

SAR TEST REPORT

Equipment Under Test	: Cellular/PCS GSM/EDGE Phone with Bluetooth&WLAN
Model No.	: C320i (Additional model name : LG-C320i)
Applicant	: LG Electronics Inc.
Address of Applicant	: 60-39, Gasan-dong, Gumchon-gu, Seoul, 153-023, Korea
FCC ID	: BEJC320I
Device Category	: Portable Device
Exposure Category	: General Population/Uncontrolled Exposure
Date of Receipt	: 2010-06-23
Date of Test(s)	: 2010-06-29 ~ 2010-07-01
Date of Issue	: 2010-07-16
Max. SAR	: 0.303 W/kg (GSM850), 0.205 W/kg (PCS1900) 0.047 W/kg (WLAN)

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.

Tested by	: Fred Jeong		2010-07-16
Approved by	: Leo Kim		2010-07-16

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.....	5
1.8	The SAR Measurement System.....	6
1.9	System Components.....	8
1.10	SAR System Verification.....	9
1.11	Tissue Simulant Fluid for the Frequency Band.....	11
1.12	Test Standards and Limits.....	12
2.	Instruments List.....	14
3.	Summary of Results.....	15

APPENDIX

- A. DASY4 SAR Report
- B. Uncertainty Analysis
- C. 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.kr.sgs.com/ee

1.2 Details of Manufacturer

Manufacturer : LG Electronics Inc.
Address : 60-39, Gasan-dong, Gumchon-gu, Seoul, 153-023, Korea
Contact Person : Hyeon Kyun Kim
Phone No. : 82-2-2033-1113

1.3 Version of Report

Version Number	Date	Revision
00	2010-07-16	Initial issue

1.4 Description of EUT(s)

EUT Type	: Cellular/PCS GSM/EDGE Phone with Bluetooth&WLAN
Model	: C320i (Additional model name : LG-C320i)
Serial Number	: 005KPHG0774273
Mode of Operation	: GSM850, PCS1900, WLAN
Duty Cycle	: 8.3(GSM), 8.3(GPRS 1Tx Slot), 1(WLAN)
Body worn Accessory	: None
Tx Frequency Range	: 824.2 MHz ~ 848.8 MHz (GSM850), 1850.2 MHz ~ 1909.8 MHz (PCS1900) 2412 MHz ~ 2462 MHz (WLAN)
Conducted Max Power	: 33.00 dBm(GSM850), 30.02 dBm(PCS1900), 16.84 dBm(WLAN)
Battery Type	: DC 3.7 V(Lithum-ion Battery)

1.5 Test Environment

Ambient temperature	: 21 ° C ~ 23 ° C
Tissue Simulating Liquid	: 21 ° C ~ 23 ° C
Relative Humidity	: 40 % ~ 60 %

1.6 Operation Configuration

The device in GSM mode was controlled by using a Communication tester (CMU 200). Communication between the device and the tester was established by air link. And the client provided a special driver and test program which can control the frequency and power of the WLAN 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. Based on the RF Power and antenna separation distance, stand-alone BT SAR and simultaneous SAR evaluation are not required.

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 1 g and 10 g.

The probe is calibrated at the center of the dipole sensors that is located 1 mm to 2.7 mm 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 5 mm.

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 1 g and 10 g 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 30 g 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 1 g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is 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 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.

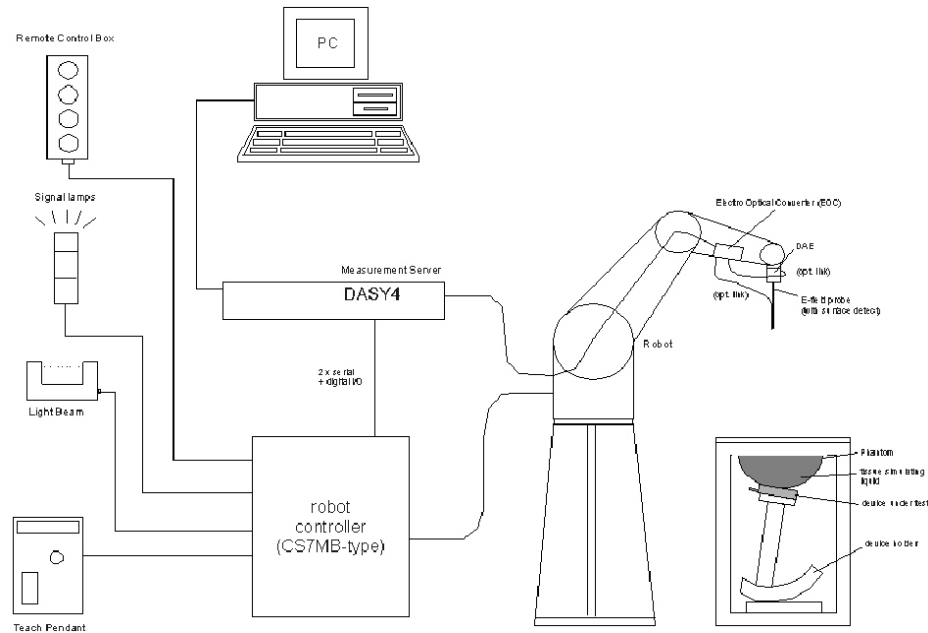


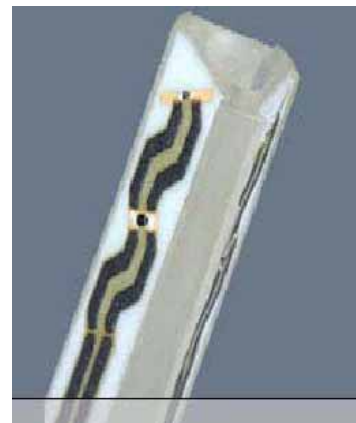
Fig a. The microwave circuit arrangement used for SAR system verification

- 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 body usage.
- The device holder for flat phantom.
- 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 $\pm 8\%$)
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	: $5\ \mu\text{W/g}$ to $>100\ \text{mW/g}$; 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

Shell Thickness: 2.0 mm $\pm$ 0.1 mm

Filling Volume: Approx. 25 liters



SAM Phantom

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 835 MHz, 1900 MHz 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. During the tests, the ambient temperature of the laboratory was in the range 20 °C ~ 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.

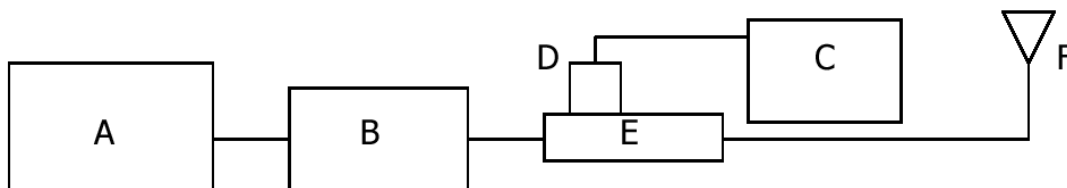


Fig b. The microwave circuit arrangement used for SAR system verification

- 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	2.42 W/kg	2.47	2.07	2010-06-29	22.3
D1900V2 S/N: 5d033	1900 MHz Brain	9.90 W/kg	9.80	-1.01	2010-06-30	22.2
D2450V2 S/N: 734	2450 MHz Brain	12.8 W/kg	13.3	3.91	2010-07-01	22.3
D2450V2 S/N: 734	2450 MHz Body	13.4 W/kg	13.9	3.73	2010-07-01	22.3

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 - 3 GHz) 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, 2010-06-29	41.3	0.88	22.3
		Recommended Limits	41.5	0.90	21.0 ~ 23.0
		Deviation(%)	-0.48	-2.22	-
	Body	Measured, 2010-06-29	54.3	0.98	22.3
		Recommended Limits	55.2	0.97	21.0 ~ 23.0
		Deviation(%)	-1.63	1.03	-
1900	Head	Measured, 2010-06-30	39.3	1.46	22.2
		Recommended Limits	40.0	1.40	21.0 ~ 23.0
		Deviation(%)	-1.75	4.29	-
	Body	Measured, 2010-06-30	51.9	1.58	22.2
		Recommended Limits	53.3	1.52	21.0 ~ 23.0
		Deviation(%)	-2.63	3.95	-
2450	Head	Measured, 2010-07-01	38.1	1.86	22.3
		Recommended Limits	39.2	1.80	21.0 ~ 23.0
		Deviation(%)	-2.81	3.33	-
	Body	Measured, 2010-07-01	53.1	1.93	22.3
		Recommended Limits	52.7	1.95	21.0 ~ 23.0
		Deviation(%)	0.76	-1.03	-

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

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 28, 2011
Schmid& Partner Engineering AG	835 MHz System Validation Dipole	D835V2	490	May 21, 2012
Schmid& Partner Engineering AG	1900 MHz System Validation Dipole	D1900V2	5d033	May 26, 2012
Schmid& Partner Engineering AG	2450 MHz System Validation Dipole	D2450V2	734	May 27, 2012
Schmid& Partner Engineering AG	Data acquisition Electronics	DAE3	567	December 09, 2010
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	March 31, 2011
Agilent	Dielectric Probe Kit	85070D	2184	N/A
Agilent	Power Meter	E4419B	GB43311126	September 28, 2010
Agilent	Power Sensor	E9300H	MY41495307	September 29, 2010
			MY41495308	September 29, 2010
Agilent	Signal Generator	E4421B	MY43350132	September 29, 2010
Empower RF Systems	Power Amplifier	2001-BBS3Q7ECK	1032 D/C 0336	March 31, 2011
Agilent	Dual Directional Coupler	777D 778D	50128 50454	September 28, 2010
Microlab	LP Filter	LA-15N LA-30N	N/A	September 28, 2010
R&S	Mobile Test Unit	CMU 200	107279	March 31, 2011

3.Summary of Results

FCC Power Measurement Procedures

Power measurements were performed using a base station simulator under digital average power.

The handset was placed into a simulated call using a base station simulator in shielded chamber. SAR measurements were taken with a fully charged battery. In order to verify that the device was tested and maintained at full power, this was configured with the base station simulator. The SAR measurement Software calculates a reference point at the start and end of the test to check for power drifts. If conducted power deviations of more than 5 % occurred, the tests were repeated.

RF Conducted Power

GSM

	Channel	Frequency(MHz)	Conducted Power(dBm)				
			GSM	GPRS			
				1 Tx Slot	2 Tx Slot	3 Tx Slot	4 Tx Slot
GSM 850 Band	128	824.2	32.99	33.00	31.40	29.55	28.44
	190	836.6	32.90	32.95	31.30	29.49	28.40
	251	848.8	32.75	32.78	31.15	29.33	28.25
PCS 1900 Band	512	1850.2	30.00	30.00	29.88	29.86	29.85
	661	1880.0	29.99	30.02	29.91	29.88	29.83
	810	1909.8	29.88	29.90	29.80	29.72	29.70

	Channel	Frequency(MHz)	Conducted Power(dBm)			
			EDGE			
			1 Tx Slot	2 Tx Slot	3 Tx Slot	4 Tx Slot
GSM 850 Band	128	824.2	27.48	27.45	27.44	27.40
	190	836.6	27.44	27.38	27.36	27.33
	251	848.8	27.30	27.23	27.20	27.18
PCS 1900 Band	512	1850.2	26.31	26.26	26.24	26.23
	661	1880.0	26.40	26.30	26.28	26.25
	810	1909.8	26.28	26.15	26.12	26.10

WLAN

Mode	Average Power(dBm)		
	Low	Mid	High
11b	15.86	15.51	16.84
11g	12.70	12.23	13.40

BT

Mode	Average Power(dBm)		
	Low	Mid	High
BDR	6.44	7.12	7.02
EDR	6.63	7.04	6.60

SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas

These procedures were followed according to FCC “SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas”, May 2008. The procedures are applicable to phones with built-in unlicensed transmitters, such as 802.11 a/b/g and Bluetooth devices.

<Output Power Thresholds for Unlicensed Transmitters>

	2.45	5.15 - 5.35	5.47 - 5.85	GHz
P_{Ref}	12	6	5	mW
Device output power should be rounded to the nearest mW to compare with values specified in this table.				

<SAR Evaluation Requirements for Cellphones with Multiple Transmitters>

	Individual Transmitter	Simultaneous Transmission
Licensed Transmitters	<u>Routine evaluation required</u>	<u>SAR not required:</u> <u>Unlicensed only</u> - when stand-alone 1-g SAR is not required and antenna is ≥ 5 cm from other antennas <u>Licensed & Unlicensed</u> - when the sum of the 1-g SAR is < 1.6 W/kg for all simultaneous transmitting antennas - when SAR to peak location separation ratio of simultaneous transmitting antenna pair is < 0.3 <u>SAR required:</u> <u>Licensed & Unlicensed</u> antenna pairs with SAR to peak location separation ratio ≥ 0.3 ; test is only required for the configuration that results in the highest SAR in stand-alone configuration for each wireless mode and exposure condition <u>Note: simultaneous transmission exposure conditions for head and body can be different for different style phones; therefore, different test requirements may apply</u>
Unlicensed Transmitters	<u>When there is no simultaneous transmission –</u> - output ≤ 60 f: SAR not required - output > 60 f: stand-alone SAR required <u>When there is simultaneous transmission –</u> <u>Stand-alone SAR not required when</u> - output $\leq 2 \cdot P_{Ref}$ and antenna is ≥ 5.0 cm from other antennas - output $\leq P_{Ref}$ and antenna is ≥ 2.5 cm from other antennas - output $\leq P_{Ref}$ and antenna is < 2.5 cm from other antennas, each with either output power $\leq P_{Ref}$ or 1-g SAR < 1.2 W/kg <u>Otherwise stand-alone SAR is required</u> <u>When stand-alone SAR is required</u> - test SAR on highest output channel for each wireless mode and exposure condition - if SAR for highest output channel is $> 50\%$ of SAR limit, evaluate all channels according to normal procedures	
Jaw, Mouth and Nose	<u>Flat phantom SAR required</u> - when measurement is required in tight regions of SAM and it is not feasible or the results can be questionable due to probe tilt, calibration, positioning and orientation issues - position rectangular and clam-shell phones according to flat phantom procedures and conduct SAR measurements for these specific locations	When simultaneous transmission SAR testing is required, contact the FCC Laboratory for interim guidance.

<KDB 648474 Simultaneous SAR evaluation>

Mode (f)	P (dBm)	P (mW)	Stand-alone SAR
GSM 850	33.00	1995.26	Yes
PCS 1900	30.04	1009.25	Yes
Bluetooth	7.12	5.15	No
WLAN	16.84	48.31	Yes

⇒ Simultaneous and Stand-alone SAR for Bluetooth is not required.

Mode pair	D _{xy} (mm)	The sum of all 1g SAR	Simultaneous Tx SAR	Notes
GSM & 802.11 b/g	42.22	$0.303 + 0.047 =$ 0.904	No	$d_{xy} > 5$ cm, the sum of all 1g SAR < 1.6 W/kg
GSM & Bluetooth	42.22	$0.303 + BT$ < 1.6	No	$d_{xy} > 5$ cm, the sum of all 1g SAR < 1.6 W/kg
802.11 b/g & Bluetooth	-	$0.047 + BT$ << 1.6	No	$P_x \leq P_{REF}$ and $d_{xi} < 2.5$ cm, with each $P_i \leq P_{REF}$ or $SAR_i < 1.2$ W/kg the sum of all 1g SAR < 1.6 W/kg

* Please see Antenna distance file for finding all distances.

GSM850 Head SAR

Ambient Temperature (°C)	22.3
Liquid Temperature (°C)	22.3
Date	2010-06-29

Head	EUT Position	Traffic Channel		Slide	Power Drift(dB)	1 g SAR (W/kg)	1 g SAR Limits (W/kg)
		Frequency (MHz)	Channel				
Left Ear	Cheek	836.6	190	Up	-0.196	0.243	1.6
	Tilt	836.6	190	Up	-0.148	0.134	
	Cheek	836.6	190	Down	-0.036	0.226	
	Tilt	836.6	190	Down	-0.111	0.129	
Right Ear	Cheek	836.6	190	Up	0.160	0.263	
	Tilt	836.6	190	Up	-0.064	0.172	
	Cheek	836.6	190	Down	-0.030	0.231	
	Tilt	836.6	190	Down	-0.102	0.126	

<Note>

1. The test data reported are the worst-case SAR value with the position set in a typical configuration.
2. All modes of operation were investigated, and worst-case results are reported.
3. Battery is fully charged for all readings and the standard batteries are the only options.
4. Justification for reduced test configuration : Per FCC/OET Bulletin 65 Supplement C [July 2001], if the SAR measured at the middle channel for each test configuration (left, right, cheek, tilt, Slide Up, Slide Down) is at least 3.0 dB lower than the SAR limit, testing at the high and low channel is optional for such test configurations.

GSM850 Body SAR

Ambient Temperature (°C)	22.3
Liquid Temperature (°C)	22.3
Date	2010-06-29

Test Mode	EUT Position	Slot	Traffic Channel		Slide	Power Drift(dB)	1 g SAR (W/kg)	1 g SAR Limits (W/kg)
			Frequency (MHz)	Channel				
GPRS	Front	1 Tx	836.6	190	Up	0.150	0.253	1.6
	Back	1 Tx	836.6	190	Up	-0.138	0.303	
	Front	1 Tx	836.6	190	Down	-0.135	0.093	
	Back	1 Tx	836.6	190	Down	-0.125	0.193	

<Note>

1. The test data reported are the worst-case SAR value with the position set in a typical configuration.
2. All modes of operation were investigated, and worst-case results are reported.
3. Battery is fully charged for all readings and the standard batteries are the only options.
4. Justification for reduced test configuration : Per FCC/OET Bulletin 65 Supplement C [July 2001], if the SAR measured at the middle channel for each test configuration (left, right, cheek, tilt, Slide Up, Slide Down) is at least 3.0 dB lower than the SAR limit, testing at the high and low channel is optional for such test configurations.
5. The distance from EUT to flat phantom for testing Body SAR is 20 mm.
6. This model supports GPRS (Class 12) and EDGE. The power in GPRS mode is higher than in EDGE mode and all Tx (1Tx ~ 4Tx) cases were investigated. The worst-case (GPRS 1 Tx) results are reported.
(Please refer to the conduction power table Page 15)

PCS1900 Head SAR

Ambient Temperature (°C)	22.2
Liquid Temperature (°C)	22.2
Date	2010-06-30

Head	EUT Position	Traffic Channel		Slide	Power Drift(dB)	1 g SAR (W/kg)	1 g SAR Limits (W/kg)
		Frequency (MHz)	Channel				
Left Ear	Cheek	1880.0	661	UP	-0.182	0.140	1.6
	Tilt	1880.0	661	UP	-0.006	0.097	
	Cheek	1880.0	661	Down	0.106	0.180	
	Tilt	1880.0	661	Down	0.041	0.148	
Right Ear	Cheek	1880.0	661	UP	0.047	0.102	
	Tilt	1880.0	661	UP	0.040	0.116	
	Cheek	1880.0	661	Down	0.123	0.166	
	Tilt	1880.0	661	Down	-0.108	0.182	

<Note>

1. The test data reported are the worst-case SAR value with the position set in a typical configuration.
2. All modes of operation were investigated, and worst-case results are reported.
3. Battery is fully charged for all readings and the standard batteries are the only options.
4. Justification for reduced test configuration : Per FCC/OET Bulletin 65 Supplement C [July 2001], if the SAR measured at the middle channel for each test configuration (left, right, cheek, tilt, Slide Up, Slide Down) is at least 3.0 dB lower than the SAR limit, testing at the high and low channel is optional for such test configurations.

PCS1900 Body SAR

Ambient Temperature (°C)	22.2
Liquid Temperature (°C)	22.2
Date	2010-06-30

Test Mode	EUT Position	Slot	Traffic Channel		Slide	Power Drift(dB)	1 g SAR (W/kg)	1 g SAR Limits (W/kg)
			Frequency (MHz)	Channel				
GPRS	Front	1 Tx	1880.0	661	Up	0.166	0.095	1.6
	Back	1 Tx	1880.0	661	Up	-0.028	0.205	
	Front	1 Tx	1880.0	661	Down	-0.164	0.049	
	Back	1 Tx	1880.0	661	Down	0.024	0.121	

<Note>

1. The test data reported are the worst-case SAR value with the position set in a typical configuration.
2. All modes of operation were investigated, and worst-case results are reported.
3. Battery is fully charged for all readings and the standard batteries are the only options.
4. Justification for reduced test configuration : Per FCC/OET Bulletin 65 Supplement C [July 2001], if the SAR measured at the middle channel for each test configuration (left, right, cheek, tilt, Slide Up, Slide Down) is at least 3.0 dB lower than the SAR limit, testing at the high and low channel is optional for such test configurations.
5. The distance from EUT to flat phantom for testing Body SAR is 20 mm.
6. This model supports GPRS (Class 12) and EDGE. The power in GPRS mode is higher than in EDGE mode and all Tx (1Tx ~ 4Tx) cases were investigated. The worst-case (GPRS 1 Tx) results are reported.
(Please refer to the conduction power table Page 15)

WLAN Head SAR

Ambient Temperature (°C)	22.3
Liquid Temperature (°C)	22.3
Date	2010-07-01

Head	Test Mode	EUT Position	Traffic Channel		Slide	Power Drift(dB)	1 g SAR (W/kg)	1 g SAR Limits (W/kg)
			Frequency (MHz)	Channel				
Left Ear	11b	Cheek	2437	6	UP	-0.159	0.032	1.6
	11g	Cheek	2437	6	UP	0.144	0.013	
	11b	Tilt	2437	6	UP	0.096	0.00949	
	11b	Cheek	2437	6	Down	-0.094	0.017	
	11b	Tilt	2437	6	Down	0.057	0.013	
Right Ear	11b	Cheek	2437	6	UP	-0.185	0.047	
	11g	Cheek	2437	6	UP	0.141	0.018	
	11b	Tilt	2437	6	UP	-0.058	0.012	
	11b	Cheek	2437	6	Down	-0.134	0.012	
	11b	Tilt	2437	6	Down	-0.038	0.013	

<Note>

1. The test data reported are the worst-case SAR value with the position set in a typical configuration.
2. All modes of operation were investigated, and worst-case results are reported.
3. Battery is fully charged for all readings and the standard batteries are the only options.
4. Justification for reduced test configuration : Per FCC/OET Bulletin 65 Supplement C [July 2001], if the SAR measured at the middle channel for each test configuration (left, right, cheek, tilt, Slide Up, Slide Down) is at least 3.0 dB lower than the SAR limit, testing at the high and low channel is optional for such test configurations.
5. WLAN could be used for data transmission during voice communication at the same time.

WLAN Body SAR

Ambient Temperature (°C)	22.3
Liquid Temperature (°C)	22.3
Date	2010-07-01

Body	Test Mode	EUT Position	Traffic Channel		Slide	Power Drift(dB)	1 g SAR (W/kg)	1 g SAR Limits (W/kg)
			Frequency (MHz)	Channel				
Body	11b	Front	2437	6	UP	-0.063	0.00483	1.6
	11g	Front	2437	6	UP	-0.144	0.00169	
	11b	Back	2437	6	UP	-0.152	0.00985	
	11b	Back	2437	6	Down	0.077	0.012	
	11b	Front	2437	6	Down	0.017	0.00256	

<Note>

1. The test data reported are the worst-case SAR value with the position set in a typical configuration.
2. All modes of operation were investigated, and worst-case results are reported.
3. Battery is fully charged for all readings and the standard batteries are the only options.
4. Justification for reduced test configuration : Per FCC/OET Bulletin 65 Supplement C [July 2001], if the SAR measured at the middle channel for each test configuration (left, right, cheek, tilt, Slide Up, Slide Down) is at least 3.0 dB lower than the SAR limit, testing at the high and low channel is optional for such test configurations.
5. The distance from EUT to flat phantom for testing Body SAR is 20 mm.
(Please refer to the conduction power table Page 15)



Appendix

List

Appendix A	DASY4 Report (Plots of the SAR Measurements)	- 835 MHz, 1900 MHz, 2450 MHz Validation Test - GSM850 Test - PCS1900 Test - WLAN Test
Appendix B	Uncertainty Analysis	
Appendix C	Calibration Certificate	- PROBE - DAE - DIPOLE



Report File No. : F690501/RF-SAR001878
Date of Issue : 2010-07-16
Page : 25 / 120

Appendix A

Test Plot - DASY4 Report

835 MHz Validation Test

Test Laboratory: SGS Testing Korea
 File Name: [Validation 835 MHz.d4](#)

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

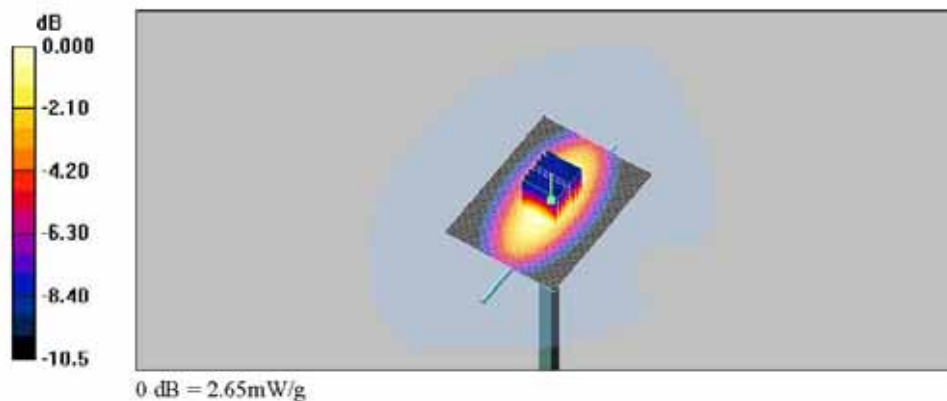
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.882 \text{ mho/m}$; $\epsilon_r = 41.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

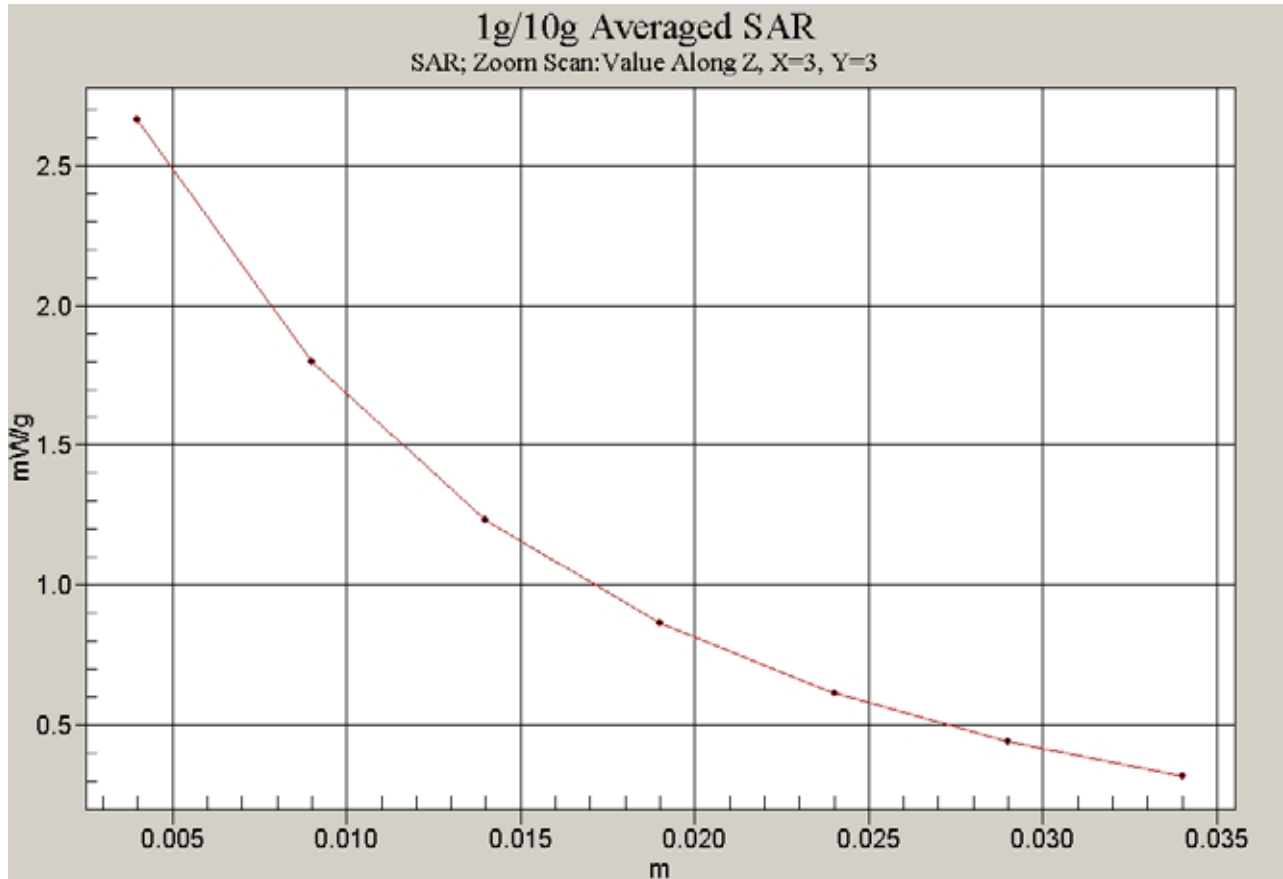
- Probe: ET3DV6 - SN1783; ConvF(6.22, 6.22, 6.22); Calibrated: 2009-11-24
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Validation 835 MHz/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 2.71 mW/g

Validation 835 MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 57.6 V/m ; Power Drift = -0.046 dB
 Peak SAR (extrapolated) = 3.64 W/kg
 $\text{SAR}(1 \text{ g}) = 2.47 \text{ mW/g}$; $\text{SAR}(10 \text{ g}) = 1.61 \text{ mW/g}$
 Maximum value of SAR (measured) = 2.65 mW/g



Z Scan



1900 MHz Validation Test

Test Laboratory: SGS Testing Korea
 File Name: [Validation 1900.da4](#)

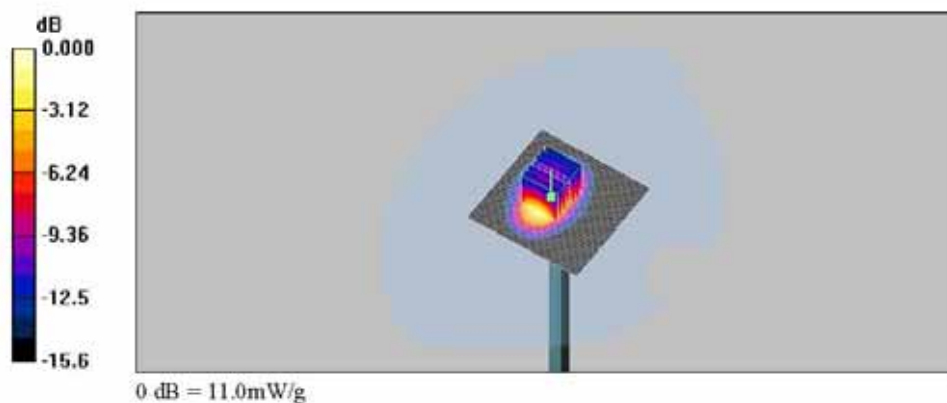
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d033
Program Name: Validation 1900

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

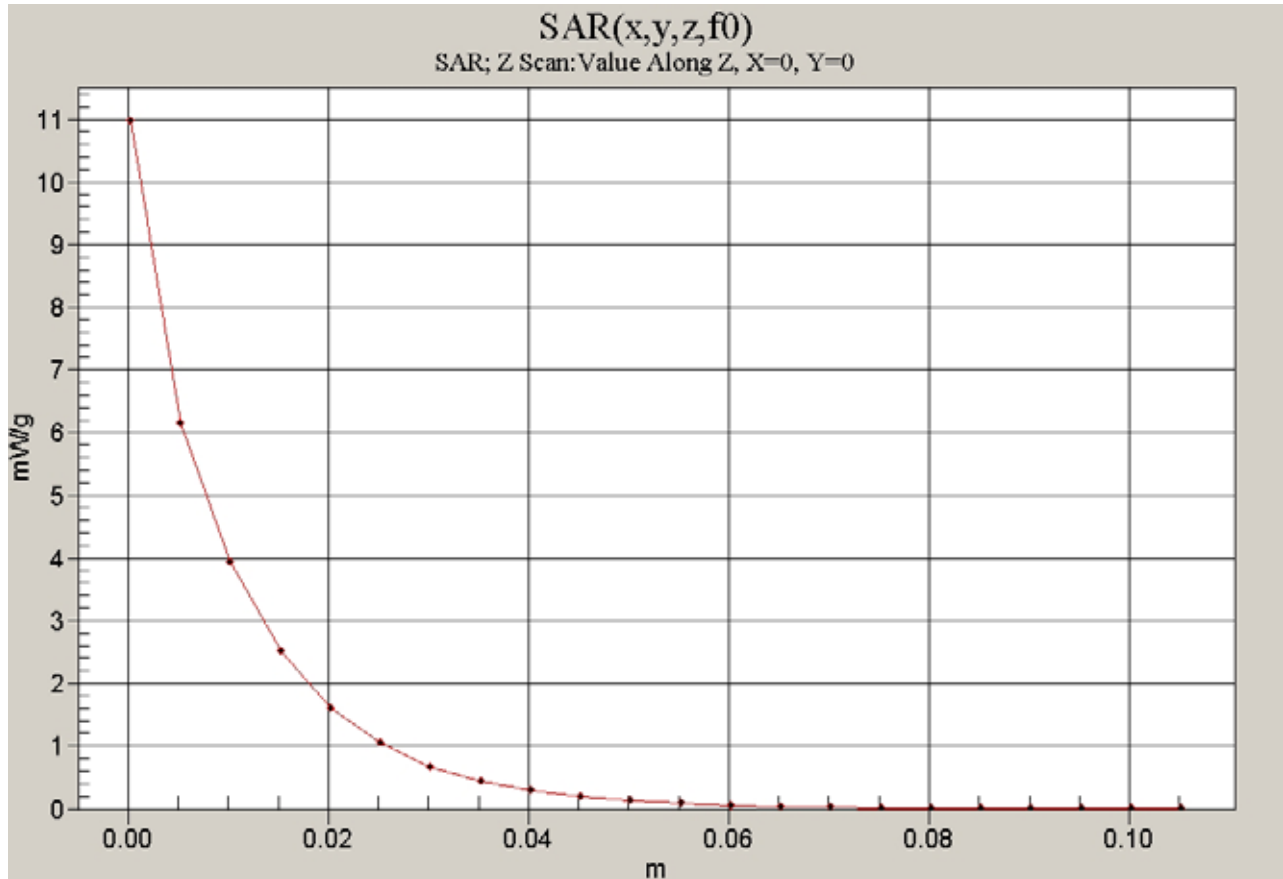
DASY4 Configuration:
 - Probe: ET3DV6 - SN1782; ConvF(5.04, 5.04, 5.04); Calibrated: 2010-04-28
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn567; Calibrated: 2009-12-09
 - Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Validation 1900/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 11.8 mW/g

Validation 1900/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 72.8 V/m; Power Drift = 0.003 dB
 Peak SAR (extrapolated) = 16.1 W/kg
SAR(1 g) = 9.8 mW/g; SAR(10 g) = 5.38 mW/g
 Maximum value of SAR (measured) = 11.0 mW/g



Z Scan



2450 MHz Validation Test_Head

Test Laboratory: SGS Testing Korea
 File Name: [Validation 2450 MHz.d4](#)

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:734
 Program Name: Validation 2450 MHz

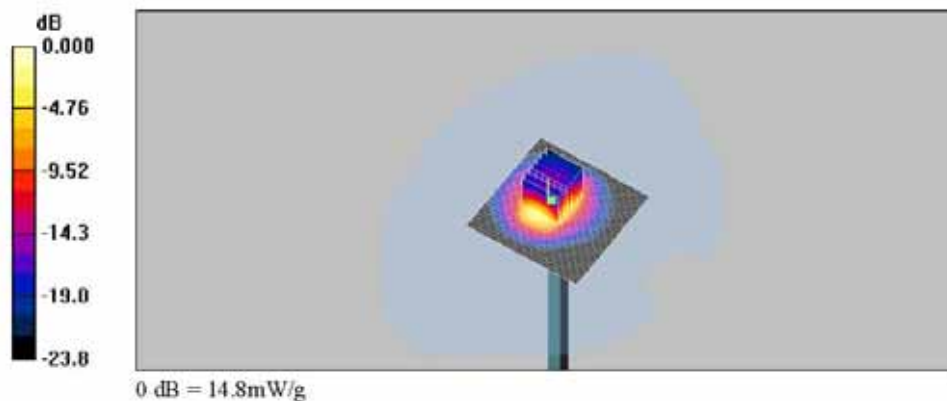
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.86$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

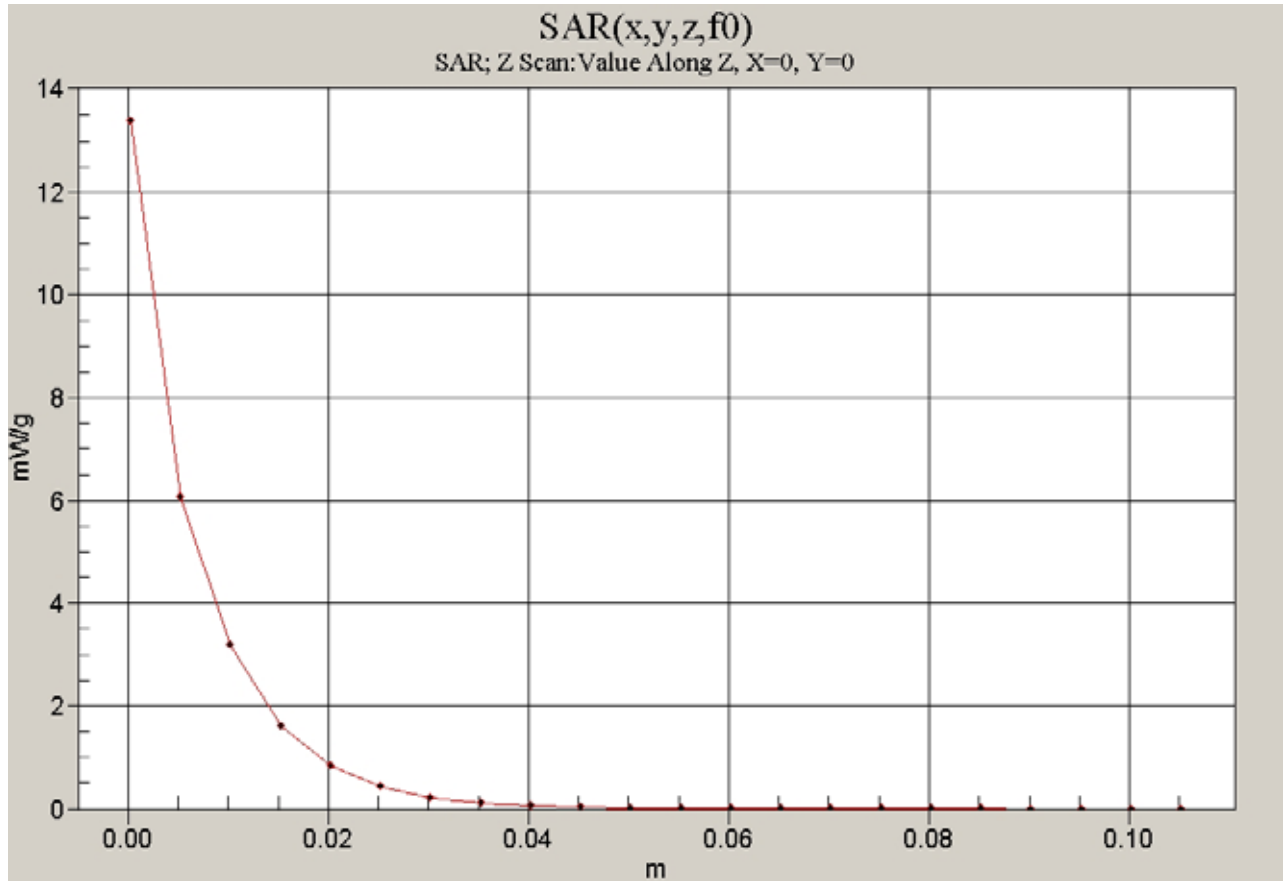
- Probe: ET3DV6 - SN1782; ConvF(4.48, 4.48, 4.48); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Validation 2450 MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 16.8 mW/g

Validation 2450 MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 70.1 V/m; Power Drift = -0.033 dB
 Peak SAR (extrapolated) = 29.6 W/kg
SAR(1 g) = 13.3 mW/g; SAR(10 g) = 5.99 mW/g
 Maximum value of SAR (measured) = 14.8 mW/g



Z Scan



2450 MHz Validation Test_Body

Test Laboratory: SGS Testing Korea
 File Name: [Validation 2450MHz_Body.dat](#)

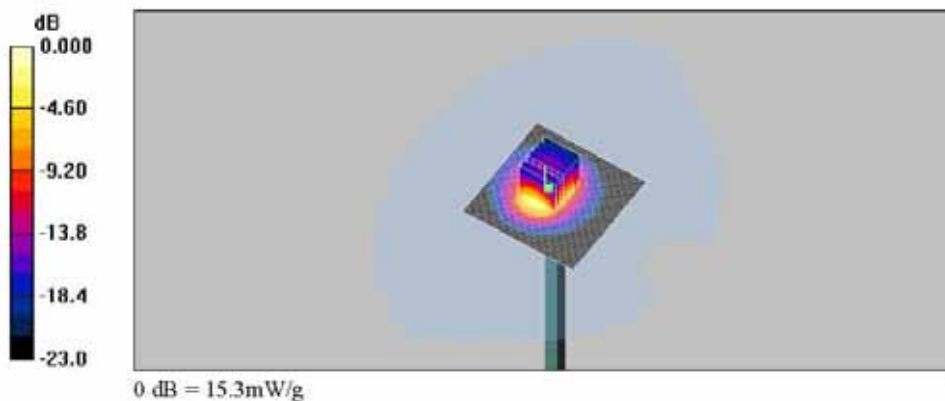
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:734
 Program Name: Validation 2450 MHz_Body

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.93$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

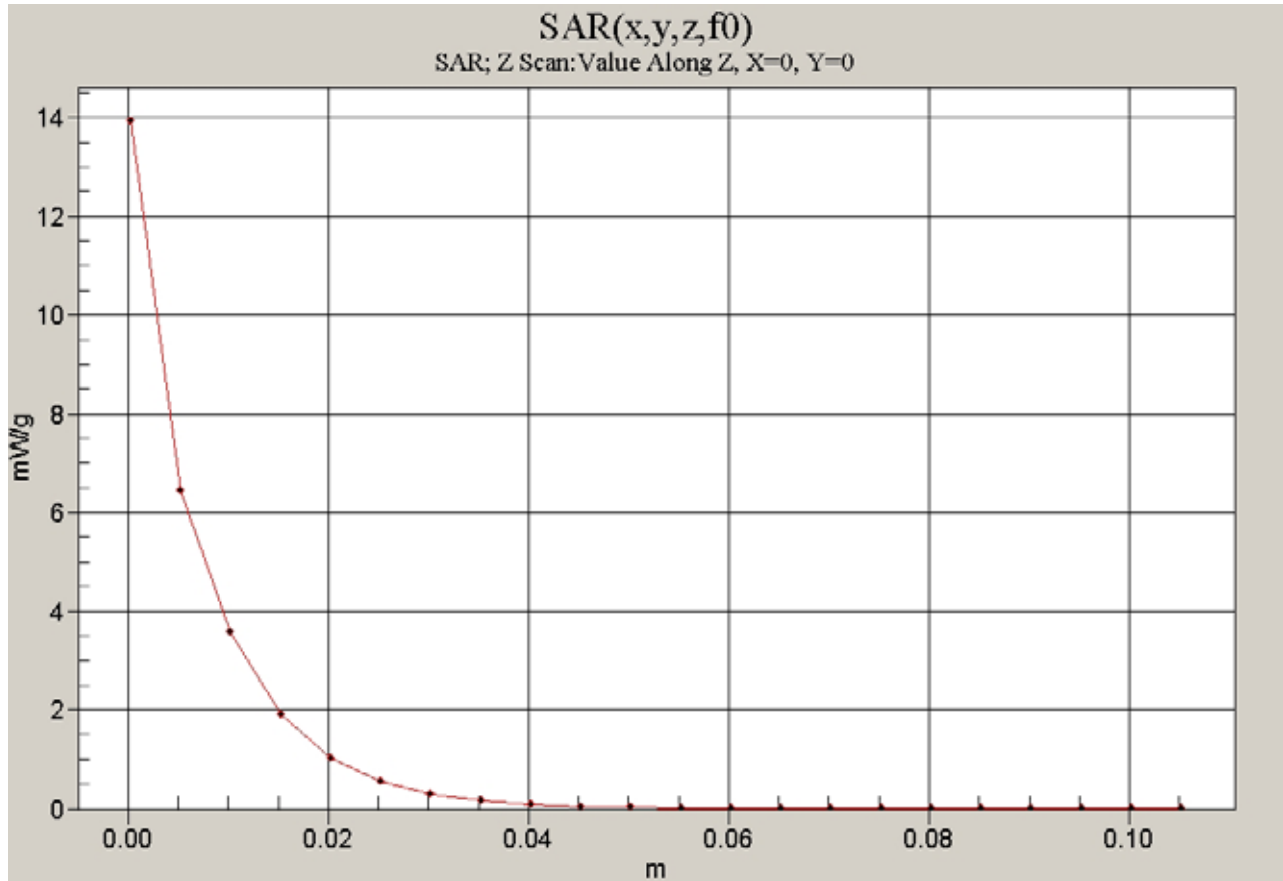
DASY4 Configuration:
 - Probe: ET3DV6 - SN1782; ConvF(4.07, 4.07, 4.07); Calibrated: 2010-04-28
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn567; Calibrated: 2009-12-09
 - Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Validation 2450 MHz_Body/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 17.1 mW/g

Validation 2450 MHz_Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 70.2 V/m; Power Drift = -0.019 dB
 Peak SAR (extrapolated) = 33.3 W/kg
SAR(1 g) = 13.9 mW/g; SAR(10 g) = 6.25 mW/g
 Maximum value of SAR (measured) = 15.3 mW/g



Z Scan



GSM 850 Head SAR Test

Test Laboratory: SGS Testing Korea
 File Name: [GSM850_LE_Slide Up.da4](#)

DUT: C320I; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: LE

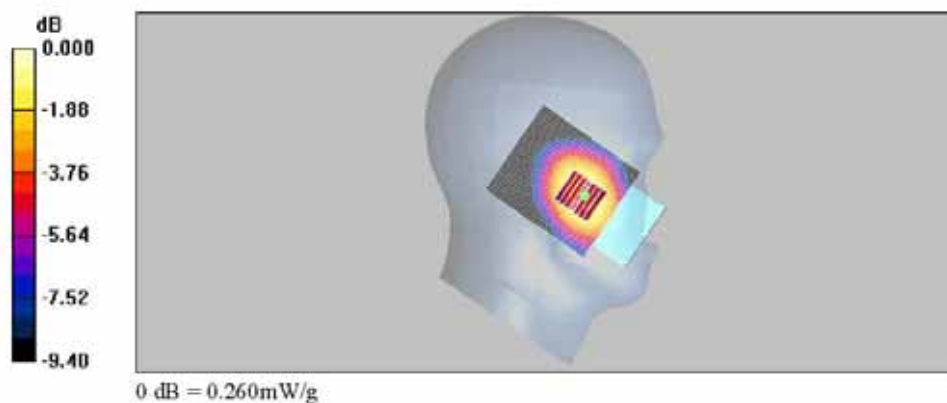
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.883$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.26, 6.26, 6.26); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_Mid_Cheek_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.259 mW/g

LE_Mid_Cheek_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 5.30 V/m; Power Drift = -0.196 dB
 Peak SAR (extrapolated) = 0.312 W/kg
SAR(1 g) = 0.243 mW/g; SAR(10 g) = 0.177 mW/g
 Maximum value of SAR (measured) = 0.260 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM850_LE_Slide Up.da4](#)

DUT: C320I; Type: Slide Up; Serial: 005KPHG0774273
Program Name: LE

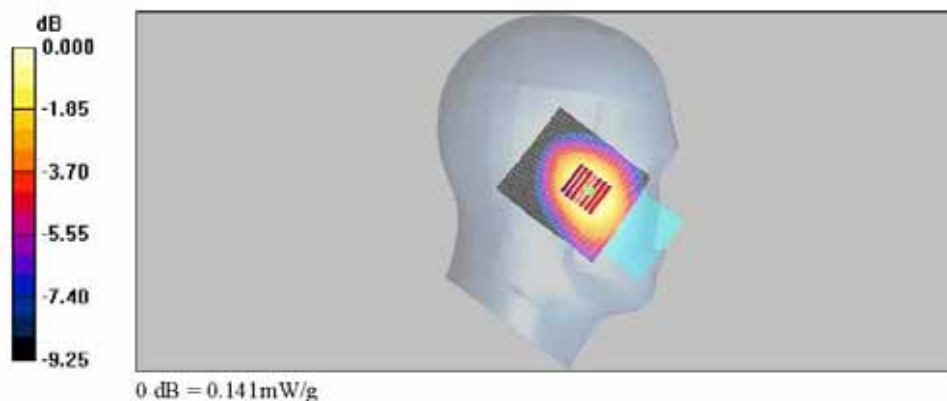
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.883$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.26, 6.26, 6.26); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_Mid_Tilt_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.142 mW/g

LE_Mid_Tilt_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 7.32 V/m; Power Drift = -0.148 dB
 Peak SAR (extrapolated) = 0.166 W/kg
SAR(1 g) = 0.134 mW/g; SAR(10 g) = 0.101 mW/g
 Maximum value of SAR (measured) = 0.141 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM850_LE_Slide Down.da4](#)

DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: LE

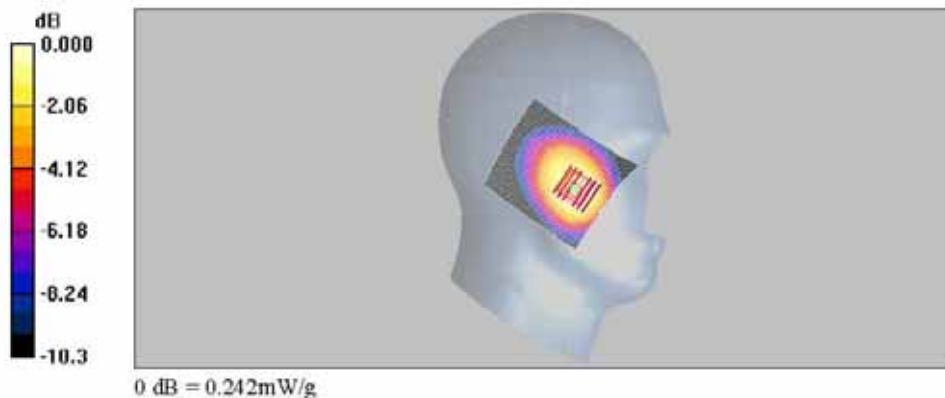
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.883 \text{ mho/m}$; $\epsilon_r = 41.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.26, 6.26, 6.26); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_Mid_Cheek_Slide Down/Area Scan (61x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.239 mW/g

LE_Mid_Cheek_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 6.22 V/m; Power Drift = -0.036 dB
 Peak SAR (extrapolated) = 0.292 W/kg
SAR(1 g) = 0.226 mW/g; SAR(10 g) = 0.164 mW/g
 Maximum value of SAR (measured) = 0.242 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM850_LE_Slide Down.da4](#)

DUT: C320I; Type: Slide Down; Serial: 005KPHG0774273
Program Name: LE

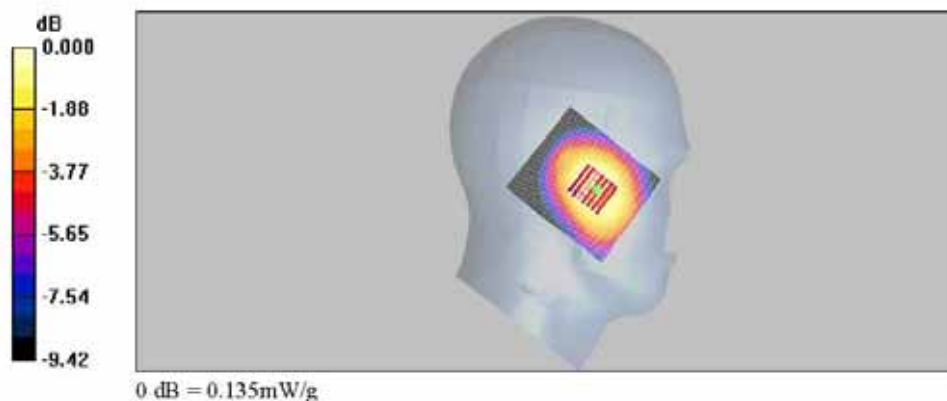
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.883$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.26, 6.26, 6.26); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_Mid_Tilt_Slide Down/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.136 mW/g

LE_Mid_Tilt_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 8.30 V/m; Power Drift = -0.111 dB
 Peak SAR (extrapolated) = 0.157 W/kg
SAR(1 g) = 0.129 mW/g; SAR(10 g) = 0.098 mW/g
 Maximum value of SAR (measured) = 0.135 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM850_RE_Slide Up.da4](#)

DUT: C320I; Type: Slide Up; Serial: 005KPHG0774273
Program Name: RE

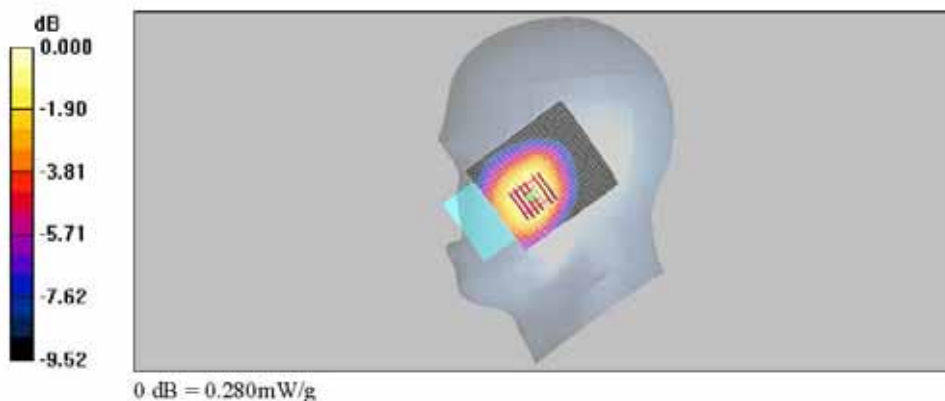
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.883$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.26, 6.26, 6.26); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_Mid_Cheek_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.261 mW/g

RE_Mid_Cheek_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 4.87 V/m; Power Drift = 0.160 dB
 Peak SAR (extrapolated) = 0.338 W/kg
SAR(1 g) = 0.263 mW/g; SAR(10 g) = 0.193 mW/g
 Maximum value of SAR (measured) = 0.280 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM850_RE_Slide Up.da4](#)

DUT: C320I; Type: Slide Up; Serial: 005KPHG0774273
Program Name: RE

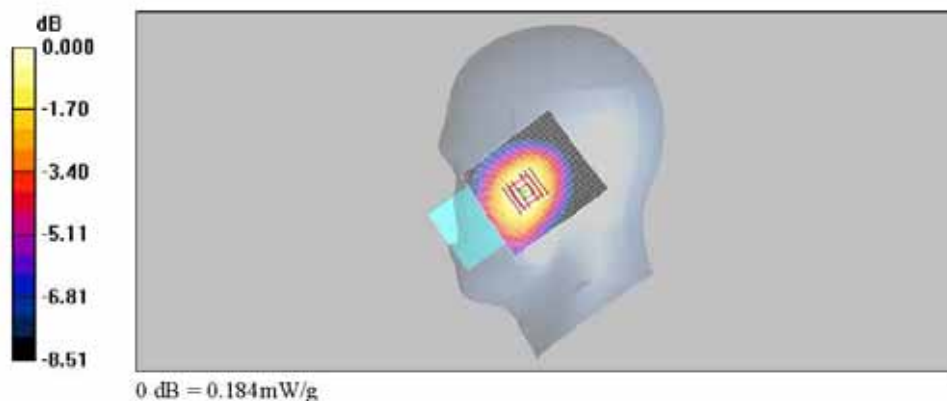
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.883 \text{ mho/m}$; $\epsilon_r = 41.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.26, 6.26, 6.26); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_Mid_Tilt_Slide Up/Area Scan (61x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.182 mW/g

RE_Mid_Tilt_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 8.83 V/m ; Power Drift = -0.064 dB
 Peak SAR (extrapolated) = 0.216 W/kg
SAR(1 g) = 0.172 mW/g ; SAR(10 g) = 0.129 mW/g
 Maximum value of SAR (measured) = 0.184 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM850_RE_Slide Down.da4](#)

DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: RE

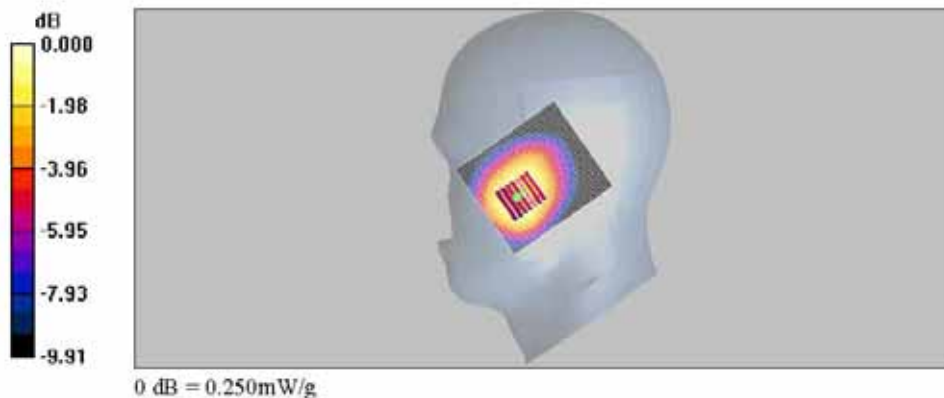
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.883 \text{ mho/m}$; $\epsilon_r = 41.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.26, 6.26, 6.26); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP 900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_Mid_Cheek_Slide Down/Area Scan (61x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.242 mW/g

RE_Mid_Cheek_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 6.82 V/m; Power Drift = -0.030 dB
 Peak SAR (extrapolated) = 0.301 W/kg
SAR(1 g) = 0.231 mW/g; SAR(10 g) = 0.168 mW/g
 Maximum value of SAR (measured) = 0.250 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM850_RE_Slide Down.da4](#)

DUT: C320I; Type: Slide Down; Serial: 005KPHG0774273
Program Name: RE

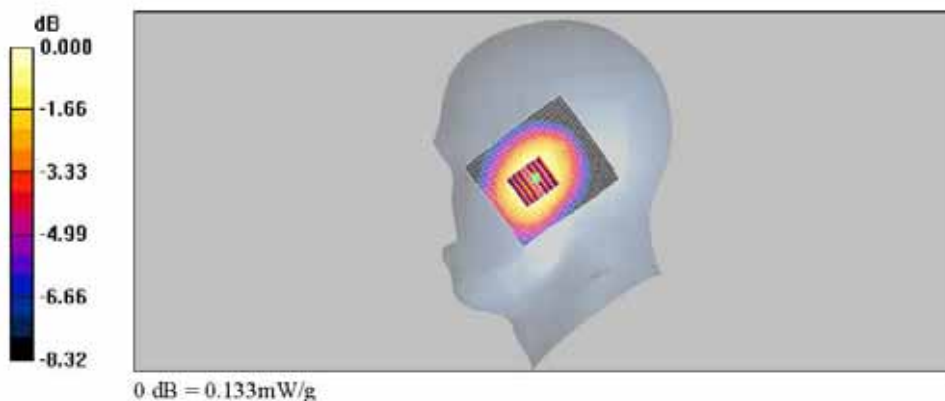
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.883 \text{ mho/m}$; $\epsilon_r = 41.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.26, 6.26, 6.26); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_Mid_Tilt_Slide Down/Area Scan (61x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.133 mW/g

RE_Mid_Tilt_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$,
 $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 8.45 V/m; Power Drift = -0.102 dB
 Peak SAR (extrapolated) = 0.154 W/kg
SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.096 mW/g
 Maximum value of SAR (measured) = 0.133 mW/g



GSM850 Body SAR Test

Test Laboratory: SGS Testing Korea
 File Name: [GPRS850_Body_Slide Up.da4](#)

DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: Body

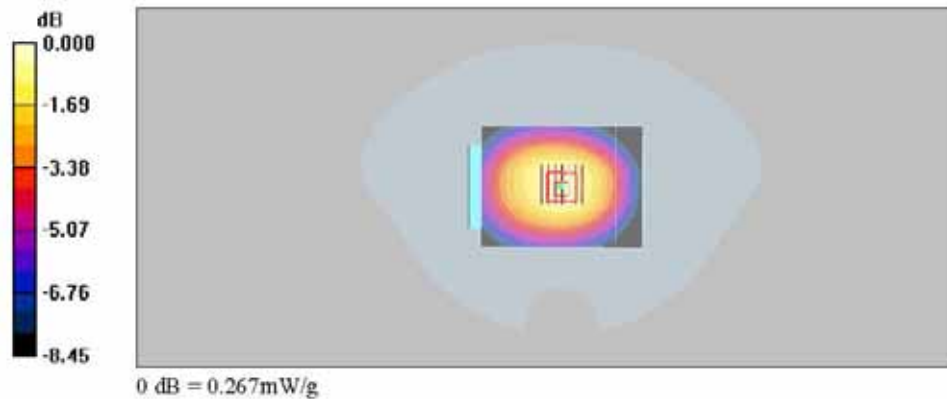
Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.985 \text{ mho/m}$; $\epsilon_r = 54.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.11, 6.11, 6.11); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Front_Mid_1Tx_Slide Up/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.227 mW/g

Body_Front_Mid_1Tx_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 15.8 V/m; Power Drift = 0.150 dB
 Peak SAR (extrapolated) = 0.326 W/kg
SAR(1 g) = 0.253 mW/g; SAR(10 g) = 0.187 mW/g
 Maximum value of SAR (measured) = 0.267 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GPRS850_Body_Slide Up.da4](#)

DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: Body

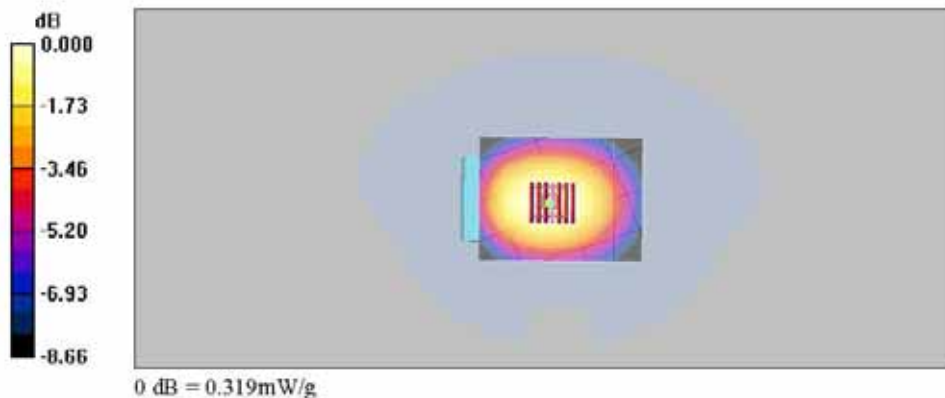
Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.985 \text{ mho/m}$; $\epsilon_r = 54.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

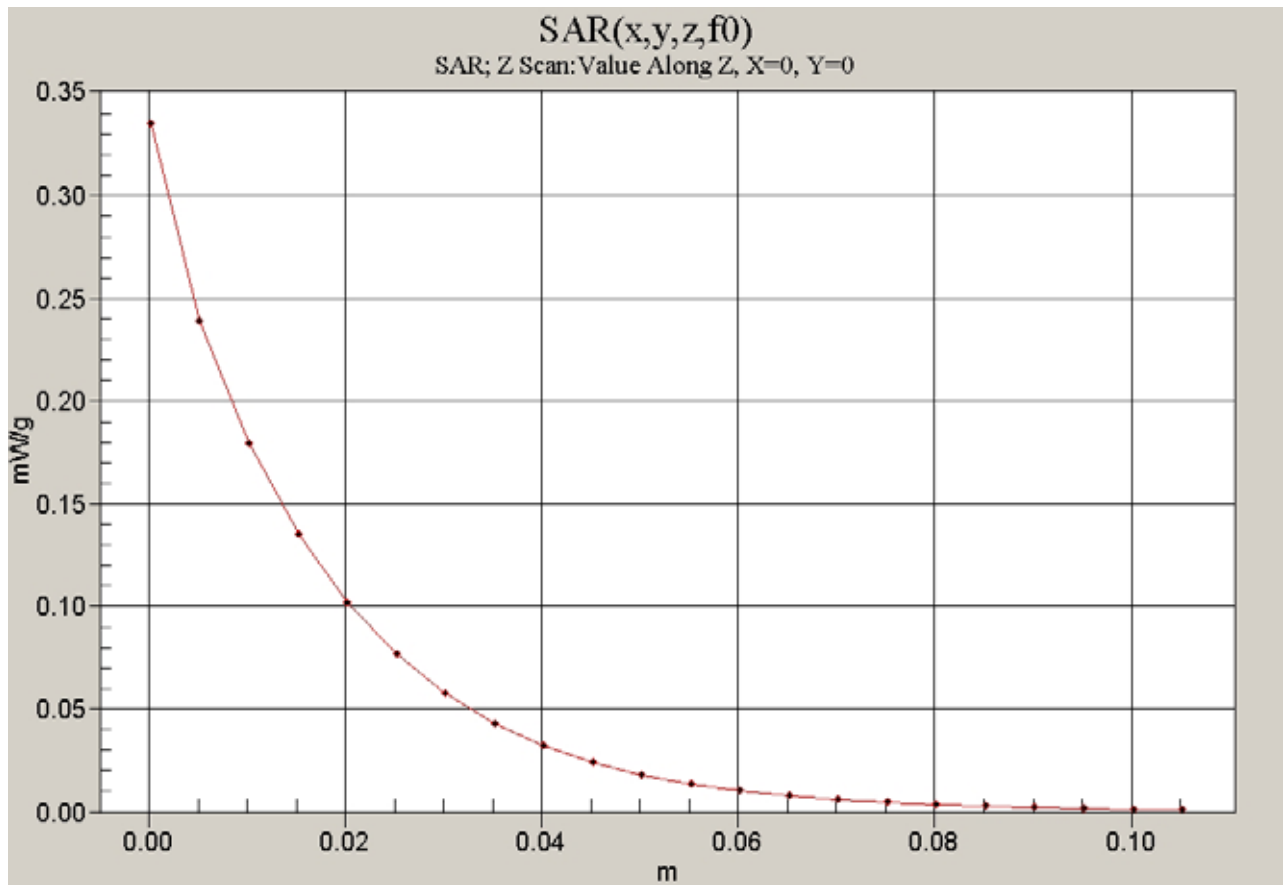
- Probe: ET3DV6 - SN1782; ConvF(6.11, 6.11, 6.11); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Back_Mid_1Tx_Slide Up/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.322 mW/g

Body_Back_Mid_1Tx_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 18.6 V/m; Power Drift = -0.138 dB
 Peak SAR (extrapolated) = 0.387 W/kg
SAR(1 g) = 0.303 mW/g; SAR(10 g) = 0.223 mW/g
 Maximum value of SAR (measured) = 0.319 mW/g



Z Scan



Test Laboratory: SGS Testing Korea
 File Name: [GPRS850_Body_Slide down.d4](#)

DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: Body

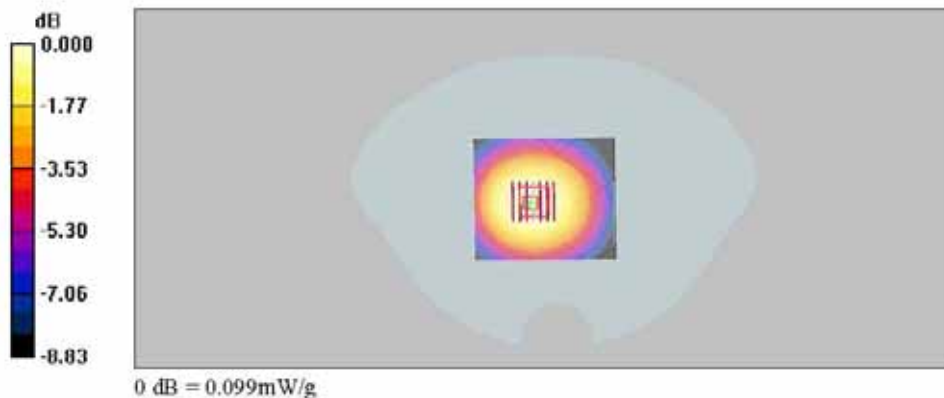
Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.985 \text{ mho/m}$; $\epsilon_r = 54.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.11, 6.11, 6.11); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Front_Mid_1Tx_Slide Down/Area Scan (61x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.100 mW/g

Body_Front_Mid_1Tx_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 9.77 V/m; Power Drift = -0.135 dB
 Peak SAR (extrapolated) = 0.119 W/kg
SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.068 mW/g
 Maximum value of SAR (measured) = 0.099 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GPRS850_Body_Slide down.dat](#)

DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: Body

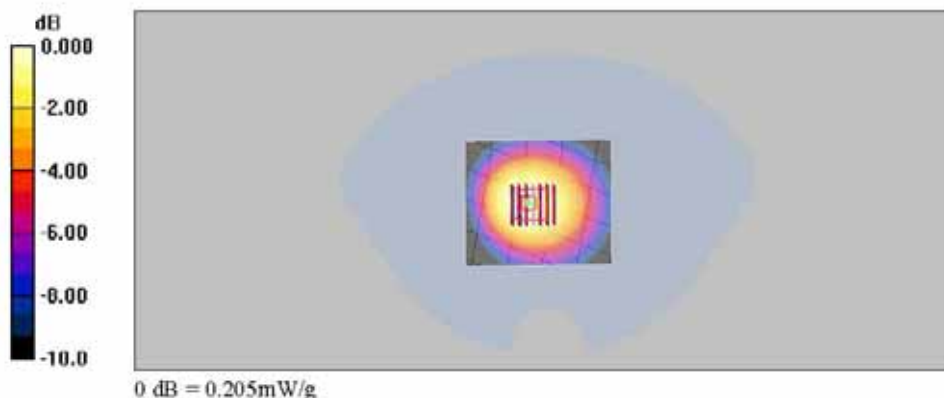
Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.985 \text{ mho/m}$; $\epsilon_r = 54.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(6.11, 6.11, 6.11); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP_900MHz; Type: SAM MIC #2000-93; Serial: TP-1300
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Back_Mid_1Tx_Slide Down/Area Scan (61x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.209 mW/g

Body_Back_Mid_1Tx_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 14.1 V/m; Power Drift = -0.125 dB
 Peak SAR (extrapolated) = 0.257 W/kg
SAR(1 g) = 0.193 mW/g; SAR(10 g) = 0.135 mW/g
 Maximum value of SAR (measured) = 0.205 mW/g



PCS1900 Head SAR Test

Test Laboratory: SGS Testing Korea
 File Name: [GSM1900_LE_Slide Up.d4](#)

DUT: C320I; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: LE

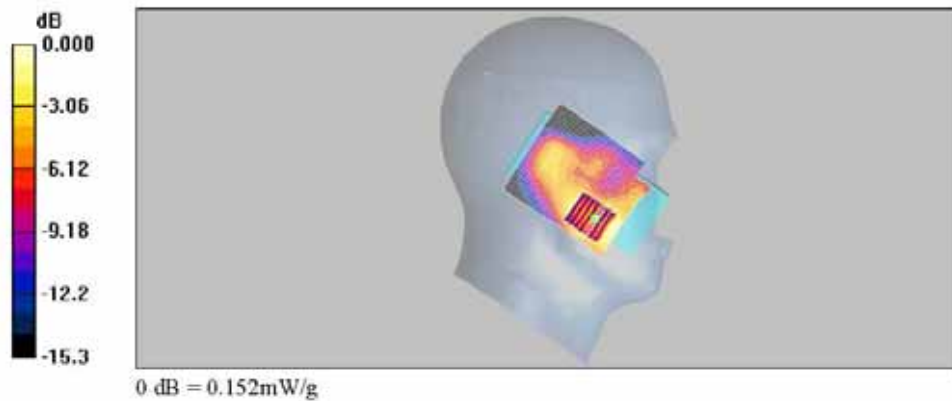
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.04, 5.04, 5.04); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_Mid_Cheek_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.154 mW/g

LE_Mid_Cheek_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 4.09 V/m; Power Drift = -0.182 dB
 Peak SAR (extrapolated) = 0.215 W/kg
SAR(1 g) = 0.140 mW/g; SAR(10 g) = 0.086 mW/g
 Maximum value of SAR (measured) = 0.152 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM1900_LE_Slide Up.da4](#)

DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
Program Name: LE

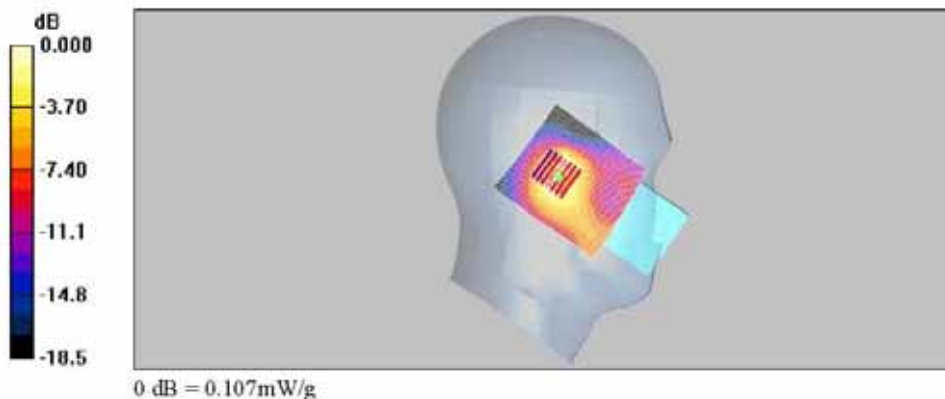
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.04, 5.04, 5.04); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_Mid_Tilt_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.117 mW/g

LE_Mid_Tilt_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 6.61 V/m; Power Drift = -0.006 dB
 Peak SAR (extrapolated) = 0.149 W/kg
SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.057 mW/g
 Maximum value of SAR (measured) = 0.107 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM1900_LE_Slide Down.da4](#)

DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: RE

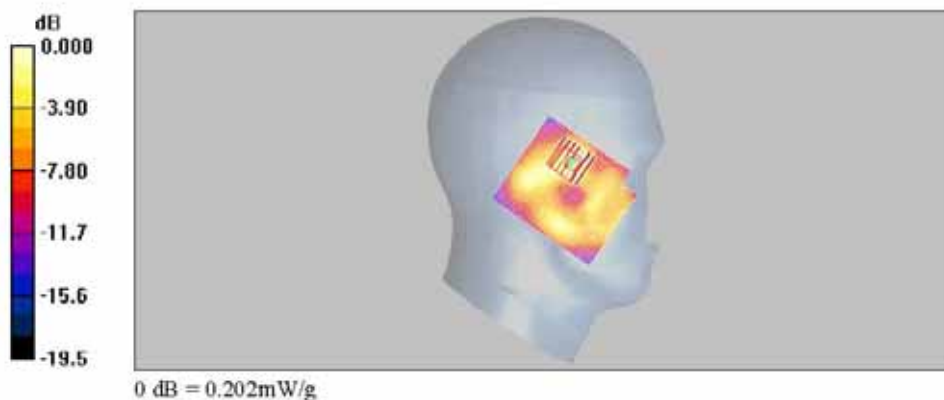
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.04, 5.04, 5.04); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_Mid_Cheek_Slide Down/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.234 mW/g

LE_Mid_Cheek_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 6.72 V/m; Power Drift = 0.106 dB
 Peak SAR (extrapolated) = 0.286 W/kg
 SAR(1 g) = 0.180 mW/g; SAR(10 g) = 0.105 mW/g
 Maximum value of SAR (measured) = 0.202 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM1900_LE_Slide Down.da4](#)

DUT: C320I; Type: Slide Down; Serial: 005KPHG0774273
Program Name: RE

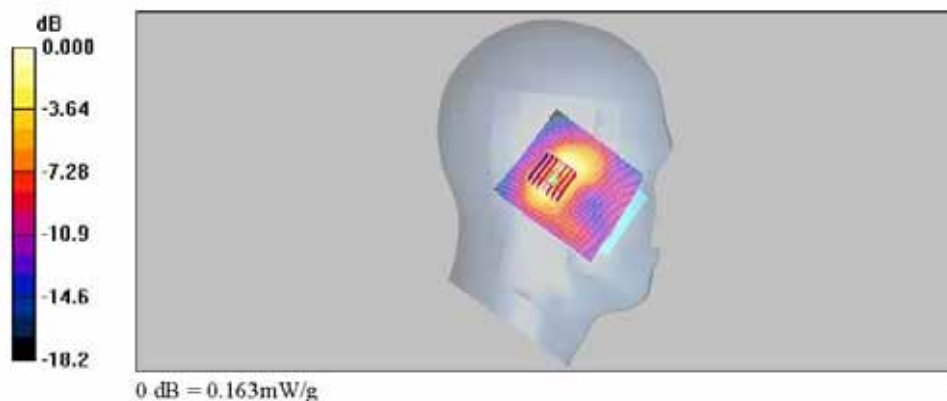
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.04, 5.04, 5.04); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_Mid_Tilt_Slide Down/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.174 mW/g

LE_Mid_Tilt_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 7.70 V/m; Power Drift = 0.041 dB
 Peak SAR (extrapolated) = 0.225 W/kg
SAR(1 g) = 0.148 mW/g; SAR(10 g) = 0.086 mW/g
 Maximum value of SAR (measured) = 0.163 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM1900_RE_Slide Up.da4](#)

DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
Program Name: RE

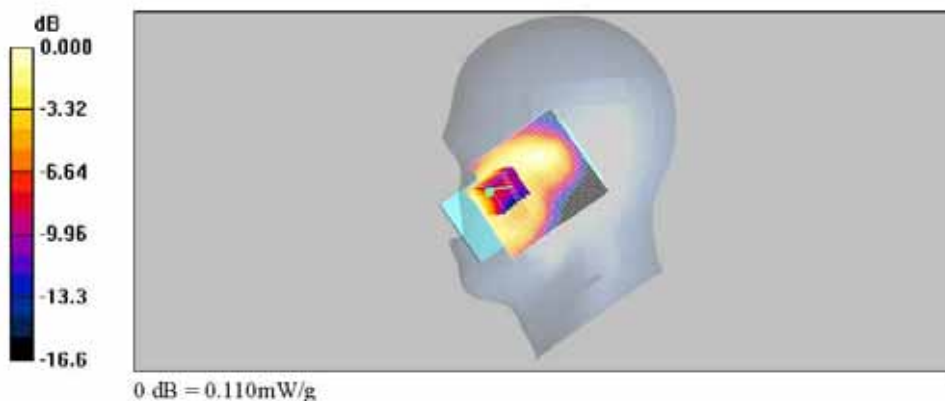
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.04, 5.04, 5.04); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_Mid_Cheek_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.108 mW/g

RE_Mid_Cheek_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 3.28 V/m; Power Drift = 0.047 dB
 Peak SAR (extrapolated) = 0.144 W/kg
SAR(1 g) = 0.102 mW/g; SAR(10 g) = 0.065 mW/g
 Maximum value of SAR (measured) = 0.110 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM1900_RE_Slide Up.da4](#)

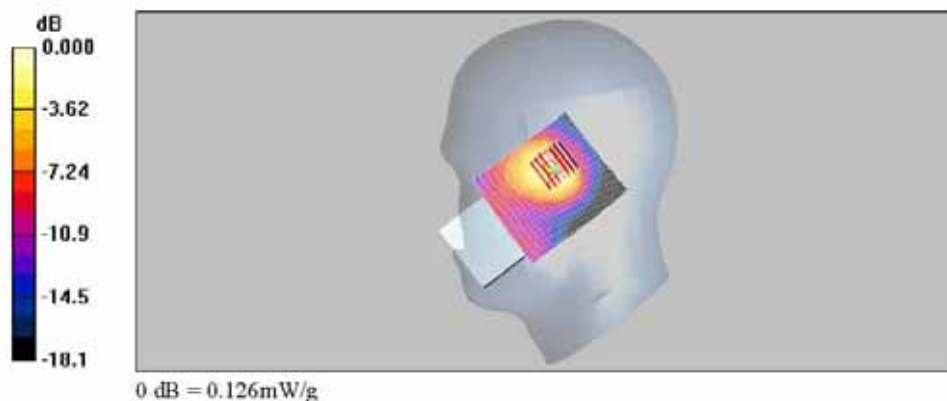
DUT: C320I; Type: Slide Up; Serial: 005KPHG0774273
Program Name: RE

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1782; ConvF(5.04, 5.04, 5.04); Calibrated: 2010-04-28
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn567; Calibrated: 2009-12-09
 - Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_Mid_Tilt_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.141 mW/g

RE_Mid_Tilt_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 6.30 V/m; Power Drift = 0.040 dB
 Peak SAR (extrapolated) = 0.170 W/kg
SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.069 mW/g
 Maximum value of SAR (measured) = 0.126 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM1900_RE_Slide Down.d4](#)

DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: RE

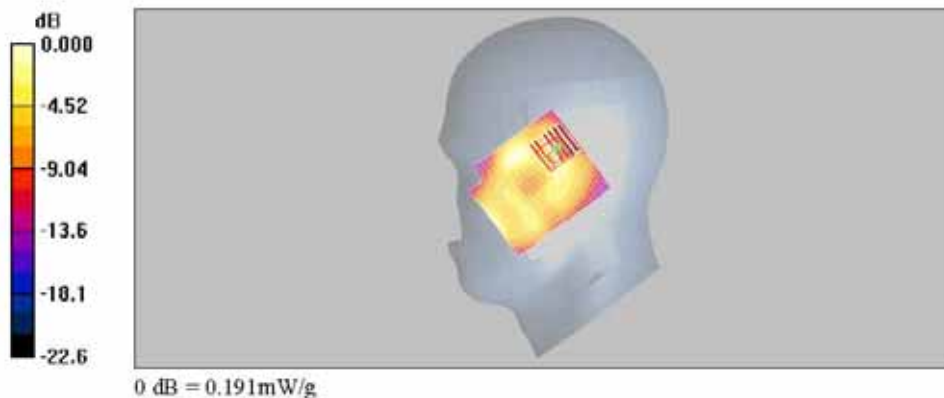
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.04, 5.04, 5.04); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_Mid_Cheek_Slide Down/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.185 mW/g

RE_Mid_Cheek_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 4.95 V/m; Power Drift = 0.123 dB
 Peak SAR (extrapolated) = 0.278 W/kg
 SAR(1 g) = 0.166 mW/g; SAR(10 g) = 0.089 mW/g
 Maximum value of SAR (measured) = 0.191 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GSM1900_RE_Slide Down.da4](#)

DUT: C320I; Type: Slide Down; Serial: 005KPHG0774273
Program Name: RE

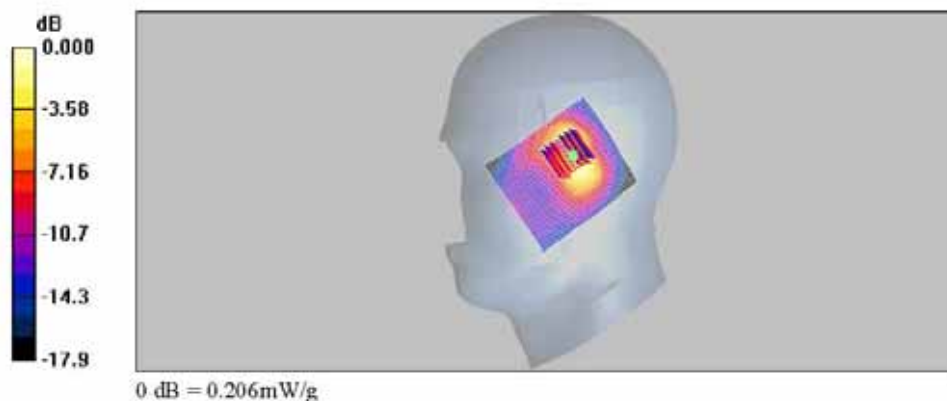
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(5.04, 5.04, 5.04); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_Mid_Tilt_Slide Down/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.218 mW/g

RE_Mid_Tilt_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 7.41 V/m; Power Drift = -0.108 dB
 Peak SAR (extrapolated) = 0.283 W/kg
SAR(1 g) = 0.182 mW/g; SAR(10 g) = 0.103 mW/g
 Maximum value of SAR (measured) = 0.206 mW/g



PCS1900 Body SAR Test

Test Laboratory: SGS Testing Korea
 File Name: [GPRS1900_Body_Slide Up.dat](#)

DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: Body

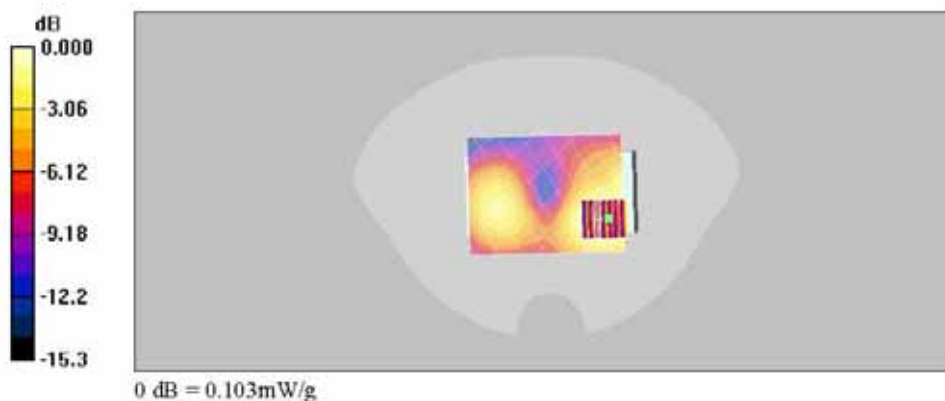
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 52$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.46, 4.46, 4.46); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Front_Mid_1Tx_Slide Up/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.103 mW/g

Body_Front_Mid_1Tx_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 2.16 V/m; Power Drift = 0.166 dB
 Peak SAR (extrapolated) = 0.134 W/kg
SAR(1 g) = 0.095 mW/g; SAR(10 g) = 0.060 mW/g
 Maximum value of SAR (measured) = 0.103 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GPRS1900_Body_Slide Up.dat](#)

DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: Body

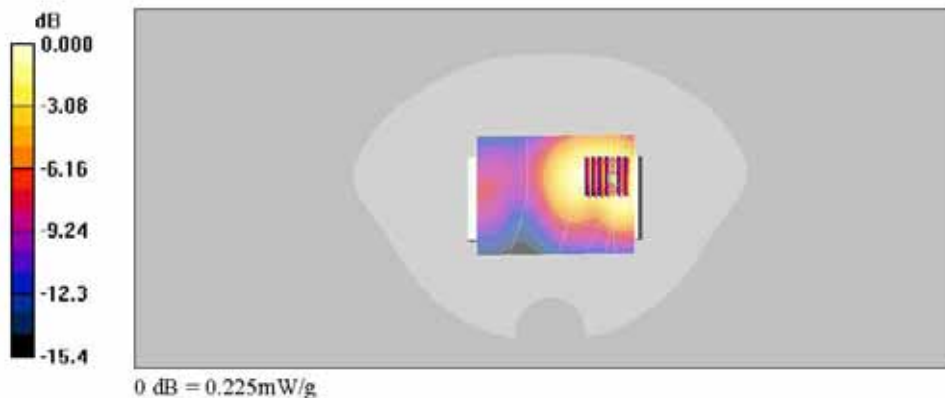
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

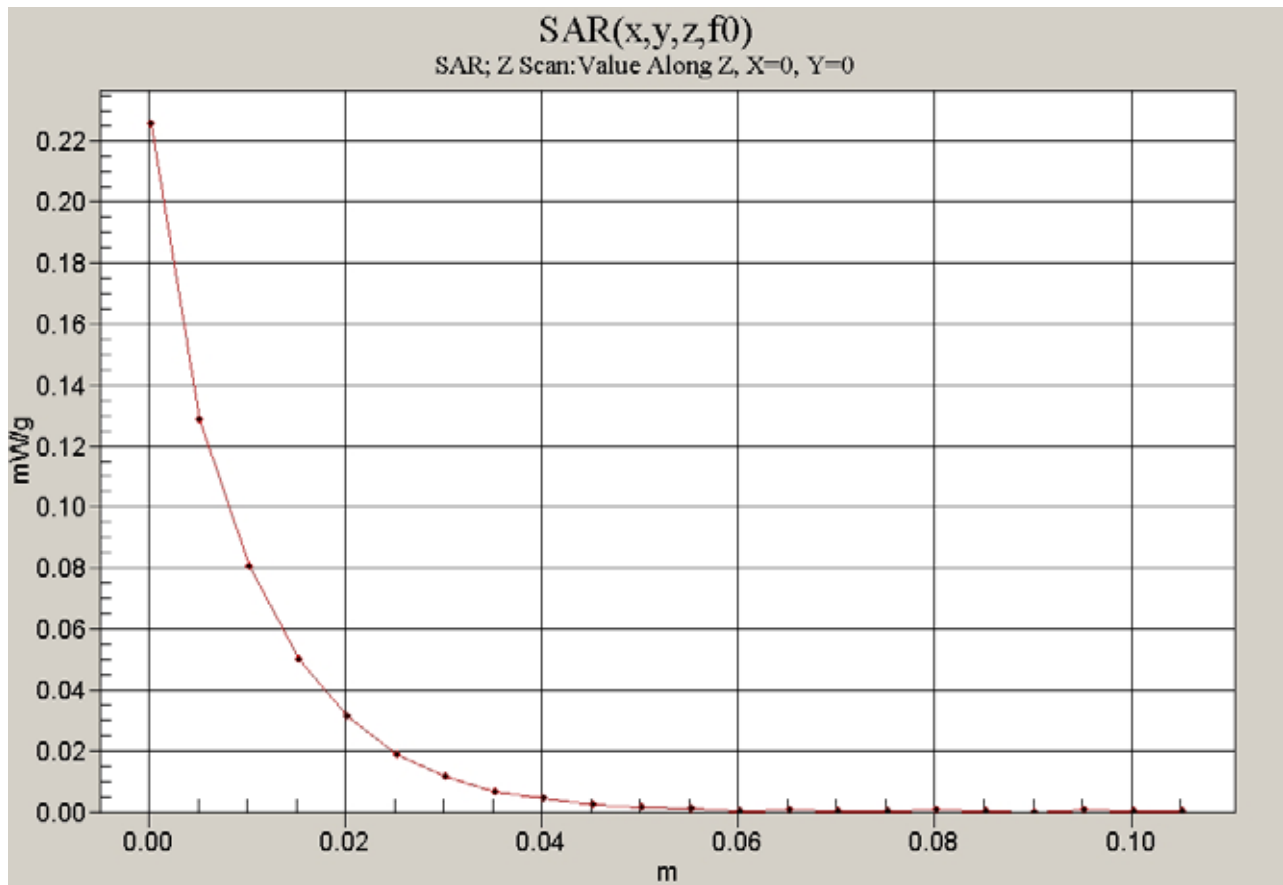
- Probe: ET3DV6 - SN1782; ConvF(4.46, 4.46, 4.46); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Back_Mid_1Tx_Slide Up/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.227 mW/g

Body_Back_Mid_1Tx_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 7.37 V/m; Power Drift = -0.028 dB
 Peak SAR (extrapolated) = 0.288 W/kg
 SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.128 mW/g
 Maximum value of SAR (measured) = 0.225 mW/g



Z Scan



Test Laboratory: SGS Testing Korea
 File Name: [GPRS1900_Body_Slide Down.dat](#)

DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: Body

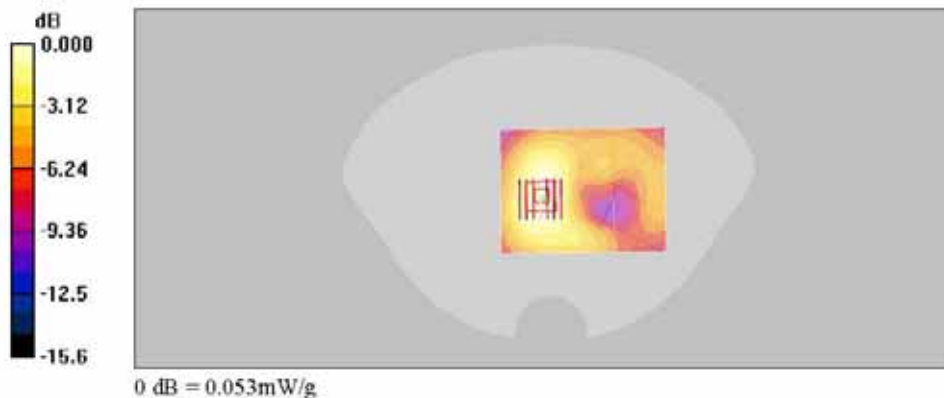
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.46, 4.46, 4.46); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Front_Mid_1Tx_Slide Down/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.053 mW/g

Body_Front_Mid_1Tx_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 6.26 V/m; Power Drift = -0.164 dB
 Peak SAR (extrapolated) = 0.067 W/kg
 SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.031 mW/g
 Maximum value of SAR (measured) = 0.053 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [GPRS1900_Body_Slide Down.dat](#)

DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: Body

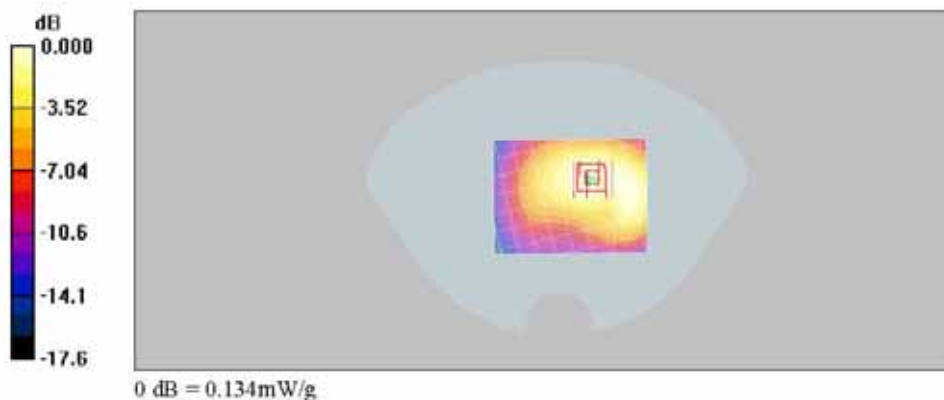
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.46, 4.46, 4.46); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Back_Mid_1Tx_Slide Down/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.133 mW/g

Body_Back_Mid_1Tx_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 7.31 V/m; Power Drift = 0.024 dB
 Peak SAR (extrapolated) = 0.169 W/kg
 SAR(1 g) = 0.121 mW/g; SAR(10 g) = 0.075 mW/g
 Maximum value of SAR (measured) = 0.134 mW/g



WLAN Head SAR Test

Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Head_LE_Slide Up.da4](#)

DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: WLAN_Head

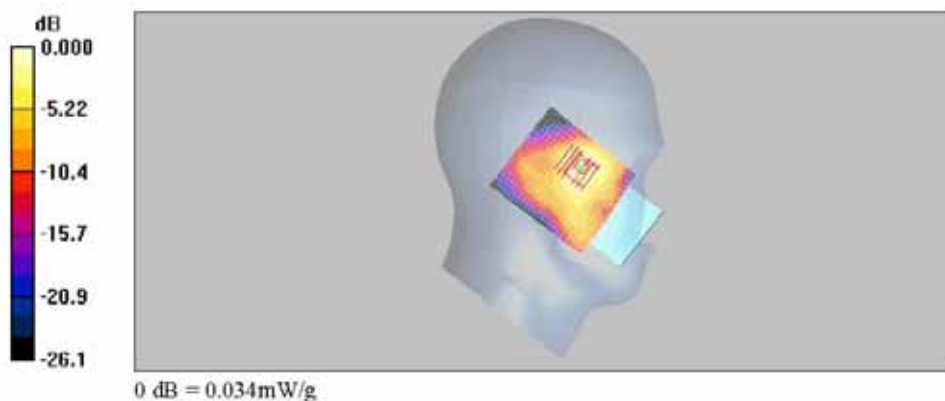
Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.48, 4.48, 4.48); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_11b_Mid_Cheek_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.033 mW/g

LE_11b_Mid_Cheek_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 1.51 V/m; Power Drift = -0.159 dB
 Peak SAR (extrapolated) = 0.069 W/kg
 SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.017 mW/g
 Maximum value of SAR (measured) = 0.034 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Head_LE_Slide Up.da4](#)

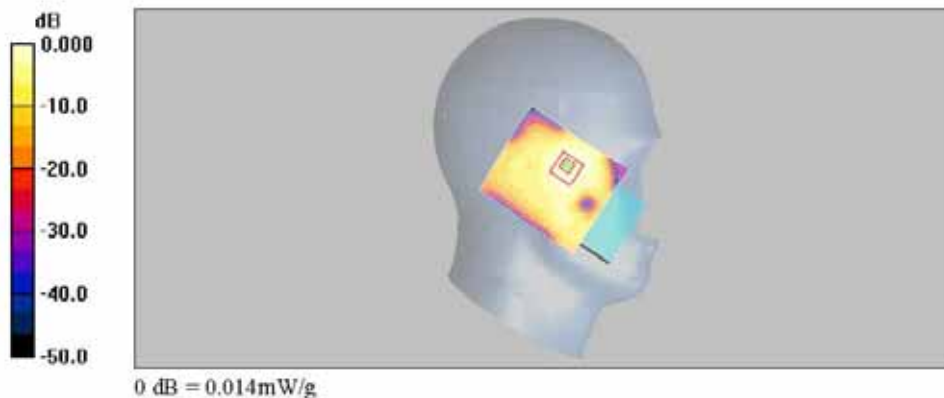
DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: WLAN_Head

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1782; ConvF(4.48, 4.48, 4.48); Calibrated: 2010-04-28
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn567; Calibrated: 2009-12-09
 - Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_11g_Mid_Cheek_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.013 mW/g

LE_11g_Mid_Cheek_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 1.12 V/m; Power Drift = 0.144 dB
 Peak SAR (extrapolated) = 0.028 W/kg
 SAR(1 g) = 0.013 mW/g; SAR(10 g) = 0.00695 mW/g
 Maximum value of SAR (measured) = 0.014 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Head_LE_Slide Up.da4](#)

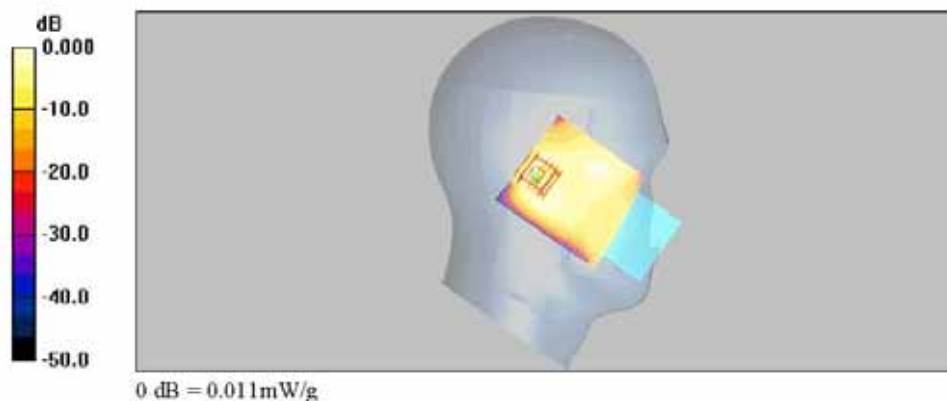
DUT: C320I; Type: Slide Up; Serial: 005KPHG0774273
Program Name: WLAN_Head

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1782; ConvF(4.48, 4.48, 4.48); Calibrated: 2010-04-28
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn567; Calibrated: 2009-12-09
 - Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_11b_Mid_Tilt_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.012 mW/g

LE_11b_Mid_Tilt_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 2.32 V/m; Power Drift = 0.096 dB
 Peak SAR (extrapolated) = 0.020 W/kg
SAR(1 g) = 0.00949 mW/g; SAR(10 g) = 0.0049 mW/g
 Maximum value of SAR (measured) = 0.011 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Head_LE_Slide Down.dat](#)

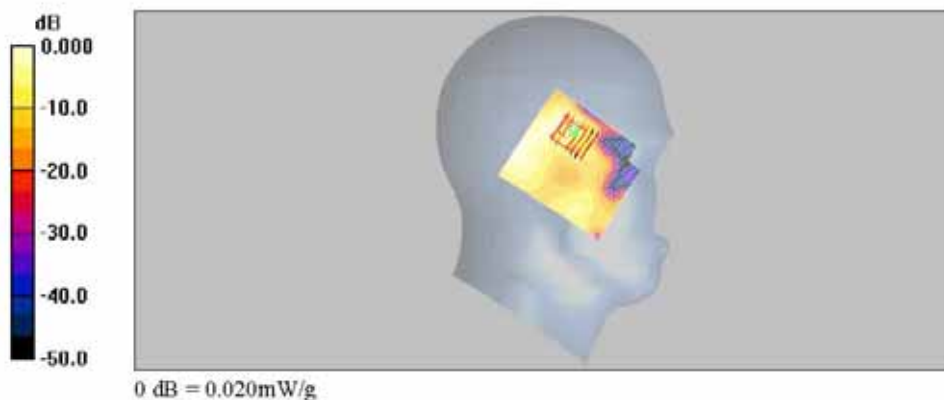
DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: WLAN_Head

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1782; ConvF(4.48, 4.48, 4.48); Calibrated: 2010-04-28
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn567; Calibrated: 2009-12-09
 - Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_11b_Mid_Cheek_Slide Down/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.023 mW/g

LE_11b_Mid_Cheek_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 1.78 V/m; Power Drift = -0.094 dB
 Peak SAR (extrapolated) = 0.040 W/kg
 SAR(1 g) = 0.017 mW/g; SAR(10 g) = 0.00796 mW/g
 Maximum value of SAR (measured) = 0.020 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Head_LE_Slide Down.d4](#)

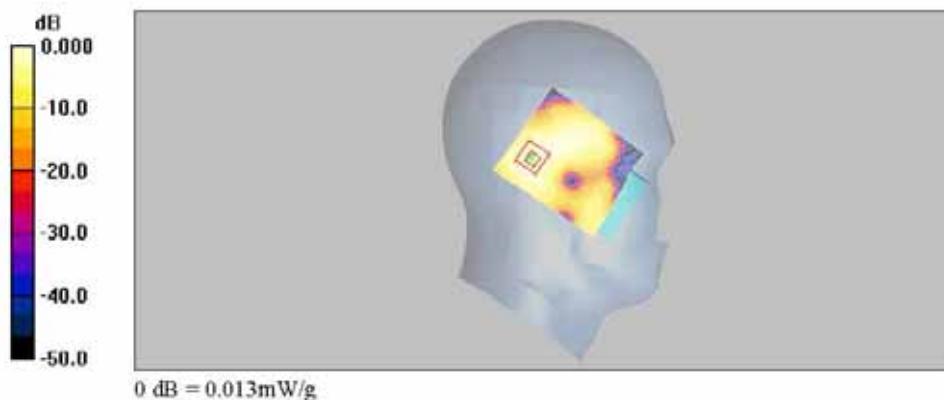
DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: WLAN_Head

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1782; ConvF(4.48, 4.48, 4.48); Calibrated: 2010-04-28
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn567; Calibrated: 2009-12-09
 - Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LE_11b_Mid_Tilt_Slide Down/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.012 mW/g

LE_11b_Mid_Tilt_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 1.62 V/m; Power Drift = 0.057 dB
 Peak SAR (extrapolated) = 0.026 W/kg
 SAR(1 g) = 0.013 mW/g; SAR(10 g) = 0.00622 mW/g
 Maximum value of SAR (measured) = 0.013 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Head_RE_Slide Up.da4](#)

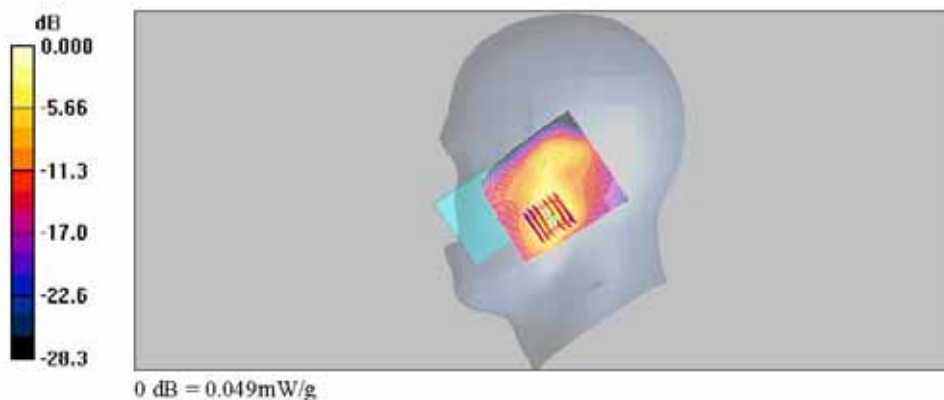
DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: WLAN_Head

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

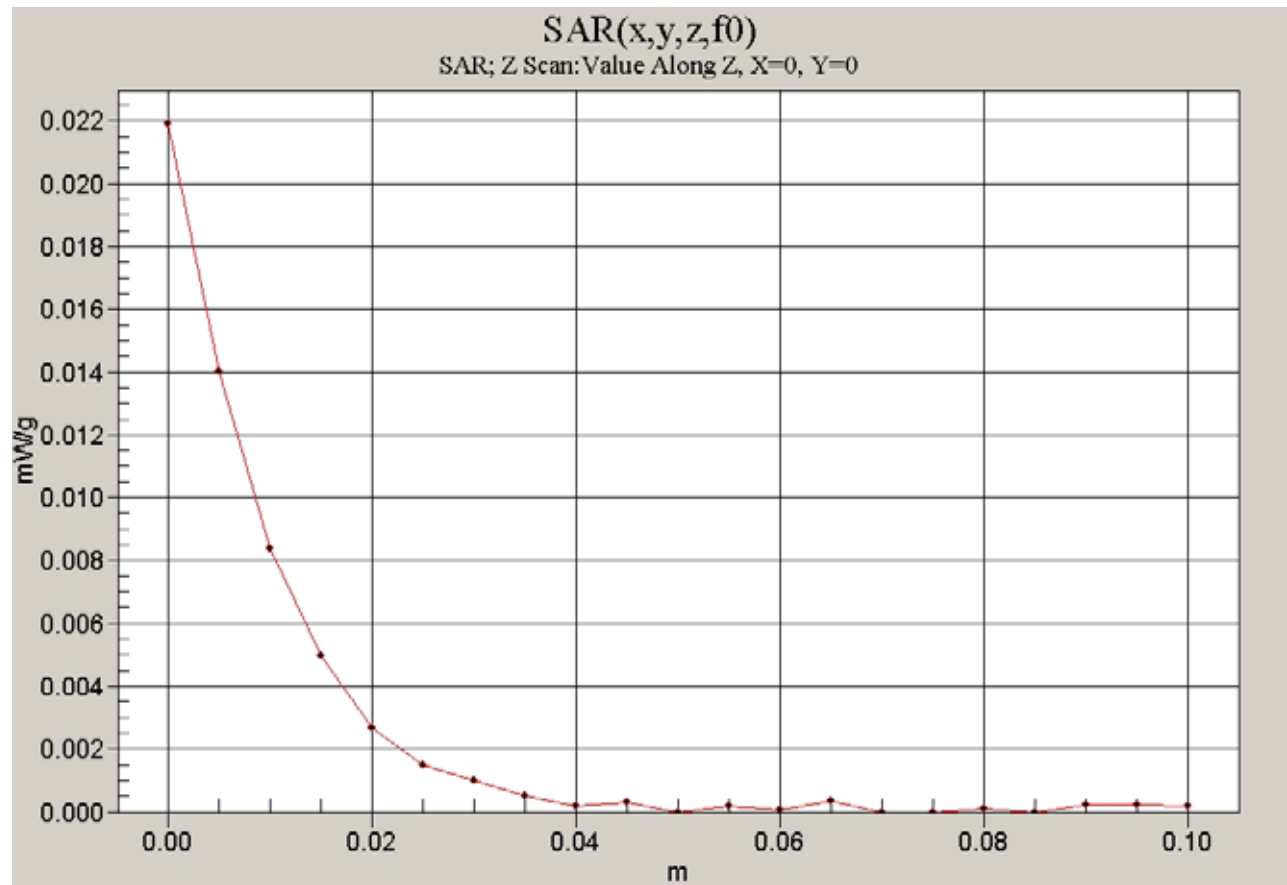
DASY4 Configuration:
 - Probe: ET3DV6 - SN1782; ConvF(4.48, 4.48, 4.48); Calibrated: 2010-04-28
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn567; Calibrated: 2009-12-09
 - Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_11b_Mid_Cheek_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.060 mW/g

RE_11b_Mid_Cheek_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 2.33 V/m; Power Drift = -0.185 dB
 Peak SAR (extrapolated) = 0.107 W/kg
 SAR(1 g) = 0.047 mW/g; SAR(10 g) = 0.022 mW/g
 Maximum value of SAR (measured) = 0.049 mW/g



Z Scan



Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Head_RE_Slide Up.da4](#)

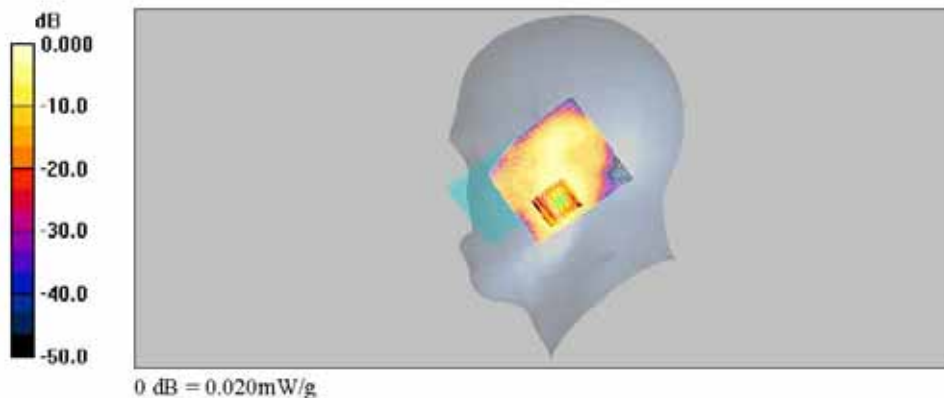
DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: WLAN_Head

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1782; ConvF(4.48, 4.48, 4.48); Calibrated: 2010-04-28
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn567; Calibrated: 2009-12-09
 - Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_11g_Mid_Cheek_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.023 mW/g

RE_11g_Mid_Cheek_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 1.26 V/m; Power Drift = 0.141 dB
 Peak SAR (extrapolated) = 0.044 W/kg
 SAR(1 g) = 0.018 mW/g; SAR(10 g) = 0.0086 mW/g
 Maximum value of SAR (measured) = 0.020 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Head_RE_Slide Up.da4](#)

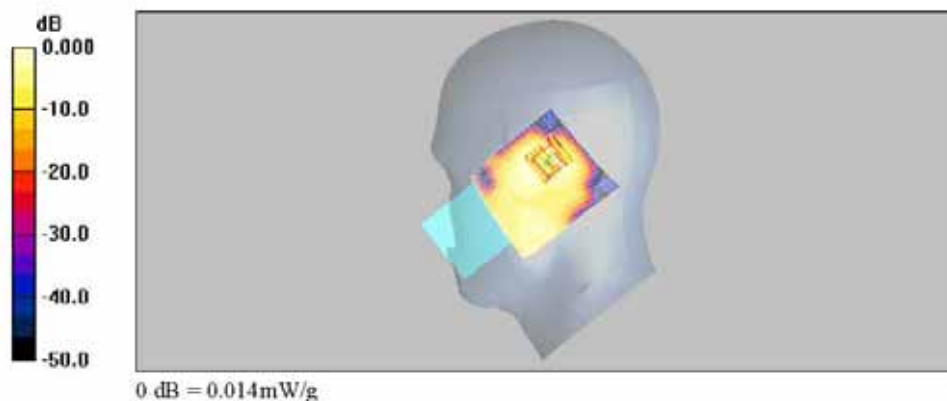
DUT: C320I; Type: Slide Up; Serial: 005KPHG0774273
Program Name: WLAN_Head

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1782; ConvF(4.48, 4.48, 4.48); Calibrated: 2010-04-28
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn567; Calibrated: 2009-12-09
 - Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_11b_Mid_Tilt_Slide Up/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.016 mW/g

RE_11b_Mid_Tilt_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 2.83 V/m; Power Drift = -0.058 dB
 Peak SAR (extrapolated) = 0.025 W/kg
SAR(1 g) = 0.012 mW/g; SAR(10 g) = 0.00657 mW/g
 Maximum value of SAR (measured) = 0.014 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Head_RE_Slide Down.da4](#)

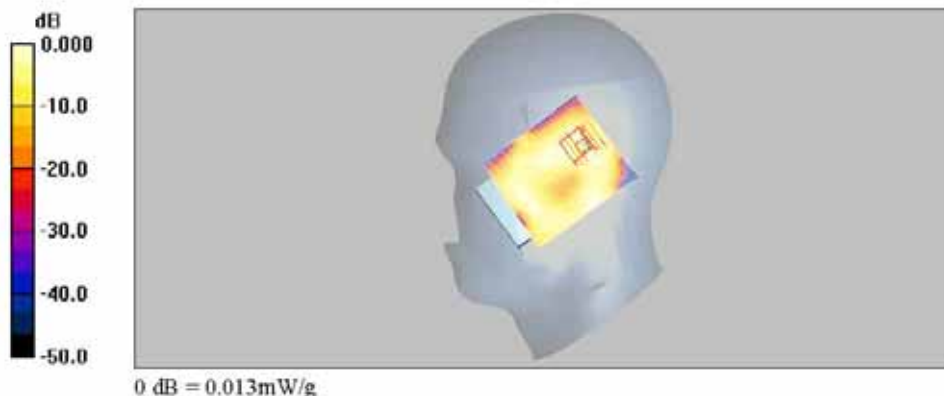
DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: WLAN_Head

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1782; ConvF(4.48, 4.48, 4.48); Calibrated: 2010-04-28
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn567; Calibrated: 2009-12-09
 - Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_11b_Mid_Cheek_Slide Down/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.012 mW/g

RE_11b_Mid_Cheek_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 1.87 V/m; Power Drift = -0.134 dB
 Peak SAR (extrapolated) = 0.027 W/kg
 SAR(1 g) = 0.012 mW/g; SAR(10 g) = 0.00558 mW/g
 Maximum value of SAR (measured) = 0.013 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Head_RE_Slide Down.da4](#)

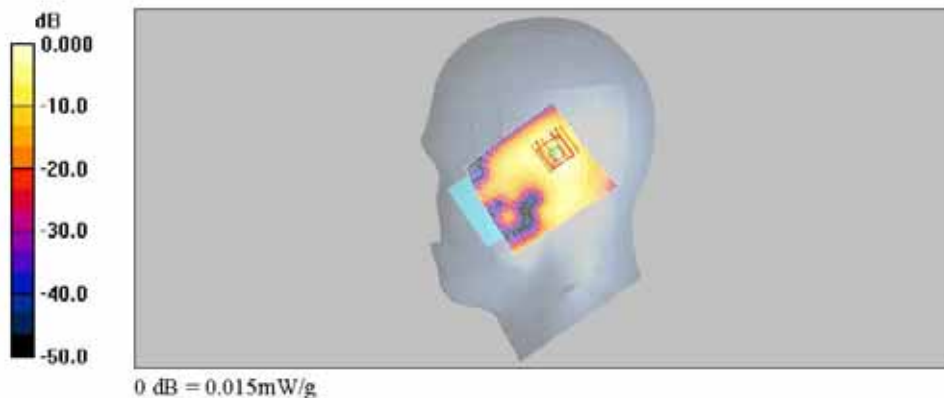
DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: WLAN_Head

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:
 - Probe: ET3DV6 - SN1782; ConvF(4.48, 4.48, 4.48); Calibrated: 2010-04-28
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn567; Calibrated: 2009-12-09
 - Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_11b_Mid_Tilt_Slide Down/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.013 mW/g

RE_11b_Mid_Tilt_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 2.16 V/m; Power Drift = -0.038 dB
 Peak SAR (extrapolated) = 0.026 W/kg
 SAR(1 g) = 0.013 mW/g; SAR(10 g) = 0.00641 mW/g
 Maximum value of SAR (measured) = 0.015 mW/g



WLAN Body SAR Test

Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Body_Slide Up.d4](#)

DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: Body

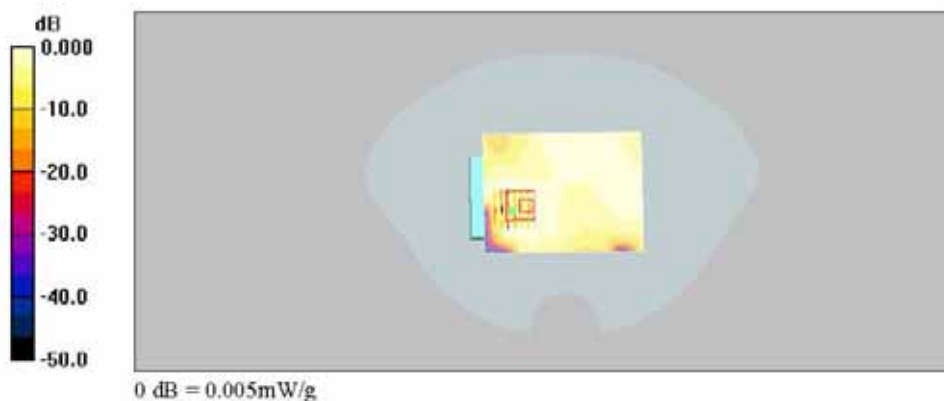
Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.91$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.07, 4.07, 4.07); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Front_Mid_11b_Slide Up/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.007 mW/g

Body_Front_Mid_11b_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 1.09 V/m; Power Drift = -0.063 dB
 Peak SAR (extrapolated) = 0.010 W/kg
SAR(1 g) = 0.00483 mW/g; SAR(10 g) = 0.00251 mW/g
 Maximum value of SAR (measured) = 0.005 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Body_Slide Up.d4](#)

DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: Body

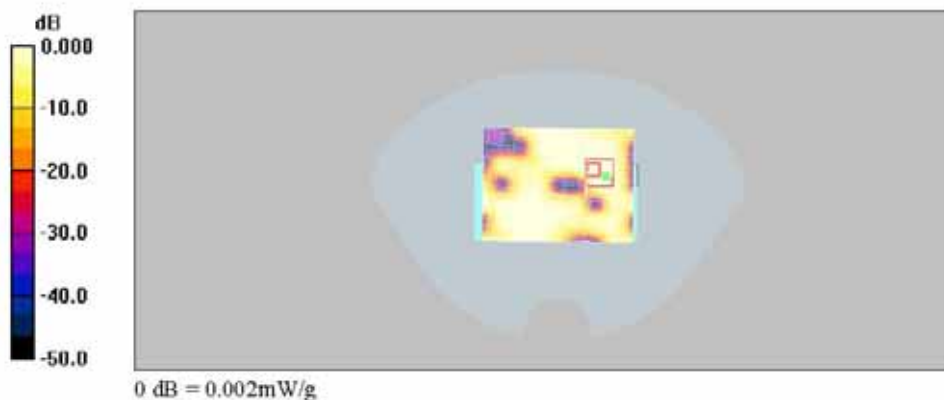
Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.91$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.07, 4.07, 4.07); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Front_Mid_11g_Slide Up/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.003 mW/g

Body_Front_Mid_11g_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 0.525 V/m; Power Drift = -0.144 dB
 Peak SAR (extrapolated) = 0.008 W/kg
 SAR(1 g) = 0.00169 mW/g; SAR(10 g) = 0.000588 mW/g
 Maximum value of SAR (measured) = 0.002 mW/g



Test Laboratory: SGS Testing Korea
 File Name: WLAN_Body_Slide Up.d4

DUT: C320i; Type: Slide Up; Serial: 005KPHG0774273
 Program Name: Body

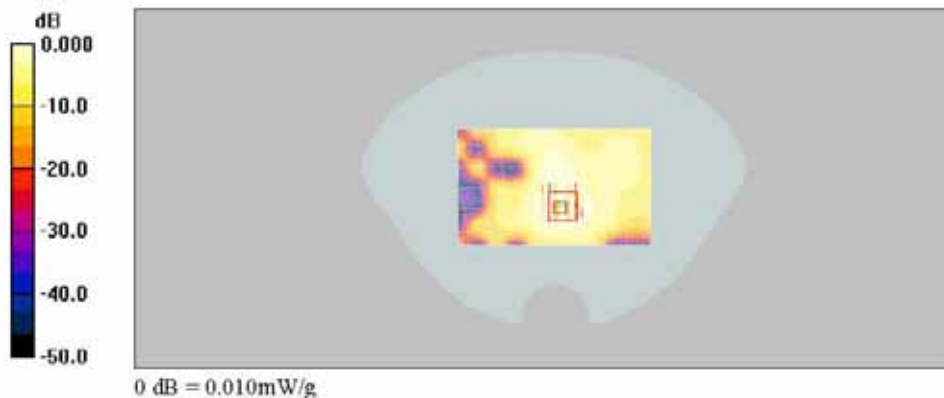
Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.91$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.07, 4.07, 4.07); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Back_Mid_11b_Slide Up/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.010 mW/g

Body_Back_Mid_11b_Slide Up/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 2.09 V/m; Power Drift = -0.152 dB
 Peak SAR (extrapolated) = 0.027 W/kg
 SAR(1 g) = 0.00985 mW/g; SAR(10 g) = 0.0052 mW/g
 Maximum value of SAR (measured) = 0.010 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Body_Slide Down.da4](#)

DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: Body

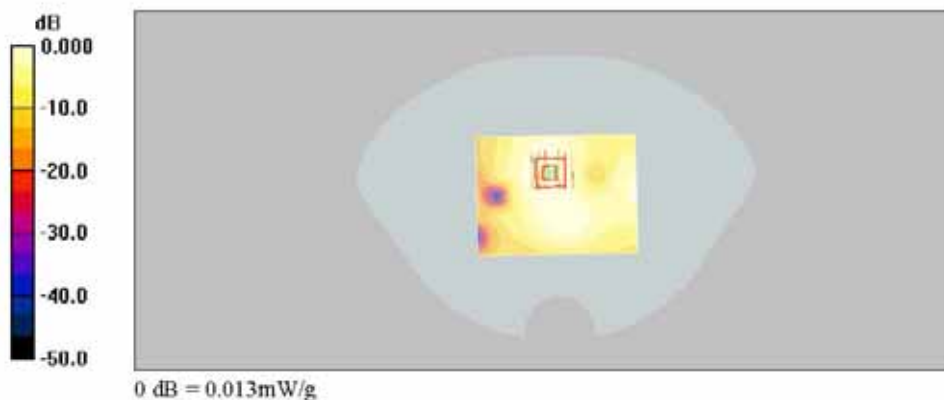
Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.91$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.07, 4.07, 4.07); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Back_Mid_11b_Slide Down/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.013 mW/g

Body_Back_Mid_11b_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 2.34 V/m; Power Drift = 0.077 dB
 Peak SAR (extrapolated) = 0.032 W/kg
 SAR(1 g) = 0.012 mW/g; SAR(10 g) = 0.00656 mW/g
 Maximum value of SAR (measured) = 0.013 mW/g



Test Laboratory: SGS Testing Korea
 File Name: [WLAN_Body_Slide Down.da4](#)

DUT: C320i; Type: Slide Down; Serial: 005KPHG0774273
 Program Name: Body

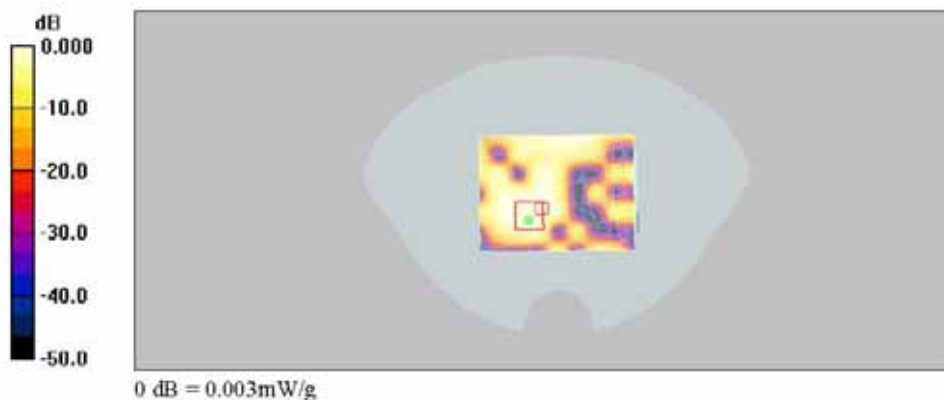
Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.91$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1782; ConvF(4.07, 4.07, 4.07); Calibrated: 2010-04-28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn567; Calibrated: 2009-12-09
- Phantom: SAM MIC #2000-93 with CRP; Type: SAM MIC #2000-93; Serial: TP-1299
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body_Front_Mid_11b_Slide Down/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.004 mW/g

Body_Front_Mid_11b_Slide Down/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 0.576 V/m; Power Drift = 0.017 dB
 Peak SAR (extrapolated) = 0.011 W/kg
 SAR(1 g) = 0.00256 mW/g; SAR(10 g) = 0.00103 mW/g
 Maximum value of SAR (measured) = 0.003 mW/g



Appendix B

Uncertainty Analysis

a	b	c	d	e = f(d,k)	g	i = cxg/e	k
Uncertainty Component	Section in P1528	Tol (%)	Prob. Dist.	Div.	Ci (1g)	1g _{ui} (%)	Vi (Veff)
Probe calibration	E.2.1	6.3	N	1	1	6.30	∞
Axial isotropy	E.2.2	0.5	R	1.73	0.71	0.20	∞
hemispherical isotropy	E.2.2	2.6	R	1.73	0.71	1.06	∞
Boundary effect	E.2.3	0.8	R	1.73	1	0.46	∞
Linearity	E.2.4	0.6	R	1.73	1	0.35	∞
System detection limit	E.2.5	0.25	R	1.73	1	0.14	∞
Readout electronics	E.2.6	0.3	N	1	1	0.30	∞
Response time	E.2.7	0	R	1.73	1	0.00	∞
Integration time	E.2.8	2.6	R	1.73	1	1.50	∞
RF ambient Condition - Noise	E.6.1	3	R	1.73	1	1.73	∞
RF ambient Condition - reflections	E.6.1	3	R	1.73	1	1.73	∞
Probe positioning - mechanical tolerance	E.6.2	1.5	R	1.73	1	0.87	∞
Probe positioning - with respect to phantom	E.6.3	2.9	R	1.73	1	1.67	∞
Max. SAR evaluation	E.5.2	1	R	1.73	1	0.58	∞
Test sample positioning	E.4.2	2.3	N	1	1	2.30	9
Device holder uncertainty	E.4.1	3.6	N	1	1	3.60	∞
Output power variation - SAR drift measurement	6.62	5	R	1.73	1	2.89	∞
Phantom uncertainty (shape and thickness tolerances)	E.3.1	4	R	1.73	1	2.31	∞
Liquid conductivity - deviation from target values	E.3.2	5	R	1.73	0.64	1.85	∞
Liquid conductivity - measurement uncertainty	E.3.2	1.2	N	1	0.64	0.77	5
Liquid permittivity - deviation from target values	E.3.3	5	R	1.73	0.6	1.73	∞
Liquid permittivity - measurement uncertainty	E.3.3	1.1	N	1	0.6	0.66	5
Combined standard uncertainty				RSS		9.63	2754
Expanded uncertainty (95% CONFIDENCE INTERVAL)				K=2		19.27	



Report File No. : F690501/RF-SAR001878
Date of Issue : 2010-07-16
Page : 77 / 120

Appendix C

Calibration Certificate

- PROBE

- DAE

- 835 MHz, 1900 MHz, 2450 MHz DIPOLE

- PROBE Calibration Certificate

Calibration Laboratory of
 Schmid & Partner
 Engineering AG
 Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
 C Service suisse d'étalonnage
 S Servizio svizzero di taratura
 S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
 The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client **SGS-KES (Dymstec)**

Certificate No: **ET3-1782_Apr10**

CALIBRATION CERTIFICATE

Object **ET3DV6 - SN:1782**

Calibration procedure(s) **QA CAL-01.v6, QA CAL-12.v6, QA CAL-23.v3 and QA CAL-25.v2
 Calibration procedure for dosimetric E-field probes**

Calibration date: **April 28, 2010**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&STE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498067	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	20-Sep-09 (No. DAE4-660_Sep09)	Sep-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

Calibrated by:	Name	Function	Signature
	Jeton Kastrab	Laboratory Technician	
Approved by:	Name	Function	Signature
	Katja Pokovic	Technical Manager	

Issued: April 28, 2010

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Calibration Laboratory of
Schmid & Partner
Engineering AG
 Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
 The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,y,z}**: A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical Isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

ET3DV6 SN:1782

April 28, 2010

Probe ET3DV6

SN:1782

Manufactured:	April 15, 2003
Last calibrated:	April 30, 2009
Modified:	April 27, 2010
Recalibrated:	April 28, 2010

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)