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SAR Compliance Test Report

APPLICANT NAME & ADDRESS :

LG Electronics Inc.
459-9, Kasan-dong, Keumchun-ku,
Seoul 153-023, Korea

DATA & LOCATION OF TESTING

Dates of testing : 2006 2/1 ~ 3/7
Test Site : ESTECH Co., Ltd. Korea

Test Device :

Models : MG810

FCC ID : BEJMG810

TYPE : GSM Phone with Bluetooth (Prototype)

Test report no :

ESTSAR0603-002

Number of page :

25

Contact person :

Bong Hyo, Han

Responsible test Engineer :

K.H.Kang

Testing has been
Carried out in
Accordance with :

IEEE P1528-200X Draft 6.4

Recommended Practice for Determining the Peak Spatial-Average Specific
Absorption Rate(SAR) in the Human Body Due to Wireless Communications

Device : Experimental Techniques

Applicant Type :

Certification

FCC CLASSIFICATION :

Licensed Non-Broadcast Transmitter Held to Ear (TNE)
Licensed Portable Transmitter Held to Ear (PCE)

FCC Rule Part(s)

§2.1093; FCC/OET Bulletin 65 Supplement C (July 2001)

Test results :

The Tested device complies with the requirements in respect of all
parameters subject to the test. The test results and statements relate only
to the items tested. The test report shall not be reproduced receipt in full,
without written approval of the laboratory.

Date and Signatures : 2006/3/7

Report Prepared By : Engineer/ K.H.Kang

(Signature)

Manager Engineer/ Jay Kim

(Signature)

Test report no : ESTSAR0603-002

FCC ID : BEJMG810

Web : www. estech. co. kr

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1. SUMMARY FOR TEST REPORT

FCC ID	BEJMG810
Date of test	2006/2/1 ~ 2006/3/7
Responsible test engineer	Jay Kim
Measurement performed by	K.H.Kang
EUT Type	GSM Phone with Bluetooth (Prototype)
Tx Frequency	824.2 ~ 848.8MHz(GSM850), 1850.2 ~ 1909.8 MHz(PCS1900)
Rx Frequency	869.2 ~ 893.8MHz(GSM850), 1930.2 ~ 1989.8 MHz(PCS1900)
Max. RF Output Power	GSM (33 dBm) PCS (30 dBm)

Maximum Results Found During SAR Evaluation under phone call and bluetooth function enable

1.1 Head Configuration

Max. SAR Measurement

FREQUENCY		Modulation	Conducted Power(dBm)		Device test position	Antenna position	SAR (W/kg)
MHz	Ch		dBm	Battery			
848.8	251	GSM	33	Standard	Right Touch	—	0.441
1909.8	810	GSM	30	Standard	Right Touch	—	0.628

1.2 Body Worn Configuration

Max. SAR Measurement

FREQUENCY		Modulation	Conducted Power(dBm)		Separation test position	Antenna position	SAR (W/kg)
MHz	Ch		dBm	Battery			
848.8	251	GSM	33	Standard	1.5cm [w/o Holster]	—	0.518
1909.8	810	GSM	30	Standard	1.5cm [w/o Holster]	—	0.587

1.3 Measurement Uncertainty

Combine Standard Uncertainty	± 10.81 (k=1)
Extended Standard Uncertainty	± 21.62 (k=2, 95% CONFIDENCE LEVEL)



2. INTRODUCTION

The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency radiation in ET Docket 93-62 on Aug. 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable device.[1]

The safety limits used for the environmental evaluation measurements are the criteria published by the based on American National Standards Institute (ANSI) For localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for safety Levels with Respect to Human Exposure to Radio Frequency Electronic Fields, 3 kHz to 300 GHz. (c) 1992 by the institute of Electrical and Electronics Engineers, Inc., New York, New York 10017.[2] The measurement procedure described in IEEE/ANSI C95.3-1992 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave[3] is used for guidance in measuring SAR due to the RF radiation exposure from the Equipment Under Test (EUT). 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 (c) NCRP, 1986, Bethesda, MD 20814.[6] 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.

SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). it is also defined as the rate of rf energy absorption per unit mass at a point in an absorbing body (see Fig. 3.1.).

$$SAR = \frac{d}{dt} \left(\frac{dU}{dm} \right) = \frac{d}{dt} \left(\frac{dU}{\rho dV} \right)$$

Figure 2.1 SAR Mathematical Equation

SAR is expressed in units of Watts per Kilogram (W/kg).

$$SAR = \sigma E^2 / \rho$$

Where:

σ = conductivity of the tissue-simulant material (S/m)

E = mass density of the tissue-simulant material (kg/m³)

ρ = Total RMS electric field strength (V/m)

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3. DESCRIPTION OF THE DEVICE UNDER TEST

The FCC rules for evaluating portable devices for RF exposure compliance are contained in 47 CFR §2.1093. For purposes of RF exposure evaluation, a portable device is defined as a transmitting device designed to be used with any part of its radiating structure in direct contact with the user's body or within 20 centimeters of the body of a user or bystanders under normal operating conditions. This category of devices would include hand-held cellular and PCS telephones that incorporate the radiating antenna into the hand-piece and wireless transmitters that are carried next to the body. Portable devices are evaluated with respect to SAR limits for RF exposure. The applicable SAR limit for portable transmitters used by consumers is 1.6 watts/kg, which is averaged over any one gram of tissue defined as a tissue volume in the shape of a cube.

2.1 Antenna Description

Type	Internal Antenna
Location	the bottom of the device
Radiator Material	Copper

2.2 Device Description

FCC ID	FCC ID : BEJMG810
Serial numbers	-
Exposure environment	Uncontrolled exposure
Device category	Portable device
Mode(s) of Operation	GSM / GPRS
Modulation Mode(s)	GSM
Duty Cycle	8.3
Transmitting	824.2 ~ 848.8MHz(GSM850), 1850.2 ~ 1909.8 MHz(PCS1900)
Frequency Range(s)	
test signal method	☒ Base station simulator ☐ Internal test code

2.3 Battery Options

There is only one battery option available for tested device,



4. TEST CONDITIONS

4.1 Ambient Conditions

Ambient Temperature (°C)	22
Tissue simulating liquid temperature (°C)	22
Humidity (%)	47

4.2 RF Characteristics of The Test Site

Tests were performed in a fully enclosed RF Shielded environment

4.3 Test Signal, Frequencies, And Output Power

The handset was placed into simulated call mode (850MHz GSM, 1900MHz PCS modes) using manufacturers test codes.

In all operation bands the measurements were performed on lowest, middle and highest channels.

The phone was set to maximum power level during the all tests and at the beginning of the each test the battery was fully charged.

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. These records were used to monitor stability of power output.

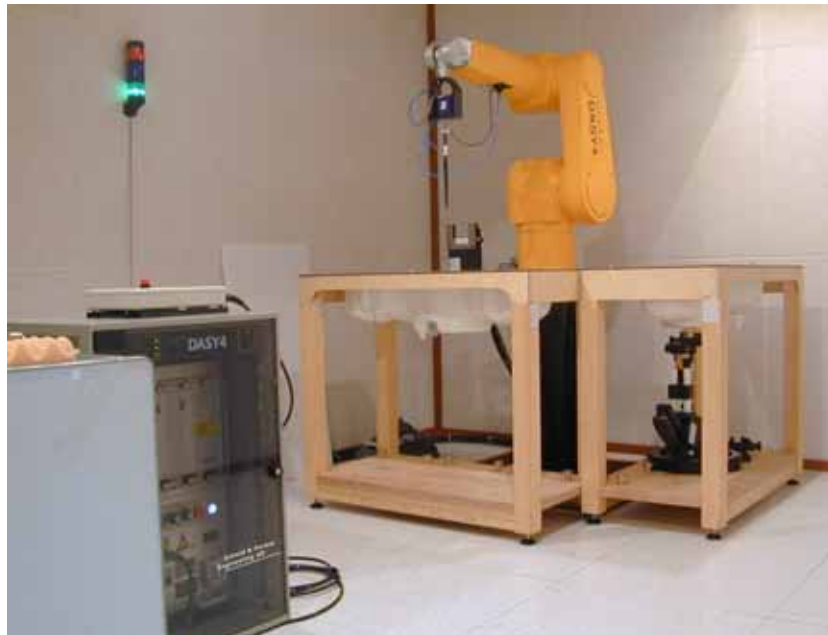


Fig. 4.1 SAR Measurement System



5. DESCRIPTION OF THE TEST EQUIPMENT

An SAR measurement system usually consists of a small diameter isotropic electric field probe, a multiple axis probe positioning system, a test device holder, one or more phantom models, the field probe instrumentation, a computer and other electronic equipment for controlling the probe and making the measurements. Other supporting equipment, such as a network analyzer, power meters and RF signal generators, are also required to measure the dielectric parameters of the simulated tissue media and to verify the measurement accuracy of the SAR system.

5.1 Test System Specifications

Test Equipment	Model	Serial Number	Cal. date
DAE	DAE3	551	2004-04-28
E-Field Probe	ET3DV6	1750	2006-01-24
Dipole validation kit	D1900V2	5d058	2005-01-27
	D835V2	475	2005-02-24
Network analyzer	8753ES	NONE	2005-10-17
Signal generator	E4432B	GB40050840	2006-03-03
RF Power meter	EPM-442A	GB37170412	2005-10-05
Power Sensor	8481A	3318A90368	2005-10-05
RF Power meter	E4418A	GB38272722	2006-03-03
Power Sensor	8481A	3318A90368	2005-10-05
Dielectric Probe	85070D	US01440154	-

5.2 SAR Measurement Setup

Measurement are performed using the DASY4 dosimetric assessment system. The DASY4 is made by Schmid & Partner Engineering AG(SPEAG) in Zurich, Switzerland and consists of high precision robotics system (Staubli), robot controller, Pentium IV computer, near-field probe, probe alignment sensor, and the SAM twin phantom containing the brain equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field(EMF) (see Fig. 5.1) A cell controller system contains the power supply, robot controller, teach pendant(Joystick), and a remote control used to drive the robot motors. The pc consists of the Intel Pentium IV 2.4 GHz computer with Windows2000 system and SAR measurement Software DASY4, A/D interface card, monitor, mouse, and keyboard. The Staubli Robot data acquisition electronic (DAE) circuit that performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc.



5. DESCRIPTION OF THE TEST EQUIPMENT(continued)

Is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

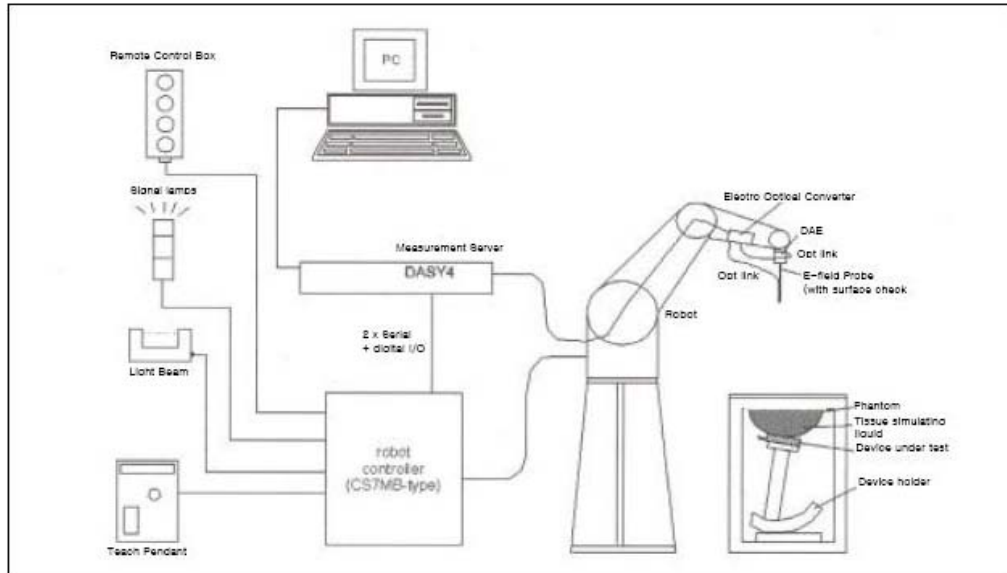


Fig. 5.1 SAR Measurement System Setup

The DAE3 consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gainswitching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer. The system is described in detail in [7].

5.3 DASY4 E-Field Probe System

The SAR measurements were conducted with the dosimetric probe ET3DV6, designed in the classical triangular configuration [7] (see Fig.5.2) and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multifiber line ending at the front of the probe tip. It is connected to the EOC box in the robot arm and provides an automatic detection transmitter, the other half to a synchronized receiver.



5. DESCRIPTION OF THE TEST EQUIPMENT(continued)

As the probe approach the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches coupling is zero. The distance of the coupling maximum to the surface is probe angle. The DASY4 software reads the reflection during a software approach and looks for the maximum using a 2nd order fitting (see Table. 5.2). The approach is stopped at reaching the maximum.

 Isotropic E-Field Probe	Isotropic E-Field Probe for Dosimetric Measurements	
	Construction	Symmetrical design with triangular core Interleafed sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycol)
	Calibration	In air from 10 MHz to 3 GHz In brain and muscle simulating tissue at frequencies of 450 MHz, 900 MHz and 1.8 GHz (accuracy $\pm 8\%$) Calibration for other liquids and frequencies upon request
	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) ± 0.3 dB in brain tissue (rotation normal to probe axis)
	Dynamic Range	5 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB
	Dimensions	Overall length: 330 mm Tip length: 20 mm Body diameter: 12 mm Tip diameter: 3.9 mm Distance from probe tip to dipole centers: 2.7 mm

Fig. 5.2 Probe Specifications



5. DESCRIPTION OF THE TEST EQUIPMENT(continued)

5.4 Phantom & Equivalent Tissues

SAM Phantom

The SAM Twin Phantom V4.0 is constructed of the 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 [11][12]. 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.

Head & Muscle simulation Mixture Characterization

The brain and muscle mixtures consist of a viscous gel using hydroxethylcellulose(HEC) gelling agent and saline solution (see Table 5.1). Preservation with a bactericide is added and visual inspection is made to make sure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the desired tissue. The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 have been specified in P1528 are derived from the issue dielectric parameters computed from the 4-Cole-Cole equations The mixture characterizations used for the brain and muscle tissue simulation liquids are according to the data by C. Gabriel and G. Hartagrove [13]. (see Fig. 5.3)

Frequency	Head		Body	
(MHz)	ϵ_r	σ (S/m)	ϵ_r	σ (S/m)
150	52.3	0.76	61.9	0.8
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.9	55.2	0.97
900	41.5	0.97	55	1.05
915	41.5	0.98	55	1.06
1450	40.5	1.2	54	1.3
1610	40.3	1.29	53.8	1.4
1800-2000	40	1.4	53.3	1.52
2450	39.2	1.8	52.7	1.95
3000	38.5	2.4	52	2.73
5800	35.3	5.27	48.2	6

Fig.5.3 Head and body tissue parameters by the IEEE SCC-34/SC-2 in P1528



5. DESCRIPTION OF THE TEST EQUIPMENT(continued)

835MHz			1900MHz		
	Head	Body		Head	Body
Sugar	47.31%	34.31%	DGBE(diethylene Glycol buty Ether)	44.91%	29.96%
Deionized water	51.07%	65.45%	Deionized water	54.88%	69.91%
Salt	1.15%	0.62%	Salt	0.21%	0.13%
HEC (hydroxyethyl cellulose)	0.24%				
Preventol	0.24%	0.10%			
ϵ	$41.0 \pm 5\%$	$55.2 \pm 5\%$	ϵ	$40.0 \pm 5\%$	$53.3 \pm 5\%$
σ	$0.89 \pm 10\%$	$0.97 \pm 10\%$	σ	$1.45 \pm 10\%$	$1.52 \pm 10\%$

Fig. 5.4 Composition of the Tissue Equivalent Matter

Device Holder for Transmitters

In combination with the SAM Twin Phantom V4.0, the Mounting Device enables the rotation of the accurately, and repeatably be positioned according to the FCC specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).

Note : A simulating human hand is not used due to the complex anatomical and geometrical structure of the hand that may produce infinite number of configurations [12]. To produce the worst-case condition (the hand absorbs antenna output power), the hand is omitted during the tests.



6. DESCRIPTION OF THE TEST PROCEDURE

6.1 Definition of Reference Point

EAR Reference point

The point “M” is the reference point for the center of the mouth, “ERP” is the ear reference point. The ERP are 15mm posterior to the entrance to the ear canal(EEC) along the B-M line (Back-Mouth), as shown is figure 6.1. The plane passing through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck-Front) is perpendicular to the reference plane and passing through the ERP is called the Reference Pivoting Line (see Figure 6.1) B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning [5].

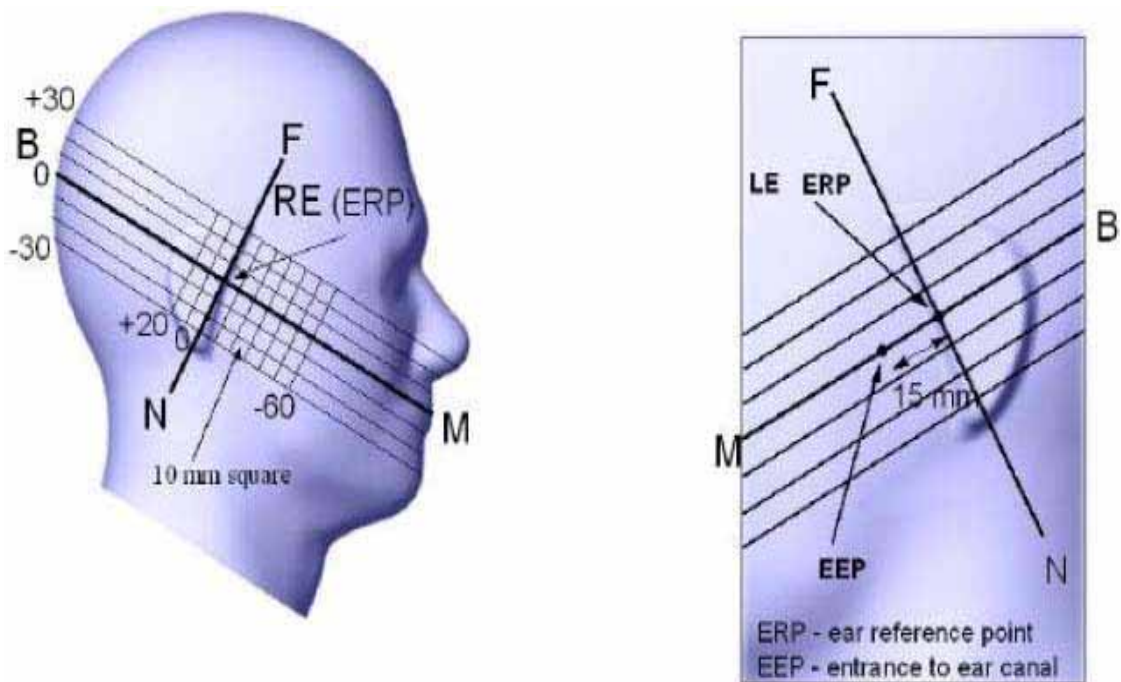


Figure 6.1 Close-up side view of ERP

Handset Reference Points

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the “test device reference point” located along the “vertical centerline” on the front of the device aligned to the “ear reference point” (see Fig. 6.2). The “test device reference point” was then located at the same level as the center of the ear reference point. The test device was positioned so that the “vertical centerline” was bisecting the front surface of the handset at it’s top and bottom edges, positioning the “ear reference point” on the outer surface of the both the left and right head phantoms on the ear reference point” on the outer surface of the both the left and right head phantoms on the ear reference point.

6. DESCRIPTION OF THE TEST PROCEDURE(continued)

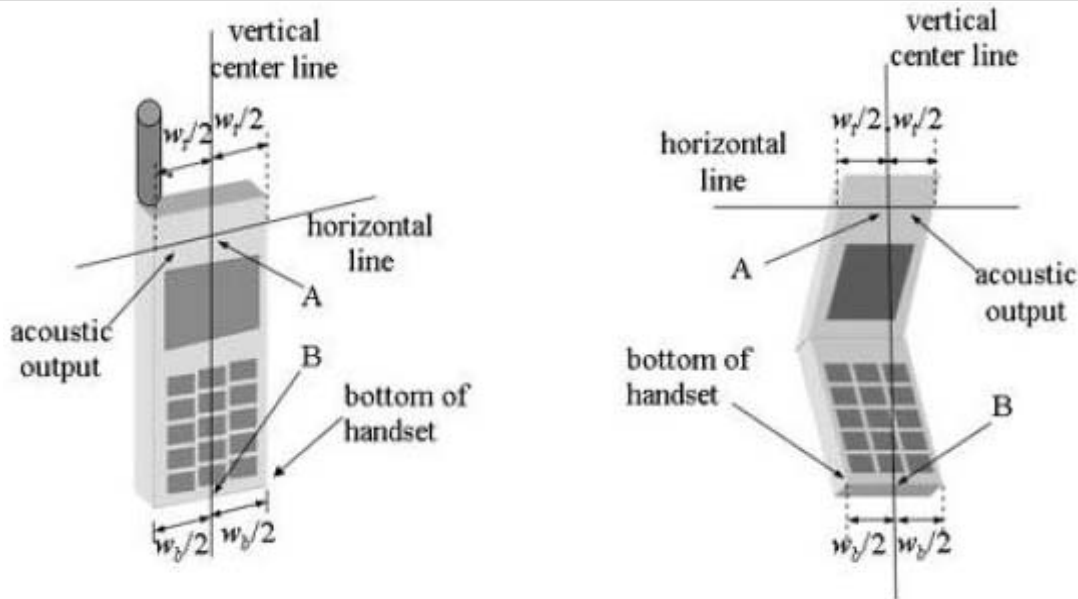


Figure 6.2 Handset Vertical Center & Horizontal Line Reference Points

6.2 Test Configuration Positions

Positioning for Cheek/Touch

- 1) Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece, open the cover. (If the phone can also be used with the cover closed, both configurations must be tested.)
- 2) Define two imaginary lines on the handset: the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset: the midpoint of the width w_t of the handset at the level of the acoustic output (point A on Figures 6.2), and the midpoint of the width w_b of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 6.2). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output. However, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 6.2), especially for clamshell handsets, handsets with lip pieces, and other irregularly-shaped handsets.
- 3) Position the handset close to the surface of the phantom touch that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 6.3), such that the plane defined by the vertical center line and the horizontal line of the phone is approximately parallel to the sagittal plane of the phantom.

6. DESCRIPTION OF THE TEST PROCEDURE(continued)

- 4) Translate the handset towards the phantom along the line passing through RE and LE until the handset touches the ear.
- 5) While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to MB-NF including the line MB (called the reference plane).
- 6) Rotate the phone around the vertical centerline until the phone (horizontal line) is symmetrical with respect to the line NF.
- 7) While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the phone contact with the ear, rotate the handset about the line NF until any point on the handset is in contact with a phantom point

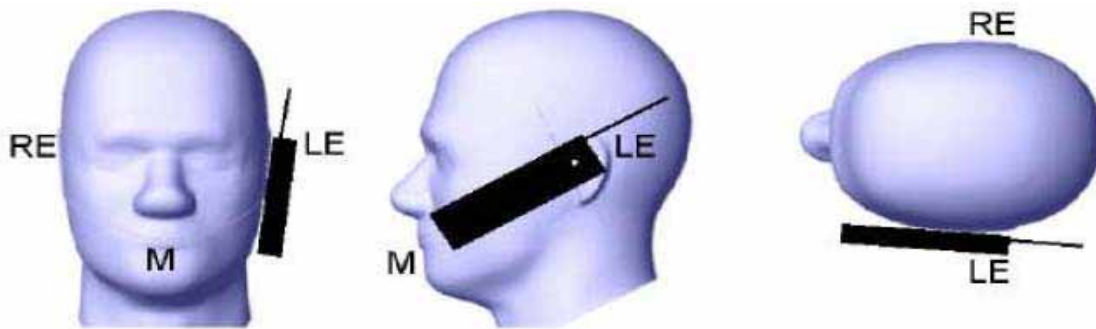


Figure 6.3 "Cheek" or "Touch" Position.

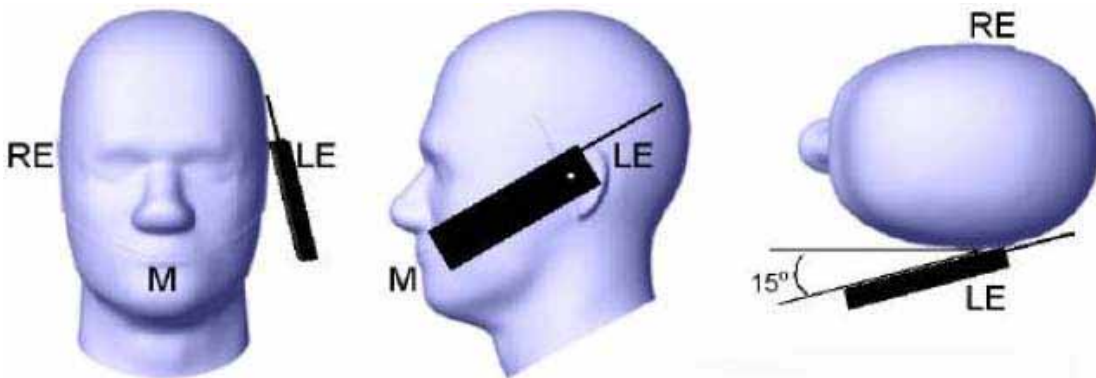


Figure 6.4 "Tilted" Position.



6. DESCRIPTION OF THE TEST PROCEDURE(continued)

Positioning for Ear / 15° Tilted

- 1) Repeat steps 1 to 7 of 6.2(Positioning for Cheek/Touch) to place the device in the "cheek position."
- 2) While maintaining the orientation of the phone retract the phone parallel to the reference plane far enough to enable a rotation of the phone by 15 degree.
- 3) Rotate the phone around the horizontal line by 15 degree.
- 4) While maintaining the orientation of the phone, move the phone parallel to the reference plane until any part of the phone touches the head. (In this position, point A will be located on the line RE-LE). The tilted position is obtained when the contact is on the pinna. If the contact is at any location other than the pinna, the angle of the phone shall be reduced. The tilted position is obtained if any part of the phone is in contact of the ear as well as a second part of the phone is contact with the head.

Body Holder / Belt Clip Configurations

Body-worn operation configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration. A device with a headset output is tested with a headset connected to the device. Body dielectric parameters are used.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are supplied with the device, the device is tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied of available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration where a separation distance between the back of the device and the flat phantom is used. All test position spacings are documented. Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance is tested with the accessory(ies), including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration. In all case SAR measurements are performed to investigate the worst case positioning. Worst-case positioning is then documented and used to perform Body SAR testing.

In order for users to be aware of the body-worn operation requirements for meeting RF exposure compliance, operation instructing instructions and cautions statements are included in the user's manual.



6. DESCRIPTION OF THE TEST PROCEDURE(continued)

6.3 Scan Procedures

First coarse scans are used for quick determination of the field distribution. Nest cube scan, 7x7x7 points; spacing between each point 5x5x5 mm, is performed around the highest E-field value to determine the averaged SAR-distribution over 1g.

6.4 SAR Averaging Methods

The maximum SAR value is averaged over its volume using interpolation and extrapolation.

The interpolation of the points is done with a 3d-Spline. The 3d-Spline is composed of three one-dimensional splines with the "Not a Knot" condition [W.Gander, Computermathematik, p. 141-150](x, y and z directions) [Numerical Recipes in C, Second Edition, p 123].

The extrapolation is based on least square algorithm [W.Gander, Computermathematik, p. 168-180]. Through the points in the first 30 mm in all z-axis, polynomials of order four are calculated. This polynomial is then used to evaluate the points between the surface and the probe tip. The points calculated from the surface, have a distance of 1mm from one another.



7. MEASUREMENT UNCERTAINTY

According to CENELEC [17], typical worst-case uncertainty of field measurements is 5 dB.

For well-defined modulation characteristics the uncertainty can be reduced to 3 dB.

ERROR Description	Uncertainty	Probability	Divisor	ci 1	Standard unc.	vi or
	value ±%	Distribution		1g	(1g)	Veff
MEASUREMENT SYSTEM						
Probe Calibration	± 11.7 %	normal	1	1	± 4.8 %	∞
Axial Isotropy	± 4.7	rectangular	√ 3	(1-cp) ^{1/2}	± 1.9%	∞
Hemispherical Isotropy	± 9.6	rectangular	√ 3	(cp) ^{1/2}	± 3.9%	∞
Boundary Effects	± 1.0	rectangular	√ 3	1	± 0.6%	∞
Linearity	± 4.7	rectangular	√ 3	1	± 2.7%	∞
System Detection Limits	± 1.0	rectangular	√ 3	1	± 0.6%	∞
Readout Electronics	± 1.0	normal	1	1	± 1.0%	∞
Response time	± 0.8	rectangular	√ 3	1	± 0.5%	∞
Integration time	± 2.6	rectangular	√ 3	1	± 1.5%	∞
RF Amnient Conditions	± 3.0	rectangular	√ 3	1	± 1.7%	∞
Probe Positioner Mechanical Tolerance	± 0.4	rectangular	√ 3	1	± 0.2%	∞
Probe Positioning with respect to Phantom Shell	± 2.9	rectangular	√ 3	1	± 1.7%	∞
Extrapolation, Interpolation and Integration Algorithms for Max. SAR Evaluation	± 1.0	rectangular	√ 3	1	± 0.6%	∞
Test Sample Related						
Test Sample Positioning	± 2.9	normal	1	1	± 2.97%	145
Device Holder Uncertainty	± 3.6	normal	0.84	1	± 3.69%	5
Output Power Validation – SAR drift measurement	± 5.0	rectangular	√ 3	1	± 2.9%	∞
Phantom and Tissue Parameters						
Phantom Uncertainty (shape and thickness tolerances)	± 4.0	rectangular	√ 3	1	± 2.3%	∞
Liquid conductivity Target – tolerance	± 5.0	rectangular	√ 3	0.64	± 1.8%	∞
Liquid Conductivity – measurement uncertainty	± 2.5	normal	1	0.64	± 1.6%	∞
Liquid permittivity Target – tolerance	± 5.0	rectangular	√ 3	0.6	± 1.7%	∞
Liquid Permittivity – measurement uncertainty	± 2.5	normal	1	0.6	± 1.5%	∞
Combined Standard Uncertainty					± 11.32 %	330
Coverage Factor for 95%				K = 2		
Expanded Standard Uncertainty					± 22.64 %	



8. SYSTEM VERIFICATION

Tissue Verification

Table 8.1 Simulated Tissue Verification [5]

MEASURED TISSUE PARAMETERS										
Liquid Temperature (°C)		22		Liquid Depth(mm)		150				
Date	2006-3-7	2006-3-7		2006-3-6		2006-3-6				
Tissue	1900MHz Brain	1900MHz Muscle		835MHz Brain		835MHz Muscle				
	Target	Measured	Target	Measured	Target	Measured	Target	Measured		
Dielectric Constant: ϵ	40	39.5	53.3	51.5	41.5	40.3	55.2	52.5		
Conductivity: σ	1.45	1.4	1.52	1.52	0.9	0.901	0.97	0.962		
Deviation (%)	ϵ : -1.25%		ϵ : -3.38%		ϵ : -2.89%		ϵ : -4.89%			
	σ : -3.45%		σ : 0.00%		σ : 0.11%		σ : -0.82%			

Test System Validation

- Prior to assessment, the system is verified to the $\pm 10\%$ of the specifications at 835MHz,1900MHz (Graphic Plots Attached)
- The results are nominalized to 1W input power

Table 8.2 System Validation [5]

SYSTEM DIPOLE VALIDATION TARGET & MEASURED						
Tissue	System Validation Kit:	Forward Power (mW)	Targeted SAR1g (mW/g)	Measured SAR1g (mW/g)	Deviation (%)	Test Date
1900MHz Brain	D1900V2(S/N :5d058)	1.0	39.2	40	-2.04%	2006-3-7
835MHz Brain	D835V2(S/N :475)	1.0	9.5	9.64	-1.47%	2006-3-6

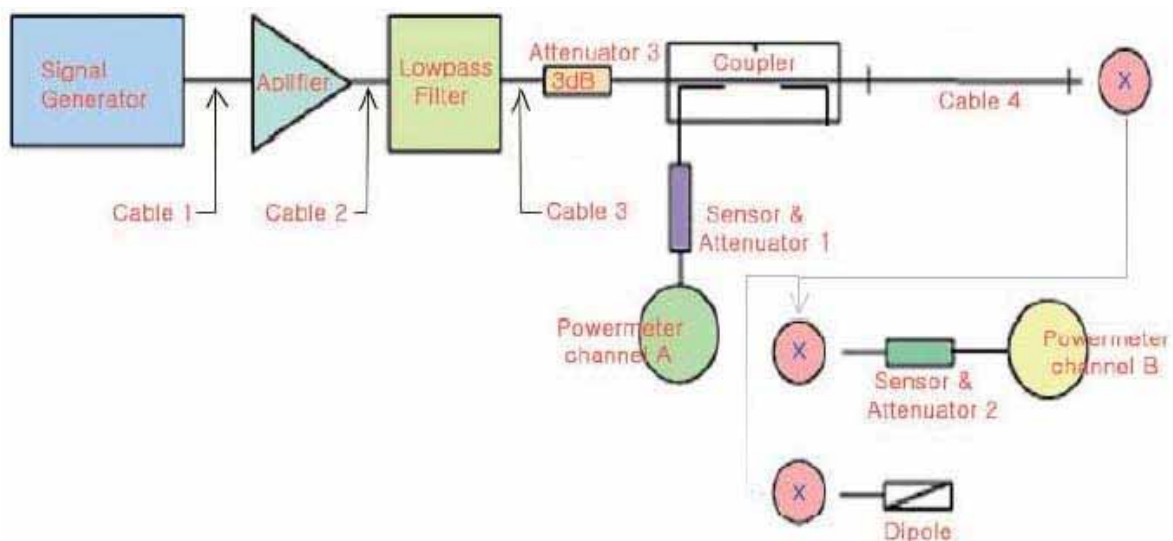


Figure 12.1 Dipole Validation Test Setup

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9. RESULTS(continued)

Ambient TEMPERATURE (C) : 22.0Relative HUMIDITY (%) : 47Mixture Type : 835MHz BrainDielectric Constant : 40.3Conductivity: 0.901

Measurement Results (GSM Head SAR-Touch)

ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Brain 1.6 W/kg (mW/g) averaged over 1 gram
---	--

MEASUREMENT RESULTS (GSM Left Head SAR – Touch)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
824.20	128	GSM	33.00	32.94	Standard	Cheek Touch	–	0.369
836.60	190	GSM	33.00	32.86	Standard	Cheek Touch	–	0.388
848.80	251	GSM	33.00	32.95	Standard	Cheek Touch	–	0.433

MEASUREMENT RESULTS (GSM Right Head SAR – Touch)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
824.20	128	GSM	33.00	32.97	Standard	Cheek Touch	–	0.319
836.60	190	GSM	33.00	32.98	Standard	Cheek Touch	–	0.375
848.80	251	GSM	33.00	33.04	Standard	Cheek Touch	–	0.441

NOTES:

1. The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration.
2. All modes of operation were investigated and the worst-case are reported.
3. Battery Type : Standard
Radiated measurements indicate that the Extended-life battery produces lower ERP and EIRP, therefore the Standard-life battery is used in SAR testing.
4. Power Measured : Conducted
5. SAR Measurement System : SPEAG
6. SAR Configuration : Head, Bluetooth function enable

Engineer K.H.Kang

(Signature)

Test report no : ESTSAR0603-002

FCC ID : BEJMG810

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426-5, Gasan-dong, Geumcheon-gu,
Seoul, 153-803, KoreaTEL: 82-2-867-3201
FAX: 82-2-867-3204**9. RESULTS(continued)**Ambient TEMPERATURE (C) : **22.0**Relative HUMIDITY (%) : **47**Mixture Type : **835MHz Brain**Dielectric Constant : **40.3**Conductivity: **0.901****Measurement Results (GSM Head SAR-Tilt)**

ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Brain 1.6 W/kg (mW/g) averaged over 1 gram
---	--

MEASUREMENT RESULTS (GSM Left Head SAR – Tilt)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
836.60	190	GSM	33.00	32.94	Standard	Tilt	–	0.224

MEASUREMENT RESULTS (GSM Right Head SAR – Tilt)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
836.60	190	GSM	33.00	32.92	Standard	Tilt	–	0.223

NOTES:

1. The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration.
2. All modes of operation were investigated and the worst-case are reported.
3. Battery Type : **Standard**
Radiated measurements indicate that the Extended-life battery produces lower ERP and EIRP, therefore the Standard-life battery is used in SAR testing.
4. Power Measured : **Conducted**
5. SAR Measurement System : **SPEAG**
6. SAR Configuration : **Head, Bluetooth function enable**

Engineer K.H.Kang

(Signature)

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9. RESULTS(continued)

Ambient TEMPERATURE (C) : 21Relative HUMIDITY (%) : 48Mixture Type : 835MHz BodyDielectric Constant : 52.5Conductivity: 0.962

Measurement Results (GSM BODY SAR without Holster)

ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Body 1.6 W/kg (mW/g) averaged over 1 gram
---	---

MEASUREMENT RESULTS (GSM Body SAR Without Holster)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
824.20	128	GSM	33.00	33.01	Standard	1.5[w/o Holster]	—	0.361
836.60	190	GSM	33.00	32.98	Standard	1.5[w/o Holster]	—	0.476
848.80	251	GSM	33.00	32.98	Standard	1.5[w/o Holster]	—	0.518

MEASUREMENT RESULTS (GSM Body SAR Without Holster – BT disable)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
824.20	128	GSM	33.00	32.91	Standard	1.5[w/o Holster]	—	0.509

MEASUREMENT RESULTS (GSM Body SAR Without Holster – GPRS)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
824.20	128	GSM	33.00	32.99	Standard	1.5[w/o Holster]	—	0.461

NOTES:

- The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration.
- All modes of operation were investigated and the worst-case are reported.
- Battery Type : Standard
Radiated measurements indicate that the Extended-life battery produces lower ERP and EIRP, therefore the Standard-life battery is used in SAR testing.
- Power Measured : Conducted
- SAR Measurement System : SPEAG
- SAR Configuration : Body, Bluetooth function enable, disable and GPRS mode

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9. RESULTS(continued)

Ambient TEMPERATURE (C) : 20.0Relative HUMIDITY (%) : 48Mixture Type : 1900MHz BrainDielectric Constant : 39.5Conductivity: 1.4

Measurement Results (PCS Head SAR-Touch)

ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Brain 1.6 W/kg (mW/g) averaged over 1 gram
---	--	--	--	--	--	--	--

MEASUREMENT RESULTS (PCS Left Head SAR – Touch)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
1850.20	512	GSM	30.00	29.95	Standard	Cheek Touch	—	0.302
1880.00	661	GSM	30.00	29.95	Standard	Cheek Touch	—	0.370
1909.80	810	GSM	30.00	29.97	Standard	Cheek Touch	—	0.491

MEASUREMENT RESULTS (PCS Right Head SAR – Touch)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
1850.20	512	GSM	30.00	30.02	Standard	Cheek Touch	—	0.019
1880.00	661	GSM	30.00	29.92	Standard	Cheek Touch	—	0.476
1909.80	810	GSM	30.00	29.99	Standard	Cheek Touch	—	0.628

MEASUREMENT RESULTS (PCS Right Head SAR – Touch – BT disable)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
1909.80	810	GSM	30.00	29.98	Standard	Cheek Touch	—	0.621

NOTES:

1. The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration.

2. All modes of operation were investigated and the worst-case are reported.

3. Battery Type : Standard

Radiated measurements indicate that the Extended-life battery produces lower ERP and EIRP, therefore the Standard-life battery is used in SAR testing.

4. Power Measured : Conducted

5. SAR Measurement System : SPEAG

Engineer K.H.Kang

6. SAR Configuration : Head, Bluetooth function enable and disable

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426-5, Gasan-dong, Geumcheon-gu,
Seoul, 153-803, KoreaTEL: 82-2-867-3201
FAX: 82-2-867-3204**9. RESULTS(continued)**Ambient TEMPERATURE (C) : **20.0**Relative HUMIDITY (%) : **48**Mixture Type : **1900MHz Brain**Dielectric Constant : **39.5**Conductivity: **1.4****Measurement Results (PCS Head SAR-Tilt)**

ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Brain 1.6 W/kg (mW/g) averaged over 1 gram
---	--

MEASUREMENT RESULTS (PCS Left Head SAR – Tilt)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
1880.00	661	GSM	30.00	30.04	Standard	Tilt	–	0.177

MEASUREMENT RESULTS (PCS Right Head SAR – Tilt)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
1880.00	661	GSM	30.00	30.01	Standard	Tilt	–	0.118

NOTES:

1. The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration.

2. All modes of operation were investigated and the worst-case are reported.

3. Battery Type : **Standard**

Radiated measurements indicate that the Extended-life battery produces lower ERP and EIRP, therefore the Standard-life battery is used in SAR testing.

4. Power Measured : **Conducted**

5. SAR Measurement System : **SPEAG**

6. SAR Configuration : **Head, Bluetooth function enable**

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9. RESULTS(continued)

Ambient TEMPERATURE (C) : 20

Relative HUMIDITY (%) : 48

Mixture Type : 1900MHz Body

Dielectric Constant : 51.5

Conductivity: 1.52

Measurement Results (PCS BODY SAR without Holster)

ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Body 1.6 W/kg (mW/g) averaged over 1 gram
---	---

MEASUREMENT RESULTS (PCS Body SAR Without Holster)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
1850.20	512	GSM	30.00	30.00	Standard	1.5[w/o Holster]	—	0.284
1880.00	661	GSM	30.00	30.02	Standard	1.5[w/o Holster]	—	0.407
1909.80	810	GSM	30.00	29.99	Standard	1.5[w/o Holster]	—	0.587

MEASUREMENT RESULTS (PCS Body SAR Without Holster – GPRS)								
Frequency		Moudulation	Conducted Power(dBm)		battery	Device Test position	Antenna Position	SAR (W/kg)
MHz	Ch.		Begin	End				
1850.20	512	GSM	30.00	29.89	Standard	1.5[w/o Holster]	—	0.509

NOTES:

1. The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration.
2. All modes of operation were investigated and the worst-case are reported.
3. Battery Type : Standard
Radiated measurements indicate that the Extended-life battery produces lower ERP and EIRP, therefore the Standard-life battery is used in SAR testing.
4. Power Measured : Conducted
5. SAR Measurement System : SPEAG
6. SAR Configuration : Body, Bluetooth function enable and GPRS mode

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APPENDIX A : Validation Test Data of Tissue



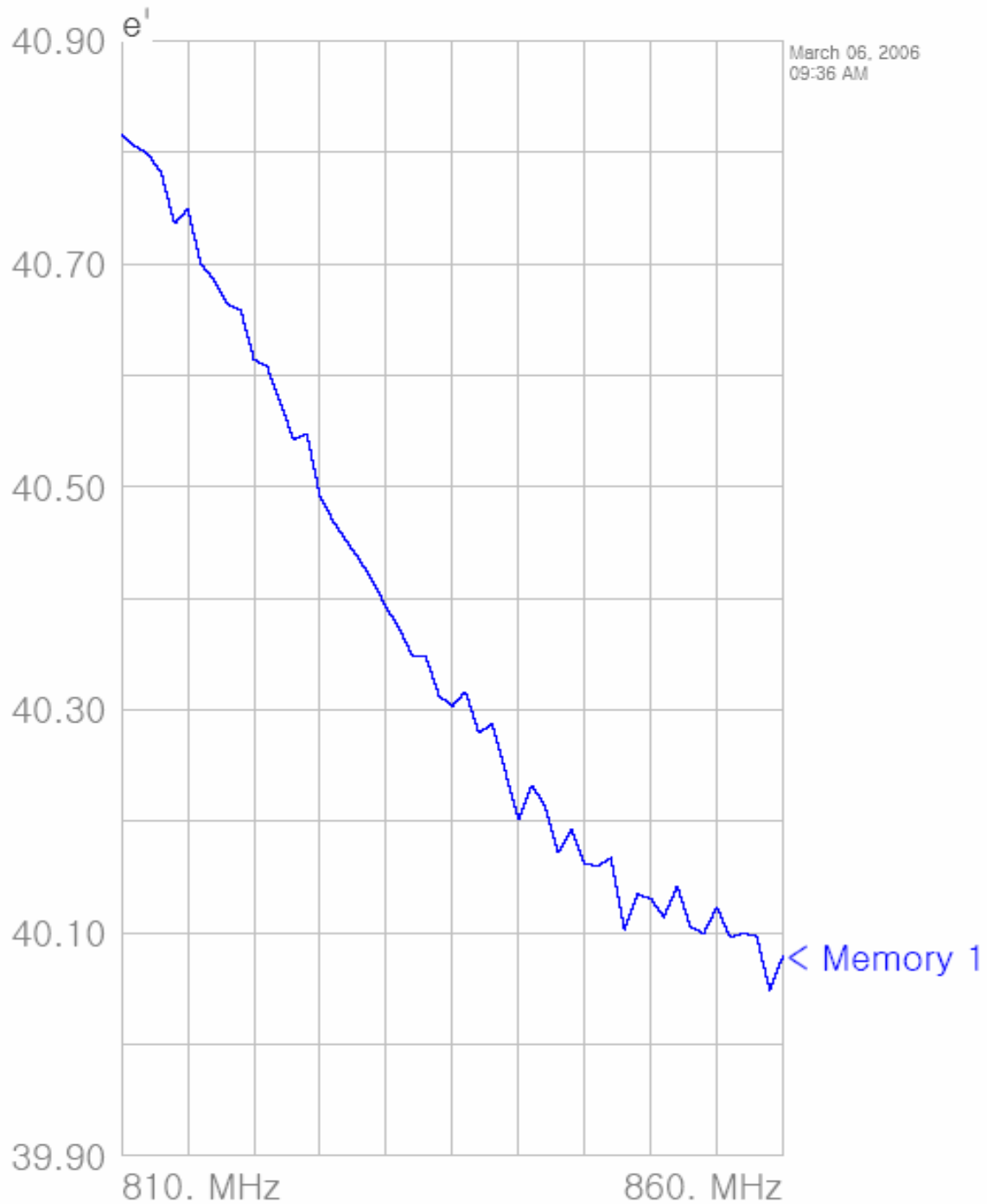
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- GSM850 Head Tissue

Title
SubTitle



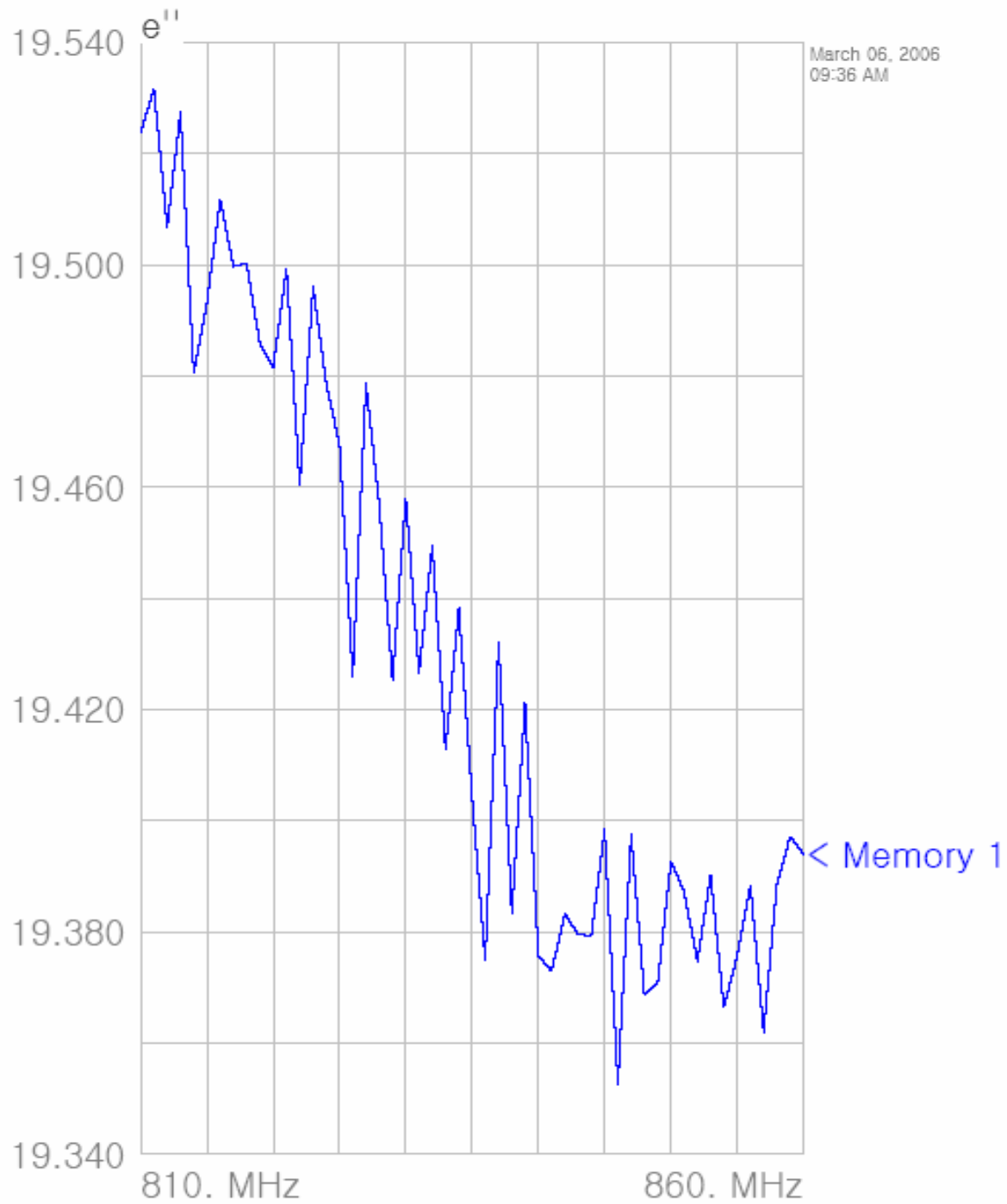


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Title
SubTitle

March 05, 2006 09:35 AM

Frequency	e^f	$e^{1/f}$
810.000000 MHz	40.8155	19.5237
811.000000 MHz	40.8059	19.5317
812.000000 MHz	40.7984	19.5068
813.000000 MHz	40.7815	19.5274
814.000000 MHz	40.7360	19.4806
815.000000 MHz	40.7492	19.4932
816.000000 MHz	40.6999	19.5118
817.000000 MHz	40.6853	19.4997
818.000000 MHz	40.6634	19.5003
819.000000 MHz	40.6588	19.4856
820.000000 MHz	40.6144	19.4816
821.000000 MHz	40.6080	19.4994
822.000000 MHz	40.5757	19.4603
823.000000 MHz	40.5423	19.4960
824.000000 MHz	40.5478	19.4787
825.000000 MHz	40.4913	19.4675
826.000000 MHz	40.4692	19.4260
827.000000 MHz	40.4513	19.4786
828.000000 MHz	40.4345	19.4568
829.000000 MHz	40.4152	19.4253
830.000000 MHz	40.3922	19.4580
831.000000 MHz	40.3729	19.4265
832.000000 MHz	40.3474	19.4495
833.000000 MHz	40.3478	19.4127
834.000000 MHz	40.3126	19.4383
835.000000 MHz	40.3033	19.4043
836.000000 MHz	40.3162	19.3748
837.000000 MHz	40.2794	19.4322
838.000000 MHz	40.2871	19.3833
839.000000 MHz	40.2451	19.4211
840.000000 MHz	40.2015	19.3757
841.000000 MHz	40.2322	19.3729
842.000000 MHz	40.2143	19.3833
843.000000 MHz	40.1718	19.3795
844.000000 MHz	40.1927	19.3793
845.000000 MHz	40.1618	19.3984
846.000000 MHz	40.1599	19.3525
847.000000 MHz	40.1673	19.3975
848.000000 MHz	40.1027	19.3688
849.000000 MHz	40.1346	19.3707
850.000000 MHz	40.1307	19.3927
851.000000 MHz	40.1141	19.3872
852.000000 MHz	40.1420	19.3747
853.000000 MHz	40.1054	19.3902
854.000000 MHz	40.0993	19.3664
855.000000 MHz	40.1229	19.3756
856.000000 MHz	40.0960	19.3884
857.000000 MHz	40.0995	19.3620
858.000000 MHz	40.0971	19.3886
859.000000 MHz	40.0487	19.3971
860.000000 MHz	40.0792	19.3940



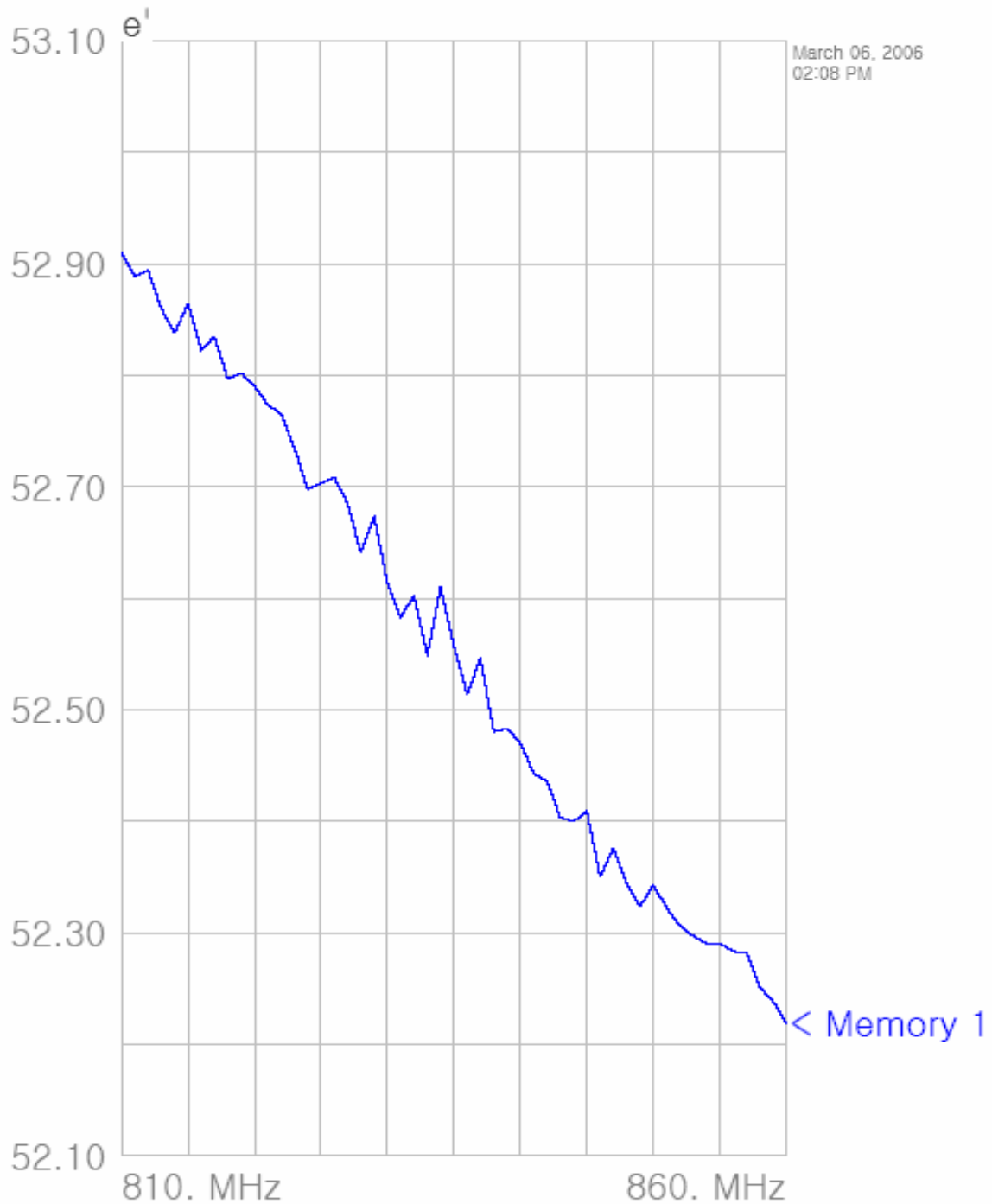
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– GSM850 Body Tissue

Title
SubTitle





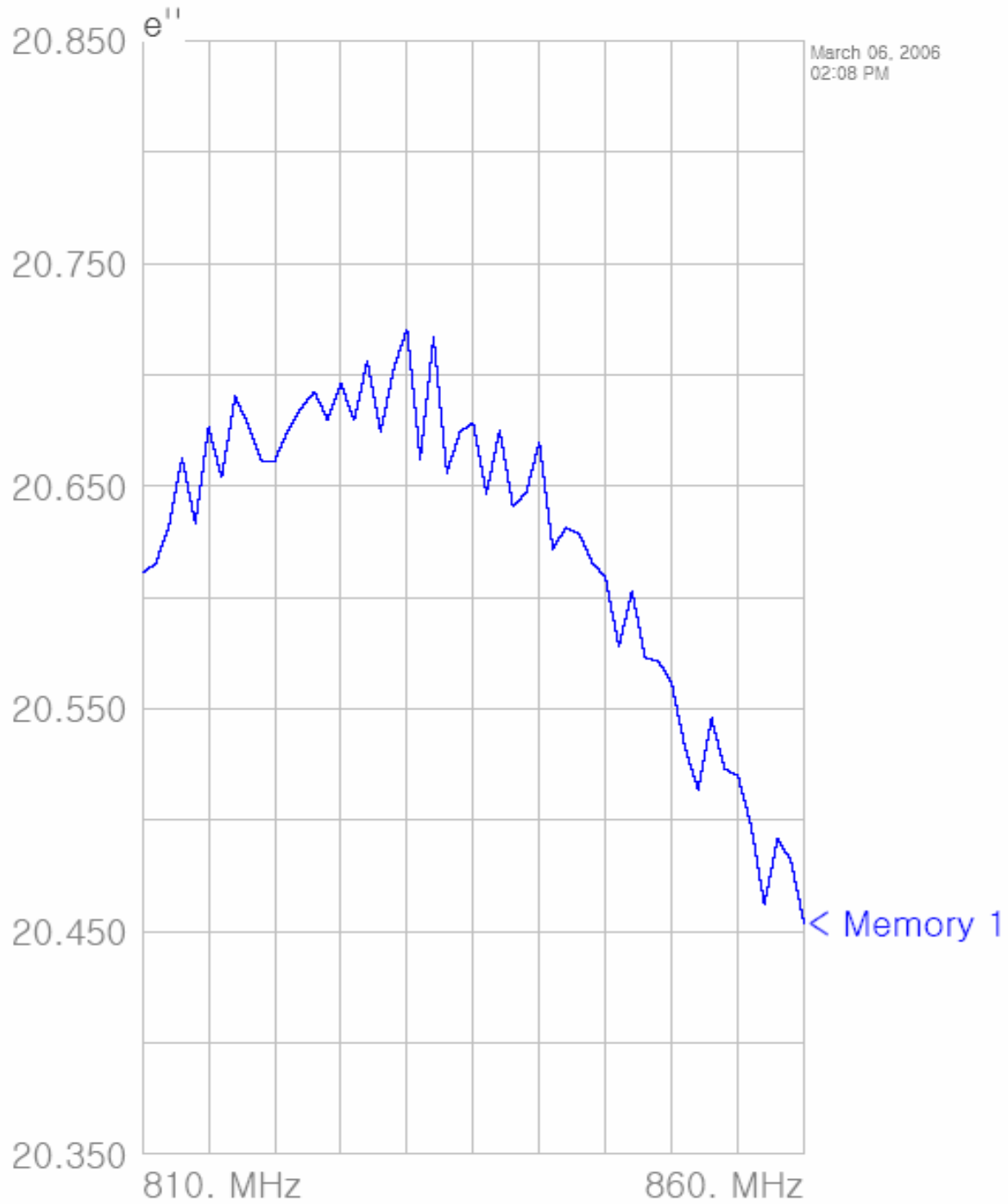
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March 05, 2006-05/08/09

Frequency	e^1	e^{10}
810.000000 MHz	52.9105	20.6112
811.000000 MHz	52.8889	20.6151
812.000000 MHz	52.8943	20.6320
813.000000 MHz	52.8599	20.6627
814.000000 MHz	52.8381	20.6332
815.000000 MHz	52.8639	20.6763
816.000000 MHz	52.8223	20.6538
817.000000 MHz	52.8348	20.6903
818.000000 MHz	52.7968	20.6777
819.000000 MHz	52.8020	20.6611
820.000000 MHz	52.7908	20.6614
821.000000 MHz	52.7733	20.6750
822.000000 MHz	52.7658	20.6851
823.000000 MHz	52.7351	20.6923
824.000000 MHz	52.6975	20.6797
825.000000 MHz	52.7034	20.6961
826.000000 MHz	52.7087	20.6795
827.000000 MHz	52.6853	20.7063
828.000000 MHz	52.6410	20.6742
829.000000 MHz	52.6736	20.7030
830.000000 MHz	52.6140	20.7205
831.000000 MHz	52.5827	20.6620
832.000000 MHz	52.6027	20.7172
833.000000 MHz	52.5485	20.6560
834.000000 MHz	52.6103	20.6743
835.000000 MHz	52.5575	20.6785
836.000000 MHz	52.5139	20.6467
837.000000 MHz	52.5465	20.6752
838.000000 MHz	52.4802	20.6407
839.000000 MHz	52.4832	20.6470
840.000000 MHz	52.4702	20.6699
841.000000 MHz	52.4428	20.6217
842.000000 MHz	52.4362	20.6314
843.000000 MHz	52.4035	20.6287
844.000000 MHz	52.3997	20.6157
845.000000 MHz	52.4090	20.6089
846.000000 MHz	52.3499	20.5778
847.000000 MHz	52.3762	20.6028
848.000000 MHz	52.3447	20.5728
849.000000 MHz	52.3236	20.5715
850.000000 MHz	52.3426	20.5612
851.000000 MHz	52.3225	20.5326
852.000000 MHz	52.3060	20.5136
853.000000 MHz	52.2972	20.5457
854.000000 MHz	52.2902	20.5232
855.000000 MHz	52.2902	20.5198
856.000000 MHz	52.2833	20.4974
857.000000 MHz	52.2824	20.4621
858.000000 MHz	52.2514	20.4915
859.000000 MHz	52.2386	20.4820
860.000000 MHz	52.2189	20.4537



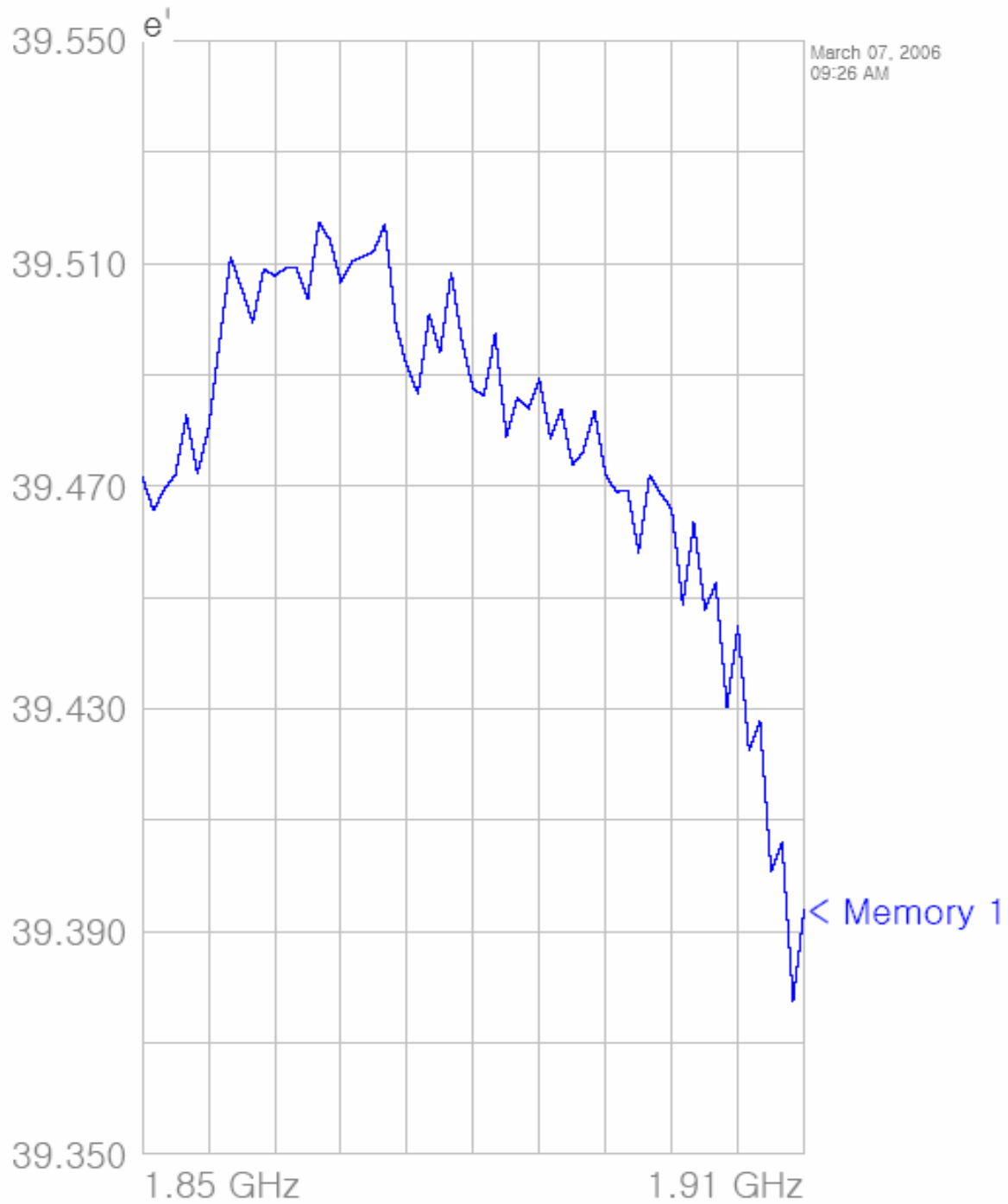
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Seoul, 153-803, Korea

TEL: 82-2-867-3201
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– PCS1900 Head Tissue

Title
SubTitle



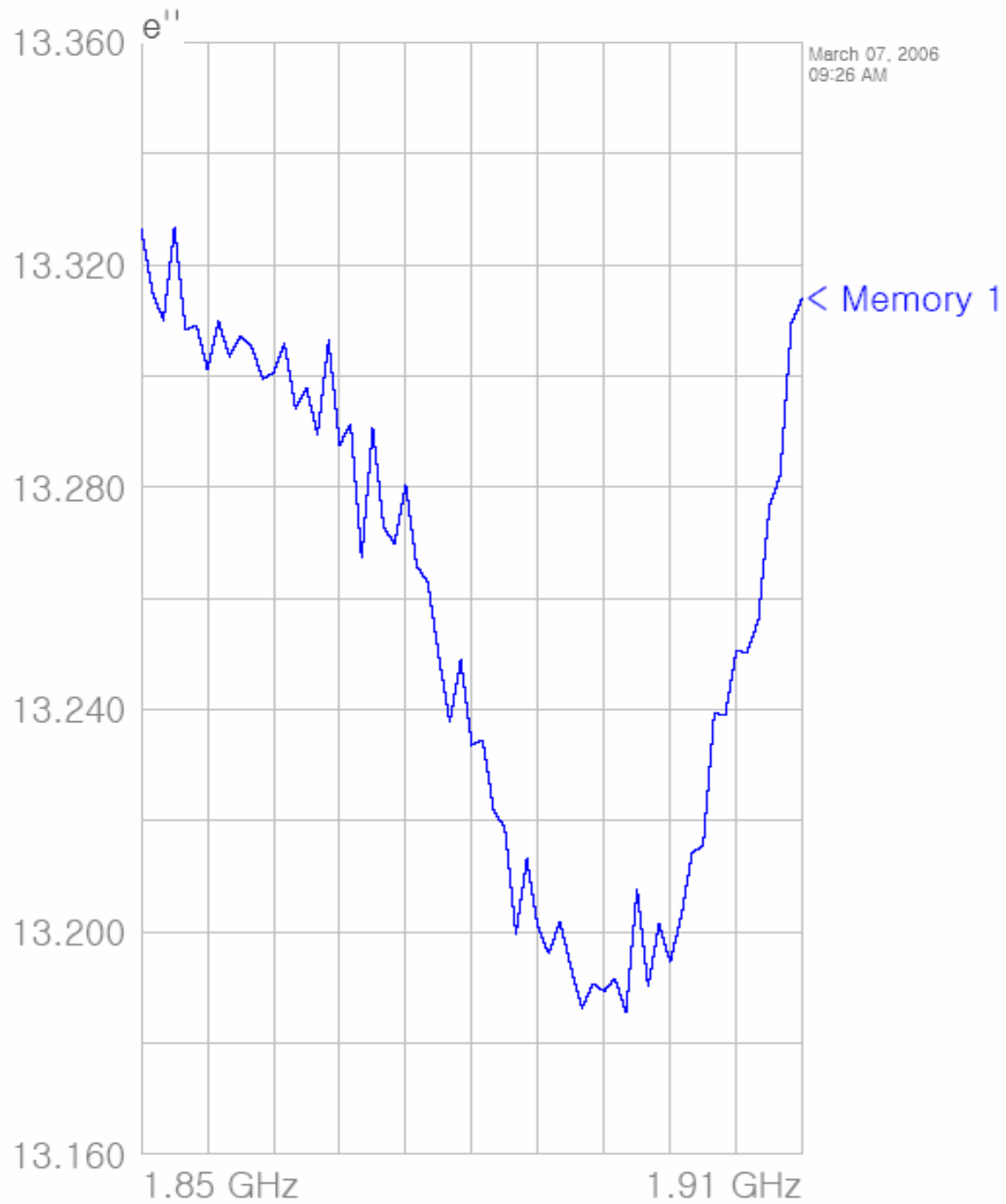


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Title
SubTitle



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Title**SubTitle**

March 07, 2006 (09:55 AM)

Frequency	ϵ'	ϵ''
1.850000000 GHz	39.4715	13.3263
1.851000000 GHz	39.4656	13.3152
1.852000000 GHz	39.4695	13.3100
1.853000000 GHz	39.4720	13.3267
1.854000000 GHz	39.4827	13.3083
1.855000000 GHz	39.4722	13.3091
1.856000000 GHz	39.4804	13.3012
1.857000000 GHz	39.4959	13.3098
1.858000000 GHz	39.5111	13.3035
1.859000000 GHz	39.5055	13.3072
1.860000000 GHz	39.4994	13.3053
1.861000000 GHz	39.5090	13.2995
1.862000000 GHz	39.5078	13.3005
1.863000000 GHz	39.5092	13.3058
1.864000000 GHz	39.5091	13.2942
1.865000000 GHz	39.5036	13.2978
1.866000000 GHz	39.5174	13.2894
1.867000000 GHz	39.5143	13.3064
1.868000000 GHz	39.5066	13.2876
1.869000000 GHz	39.5103	13.2914
1.870000000 GHz	39.5112	13.2672
1.871000000 GHz	39.5122	13.2906
1.872000000 GHz	39.5171	13.2728
1.873000000 GHz	39.4986	13.2698
1.874000000 GHz	39.4915	13.2804
1.875000000 GHz	39.4866	13.2658
1.876000000 GHz	39.5009	13.2629
1.877000000 GHz	39.4939	13.2497
1.878000000 GHz	39.5084	13.2378
1.879000000 GHz	39.4959	13.2489
1.880000000 GHz	39.4874	13.2336
1.881000000 GHz	39.4863	13.2345
1.882000000 GHz	39.4974	13.2217
1.883000000 GHz	39.4789	13.2188
1.884000000 GHz	39.4859	13.1996
1.885000000 GHz	39.4839	13.2131
1.886000000 GHz	39.4893	13.2009
1.887000000 GHz	39.4786	13.1960
1.888000000 GHz	39.4837	13.2019
1.889000000 GHz	39.4737	13.1936
1.890000000 GHz	39.4763	13.1862
1.891000000 GHz	39.4835	13.1907
1.892000000 GHz	39.4720	13.1893
1.893000000 GHz	39.4689	13.1916
1.894000000 GHz	39.4693	13.1855
1.895000000 GHz	39.4581	13.2077
1.896000000 GHz	39.4720	13.1901
1.897000000 GHz	39.4687	13.2014
1.898000000 GHz	39.4658	13.1946
1.899000000 GHz	39.4487	13.2027
1.900000000 GHz	39.4634	13.2143
1.901000000 GHz	39.4478	13.2155
1.902000000 GHz	39.4526	13.2393
1.903000000 GHz	39.4302	13.2391
1.904000000 GHz	39.4449	13.2505
1.905000000 GHz	39.4225	13.2503
1.906000000 GHz	39.4277	13.2560
1.907000000 GHz	39.4008	13.2764
1.908000000 GHz	39.4060	13.2822
1.909000000 GHz	39.3776	13.3094
1.910000000 GHz	39.3939	13.3140



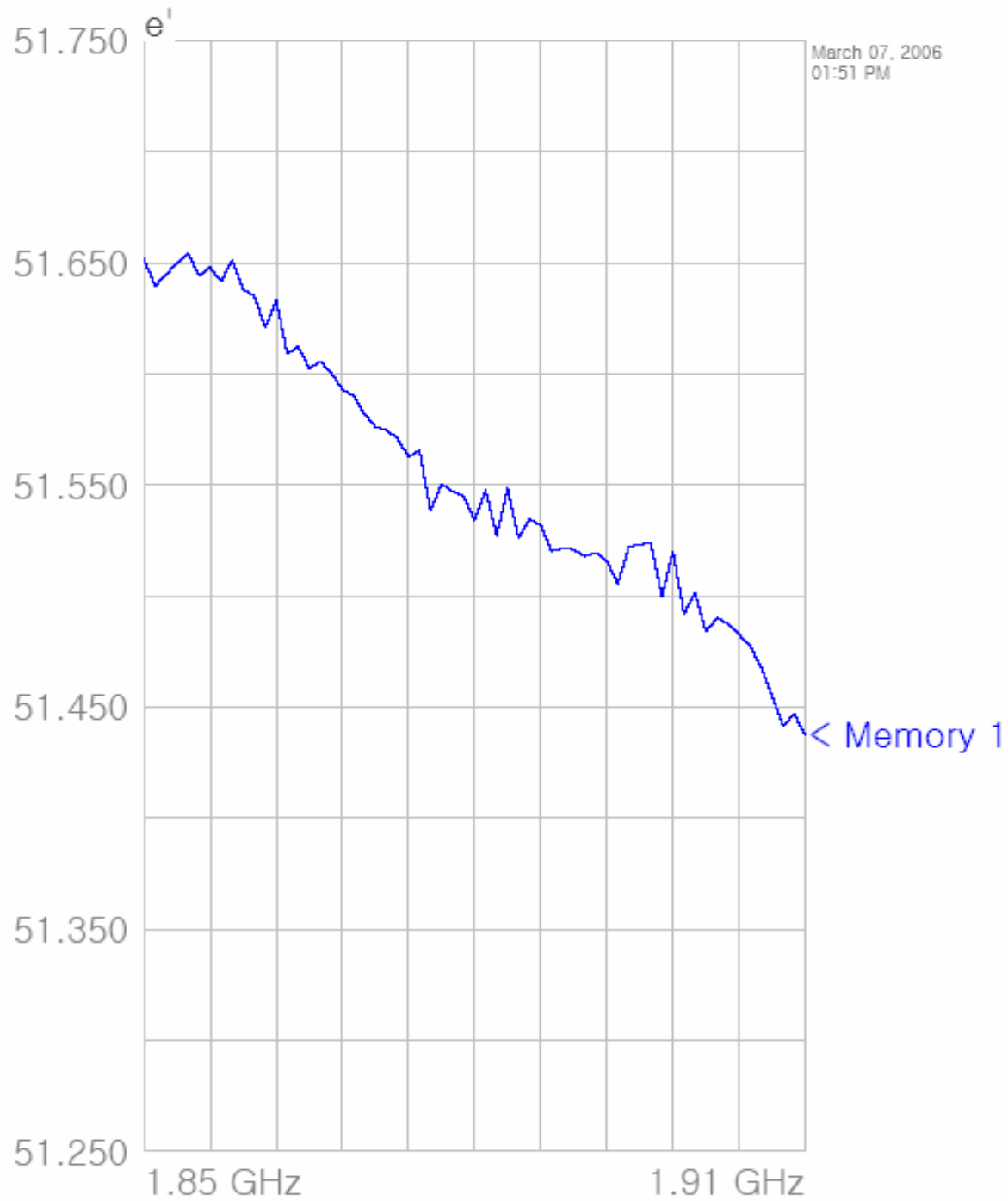
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– PCS1900 Body Tissue

Title
SubTitle



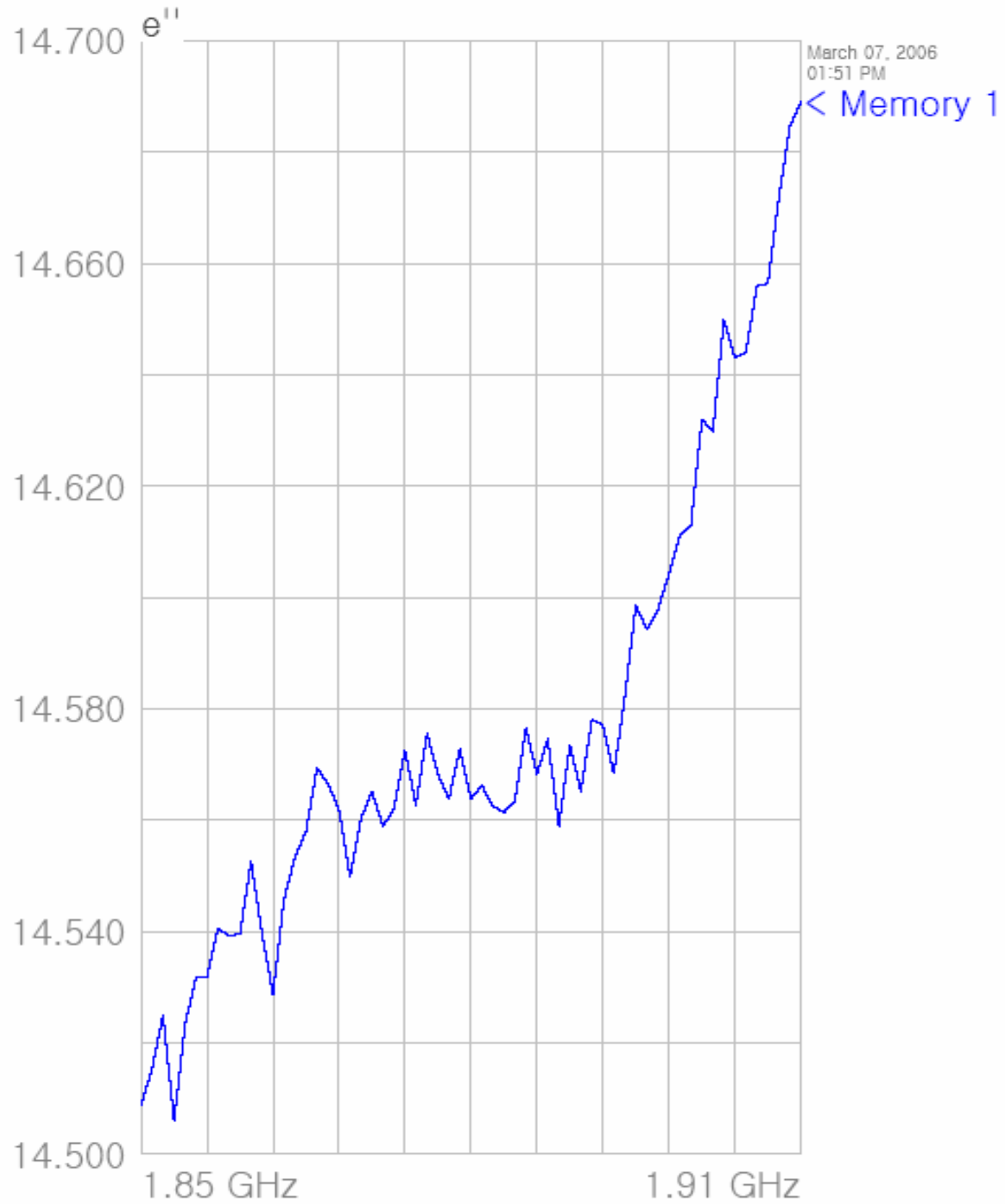


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Title
SubTitle

March 01, 2006 01:51 PM

Frequency	e'	e''
1.850000000 GHz	51.6517	14.5088
1.851000000 GHz	51.6396	14.5153
1.852000000 GHz	51.6446	14.5250
1.853000000 GHz	51.6499	14.5059
1.854000000 GHz	51.6544	14.5233
1.855000000 GHz	51.6441	14.5318
1.856000000 GHz	51.6479	14.5318
1.857000000 GHz	51.6416	14.5406
1.858000000 GHz	51.6513	14.5391
1.859000000 GHz	51.6379	14.5397
1.860000000 GHz	51.6351	14.5526
1.861000000 GHz	51.6207	14.5397
1.862000000 GHz	51.6331	14.5287
1.863000000 GHz	51.6090	14.5458
1.864000000 GHz	51.6123	14.5533
1.865000000 GHz	51.6025	14.5580
1.866000000 GHz	51.6056	14.5693
1.867000000 GHz	51.6002	14.5666
1.868000000 GHz	51.5930	14.5619
1.869000000 GHz	51.5902	14.5498
1.870000000 GHz	51.5820	14.5603
1.871000000 GHz	51.5761	14.5651
1.872000000 GHz	51.5747	14.5589
1.873000000 GHz	51.5709	14.5620
1.874000000 GHz	51.5627	14.5725
1.875000000 GHz	51.5655	14.5627
1.876000000 GHz	51.5382	14.5756
1.877000000 GHz	51.5503	14.5683
1.878000000 GHz	51.5470	14.5638
1.879000000 GHz	51.5447	14.5727
1.880000000 GHz	51.5342	14.5639
1.881000000 GHz	51.5476	14.5662
1.882000000 GHz	51.5272	14.5625
1.883000000 GHz	51.5484	14.5614
1.884000000 GHz	51.5258	14.5633
1.885000000 GHz	51.5346	14.5766
1.886000000 GHz	51.5317	14.5683
1.887000000 GHz	51.5202	14.5746
1.888000000 GHz	51.5215	14.5589
1.889000000 GHz	51.5209	14.5735
1.890000000 GHz	51.5179	14.5652
1.891000000 GHz	51.5194	14.5780
1.892000000 GHz	51.5159	14.5772
1.893000000 GHz	51.5055	14.5684
1.894000000 GHz	51.5220	14.5821
1.895000000 GHz	51.5232	14.5986
1.896000000 GHz	51.5239	14.5942
1.897000000 GHz	51.4995	14.5978
1.898000000 GHz	51.5202	14.6041
1.899000000 GHz	51.4919	14.6112
1.900000000 GHz	51.5016	14.6130
1.901000000 GHz	51.4839	14.6320
1.902000000 GHz	51.4901	14.6298
1.903000000 GHz	51.4874	14.6498
1.904000000 GHz	51.4826	14.6431
1.905000000 GHz	51.4774	14.6440
1.906000000 GHz	51.4677	14.6559
1.907000000 GHz	51.4550	14.6564
1.908000000 GHz	51.4414	14.6718
1.909000000 GHz	51.4467	14.6846
1.910000000 GHz	51.4376	14.6890



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APPENDIX B : Validation Test Data

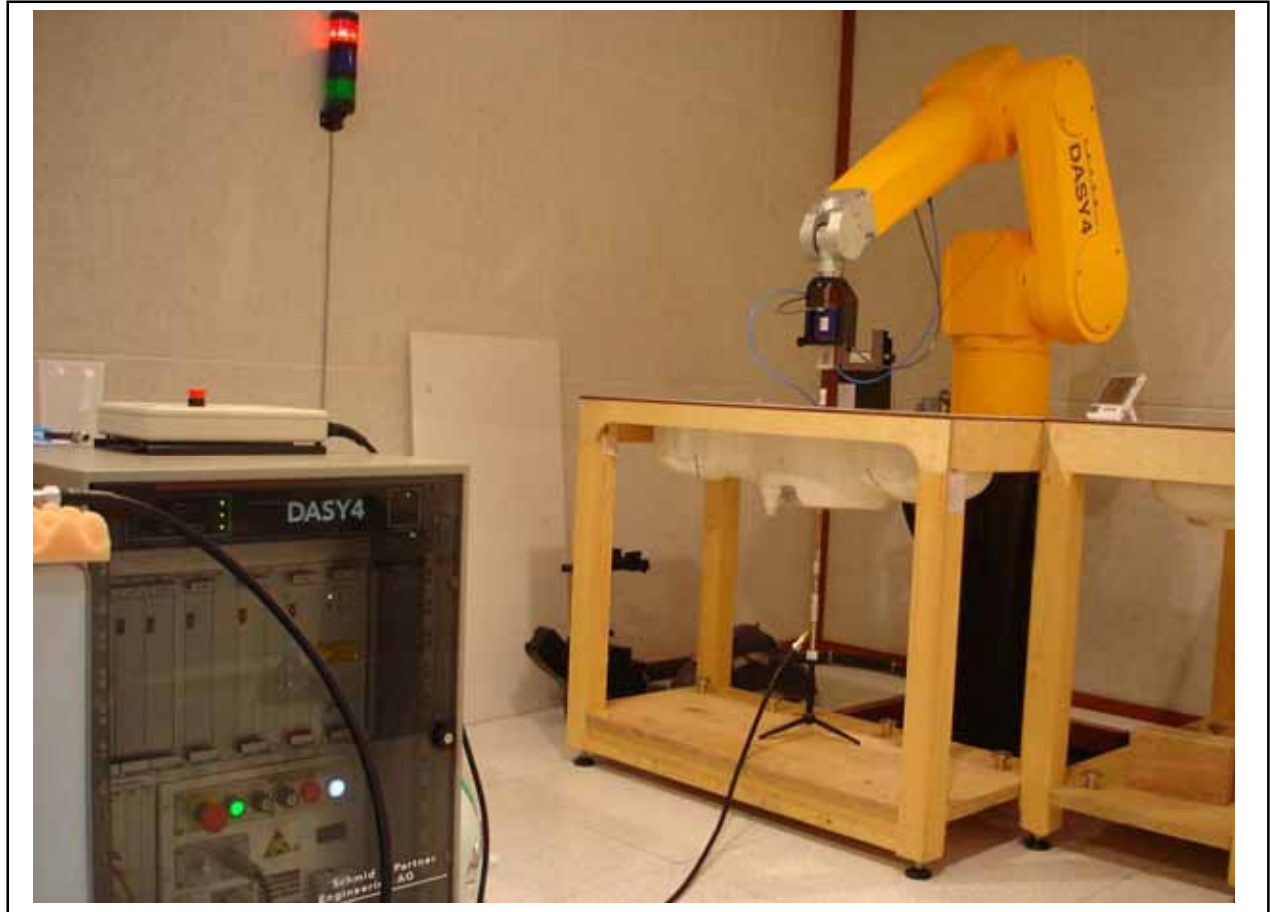


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Dipole Validation





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TEL: 82-2-867-3201
FAX: 82-2-867-3204

- GSM850 Validation

Date/Time: 03/06/06 10:01:20

Test Laboratory: ESTECH

validation0306

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

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r = 40.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.57, 6.57, 6.57); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 22 °C, Humidity : 47%

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

Reference Value = 55.4 V/m; Power Drift = -0.006 dB

Maximum value of SAR (interpolated) = 2.61 mW/g

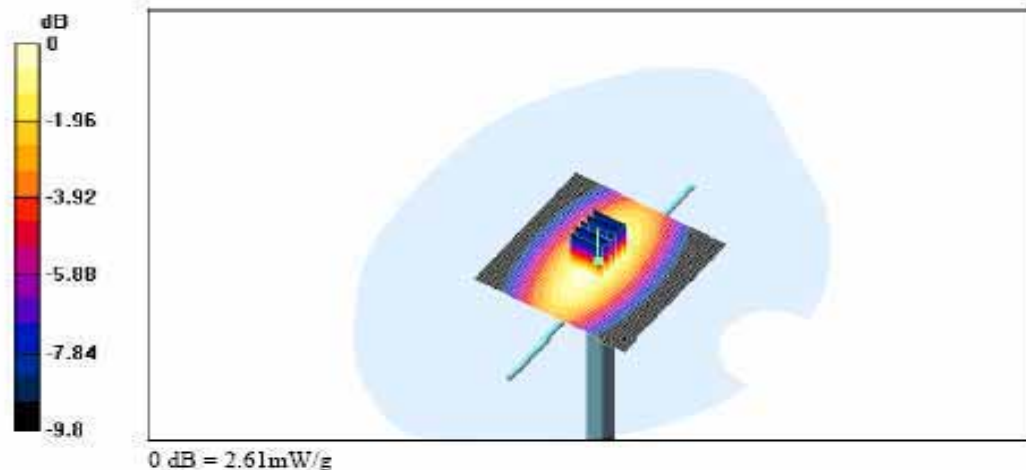
Zoom Scan (5x5x7)/Cube 0; Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.4 V/m; Power Drift = -0.006 dB

Maximum value of SAR (measured) = 2.61 mW/g

Peak SAR (extrapolated) = 3.57 W/kg

SAR(1 g) = 2.41 mW/g





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FAX: 82-2-867-3204

– PCS1900 Validation

Date/Time: 03/07/06 09:58:55

Test Laboratory: ESTECH

validation0307

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:xxx

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(5.14, 5.14, 5.14); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800MHz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 22°C, Humidity : 48%

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

Reference Value = 91.5 V/m; Power Drift = 0.0 dB

Maximum value of SAR (interpolated) = 11.8 mW/g

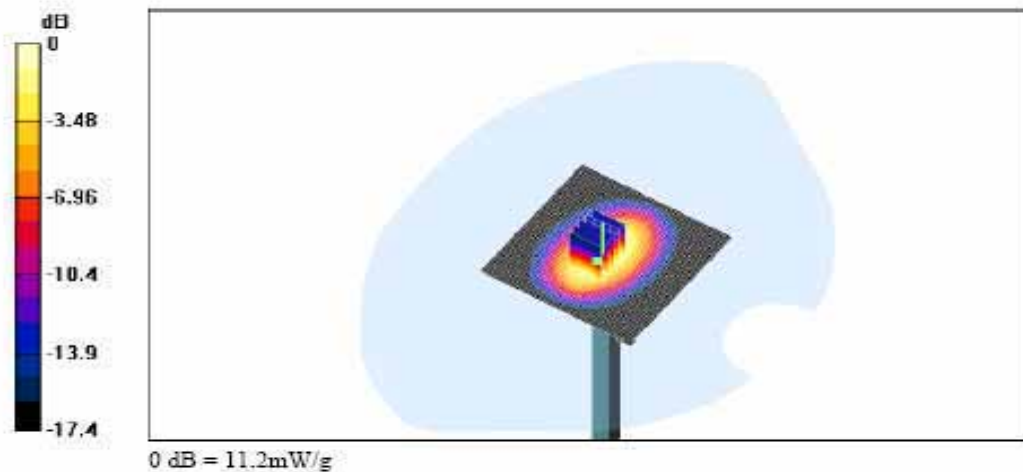
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 91.5 V/m; Power Drift = 0.0 dB

Maximum value of SAR (measured) = 11.2 mW/g

Peak SAR (extrapolated) = 19.9 W/kg

SAR(1 g) = 10 mW/g





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APPENDIX C : SAR Test Data



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TEL: 82-2-867-3201
FAX: 82-2-867-3204

- GSM850

Date/Time: 03/06/06 12:11:00

Test Laboratory: ESTECH

CH128 LEFT TOUCH

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.893$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.57, 6.57, 6.57); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 45%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 8.47 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 0.302 mW/g

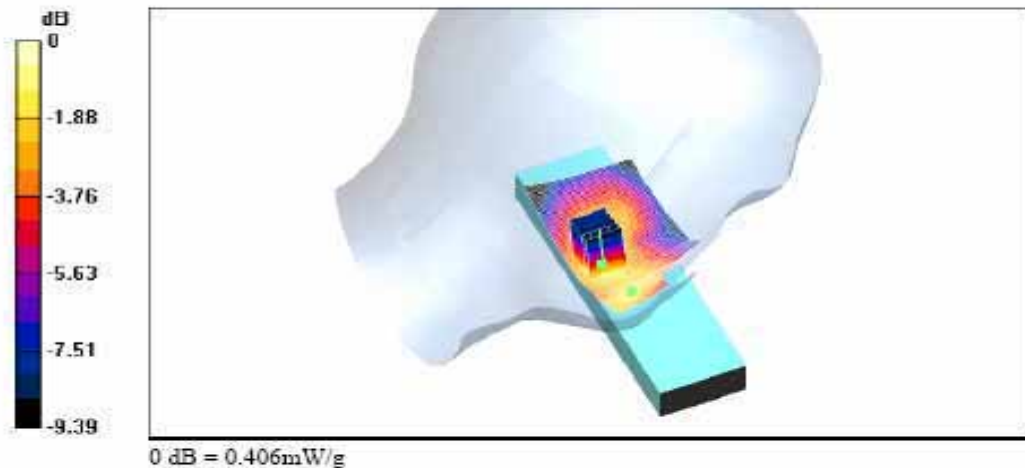
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.47 V/m; Power Drift = -0.1 dB

Maximum value of SAR (measured) = 0.406 mW/g

Peak SAR (extrapolated) = 0.707 W/kg

SAR(1 g) = 0.369 mW/g



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Date/Time: 03/06/06 10:35:18

Test Laboratory: ESTECH

CH190 LEFT TOUCH

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.903$ mho/m; $\epsilon_r = 40.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.57, 6.57, 6.57); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 45%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 9.27 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 0.421 mW/g

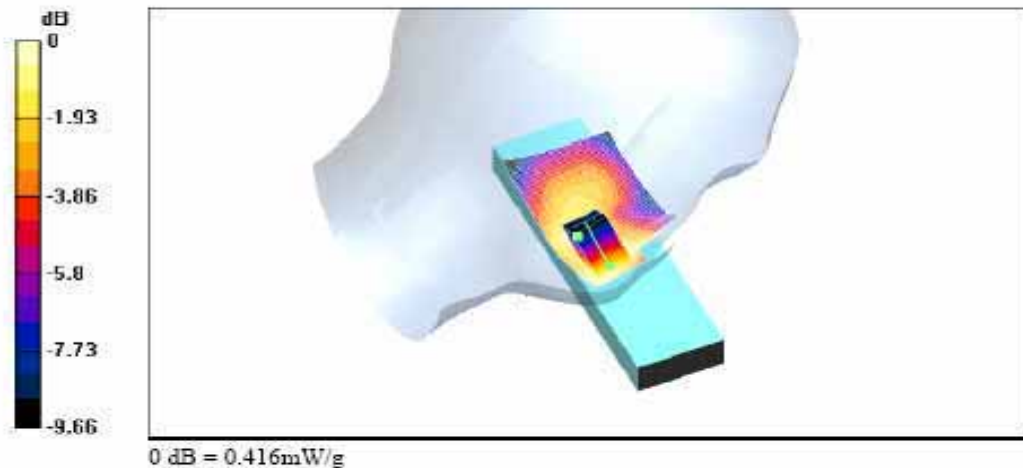
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.27 V/m; Power Drift = -0.1 dB

Maximum value of SAR (measured) = 0.416 mW/g

Peak SAR (extrapolated) = 0.534 W/kg

SAR(1 g) = 0.388 mW/g





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Date/Time: 03/06/06 12:56:48

Test Laboratory: ESTECH

CH251 LEFT TOUCH

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.915$ mho/m; $\epsilon_r = 40.1$; $\rho = 1000$

kg/m³

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.57, 6.57, 6.57); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 22°C, Humidity : 48%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 9.46 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 0.462 mW/g

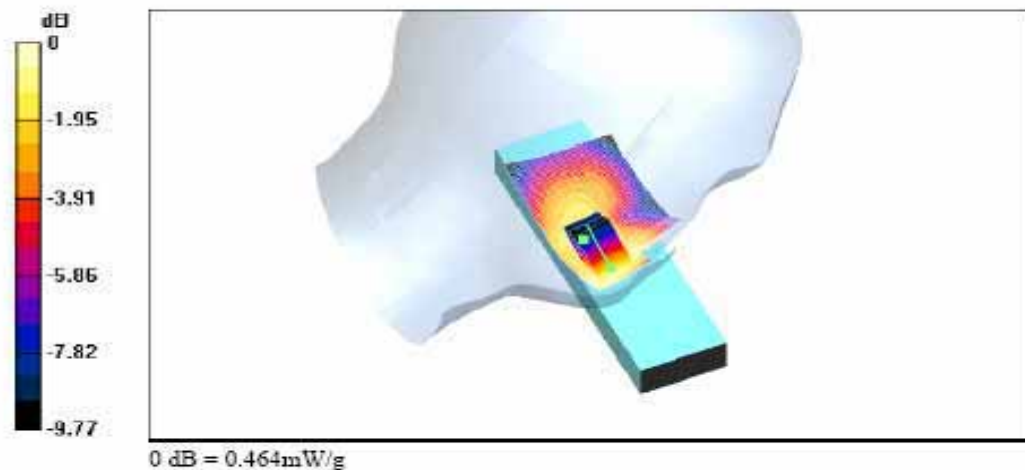
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.46 V/m; Power Drift = -0.1 dB

Maximum value of SAR (measured) = 0.464 mW/g

Peak SAR (extrapolated) = 0.619 W/kg

SAR(1 g) = 0.433 mW/g



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Date/Time: 03/06/06 12:37:56

Test Laboratory: ESTECH

CH128 RIGHT TOUCH

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.893$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.57, 6.57, 6.57); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 45%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 8.94 V/m; Power Drift = -0.0 dB

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

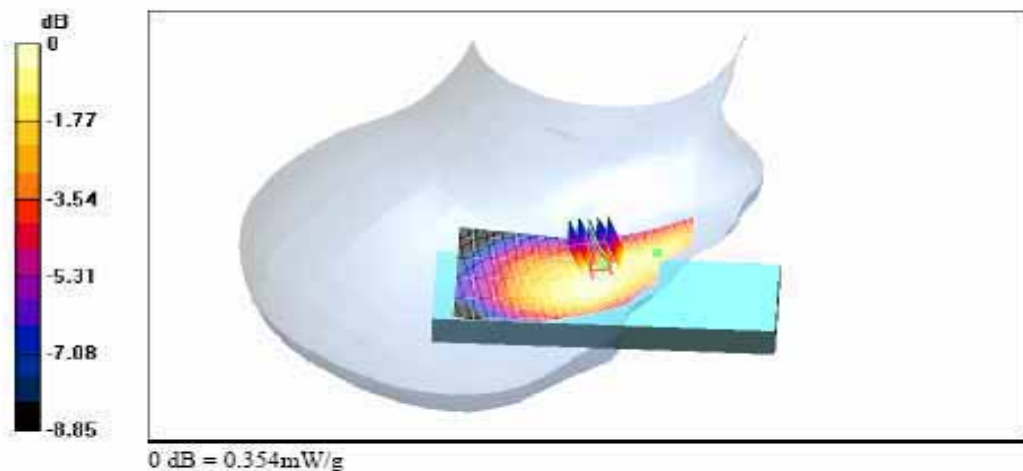
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.94 V/m; Power Drift = -0.0 dB

Maximum value of SAR (measured) = 0.354 mW/g

Peak SAR (extrapolated) = 0.823 W/kg

SAR(1 g) = 0.319 mW/g





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Date/Time: 03/06/06 10:58:00

Test Laboratory: ESTECH

CH190 RIGHT TOUCH

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.903$ mho/m; $\epsilon_r = 40.3$; $\rho = 1000$

kg/m³

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.57, 6.57, 6.57); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 45%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 9.14 V/m; Power Drift = -0.0 dB

Maximum value of SAR (interpolated) = 0.472 mW/g

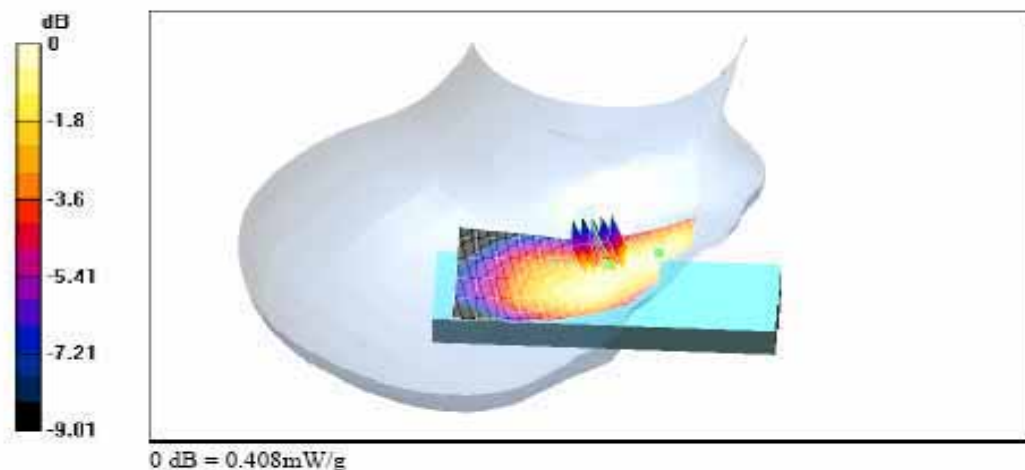
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.14 V/m; Power Drift = -0.0 dB

Maximum value of SAR (measured) = 0.408 mW/g

Peak SAR (extrapolated) = 1.24 W/kg

SAR(1 g) = 0.375 mW/g





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TEL: 82-2-867-3201
FAX: 82-2-867-3204

Date/Time: 03/06/06 13:19:51

Test Laboratory: ESTECH

CH251 RIGHT TOUCH

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.915$ mho/m; $\epsilon_r = 40.1$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.57, 6.57, 6.57); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 22°C, Humidity : 47%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 8.54 V/m; Power Drift = 0.0 dB

Maximum value of SAR (interpolated) = 0.530 mW/g

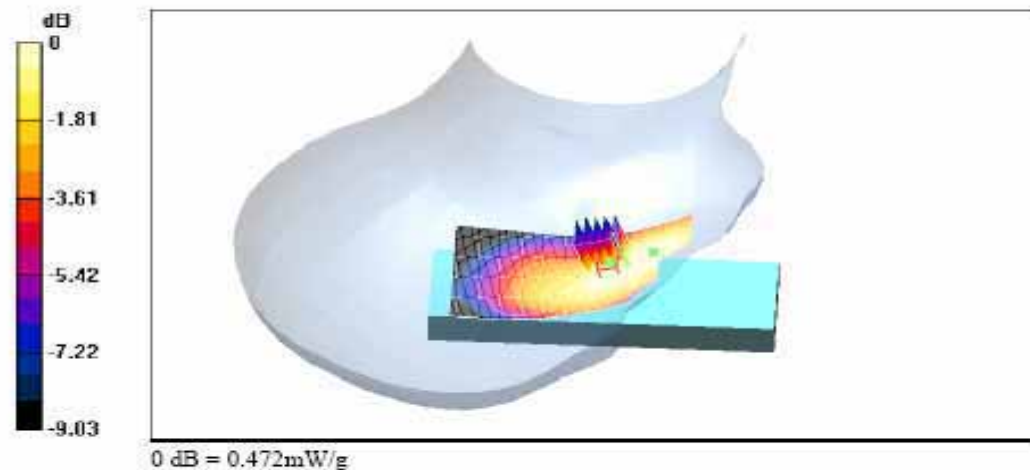
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.54 V/m; Power Drift = 0.0 dB

Maximum value of SAR (measured) = 0.472 mW/g

Peak SAR (extrapolated) = 1.24 W/kg

SAR(1 g) = 0.441 mW/g



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Date/Time: 03/06/06 11:22:12

Test Laboratory: ESTECH

CHI90 LEFT TILT

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.903$ mho/m; $\epsilon_r = 40.3$; $\rho = 1000$

kg/m³

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.57, 6.57, 6.57); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 45%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 14.6 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 0.234 mW/g

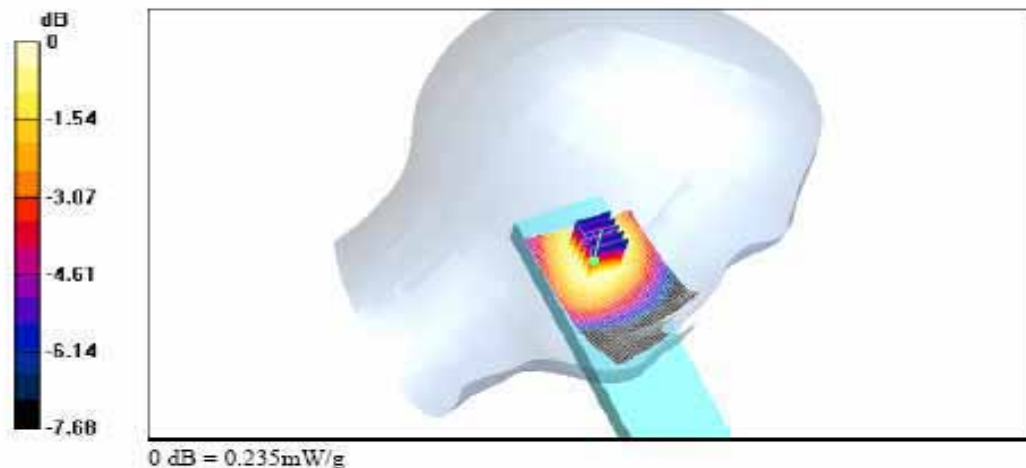
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.6 V/m; Power Drift = -0.1 dB

Maximum value of SAR (measured) = 0.235 mW/g

Peak SAR (extrapolated) = 0.274 W/kg

SAR(1 g) = 0.224 mW/g





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Date/Time: 03/06/06 11:48:34

Test Laboratory: ESTECH

CH190 RIGHT TILT

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.903$ mho/m; $\epsilon_r = 40.3$; $\rho = 1000$

kg/m³

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.57, 6.57, 6.57); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 45%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 13.5 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 0.236 mW/g

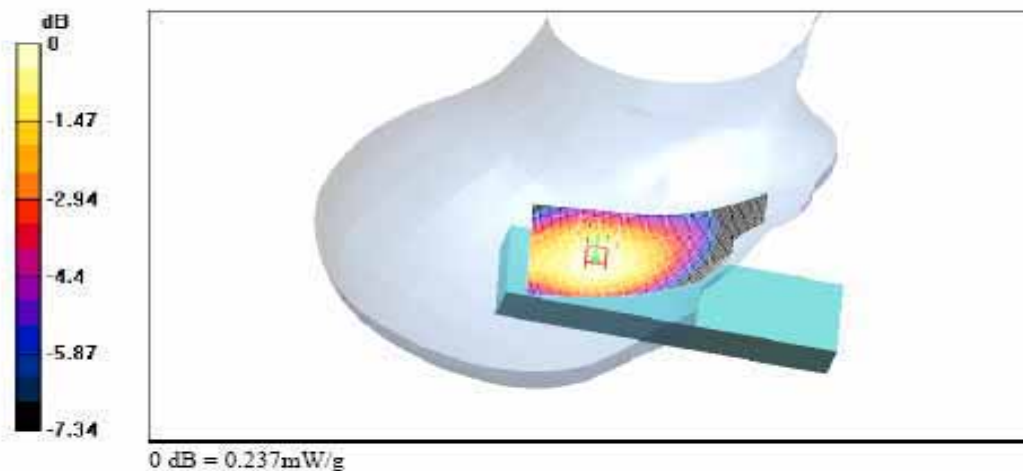
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.5 V/m; Power Drift = -0.1 dB

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

Peak SAR (extrapolated) = 0.282 W/kg

SAR(1 g) = 0.223 mW/g



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Date/Time: 03/06/06 13:19:51

Test Laboratory: ESTECH

CH251 RIGHT TOUCH-ZSCAN

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.915$ mho/m; $\epsilon_r = 40.1$; $\rho = 1000$

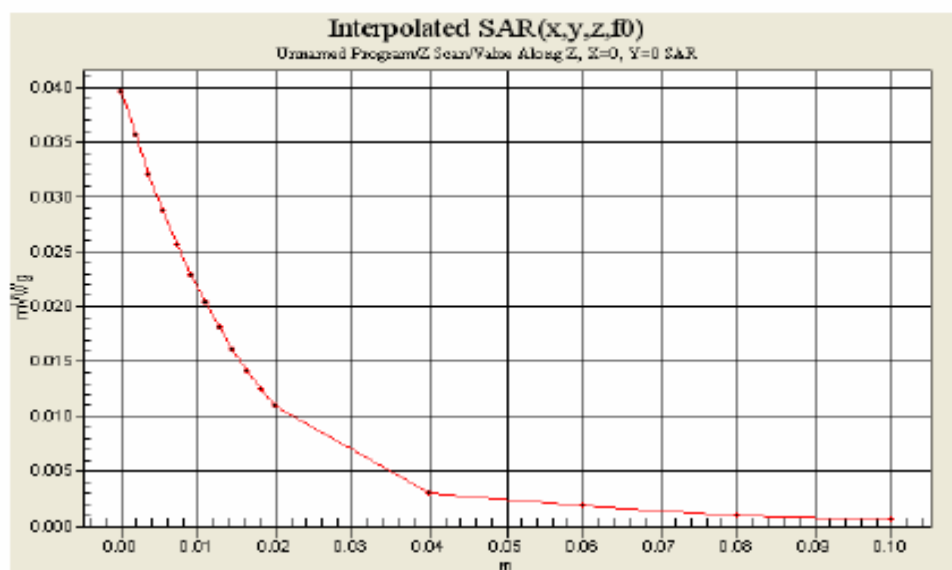
kg/m³

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.57, 6.57, 6.57); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 22 °C, Humidity : 47%





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Date/Time: 03/06/06 14:54:46

Test Laboratory: ESTECH

CH128 BODY

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.949$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$

kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.17, 6.17, 6.17); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 21 °C, Humidity : 48%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 15.2 V/m; Power Drift = 0.008 dB

Maximum value of SAR (interpolated) = 0.384 mW/g

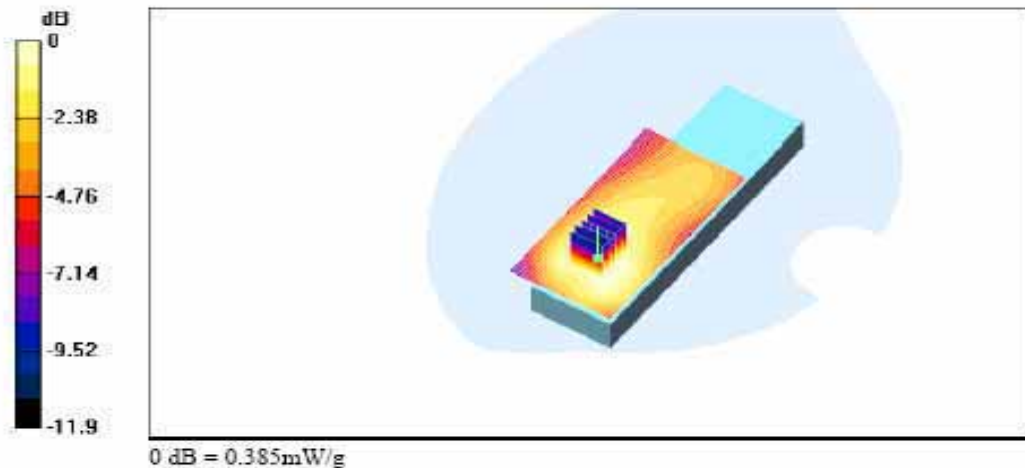
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.2 V/m; Power Drift = 0.008 dB

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

Peak SAR (extrapolated) = 0.545 W/kg

SAR(1 g) = 0.361 mW/g





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CH190 BODY

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.962$ mho/m; $\epsilon_r = 52.5$; $\rho = 1000$

kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.17, 6.17, 6.17); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 22°C, Humidity : 48%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 16.3 V/m; Power Drift = -0.0 dB

Maximum value of SAR (interpolated) = 0.514 mW/g

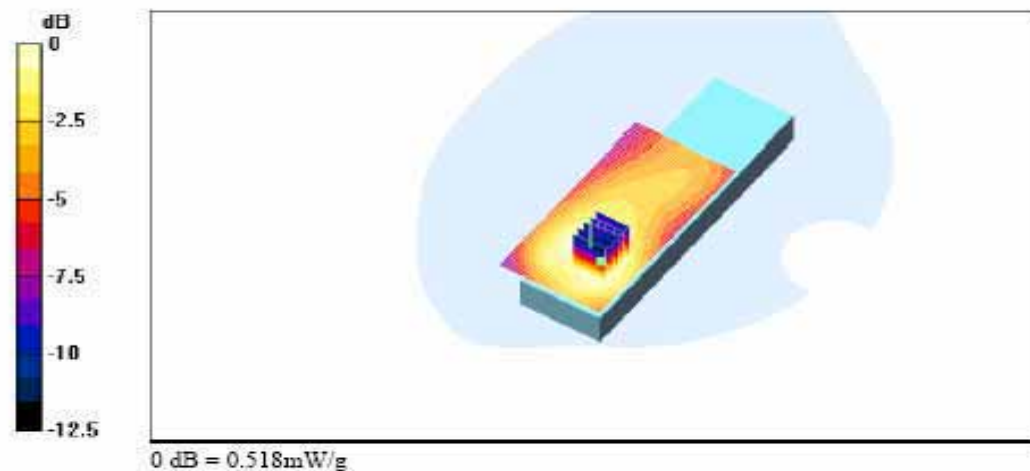
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.3 V/m; Power Drift = -0.0 dB

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

Peak SAR (extrapolated) = 0.734 W/kg

SAR(1 g) = 0.476 mW/g



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CH251 BODY

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$

kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.17, 6.17, 6.17); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 21 °C, Humidity : 48%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 16 V/m; Power Drift = -0.0 dB

Maximum value of SAR (interpolated) = 0.556 mW/g

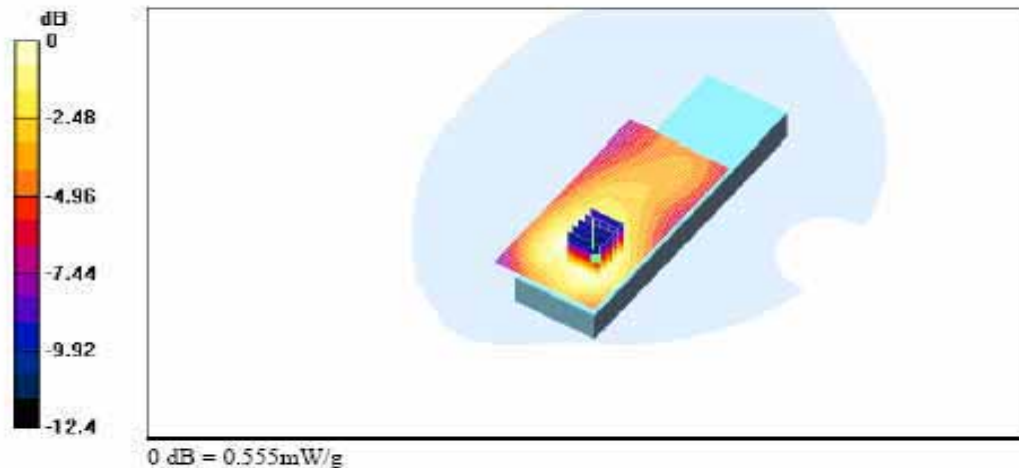
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16 V/m; Power Drift = -0.0 dB

Maximum value of SAR (measured) = 0.555 mW/g

Peak SAR (extrapolated) = 0.812 W/kg

SAR(1 g) = 0.518 mW/g



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CH251 BODY-ZSCAN

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$

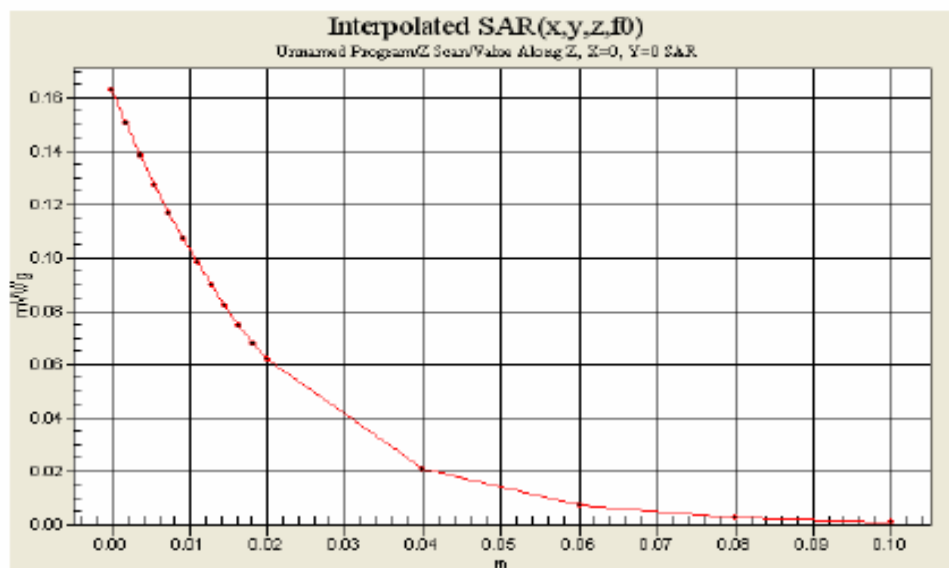
kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.17, 6.17, 6.17); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 21 °C, Humidity : 48%





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Test Laboratory: ESTECH

CH251 BODY-GPRS

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:4.15

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$

kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.17, 6.17, 6.17); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 49%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 15.3 V/m; Power Drift = -0.006 dB

Maximum value of SAR (interpolated) = 0.484 mW/g

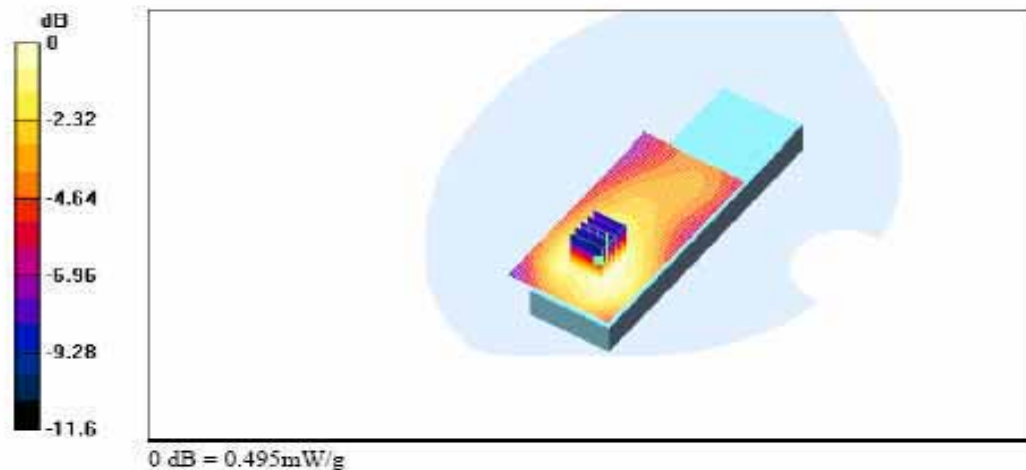
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.3 V/m; Power Drift = -0.006 dB

Maximum value of SAR (measured) = 0.495 mW/g

Peak SAR (extrapolated) = 0.686 W/kg

SAR(1 g) = 0.461 mW/g



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Test Laboratory: ESTECH

CH251 BODY-BT disable

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$

kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(6.17, 6.17, 6.17); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM 835MHz; Type: SAM 835MHz; Serial: TP-1262
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 21 °C, Humidity : 47%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 16.5 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 0.540 mW/g

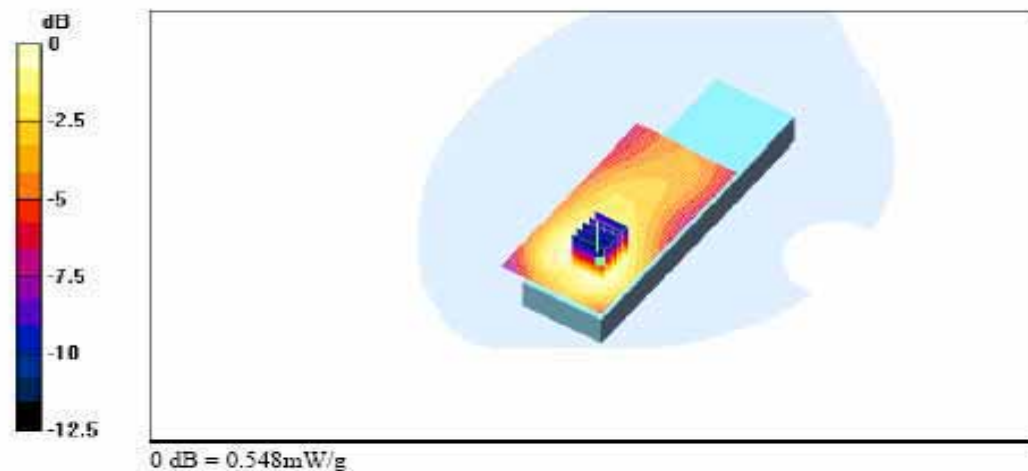
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.5 V/m; Power Drift = -0.1 dB

Maximum value of SAR (measured) = 0.548 mW/g

Peak SAR (extrapolated) = 0.774 W/kg

SAR(1 g) = 0.509 mW/g





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-PCS1900

Date/Time: 03/07/06 11:49:46

Test Laboratory: ESTECH

CH512 LEFT TOUCH

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$

kg/m³

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(5.14, 5.14, 5.14); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800Mhz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 49%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 4.6 V/m; Power Drift = -0.1 dB

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

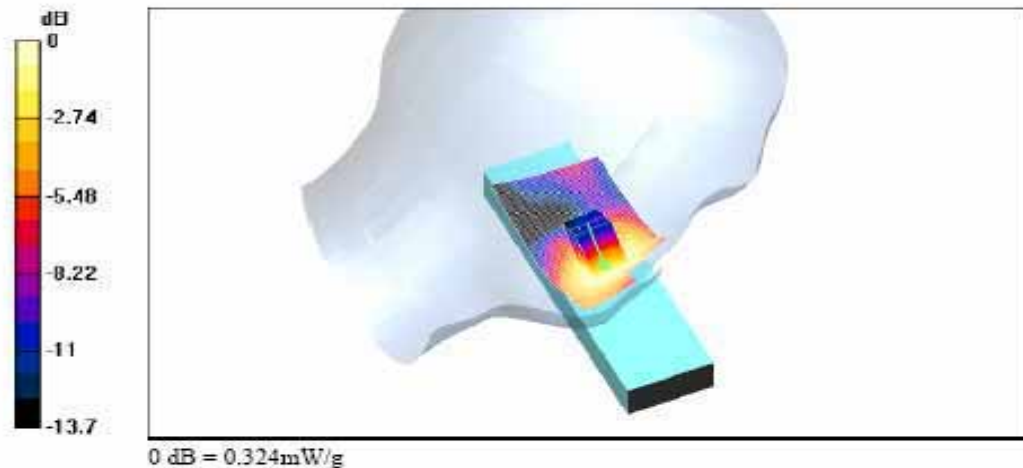
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.6 V/m; Power Drift = -0.1 dB

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

Peak SAR (extrapolated) = 0.454 W/kg

SAR(1 g) = 0.302 mW/g



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Date/Time: 03/07/06 10:24:06

Test Laboratory: ESTECH

CH661 LEFT TOUCH

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(5.14, 5.14, 5.14); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800MHz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 49%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 5.42 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 0.381 mW/g

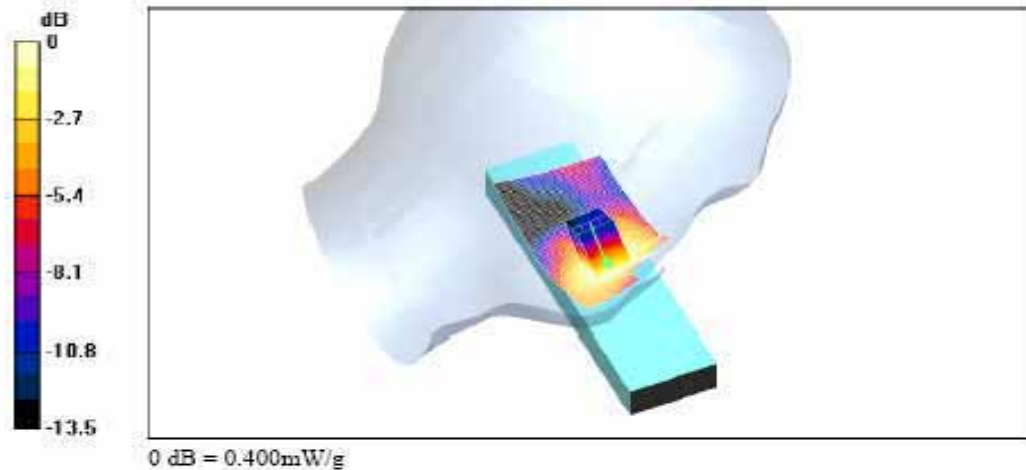
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.42 V/m; Power Drift = -0.1 dB

Maximum value of SAR (measured) = 0.400 mW/g

Peak SAR (extrapolated) = 0.552 W/kg

SAR(1 g) = 0.370 mW/g



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Date/Time: 03/07/06 13:00:44

Test Laboratory: ESTECH

CH810 LEFT TOUCH

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1909.8$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(5.14, 5.14, 5.14); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800MHz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 48%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 6.21 V/m; Power Drift = -0.0 dB

Maximum value of SAR (interpolated) = 0.509 mW/g

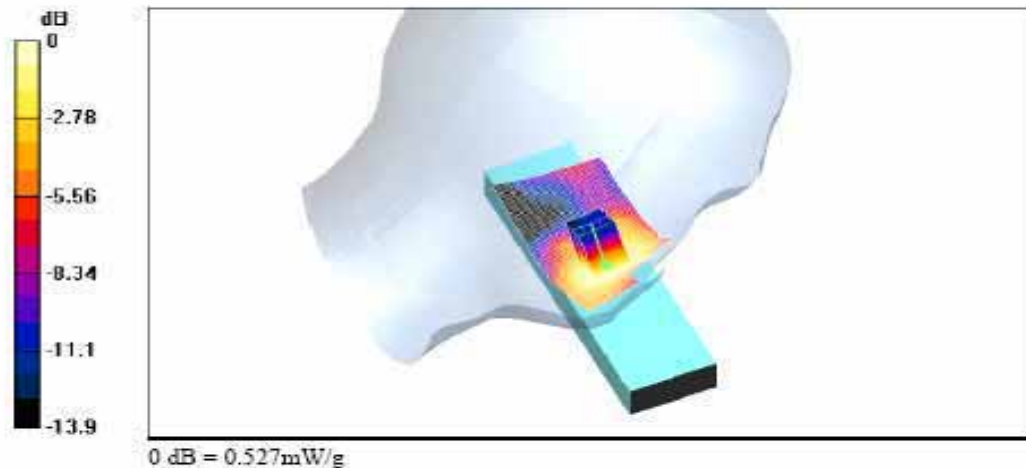
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.21 V/m; Power Drift = -0.0 dB

Maximum value of SAR (measured) = 0.527 mW/g

Peak SAR (extrapolated) = 0.752 W/kg

SAR(1 g) = 0.491 mW/g





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Date/Time: 03/07/06 12:14:39

Test Laboratory: ESTECH

CH512 RIGHT TOUCH

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$

kg/m³

Phantom section: Right Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(5.14, 5.14, 5.14); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800MHz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DAS4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 49%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 4.08 V/m; Power Drift = 0.0 dB

Maximum value of SAR (interpolated) = 0.400 mW/g

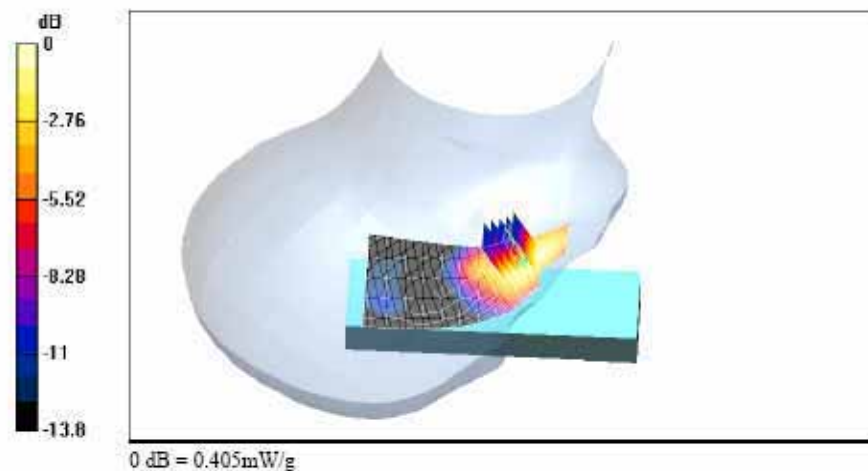
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.08 V/m; Power Drift = 0.0 dB

Maximum value of SAR (measured) = 0.405 mW/g

Peak SAR (extrapolated) = 0.619 W/kg

SAR(1 g) = 0.373 mW/g



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Date/Time: 03/07/06 10:43:17

Test Laboratory: ESTECH

CH661 RIGHT TOUCH

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(5.14, 5.14, 5.14); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800MHz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 49%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 4.61 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 0.514 mW/g

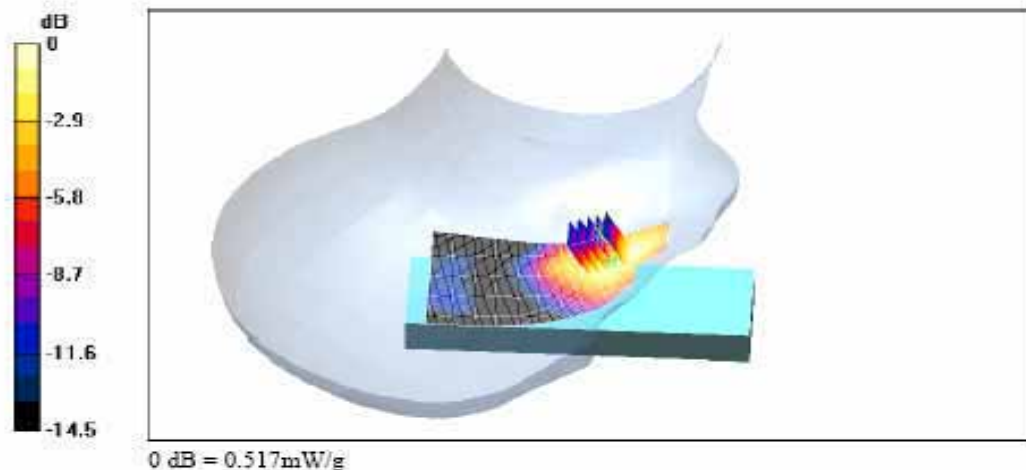
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.61 V/m; Power Drift = -0.1 dB

Maximum value of SAR (measured) = 0.517 mW/g

Peak SAR (extrapolated) = 0.787 W/kg

SAR(1 g) = 0.476 mW/g



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Date/Time: 03/07/06 13:22:33

Test Laboratory: ESTECH

CH810 RIGHT TOUCH

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1909.8$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$

kg/m³

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(5.14, 5.14, 5.14); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800MHz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 47%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 5.09 V/m; Power Drift = -0.0 dB

Maximum value of SAR (interpolated) = 0.666 mW/g

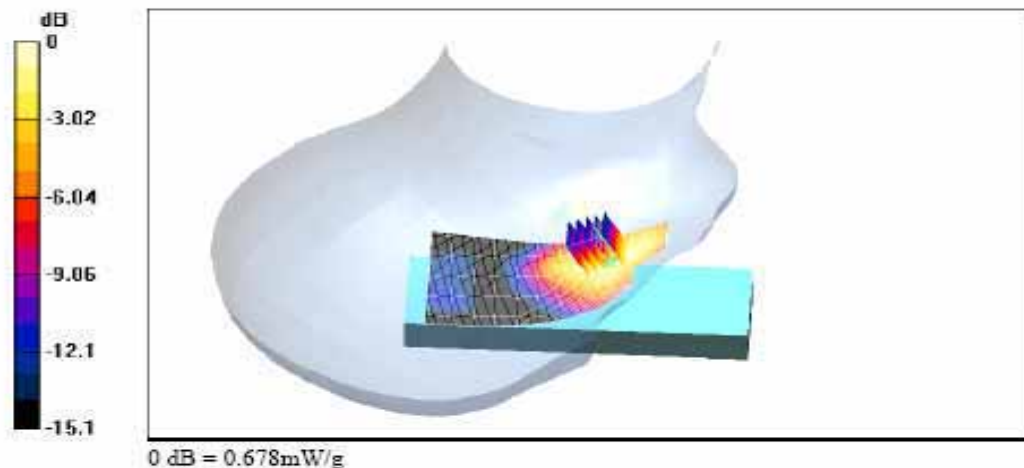
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.09 V/m; Power Drift = -0.0 dB

Maximum value of SAR (measured) = 0.678 mW/g

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.628 mW/g



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Test Laboratory: ESTECH

CH661 LEFT TILT

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(5.14, 5.14, 5.14); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800Mhz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 49%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 9.68 V/m; Power Drift = 0.0 dB

Maximum value of SAR (interpolated) = 0.198 mW/g

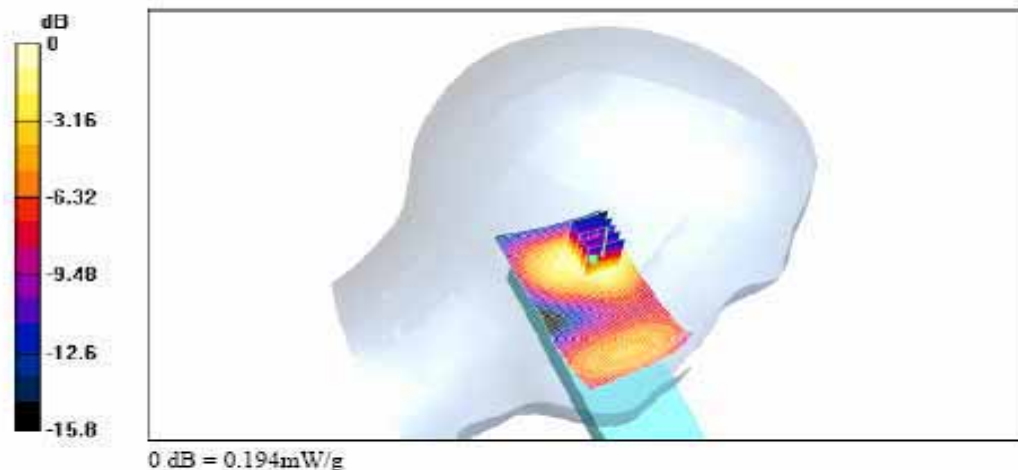
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.68 V/m; Power Drift = 0.0 dB

Maximum value of SAR (measured) = 0.194 mW/g

Peak SAR (extrapolated) = 0.305 W/kg

SAR(1 g) = 0.177 mW/g



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Test Laboratory: ESTECH

CH661 RIGHT TILT

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(5.14, 5.14, 5.14); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800MHz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 49%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 9.3 V/m; Power Drift = 0.007 dB

Maximum value of SAR (interpolated) = 0.144 mW/g

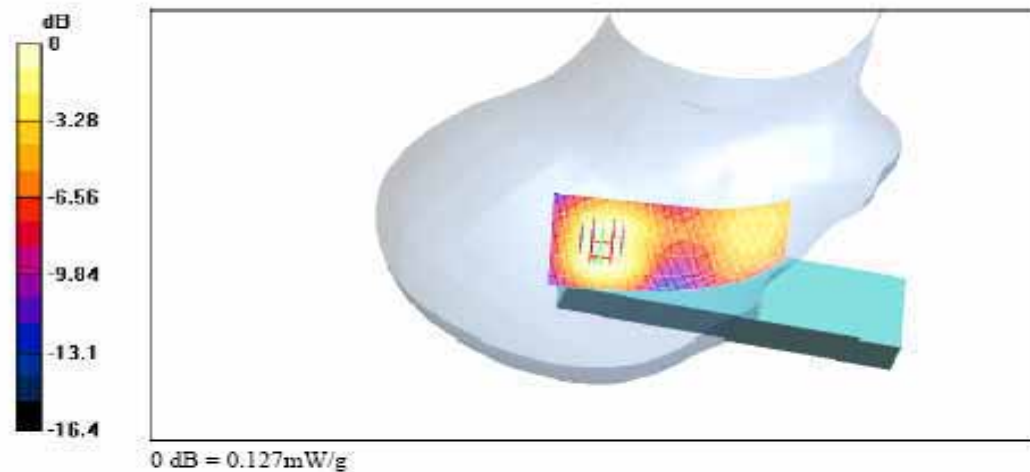
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.3 V/m; Power Drift = 0.007 dB

Maximum value of SAR (measured) = 0.127 mW/g

Peak SAR (extrapolated) = 0.188 W/kg

SAR(1 g) = 0.118 mW/g



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Test Laboratory: ESTECH

CH810 RIGHT TOUCH-ZSCAN

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

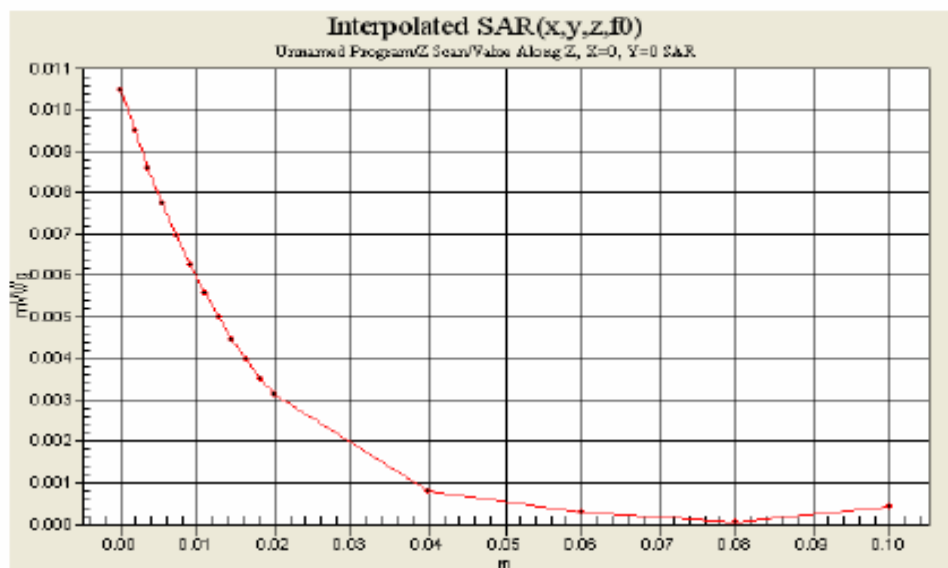
Medium parameters used (interpolated): $f = 1909.8$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(5.14, 5.14, 5.14); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800MHz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 49%





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Test Laboratory: ESTECH

CH512 BODY

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.49$ mho/m; $\epsilon_r = 51.6$; $\rho = 1000$

kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(4.54, 4.54, 4.54); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800Mhz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 48%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 7.19 V/m; Power Drift = 0.0003 dB

Maximum value of SAR (interpolated) = 0.320 mW/g

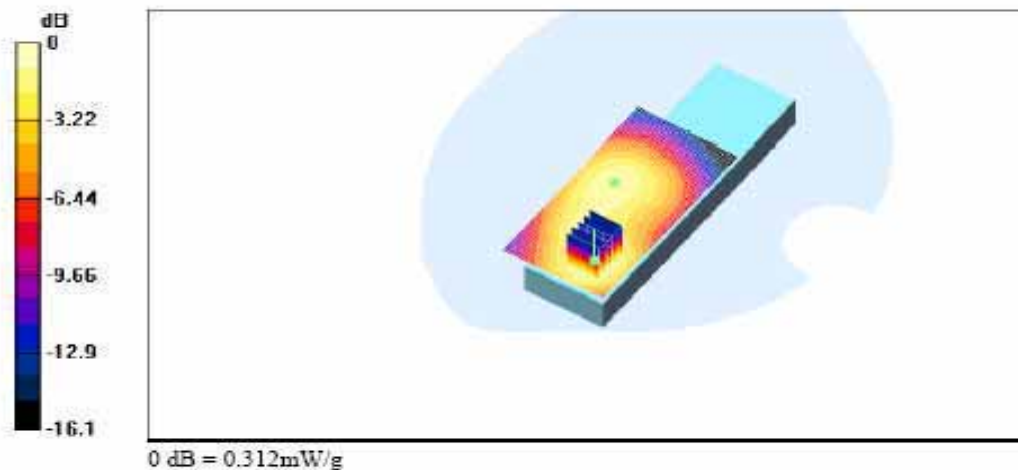
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.19 V/m; Power Drift = 0.0003 dB

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

Peak SAR (extrapolated) = 0.496 W/kg

SAR(1 g) = 0.284 mW/g



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Test Laboratory: ESTECH

CH661 BODY

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 51.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(4.54, 4.54, 4.54); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800Mhz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 47%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 8.41 V/m; Power Drift = 0.0 dB

Maximum value of SAR (interpolated) = 0.464 mW/g

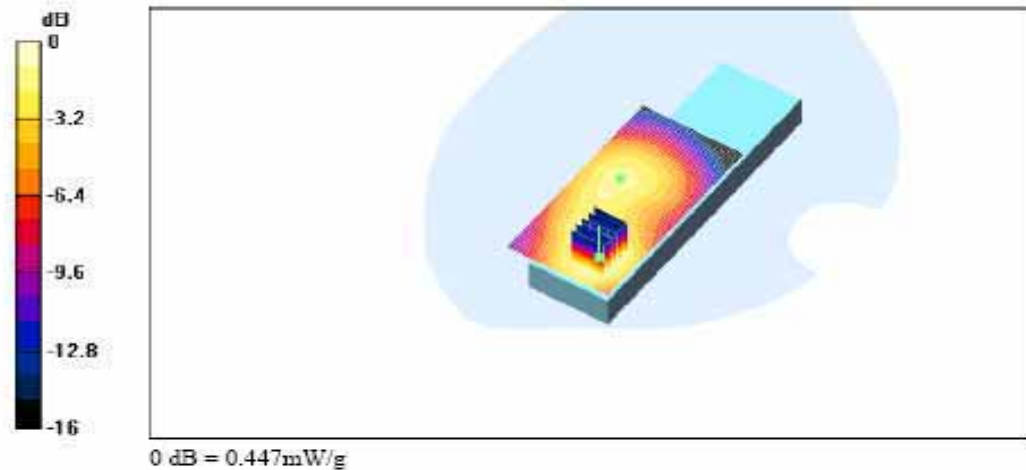
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.41 V/m; Power Drift = 0.0 dB

Maximum value of SAR (measured) = 0.447 mW/g

Peak SAR (extrapolated) = 0.721 W/kg

SAR(1 g) = 0.407 mW/g





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Date/Time: 03/07/06 15:13:27

Test Laboratory: ESTECH

CH810 BODY

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1909.8$ MHz, $\sigma = 1.56$ mho/m, $\epsilon_r = 51.4$, $\rho = 1000$

kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(4.54, 4.54, 4.54); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800Mhz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 48%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 10.1 V/m; Power Drift = -0.0 dB

Maximum value of SAR (interpolated) = 0.666 mW/g

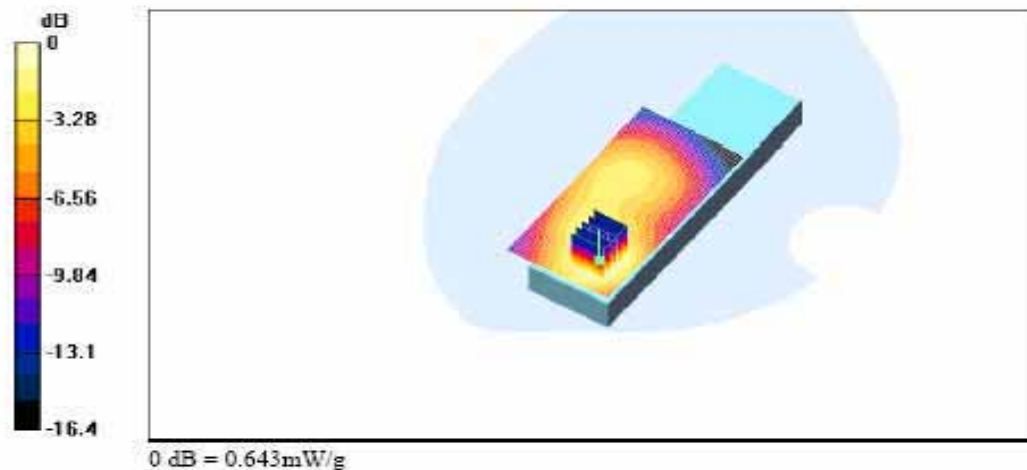
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.1 V/m; Power Drift = -0.0 dB

Maximum value of SAR (measured) = 0.643 mW/g

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.587 mW/g



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Test Laboratory: ESTECH

CH810 BODY-ZSCAN

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1909.8$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 51.4$; $\rho = 1000$

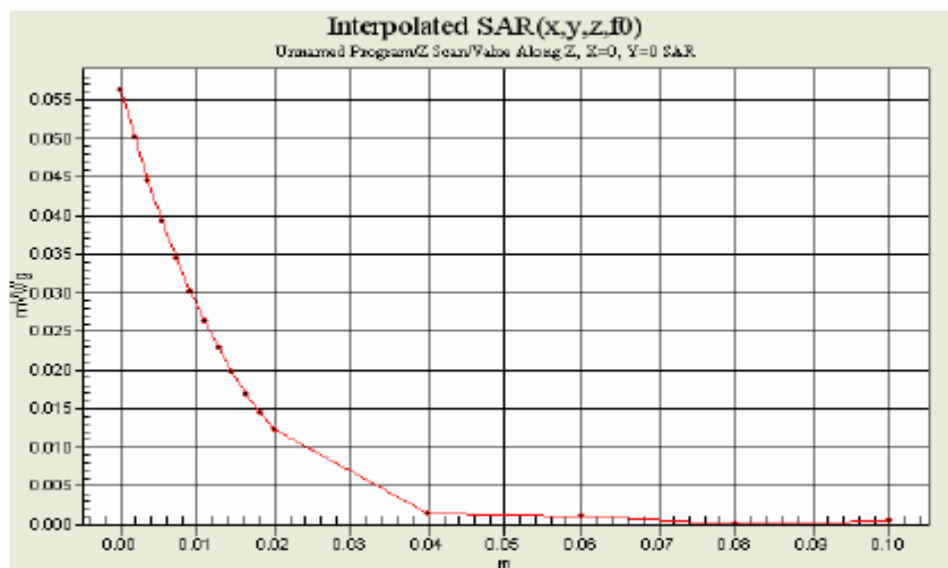
kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(4.54, 4.54, 4.54); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800Mhz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 48%



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Date/Time: 03/07/06 15:38:44

Test Laboratory: ESTECH

CH810 BODY-GPRS

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:4.15

Medium parameters used (interpolated): $f = 1909.8$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 51.4$; $\rho = 1000$

kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(4.54, 4.54, 4.54); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800MHz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 48%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 9.87 V/m; Power Drift = -0.1 dB

Maximum value of SAR (interpolated) = 0.583 mW/g

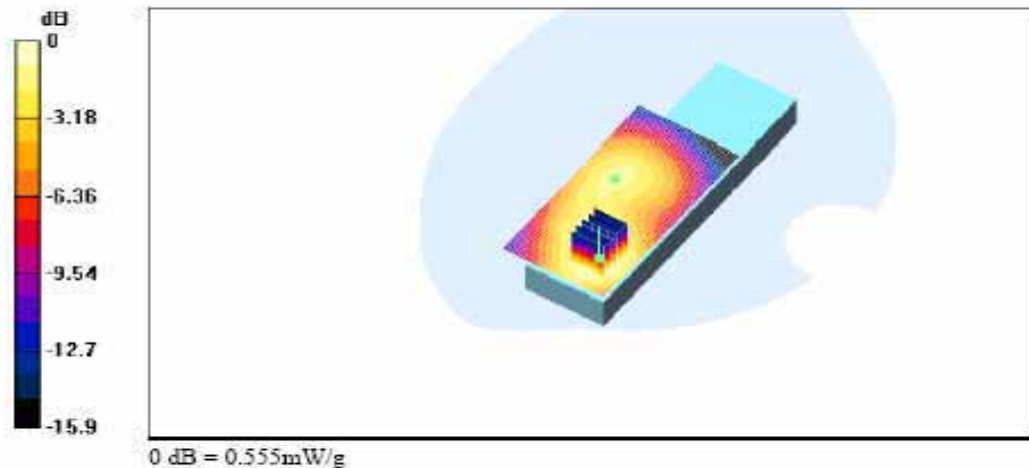
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.87 V/m; Power Drift = -0.1 dB

Maximum value of SAR (measured) = 0.555 mW/g

Peak SAR (extrapolated) = 0.884 W/kg

SAR(1 g) = 0.509 mW/g





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Date/Time: 03/07/06 16:19:04

Test Laboratory: ESTECH

CH810 RIGHT TOUCH-BT disable

DUT: MG810; Type: FOLDER TYPE; Serial: XXXX

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1909.8$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1750; ConvF(5.14, 5.14, 5.14); Calibrated: 2006-01-24
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn551; Calibrated: 2004-04-28
- Phantom: SAM MIC 1800MHz; Type: SAM MIC 1800MHz; Serial: TP-1263
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112
- Temperature : 20°C, Humidity : 47%

Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 5.24 V/m; Power Drift = -0.0 dB

Maximum value of SAR (interpolated) = 0.669 mW/g

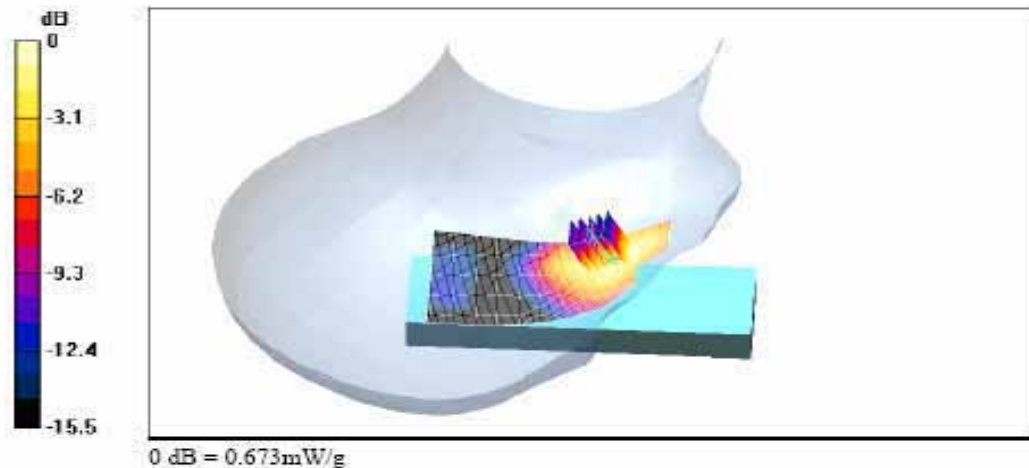
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.24 V/m; Power Drift = -0.0 dB

Maximum value of SAR (measured) = 0.673 mW/g

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.621 mW/g





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APPENDIX D : Calibration Certificates



Accredited by the Swiss Federal Office of Metrology and Accreditation
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 **Estech (Dymstec)**

Certificate No: **D835V2-475_Feb05**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 475**

Calibration procedure(s) **QA CAL-05.v6
Calibration procedure for dipole validation kits**

Calibration date: **February 24, 2005**

Condition of the calibrated item **In Tolerance**

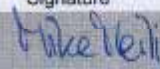
This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM E442	GB37480704	12-Oct-04 (METAS, No. 251-00412)	Oct-05
Power sensor HP 8481A	US37292783	12-Oct-04 (METAS, No. 251-00412)	Oct-05
Reference 20 dB Attenuator	SN: 5086 (20g)	10-Aug-04 (METAS, No 251-00402)	Aug-05
Reference 10 dB Attenuator	SN: 5047.2 (10r)	10-Aug-04 (METAS, No 251-00402)	Aug-05
Reference Probe ET3DV6	SN 1507	26-Oct-04 (SPEAG, No. ET3-1507_Oct04)	Oct-05
DAE4	SN 601	07-Jan-05 (SPEAG, No. DAE4-601_Jan05)	Jan-06

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-03)	In house check: Oct-05
RF generator R&S SML-03	100698	27-Mar-02 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Nov-04)	In house check: Nov-05

Calibrated by:	Name Mika Mesli	Function Laboratory Technician	Signature 
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 25, 2005

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