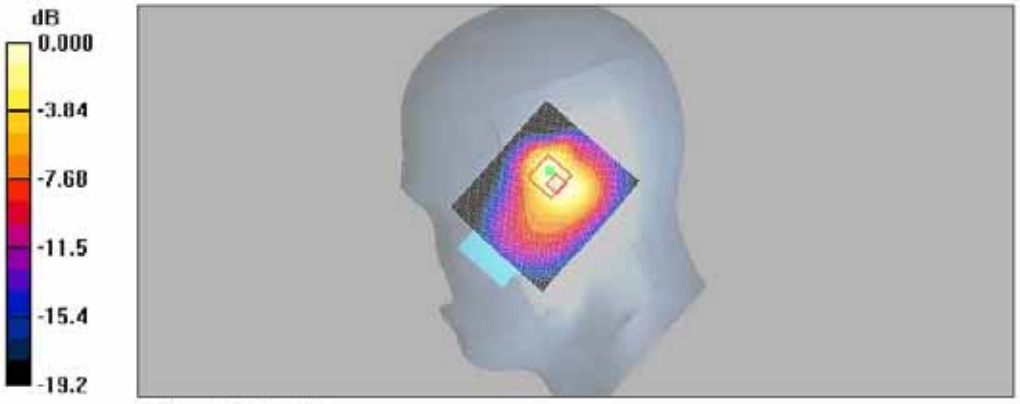
Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.36 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(5.19, 5.19, 5.19); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM1900_RE_Tilt_Mid/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.295 mW/g

GSM1900_RE_Tilt_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = -0.085 dB
Peak SAR (extrapolated) = 0.426 W/kg
SAR(1 g) = 0.260 mW/g; SAR(10 g) = 0.133 mW/g

Maximum value of SAR (measured) = 0.290 mW/g



0 dB = 0.290mW/g

Date/Time: 2007-02-27 11:03:24

Test Laboratory: SGS Testing Korea
File Name: GSM1900_Head_LE.da4

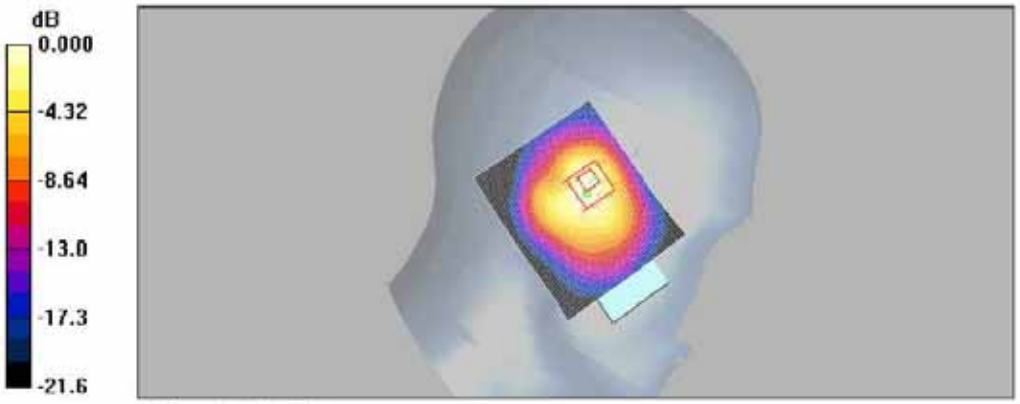
DUT: DB830; Type: Bar; Serial: -
Program Name: Head_GSM1900MHz

Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.36 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(5.19, 5.19, 5.19); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM1900_LE_Cheek_Mid/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.472 mW/g

GSM1900_LE_Cheek_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.58 V/m; Power Drift = 0.199 dB
Peak SAR (extrapolated) = 0.657 W/kg
SAR(1 g) = 0.423 mW/g; SAR(10 g) = 0.239 mW/g
Maximum value of SAR (measured) = 0.468 mW/g



0 dB = 0.468mW/g

Date/Time: 2007-02-27 11:36:51

Test Laboratory: SGS Testing Korea
File Name: GSM1900_Head_LE.da4

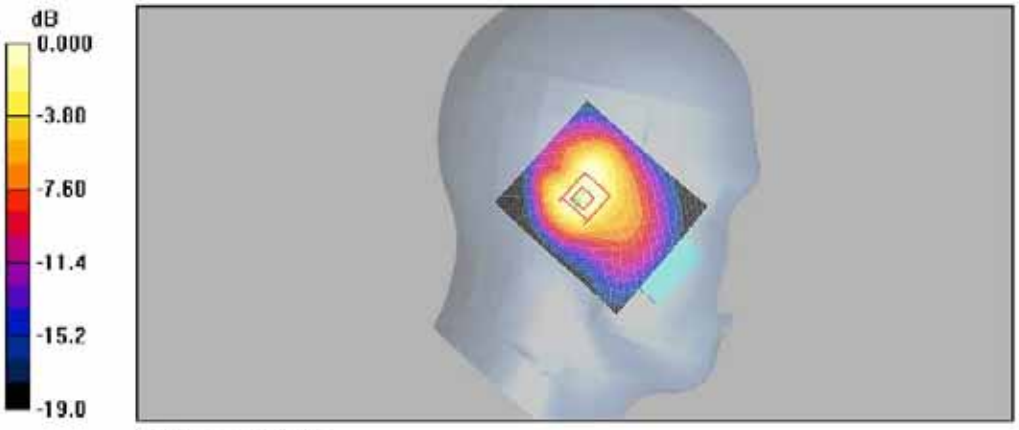
DUT: DB830; Type: Bar; Serial: -
Program Name: Head_GSM1900MHz

Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.36 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(5.19, 5.19, 5.19); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM1900_LE_Tilt_Mid/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.308 mW/g

GSM1900_LE_Tilt_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = -0.001 dB
Peak SAR (extrapolated) = 0.434 W/kg
SAR(1 g) = 0.272 mW/g; SAR(10 g) = 0.152 mW/g
Maximum value of SAR (measured) = 0.303 mW/g



0 dB = 0.303mW/g

Date/Time: 2007-02-27 1:45:13

Test Laboratory: SGS Testing Korea
File Name: GSM1900_Head_LE.da4

DUT: DB830; Type: Bar; Serial: -
Program Name: Head_GSM1900MHz

Communication System: PCS 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.34 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section

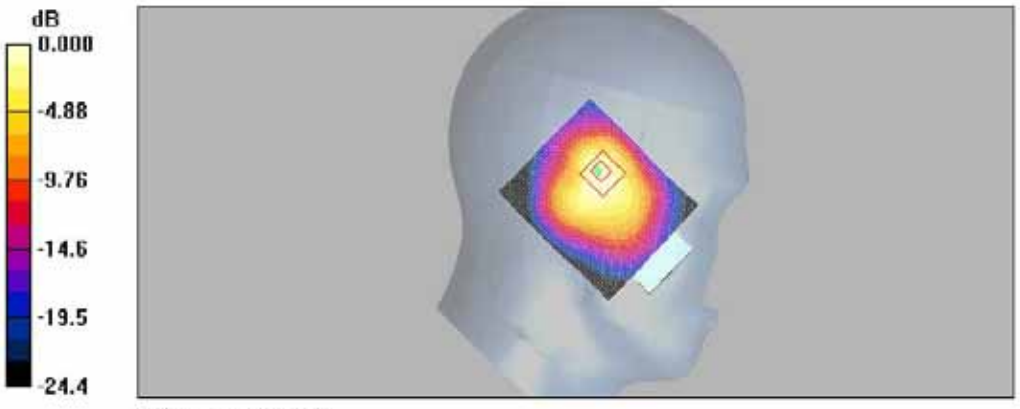
DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(5.19, 5.19, 5.19); Calibrated: 2006-05-02
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2006-09-22
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM1900_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) = 0.478 mW/g

GSM1900_LE_Cheek_Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.65 V/m; Power Drift = -0.069 dB
Peak SAR (extrapolated) = 0.670 W/kg
SAR(1 g) = 0.426 mW/g; SAR(10 g) = 0.235 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.474 mW/g



0 dB = 0.474mW/g

Date/Time: 2007-02-27 1:23:12

Test Laboratory: SGS Testing Korea
File Name: GSM1900_Head_LE.da4

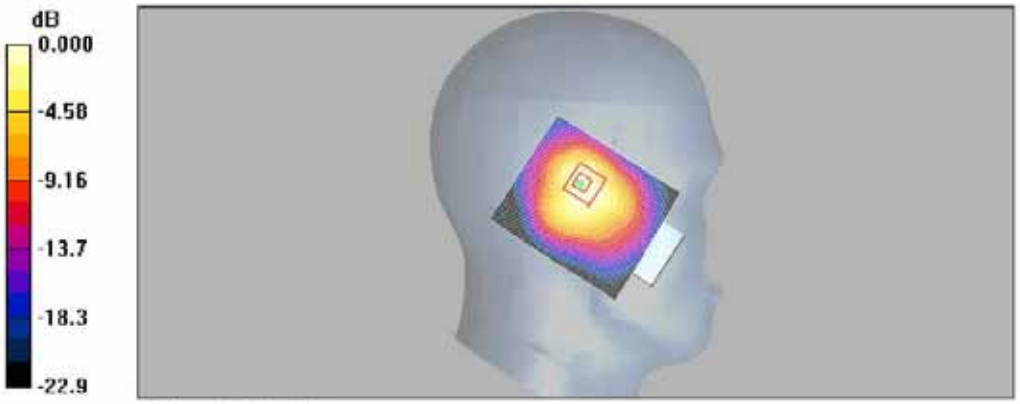
DUT: DB830; Type: Bar; Serial: -
Program Name: Head_GSM1900MHz

Communication System: PCS 1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1910 MHz; σ = 1.37 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(5.19, 5.19, 5.19); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM1900_LE_Cheek_High/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.448 mW/g

GSM1900_LE_Cheek_High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.0 V/m; Power Drift = 0.042 dB
Peak SAR (extrapolated) = 0.624 W/kg
SAR(1 g) = 0.406 mW/g; SAR(10 g) = 0.232 mW/g
Maximum value of SAR (measured) = 0.450 mW/g



0 dB = 0.450mW/g

Date/Time: 2007-02-28 2:10:22

Test Laboratory: SGS Testing Korea
File Name: GSM1900_Body-1.da4

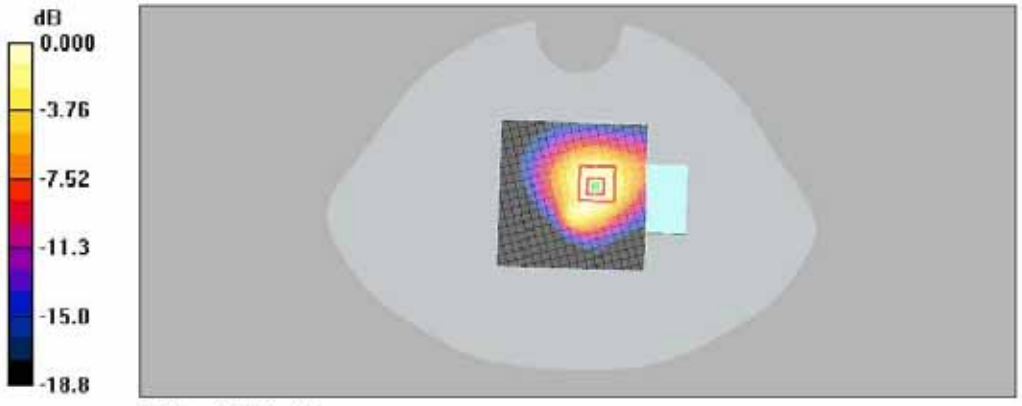
DUT: DB830; Type: Bar; Serial: -
Program Name: Body_GSM1900

Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.57 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(4.73, 4.73, 4.73); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body_GSM1900_Face Up_Mid/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.744 mW/g

Body_GSM1900_Face Up_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.5 V/m; Power Drift = 0.070 dB
Peak SAR (extrapolated) = 0.973 W/kg
SAR(1 g) = 0.629 mW/g; SAR(10 g) = 0.354 mW/g
Maximum value of SAR (measured) = 0.713 mW/g



0 dB = 0.713mW/g

Date/Time: 2007-02-28 3:13:29

Test Laboratory: SGS Testing Korea
File Name: GSM1900_Body-1.da4

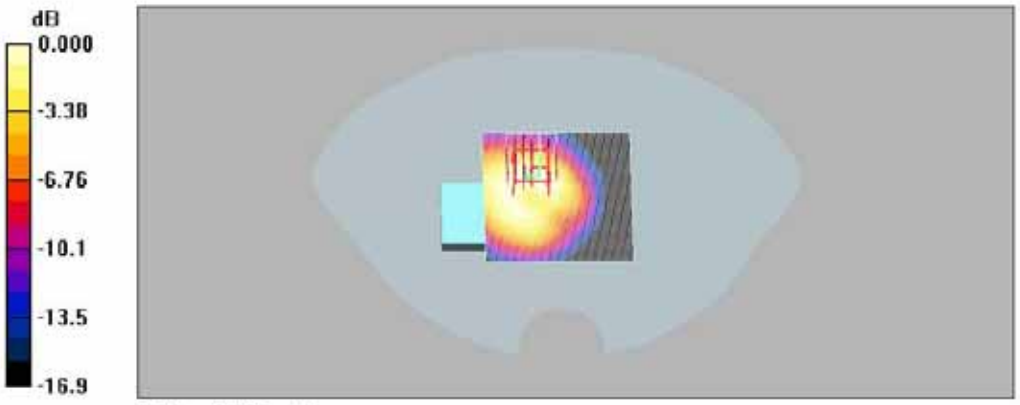
DUT: DB830; Type: Bar; Serial: -
Program Name: Body_GSM1900

Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.57 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1782; ConvF(4.73, 4.73, 4.73); Calibrated: 2006-05-02
- 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 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Body_GSM1900_Face Down_Mid_15mm/Area Scan (61x61x1): Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.096 mW/g

Body_GSM1900_Face Down_Mid_15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.56 V/m; Power Drift = -0.040 dB
Peak SAR (extrapolated) = 0.142 W/kg
SAR(1 g) = 0.087 mW/g; SAR(10 g) = 0.051 mW/g
Maximum value of SAR (measured) = 0.096 mW/g



0 dB = 0.096mW/g