SAR Test Report

Product Name : GSM and GPRS Digital Mobile Phone

Model No. : GM602、RMP-602GMW

Applicant : AUDIOVISION ELECTRONICA AUDIOELEC S.A.

Address : Km. 11 ½ Via a Daule, Lotizacion Inmaconsa, Calle B y Gama, 2do. Callejon 24 GUAYAQUIL, ECUADOR

Date of Receipt : 26. Jul, 2010

Date of Test : 26. Jul, 2010 ~ 14. Aug, 2010

Issued Date : 16. Aug, 2010

Report No. : 107S069R-HP-US-P03V01

Report Version : V1.0

Test Report Certification

Issued Date: 16. Aug, 2010
Report No: 107S069R-HP-US-P03V01

QuieTek

Product Name	:	GSM and GPRS Digital Mobile Phone
Applicant	:	AUDIOVISION ELECTRONICA AUDIOELEC S.A.
Address	:	Km. 11 ½ Via a Daule, Lotizacion Inmaconsa, Calle B y Gama, 2do. Callejon 24 GUAYAQUIL, ECUADOR
Manufacturer	:	Gowell Electronic (Huizhou) Co., Ltd
Address	:	Xiangshuihe Industrial Park, Dayawan District, Huizhou City, Guangdong Province,China
Model No.	:	GM602、RMP-602GMW
Trade Name	:	GOWELL、RIVIERA
EUT Voltage	:	DC 3.7V
Applicable Standard	:	FCC Oet65 Supplement C June 2001 IEEE Std. 1528-2003,47CFR § 2.1093
Test Result	:	Max. SAR Measurement (1g) Head: 0.862 W/kg Body: 0.733 W/kg
Performed Location	:	SuZhou EMC laboratory No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., SuZhou, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392
Documented By	:	Alice Ni (Engineering ADM: Alice Ni)
Tested By	:	Marlin Chen (Engineering Supervisor: Marlin Chen)
Approved By	:	Dream Cao (Engineering Manager: Dream Cao)

Laboratory Information

We , **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited by the following accreditation Bodies in compliance with ISO 17025, EN 45001 and Guide 25:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC, NVLAP**
Japan	**:**	**VCCI**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://tw.quietek.com/modules/myalbum/
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory :

No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.
TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

NVLAP Lab Code : 200347-0 1313

LinKou Testing Laboratory :

No. 5, Ruei-Shu Valley, Ruei-Ping Tsuen, Lin-Kou Shiang, Taipei, Taiwan, R.O.C.
TEL : +886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

NVLAP Lab Code: 200533-0 0914

Suzhou Testing Laboratory :

No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., SuZhou, China
TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : service@quietek.com

NVLAP Lab Code : 200743-0 1596

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1. General Information

1.1. EUT Description

Product Name	GSM and GPRS Digital Mobile Phone
Trade Name	GOWELL、RIVIERA
Model No.	GM602、RMP-602GMW
IMEI	357470005665260
Tx Frequency Range	GSM 850: 824~849MHz PCS 1900: 1850~1910MHz
Rx Frequency Range	GSM 850: 869~894MHz PCS 1900: 1930~1990MHz
Antenna Type	Internal
GPRS Class	Class 8
Type of Modulation	GSMK
Device Category	Portable
Peak Antenna Gain	-6.28dBi
Max. Output Power (Conducted)	GSM850: 33.02 PCS1900: 29.35
Max. Output Power (Radiated)	GSM850: 27.85 - ERP PCS1900: 26.54 - EIRP

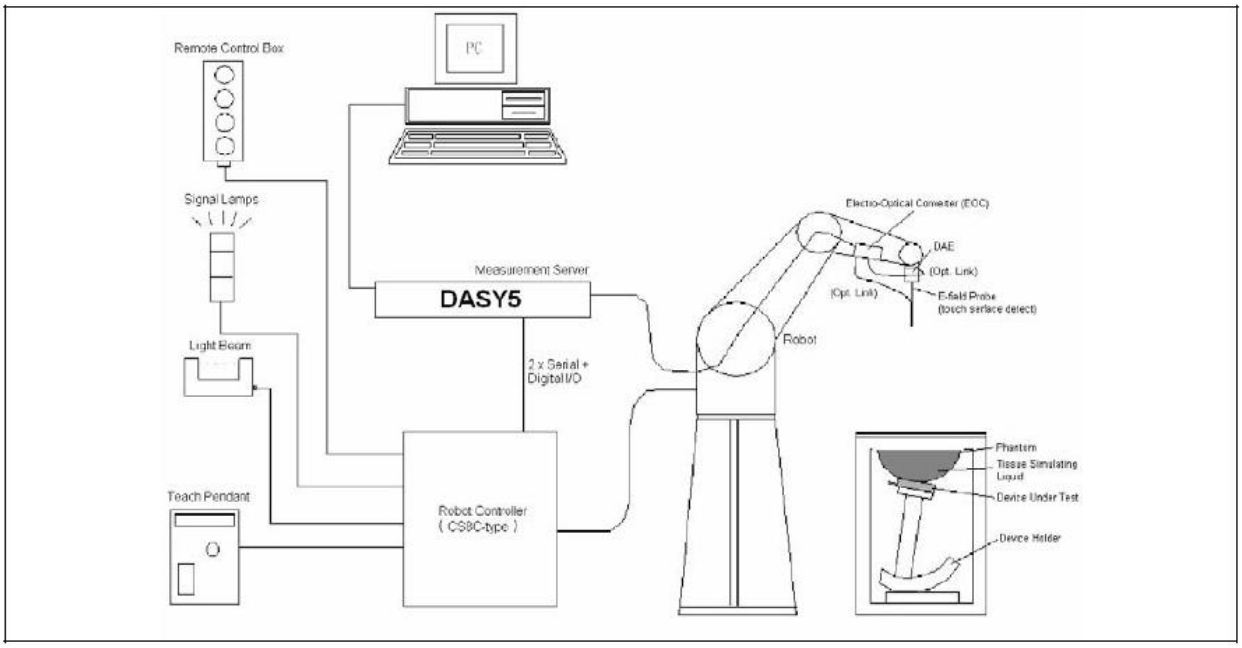
1.2. Test Environment

Ambient conditions in the laboratory:

Items	Required	Actual
Temperature (°C)	18-25	21.3± 2
Humidity (%RH)	30-70	52

2. SAR Measurement System

2.1. DASY5 System Description



The DASY5 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

2.1.1. Applications

Predefined procedures and evaluations for automated compliance testing with all worldwide standards, e.g., IEEE 1528, OET 65, IEC 62209-1, IEC 62209-2, EN 50360, EN 50383 and others.

2.1.2. Area Scans

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a $10mm^2$ step integral, with 1mm interpolation used to locate the peak SAR area used for zoom scan assessments.

When an Area Scan has measured all reachable points, it computes the field maxima found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE 1528-2003, EN 50361 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan).

2.1.3. Zoom Scan (Cube Scan Averaging)

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. A density of 1000 kg/m^3 is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1 g cube is 10mm, with the side length of the 10 g cube 21,5mm.

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications utilize a physical step of 7x7x7 (5mmx5mmx5mm) providing a volume of 30mm in the X & Y axis, and 30mm in the Z axis.

2.1.4. Uncertainty of Inter-/Extrapolation and Averaging

In order to evaluate the uncertainty of the interpolation, extrapolation and averaged SAR calculation algorithms of the Postprocessor, DASY5 allows the generation of measurement grids which are artificially predefined by analytically based test functions. Therefore, the grids of area scans and zoom scans can be filled with uncertainty test data, according to the SAR benchmark functions of IEEE 1528.The three analytical functions shown in equations as below are used to describe the possible range of the expected SAR distributions for the tested handsets. The field gradients are covered by the spatially flat distribution f1, the spatially steep distribution f3 and f2 accounts for H-field cancellation on the phantom/tissue surface.

$$f_1(x,y,z) = Ae^{-\frac{z}{2a}}\cos^2\left(\frac{\pi}{2}\frac{\sqrt{x'^2+y'^2}}{5a}\right)$$

$$f_2(x,y,z) = Ae^{-\frac{z}{a}}\frac{a^2}{a^2+x'^2}\left(3-e^{-\frac{2z}{a}}\right)\cos^2\left(\frac{\pi}{2}\frac{y'}{3a}\right)$$

$$f_3(x,y,z) = A\frac{a^2}{\frac{a^2}{4}+x'^2+y'^2}\left(e^{-\frac{2z}{a}}+\frac{a^2}{2(a+2z)^2}\right)$$

2.2. DASY5 E-Field Probe

The SAR measurement is conducted with the dosimetric probe manufactured by SPEAG. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.

SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528, EN 62209-1, IEC 62209, etc.) under ISO 17025. The calibration data are in Appendix D.

2.2.1. Isotropic E-Field Probe Specification

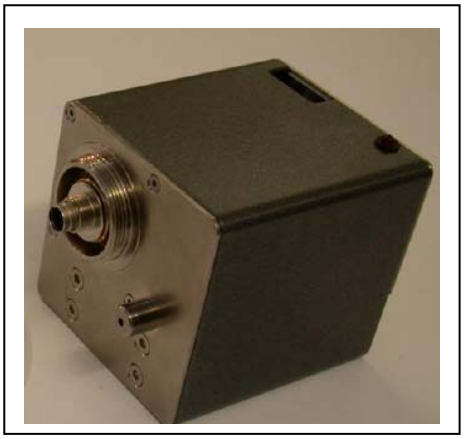
Model	EX3DV4	
Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	

2.3. Boundary Detection Unit and Probe Mounting Device

The DASY probes use a precise connector and an additional holder for the probe, consisting of a plastic tube and a flexible silicon ring to center the probe. The connector at the DAE is flexibly mounted and held in the default position with magnets and springs. Two switching systems in the connector mount detect frontal and lateral probe collisions and trigger the necessary software response.

2.4. DATA Acquisition Electronics (DAE) and Measurement Server

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit.
Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.
The input impedance of the DAE4 is 200M Ohm; the inputs are symmetrical and floating. Common mode rejection is above 80dB.



The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz intel ULV Celeron, 128MB chipdisk and 128MB RAM. The necessary circuits for communication with the DAE electronics box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.

2.5. Robot

The DASY5 system uses the high precision robots TX90 XL type out of the newer series from Stäubli SA (France). For the 6-axis controller DASY5 system, the CS8C robot controller version from Stäubli is used.

The XL robot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)
- 6-axis controller

2.6. Light Beam Unit

The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.

The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

2.7. Device Holder

The DASY5 device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR).
Thus the device needs no repositioning when changing the angles.
The DASY5 device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity εr =3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

2.8. SAM Twin Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas:

- Left head
- Right head
- Flat phantom

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

3. Tissue Simulating Liquid

3.1. The composition of the tissue simulating liquid

INGREDIENT (% Weight)	835MHz Head	835MHz Body	1900MHz Head	1900MHz Body
Water	40.45	52.4	54.90	40.5
Salt	1.45	1.40	0.18	0.50
Sugar	57.6	45.0	0.00	58.0
HEC	0.40	1.00	0.00	0.50
Preventol	0.10	0.20	0.00	0.50
DGBE	0.00	0.00	44.92	0.00

3.2. Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using DASY5 Dielectric Probe Kit and Agilent Vector Network Analyzer E5071C

Head Tissue Simulant Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
835 MHz	Reference result ± 5% window	42.54 40.41 to 44.67	0.91 0.86 to 0.96	N/A
	27-Jul-2010	42.85	0.92	21.0

Body Tissue Simulant Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
835 MHz	Reference result ± 5% window	55.2 52.44 to 57.96	0.97 0.92 to 1.02	N/A
	31-Jul-2010	55.25	1.00	21.0

Head Tissue Simulant Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
1900 MHz	Reference result ± 5% window	39.9 37.91 to 41.90	1.42 1.35 to 1.49	N/A
	28-Jul-2010	39.30	1.40	21.2

Body Tissue Simulant Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
1900 MHz	Reference result ± 5% window	53.3 50.64 to 55.97	1.52 1.44 to 1.60	N/A
	02-Aug-2010	52.47	1.60	21.2

3.3. Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

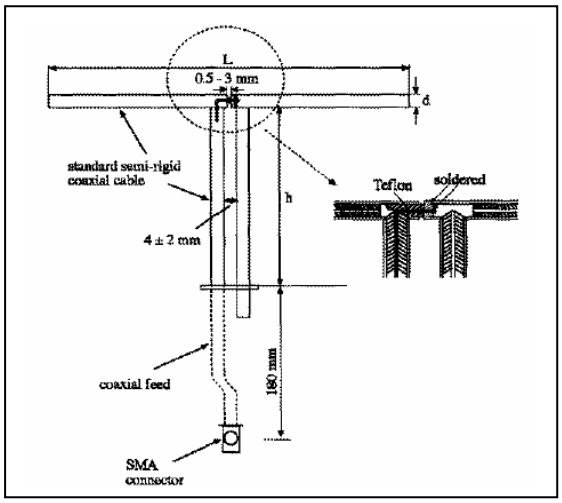
Target Frequency	Head		Body	
(MHz)	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	**41.5**	**0.90**	**55.2**	**0.97**
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	**40.0**	**1.40**	**53.3**	**1.52**
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

4. SAR Measurement Procedure

4.1. SAR System Validation

4.1.1. Validation Dipoles



The dipoles used is based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of both IEEE and FCC Supplement C. the table below provides details for the mechanical and electrical specifications for the dipoles.

Frequency	L (mm)	h (mm)	d (mm)
835MHz	165.0	900	3.6
1900MHz	68.0	39.5	3.6

4.1.2. Validation Result

System Performance Check at 835MHz &1900MHz for Head

Validation Kit: D835V2-SN 4d094

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
835 MHz	Reference result ± 10% window	9.70 8.73 to 10.67	6.30 5.67 to 6.93	N/A
	27-Jul-2010	10.40	6.76	21.0

Validation Kit: D1900V2-SN 5d121

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
1900 MHz	Reference result ± 10% window	39.8 35.82 to 43.78	21.1 18.99 to 23.21	N/A
	28-Jul-2010	40.40	20.60	21.0

Note: All SAR values are normalized to 1W forward power.

System Performance Check at 835MHz &1900MHz for Body

Validation Kit: D835V2-SN 4d094

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
835 MHz	Reference result ± 10% window	9.90 8.91 to 10.89	6.53 5.88 to 7.18	N/A
	31-Jul-2010	10.44	6.76	21.2

Validation Kit: D1900V2-SN 5d121

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
1900 MHz	Reference result ± 10% window	41.4 37.26 to 45.54	22.3 20.07 to 24.53	N/A
	02-Aug-2010	40.80	20.76	21.2

Note: All SAR values are normalized to 1W forward power.

4.2. SAR Measurement Procedure

The ALSAS-10U calculates SAR using the following equation,

$$SAR = \frac{\sigma |E|^2}{\rho}$$

σ: represents the simulated tissue conductivity

ρ: represents the tissue density

The EUT is set to transmit at the required power in line with product specification, at each frequency relating to the LOW, MID, and HIGH channel settings.

Pre-scans are made on the device to establish the location for the transmitting antenna, using a large area scan in either air or tissue simulation fluid.

The EUT is placed against the Universal Phantom where the maximum area scan dimensions are larger than the physical size of the resonating antenna. When the scan size is not large enough to cover the peak SAR distribution, it is modified by either extending the area scan size in both the X and Y directions, or the device is shifted within the predefined area.

The area scan is then run to establish the peak SAR location (interpolated resolution set at $1mm^2$) which is then used to orient the center of the zoom scan. The zoom scan is then executed and the 1g and 10g averages are derived from the zoom scan volume (interpolated resolution set at $1mm^3$).

5. SAR Exposure Limits

SAR assessments have been made in line with the requirements of IEEE-1528, FCC Supplement C, and comply with ANSI/IEEE C95.1-1992 “Uncontrolled Environments” limits. These limits apply to a location which is deemed as “Uncontrolled Environment” which can be described as a situation where the general public may be exposed to an RF source with no prior knowledge or control over their exposure.

Limits for General Population/Uncontrolled Exposure (W/kg)

Type Exposure	Uncontrolled Environment Limit
Spatial Peak SAR (1g cube tissue for brain or body)	1.60 W/kg
Spatial Average SAR (whole body)	0.08 W/kg
Spatial Peak SAR (10g for hands, feet, ankles and wrist)	4.00 W/kg

6. Test Equipment List

Instrument	Manufacturer	Model No.	Serial No.	Last Calibration	Next Calibration
Stäubli Robot TX60L	Stäubli	TX60L	F10/5C90A1/A/01	Mar. 2010	only once
Controller	Stäubli	SP1	S-0034	Mar. 2010	only once
Dipole Validation Kits	SPEAG	D835V2	4d094	Apr. 2010	Apr. 2012
Dipole Validation Kits	SPEAG	D1900V2	5d121	Apr. 2010	Apr. 2012
SAM Twin Phantom	Speag	SAM	TP-1561/1562	N/A	N/A
Device Holder	Speag	SD 000 H01 HA	N/A	N/A	N/A
Data Acquisition Electronic	Speag	DAE4	1220	Mar. 2010	Mar. 2011
E-Field Probe	Speag	EX3DV4	3710	Mar. 2010	Mar. 2011
SAR Software	Speag	DASY5	V5.2 Build 162	N/A	N/A
Power Amplifier	Mini-Circuit	ZVA-183-S+	N657400950	N/A	N/A
Directional Coupler	Agilent	778D	20160	N/A	N/A
Universal Radio Communication Tester	R&S	CMU 200	117088	Jul. 2010	Jul. 2011
Vector Network	Agilent	E5071C	MY48367267	Mar. 2010	Mar. 2011
Signal Generator	Agilent	E4438C	MY49070163	Apr. 2010	Apr. 2011
Power Meter	Anritsu	ML2495A	0905006	Jan. 2010	Jan. 2011
Wide Bandwidth Sensor	Anritsu	MA2411B	0846014	Jan. 2010	Jan. 2011

7. Measurement Uncertainty

DASY5 Uncertainty								
Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±5.5%	N	1	1	1	±5.5%	±5.5%	∞
Axial Isotropy	±4.7%	R	$\sqrt{3}$	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	$\sqrt{3}$	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	$\sqrt{3}$	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	$\sqrt{3}$	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	$\sqrt{3}$	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	$\sqrt{3}$	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	$\sqrt{3}$	0.64	0.43	±1.8%	±1.2%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid Permittivity (target)	±5.0%	R	$\sqrt{3}$	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined Std. Uncertainty						±10.7%	±10.5%	387
Expanded STD Uncertainty						±21.5%	±21.0%	

8. Conducted Power Measurement

Mode	Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)
Maximum Power (SIM 2)				
GSM850	824.2	32.02	0.7	32.72
	836.6	32.20	0.7	32.90
	848.8	32.32	0.7	**33.02**
PCS1900	1850.2	28.35	1.0	**29.35**
	1880.0	28.22	1.0	29.22
	1909.8	28.18	1.0	29.18
GPRS850 1slot	824.2	32.00	0.7	32.70
	836.6	32.17	0.7	32.87
	848.8	32.28	0.7	32.98
GPRS1900 1slot	1850.2	28.33	1.0	29.33
	1880.0	28.20	1.0	29.20
	1909.8	28.16	1.0	29.16
Maximum Power (SIM 1)				
GSM850	836.6	32.12	0.7	32.82
DCS1900	1880.0	28.21	1.0	29.21

Note: All SAR testing was done in SIM 2.

9. Test Results

9.1. SAR Test Results Summary

9.1.1. Test position and configuration

Head SAR was performed with the device configured in the positions according to IEEE1528, and Body SAR was performed with the device 15mm from the phantom. Body SAR was also performed with the headset attached and without.

9.1.2. Body SAR without Headset

Testing without the headset was performed at the position and channels that resulted in the highest body SAR. This testing was performed with GPRS transmitting with 1 uplink timeslots. This operation mode represents the maximum SAR situation, when downloading data via GPRS and listening to music by headset. SAR without the headset attached was significantly higher than with the headset, and also was verified several times and confirmed, so the final test data shown were the worst case without headset.

In the Body SAR test result table, body-worn means back of device towards phantom, body-front means LCD panel of device towards phantom.

9.1.3. GPRS Operation Mode

This is a multislot class 8 device capable of 1 uplink timeslots. During the head SAR test, the device was transmitting with 1 uplink timeslot; during the body SAR test, it was transmitting with 1 uplink timeslots. Additionally, this device doesn’t support dual transfer mode (DTM).

9.1.4. Referenced Documents

FCC KDB 447498 D01 V04 and KDB 941225 D03 V01

9.1.5. Test Result

SAR MEASUREMENT							
Ambient Temperature (°C) : 21.5 ±2				Relative Humidity (%): 54			
Liquid Temperature (°C) : 21.0 ±2				Depth of Liquid (cm):>15			
Product: GSM and GPRS Digital Mobile Phone							
Test Mode: GSM850 <SIM 2>							
Test Position Head	Antenna Position	Frequency		Conducted Power (dBm)	Power Drift (<±0.2)	**SAR** 1g (W/kg)	Limit (W/kg)
		Channel	MHz				
Left-Cheek	Fixed	128	824.2	32.72	0.096	0.499	1.6
Left-Cheek	Fixed	189	836.6	32.90	-0.171	0.698	1.6
Left-Cheek	Fixed	251	848.8	33.02	-0.165	0.779	1.6
Left-Tilted	Fixed	189	836.6	32.90	-0.146	0.485	1.6
Right-Cheek	Fixed	128	824.2	32.72	-0.006	0.516	1.6
Right-Cheek	Fixed	189	836.6	32.90	0.185	0.795	1.6
Right-Cheek	Fixed	251	848.8	33.02	-0.114	**0.862**	1.6
Right-Tilted	Fixed	189	836.6	32.90	0.194	0.493	1.6
Test Mode: GSM 850 <SIM 1>							
Right-Cheek	Fixed	189	836.6	32.82	-0.186	0.737	1.6

SAR MEASUREMENT

Ambient Temperature (°C) : 21.5 ±2	Relative Humidity (%): 54
Liquid Temperature (°C) : 21.0 ±2	Depth of Liquid (cm):>15
Product: GSM and GPRS Digital Mobile Phone	

Test Position Body	Antenna Position	Frequency		Conducted Power (dBm)	Power Drift (<±0.2)	**SAR** 1g (W/kg)	Limit (W/kg)
		Channel	MHz				
Test Mode: GSM850							
Body-worn	Fixed	128	824.2	32.72	-0.034	0.430	1.6
Body-worn	Fixed	189	836.6	32.90	0.005	0.497	1.6
Body-worn	Fixed	251	848.8	33.02	0.039	0.562	1.6
Body-front	Fixed	189	836.6	32.90	0.032	0.215	1.6
Test Mode: GPRS850 1slot							
Body-worn	Fixed	128	824.2	32.70	-0.130	0.660	1.6
Body-worn	Fixed	189	836.6	32.87	-0.030	**0.733**	1.6
Body-worn	Fixed	251	848.8	32.98	-0.137	0.614	1.6
Body-front	Fixed	189	836.6	32.87	0.128	0.376	1.6
Body-worn (With Headset)	Fixed	189	836.6	32.87	0.142	0.588	1.6

SAR MEASUREMENT

Ambient Temperature (°C) : 21.5 ±2 Relative Humidity (%): 52

Liquid Temperature (°C) : 21.0 ±2 Depth of Liquid (cm):>15

Product: GSM and GPRS Digital Mobile Phone

Test Mode: PCS1900 <SIM 2>

Test Position Head	Antenna Position	Frequency		Conducted Power (dBm)	Power Drift (<±0.2)	**SAR** 1g (W/kg)	Limit (W/kg)
		Channel	MHz				
Left-Cheek	Fixed	512	1850.2	29.35	-0.040	0.192	1.6
Left-Cheek	Fixed	661	1880.0	29.22	0.044	0.238	1.6
Left-Cheek	Fixed	810	1909.8	29.18	0.115	0.311	1.6
Left-Tilted	Fixed	661	1880.0	29.22	-0.054	0.231	1.6
Right-Cheek	Fixed	512	1850.2	29.35	-0.042	0.342	1.6
Right-Cheek	Fixed	661	1880.0	29.22	0.010	0.420	1.6
Right-Cheek	Fixed	810	1909.8	29.18	-0.078	**0.540**	1.6
Right-Tilted	Fixed	661	1880.0	29.22	-0.539	0.349	1.6
Test Mode: DCS1900 <SIM 1>							
Right-Cheek	Fixed	661	1880.0	29.21	0.104	0.406	1.6

SAR MEASUREMENT

Ambient Temperature (°C) : 21.5 ±2 Relative Humidity (%): 52

Liquid Temperature (°C) : 21.0 ±2 Depth of Liquid (cm):>15

Product: GSM and GPRS Digital Mobile Phone

Test Mode: PCS1900

Test Position Body	Antenna Position	Frequency		Conducted Power (dBm)	Power Drift (<±0.2)	**SAR** 1g (W/kg)	Limit (W/kg)
		Channel	MHz				
Body-worn	Fixed	512	1850.2	29.35	-0.120	0.134	1.6
Body-worn	Fixed	661	1880.0	29.22	-0.057	0.183	1.6
Body-worn	Fixed	810	1909.8	29.18	-0.034	**0.252**	1.6
Body-front	Fixed	661	1880.0	29.22	0.042	0.078	1.6
Test Mode: GPRS1900 1slot							
Body-worn	Fixed	512	1850.2	29.33	-0.099	0.106	1.6
Body-worn	Fixed	661	1880.0	29.20	-0.108	0.171	1.6
Body-worn	Fixed	810	1909.8	29.16	-0.115	0.227	1.6
Body-front	Fixed	661	1880.0	29.20	0.128	0.076	1.6
Body-worn (With Headset)	Fixed	661	1880.0	29.20	-0.105	0.168	1.6

Appendix A. SAR System Validation Data

Date/Time: 27-Jul-2010

Test Laboratory: QuieTek Lab

System Check Head 835MHz

DUT: Dipole 835 MHz D835V2; Type: D835V2

Communication System: CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:8; Frequency: 835 MHz;Medium parameters used: f = 835 MHz; σ = 0.92 mho/m; εr = 42.9; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

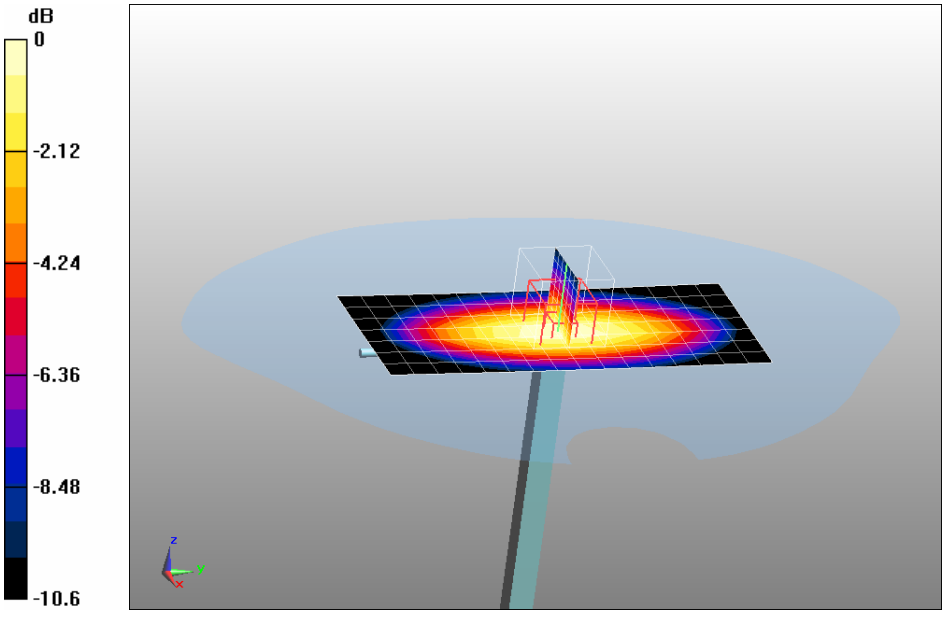
- Probe: EX3DV4 - SN3710; ConvF(8.83, 8.83, 8.83); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/System Check GSM850 Head/Area Scan (8x17x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 2.71 mW/g

Configuration/System Check GSM850 Head/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 55.3 V/m; Power Drift = -0.011 dB

Peak SAR (extrapolated) = 3.96 W/kg

SAR(1 g) = 2.6 mW/g; SAR(10 g) = 1.69 mW/g Maximum value of SAR (measured) = 2.81 mW/g



0 dB = 2.81mW/g

Date/Time: 31-Jul-2010

Test Laboratory: QuieTek Lab

System Check Body 835MHz

DUT: Dipole 835 MHz D835V2; Type: D835V2

Communication System: CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:8; Frequency: 835 MHz;Medium parameters used: f = 835 MHz; σ = 1 mho/m; εr = 55.3; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

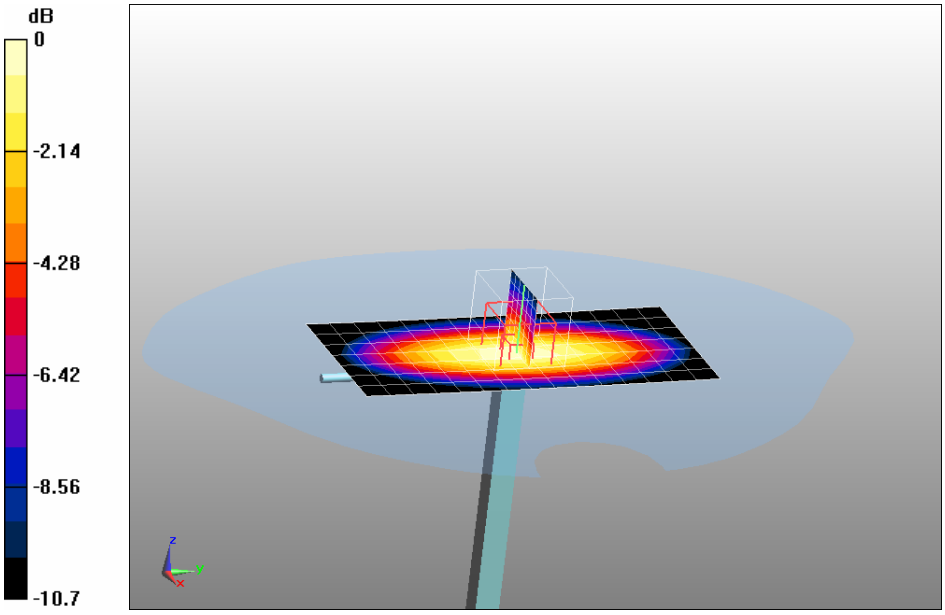
- Probe: EX3DV4 - SN3710; ConvF(8.95, 8.95, 8.95); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/System Check GSM835 Body/Area Scan (8x16x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 2.67 mW/g

Configuration/System Check GSM835 Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 53 V/m; Power Drift = -0.00108 dB

Peak SAR (extrapolated) = 3.98 W/kg

SAR(1 g) = 2.61 mW/g; SAR(10 g) = 1.69 mW/g Maximum value of SAR (measured) = 2.83 mW/g



0 dB = 2.83mW/g

Date/Time: 28-Jul-2010

Test Laboratory: QuieTek Lab

System Check Head 1900MHz

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle: 1:8; Frequency: 1900 MHz;Medium parameters used: f = 1900 MHz; σ = 1.4 mho/m; εr = 39.3; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

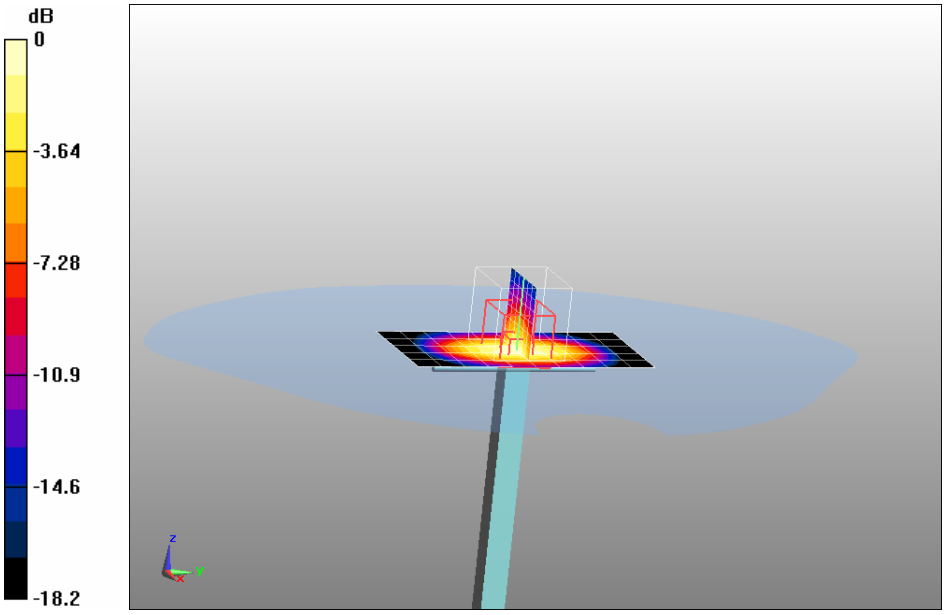
- Probe: EX3DV4 - SN3710; ConvF(7.69, 7.69, 7.69); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/System Check PCS1900 Head/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 10.5 mW/g

Configuration/System Check PCS1900 Head/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 89.8 V/m; Power Drift = -0.062 dB

Peak SAR (extrapolated) = 19.6 W/kg

SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.15 mW/g Maximum value of SAR (measured) = 11.4 mW/g



0 dB = 11.4mW/g

Date/Time: 02-Aug-2010

Test Laboratory: QuieTek Lab

System Check Body 1900MHz

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle: 1:8; Frequency: 1900 MHz;Medium parameters used: f = 1900 MHz; σ = 1.6 mho/m; εr = 52.5; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

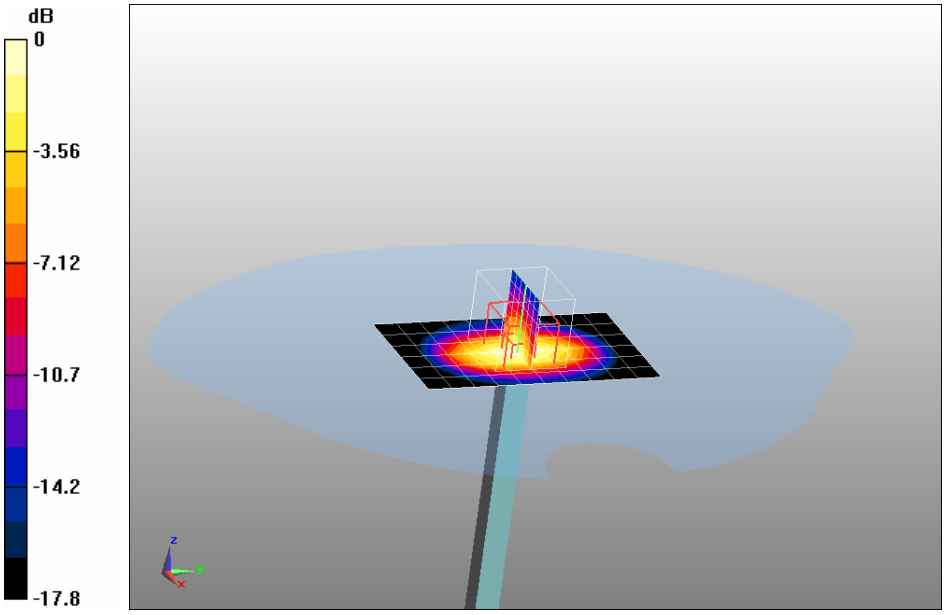
- Probe: EX3DV4 - SN3710; ConvF(7.71, 7.71, 7.71); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/System Check PCS1900 Body/Area Scan (7x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 11.3 mW/g

Configuration/System Check PCS1900 Body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 84.2 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 19.1 W/kg

SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.19 mW/g Maximum value of SAR (measured) = 11.5 mW/g



0 dB = 11.5mW/g

Appendix B. SAR measurement Data

Date/Time: 27-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 Low Left-Touch

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 824.2 MHz;Medium parameters used: f = 824.2 MHz; σ = 0.86 mho/m; εr = 43.1; ρ = 1000 kg/m3 ;Phantom section: Left Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

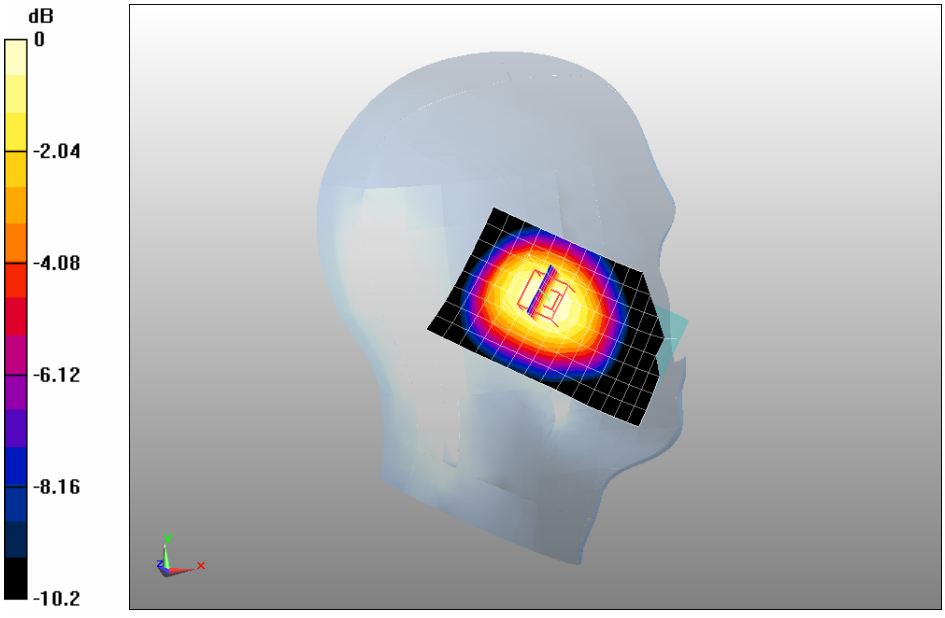
- Probe: EX3DV4 - SN3710; ConvF(8.83, 8.83, 8.83); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GSM 850 Low Left-Touch/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.523 mW/g

Configuration/GSM 850 Low Left-Touch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 20.2 V/m; Power Drift = 0.096 dB

Peak SAR (extrapolated) = 0.658 W/kg

SAR(1 g) = 0.499 mW/g; SAR(10 g) = 0.359 mW/g Maximum value of SAR (measured) = 0.529 mW/g



0 dB = 0.529mW/g

Date/Time: 27-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 Mid Left-Touch

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 836.6 MHz;Medium parameters used: f = 836.6 MHz; σ = 0.88 mho/m; εr = 43; ρ = 1000 kg/m3 ;Phantom section: Left Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

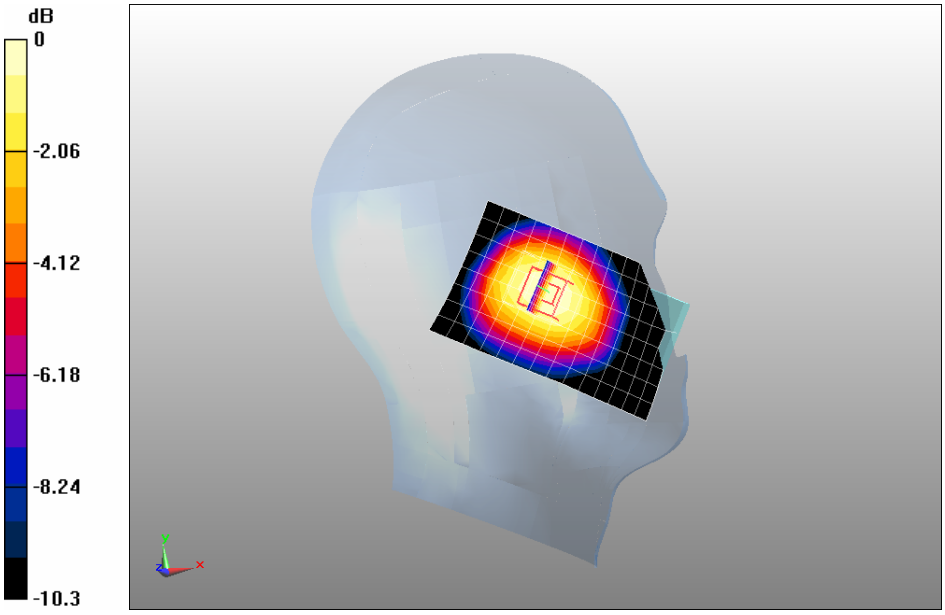
- Probe: EX3DV4 - SN3710; ConvF(8.83, 8.83, 8.83); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GSM 850 Mid Left-Touch/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.737 mW/g

Configuration/GSM 850 Mid Left-Touch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 24.7 V/m; Power Drift = -0.171 dB

Peak SAR (extrapolated) = 0.901 W/kg

SAR(1 g) = 0.698 mW/g; SAR(10 g) = 0.502 mW/g Maximum value of SAR (measured) = 0.740 mW/g



0 dB = 0.740mW/g

Date/Time: 27-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 High Left-Touch

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 848.6 MHz;Medium parameters used: f = 848.6 MHz; σ = 0.89 mho/m; εr = 42.8; ρ = 1000 kg/m3 ;Phantom section: Left Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

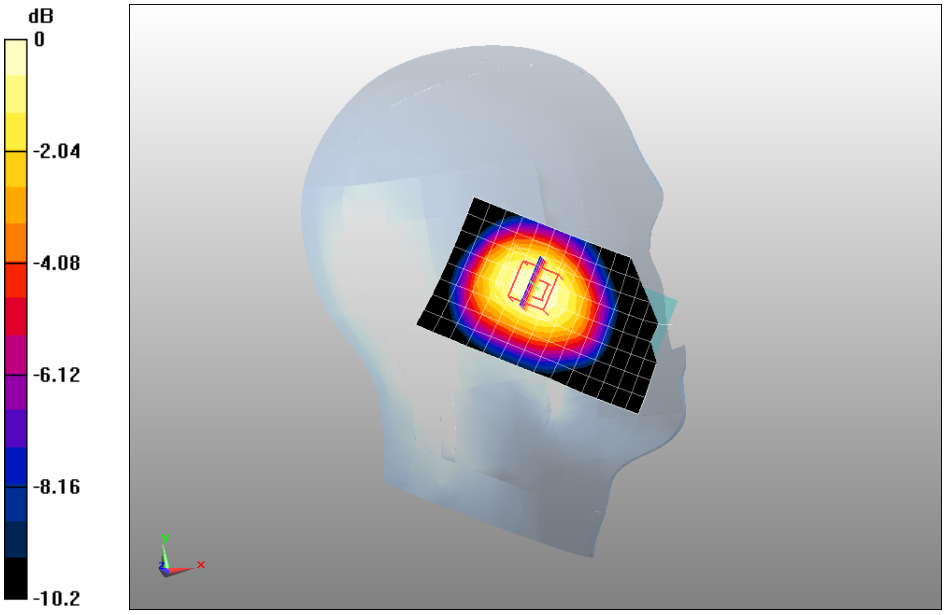
- Probe: EX3DV4 - SN3710; ConvF(8.83, 8.83, 8.83); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GSM 850 High Left-Touch/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.809 mW/g

Configuration/GSM 850 High Left-Touch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 25 V/m; Power Drift = -0.165 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.779 mW/g; SAR(10 g) = 0.559 mW/g Maximum value of SAR (measured) = 0.827 mW/g



0 dB = 0.827mW/g

Date/Time: 27-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 Mid Left-Tilt

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 836.6 MHz;Medium parameters used: f = 836.6 MHz; σ = 0.88 mho/m; εr = 43; ρ = 1000 kg/m3 ;Phantom section: Left Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3710; ConvF(8.83, 8.83, 8.83); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

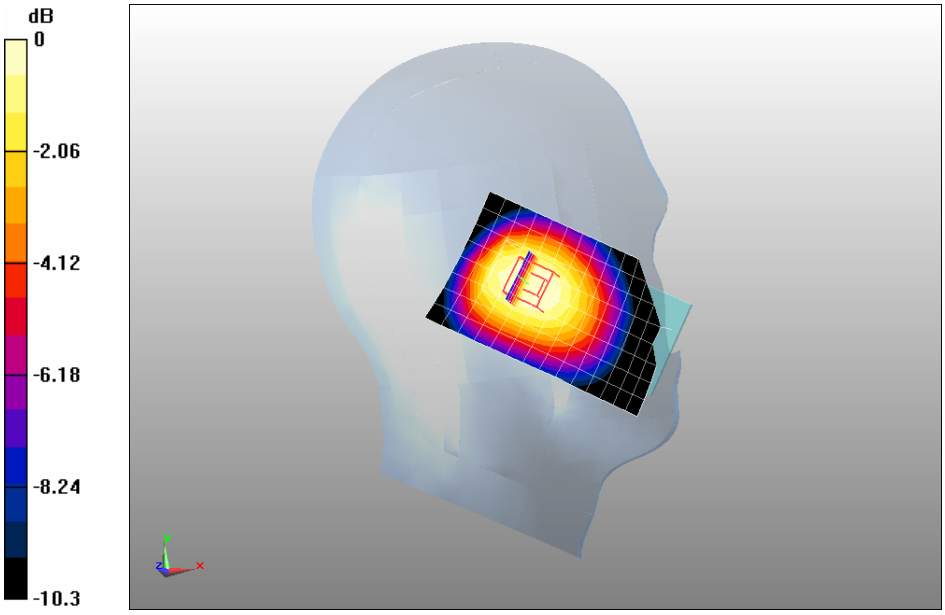
Configuration/GSM 850 Mid Left-Tilt/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm

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

Configuration/GSM 850 Mid Left-Tilt/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 23.9 V/m; Power Drift = -0.146 dB

Peak SAR (extrapolated) = 0.629 W/kg

SAR(1 g) = 0.485 mW/g; SAR(10 g) = 0.355 mW/g Maximum value of SAR (measured) = 0.510 mW/g



0 dB = 0.510mW/g

Date/Time: 27-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 Low Right-Touch

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 824.2 MHz;Medium parameters used: f = 824.2 MHz; σ = 0.86 mho/m; εr = 43.1; ρ = 1000 kg/m3 ;Phantom section: Right Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

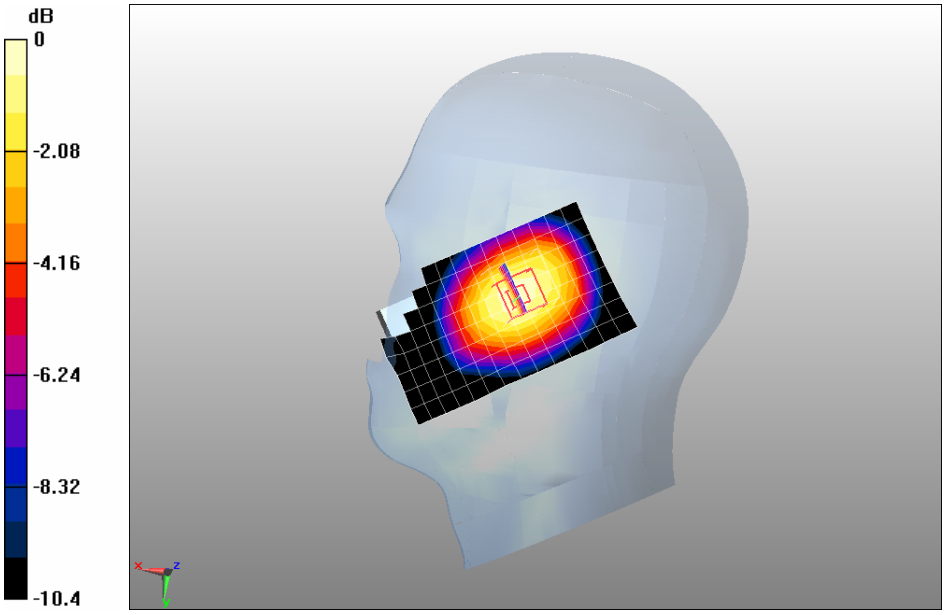
- Probe: EX3DV4 - SN3710; ConvF(8.83, 8.83, 8.83); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GSM 850 Low Right-Touch/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.528 mW/g

Configuration/GSM 850 Low Right-Touch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 20.3 V/m; Power Drift = -0.006 dB

Peak SAR (extrapolated) = 0.692 W/kg

SAR(1 g) = 0.516 mW/g; SAR(10 g) = 0.366 mW/g Maximum value of SAR (measured) = 0.556 mW/g



0 dB = 0.556mW/g

Date/Time: 27-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 Mid Right-Touch

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 836.6 MHz;Medium parameters used: f = 836.6 MHz; σ = 0.88 mho/m; εr = 43; ρ = 1000 kg/m3 ;Phantom section: Right Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

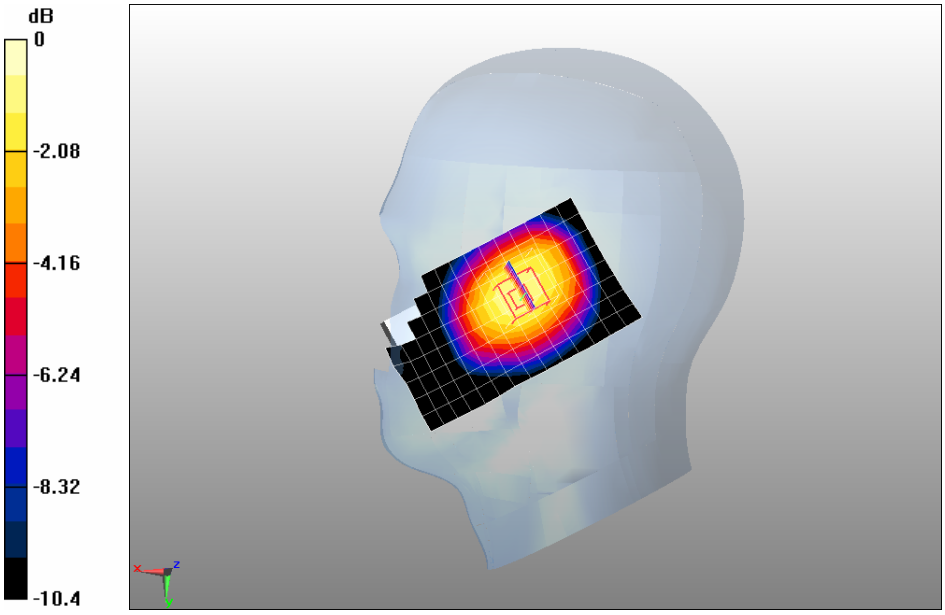
- Probe: EX3DV4 - SN3710; ConvF(8.83, 8.83, 8.83); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GSM 850 Mid Right-Touch/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.730 mW/g

Configuration/GSM 850 Mid Right-Touch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 24.3 V/m; Power Drift = 0.185 dB

Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.795 mW/g; SAR(10 g) = 0.567 mW/g Maximum value of SAR (measured) = 0.843 mW/g



0 dB = 0.843mW/g

Date/Time: 27-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 High Right-Touch

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 848.6 MHz;Medium parameters used: f = 848.6 MHz; σ = 0.89 mho/m; εr = 42.8; ρ = 1000 kg/m3 ;Phantom section: Right Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3710; ConvF(8.83, 8.83, 8.83); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

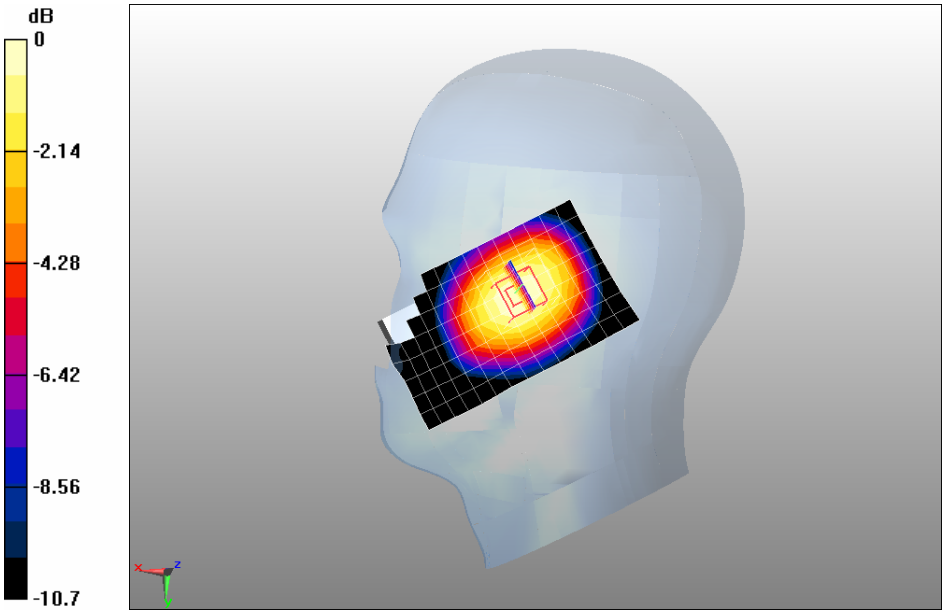
Configuration/GSM 850 High Right-Touch/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.901 mW/g

Configuration/GSM 850 High Right-Touch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 26.1 V/m; Power Drift = -0.114 dB

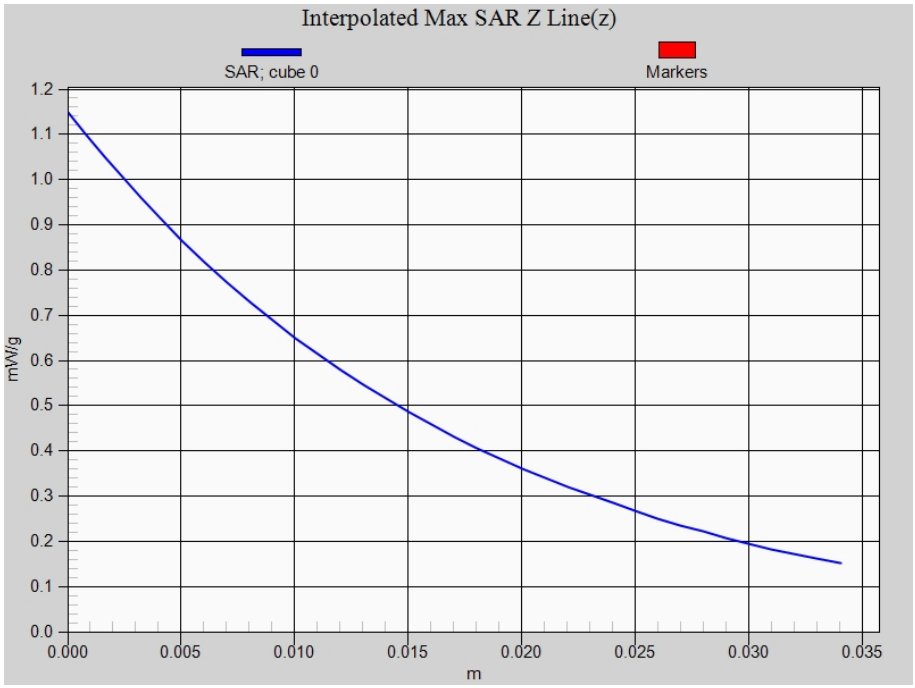
Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.862 mW/g; SAR(10 g) = 0.614 mW/g Maximum value of SAR (measured) = 0.919 mW/g



0 dB = 0.919mW/g

Z-Axis Plot


Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Date/Time: 27-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 Mid Right-Tilt

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 836.6 MHz;Medium parameters used: f = 836.6 MHz; σ = 0.88 mho/m; εr = 43; ρ = 1000 kg/m3 ;Phantom section: Right Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

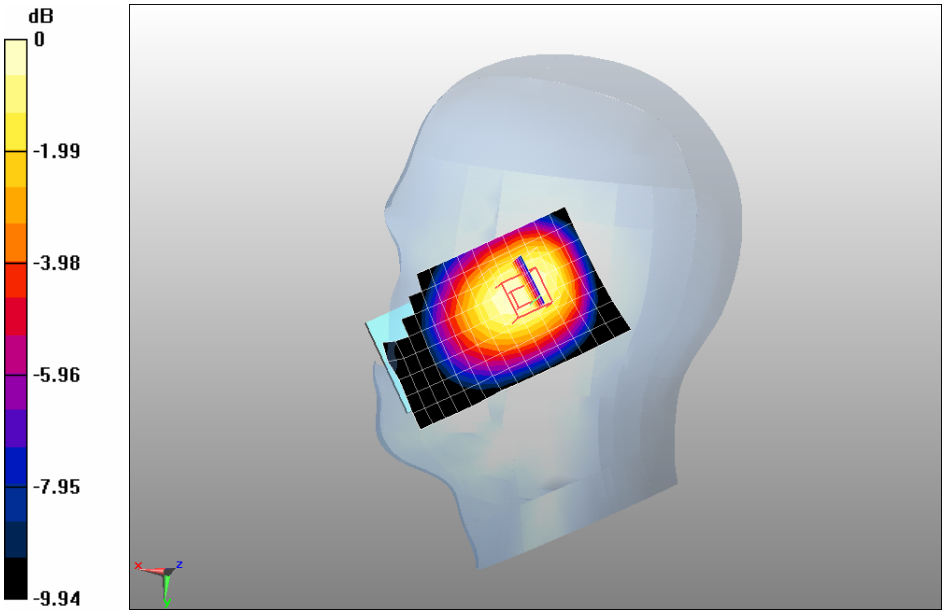
- Probe: EX3DV4 - SN3710; ConvF(8.83, 8.83, 8.83); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GSM 850 Mid Right-Tilt/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.526 mW/g

Configuration/GSM 850 Mid Right-Tilt/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 22.4 V/m; Power Drift = 0.194 dB

Peak SAR (extrapolated) = 0.639 W/kg

SAR(1 g) = 0.493 mW/g; SAR(10 g) = 0.364 mW/g Maximum value of SAR (measured) = 0.562 mW/g



0 dB = 0.526mW/g

Date/Time: 31-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 Low Body-Back

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 824.2 MHz;Medium parameters used: f = 824.2 MHz; σ = 1 mho/m; εr = 55.5; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

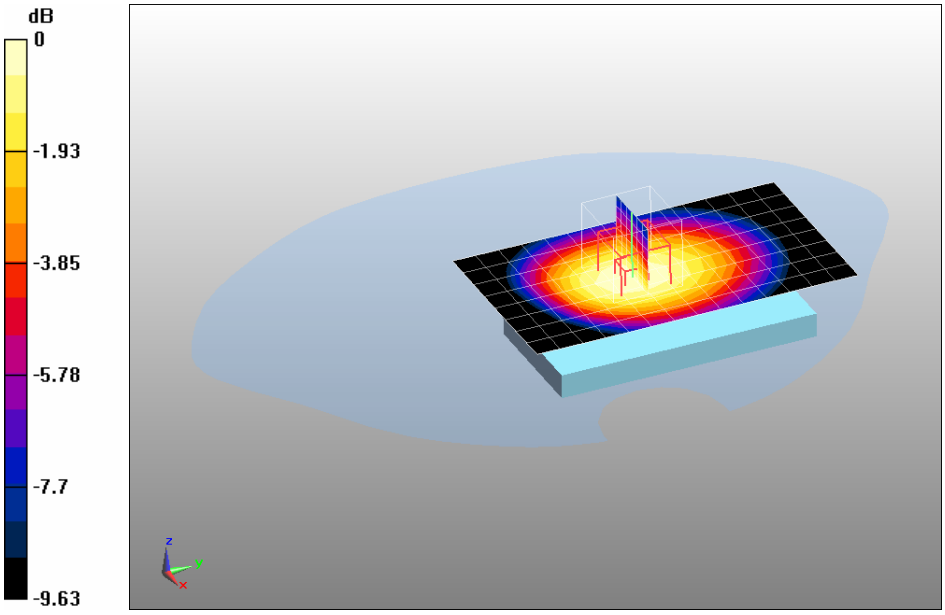
- Probe: EX3DV4 - SN3710; ConvF(8.95, 8.95, 8.95); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GSM850 Low Body-Back/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.456 mW/g

Configuration/GSM850 Low Body-Back/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 14.1 V/m; Power Drift = -0.034 dB

Peak SAR (extrapolated) = 0.572 W/kg

SAR(1 g) = 0.430 mW/g; SAR(10 g) = 0.309 mW/g Maximum value of SAR (measured) = 0.456 mW/g



0 dB = 0.456mW/g

Date/Time: 31-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 Mid Body-Back

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 836.6 MHz;Medium parameters used: f = 836.6 MHz; σ = 1.02 mho/m; εr = 55.3; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

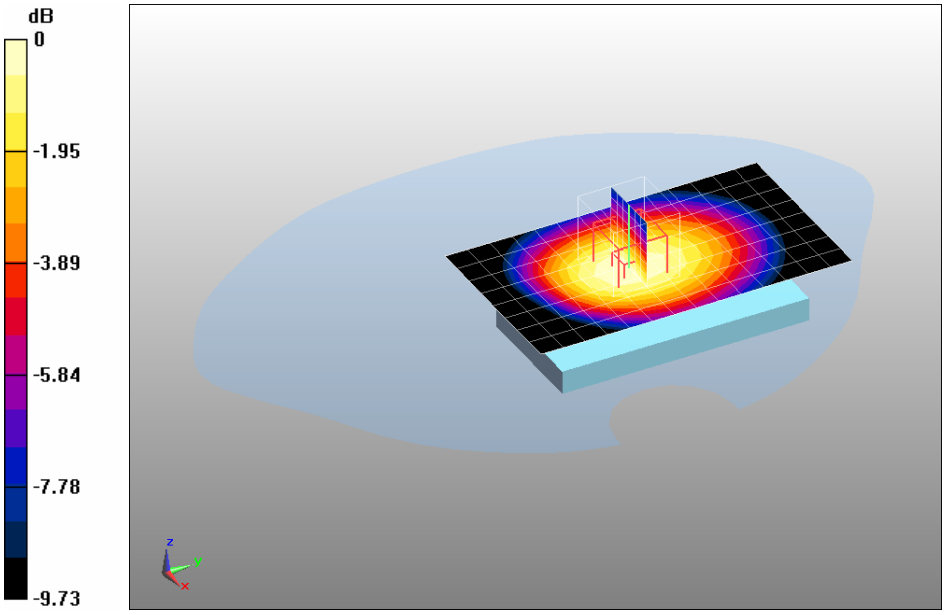
- Probe: EX3DV4 - SN3710; ConvF(8.95, 8.95, 8.95); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GSM850 Mid Body-Back/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.523 mW/g

Configuration/GSM850 Mid Body-Back/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 14.4 V/m; Power Drift = 0.005 dB

Peak SAR (extrapolated) = 0.660 W/kg

SAR(1 g) = 0.497 mW/g; SAR(10 g) = 0.357 mW/g Maximum value of SAR (measured) = 0.526 mW/g



0 dB = 0.526mW/g

Date/Time: 31-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 High Body-Back

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 848.6 MHz;Medium parameters used: f = 848.6 MHz; σ = 1.03 mho/m; εr = 55.2; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

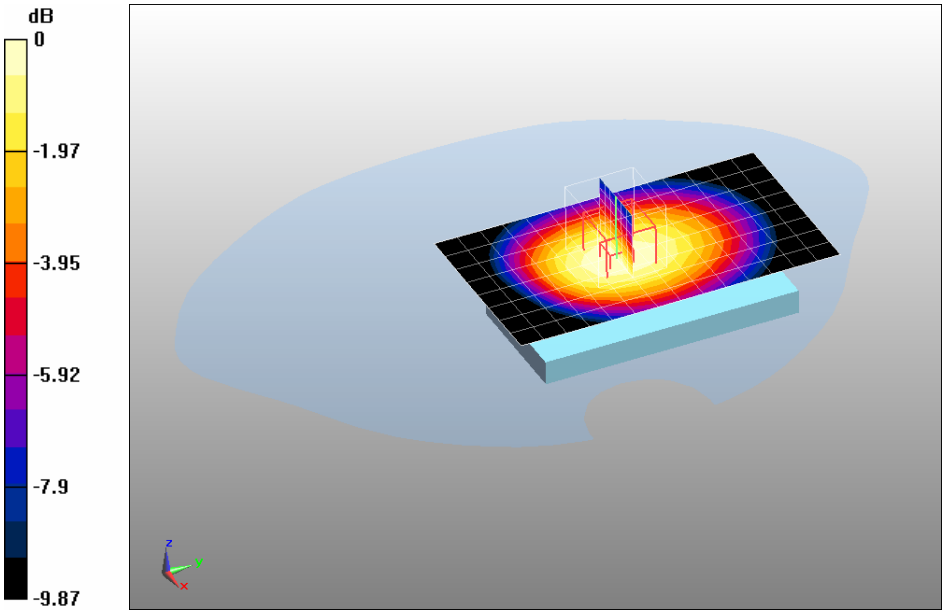
- Probe: EX3DV4 - SN3710; ConvF(8.95, 8.95, 8.95); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GSM850 High Body-Back/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.596 mW/g

Configuration/GSM850 High Body-Back/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 15.3 V/m; Power Drift = -0.039 dB

Peak SAR (extrapolated) = 0.758 W/kg

SAR(1 g) = 0.562 mW/g; SAR(10 g) = 0.404 mW/g Maximum value of SAR (measured) = 0.594 mW/g



0 dB = 0.594mW/g

Date/Time: 31-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 Mid Body-Front

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 836.6 MHz;Medium parameters used: f = 836.6 MHz; σ = 1.02 mho/m; εr = 55.3; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3710; ConvF(8.95, 8.95, 8.95); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

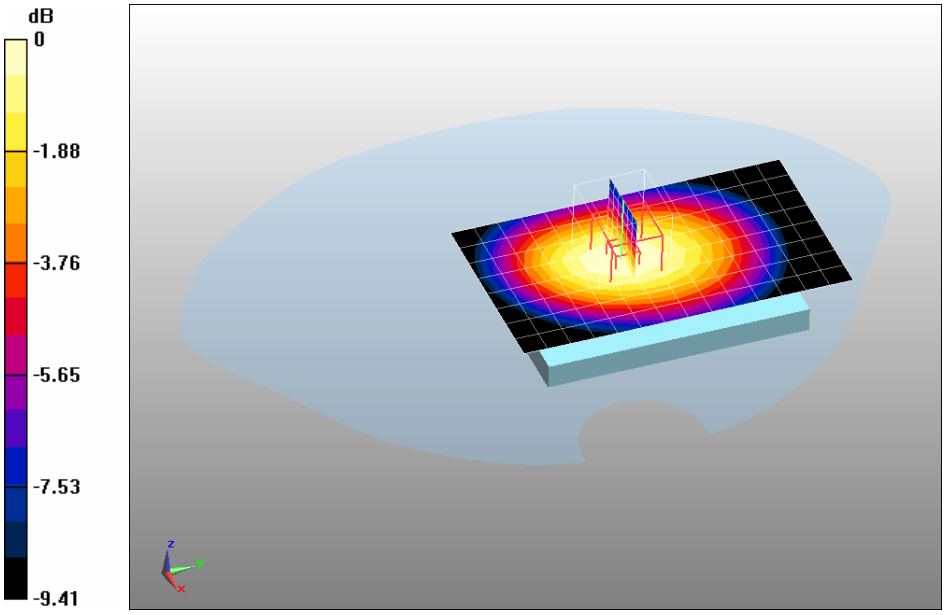
Configuration/GSM850 Mid Body-Front/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.227 mW/g

Configuration/GSM850 Mid Body-Front/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 11.1 V/m; Power Drift = 0.032 dB

Peak SAR (extrapolated) = 0.282 W/kg

SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.154 mW/g Maximum value of SAR (measured) = 0.227 mW/g



0 dB = 0.227mW/g

Date/Time: 31-Jul-2010

Test Laboratory: QuieTek Lab

GPRS 850 Low Body-Back

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 824.2 MHz;Medium parameters used: f = 824.2 MHz; σ = 1 mho/m; εr = 55.5; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

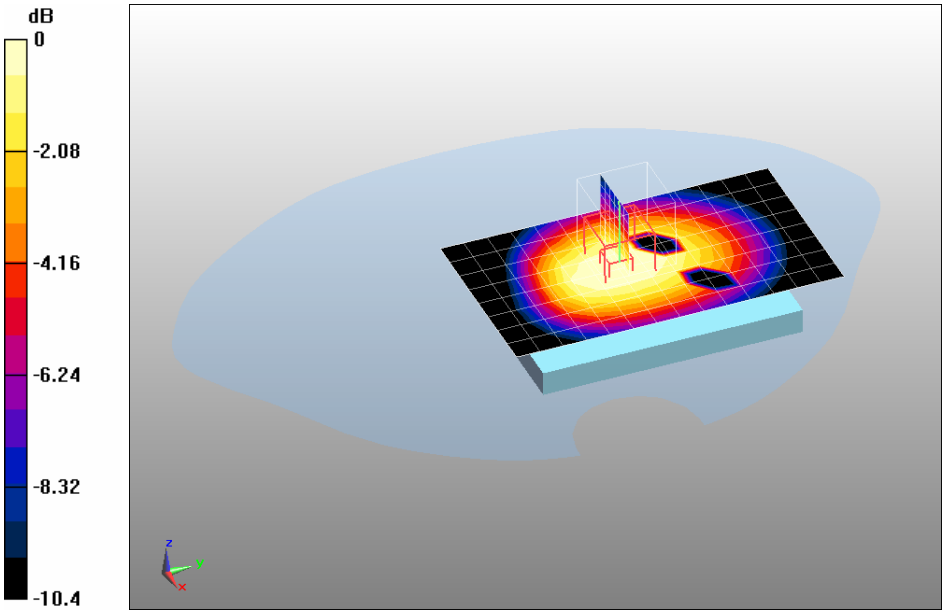
- Probe: EX3DV4 - SN3710; ConvF(8.95, 8.95, 8.95); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GPRS 850 Low Body-Back/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.699 mW/g

Configuration/GPRS 850 Low Body-Back/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 16.3 V/m; Power Drift = -0.130 dB

Peak SAR (extrapolated) = 0.874 W/kg

SAR(1 g) = 0.660 mW/g; SAR(10 g) = 0.471 mW/g Maximum value of SAR (measured) = 0.699 mW/g



0 dB = 0.699mW/g

Date/Time: 31-Jul-2010

Test Laboratory: QuieTek Lab

GPRS 850 Mid Body-Back

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 836.6 MHz;Medium parameters used: f = 836.6 MHz; σ = 1.02 mho/m; εr = 55.3; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

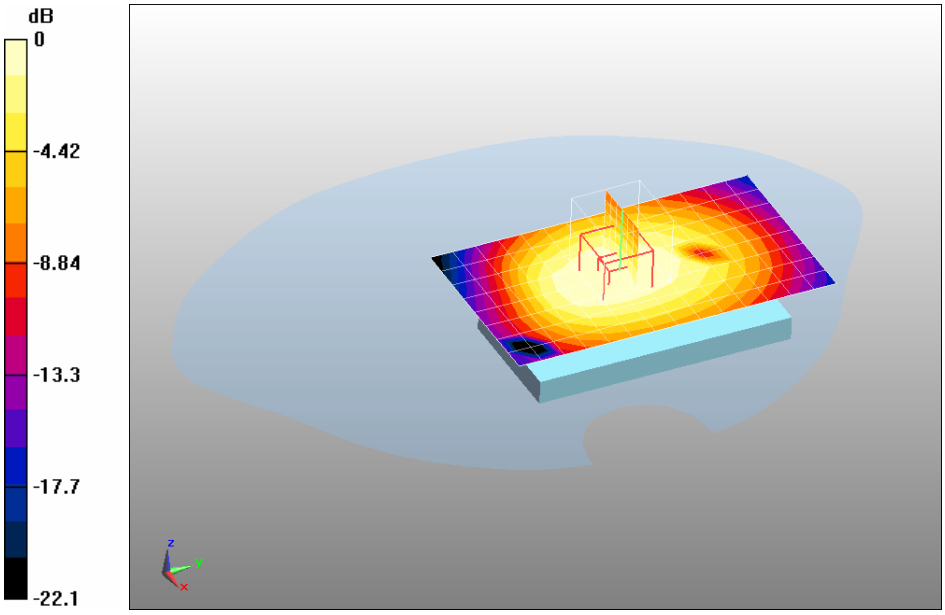
- Probe: EX3DV4 - SN3710; ConvF(8.95, 8.95, 8.95); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GPRS 850 Mid Body-Back/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.776 mW/g

Configuration/GPRS 850 Mid Body-Back/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 17 V/m; Power Drift = -0.030 dB

Peak SAR (extrapolated) = 0.971 W/kg

SAR(1 g) = 0.733 mW/g; SAR(10 g) = 0.529 mW/g Maximum value of SAR (measured) = 0.777 mW/g



0 dB = 0.777mW/g

Date/Time: 31-Jul-2010

Test Laboratory: QuieTek Lab

GPRS 850 High Body-Back

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 848.6 MHz;Medium parameters used: f = 848.6 MHz; σ = 1.03 mho/m; εr = 55.2; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

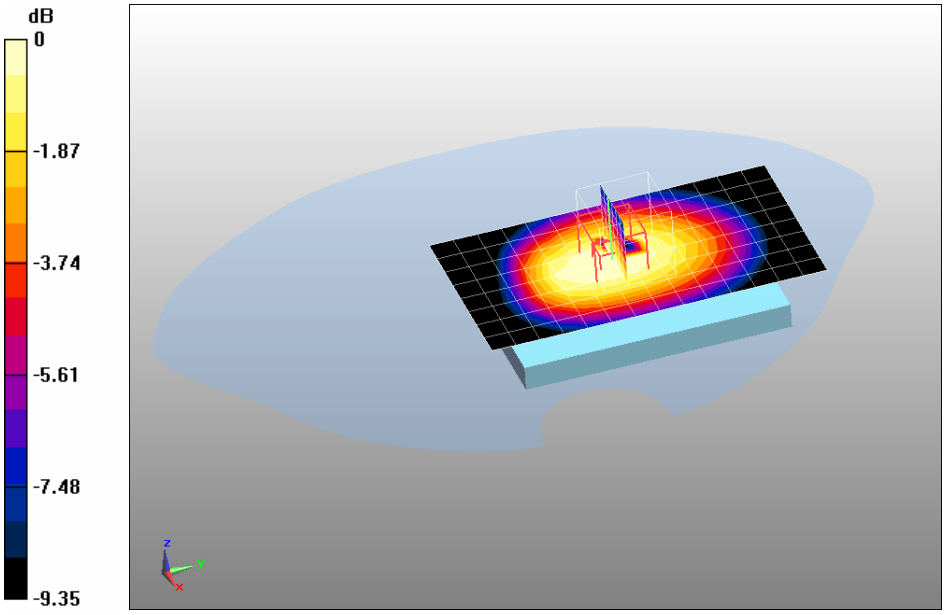
- Probe: EX3DV4 - SN3710; ConvF(8.95, 8.95, 8.95); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GPRS 850 High Body-Back/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.659 mW/g

Configuration/GPRS 850 High Body-Back/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 15.7 V/m; Power Drift = -0.137 dB

Peak SAR (extrapolated) = 0.843 W/kg

SAR(1 g) = 0.614 mW/g; SAR(10 g) = 0.443 mW/g Maximum value of SAR (measured) = 0.648 mW/g



0 dB = 0.648mW/g

Date/Time: 31-Jul-2010

Test Laboratory: QuieTek Lab

GPRS 850 Mid Body-Front

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 836.6 MHz;Medium parameters used: f = 836.6 MHz; σ = 1.02 mho/m; εr = 55.3; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

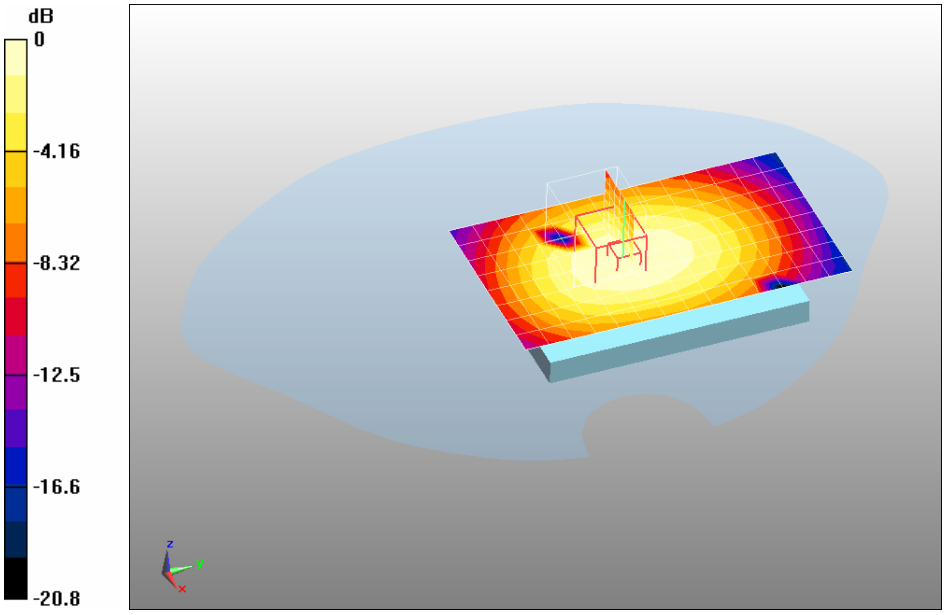
- Probe: EX3DV4 - SN3710; ConvF(8.95, 8.95, 8.95); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GPRS 850 Mid Body-Front/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.396 mW/g

Configuration/GPRS 850 Mid Body-Front/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 14.3 V/m; Power Drift = 0.128 dB

Peak SAR (extrapolated) = 0.495 W/kg

SAR(1 g) = 0.376 mW/g; SAR(10 g) = 0.267 mW/g Maximum value of SAR (measured) = 0.397 mW/g



0 dB = 0.397mW/g

Date/Time: 31-Jul-2010

Test Laboratory: QuieTek Lab

GPRS 850 Mid Body-Back (With Headset)

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 836.6 MHz;Medium parameters used: f = 836.6 MHz; σ = 1.02 mho/m; εr = 55.3; ρ = 1000 kg/m3 ;Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

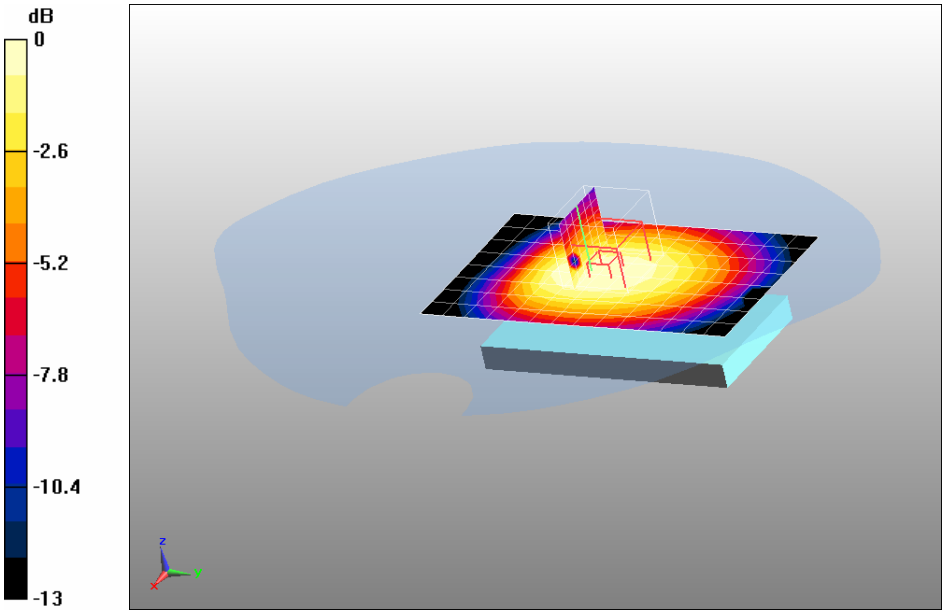
- Probe: EX3DV4 - SN3710; ConvF(8.95, 8.95, 8.95); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GPRS 850 Mid Body-Back/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.615 mW/g

Configuration/GPRS 850 Mid Body-Back/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 14.3 V/m; Power Drift = 0.142 dB

Peak SAR (extrapolated) = 0.786 W/kg

SAR(1 g) = 0.588 mW/g; SAR(10 g) = 0.422 mW/g Maximum value of SAR (measured) = 0.624 mW/g



0 dB = 0.624mW/g

Date/Time: 27-Jul-2010

Test Laboratory: QuieTek Lab

GSM 850 Mid Right-Touch <SIM 1>

DUT: GSM and GPRS Digital Mobile Phone; Type: GM602

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8; Frequency: 836.6 MHz;Medium parameters used: f = 836.6 MHz; σ = 0.88 mho/m; εr = 43; ρ = 1000 kg/m3 ;Phantom section: Right Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

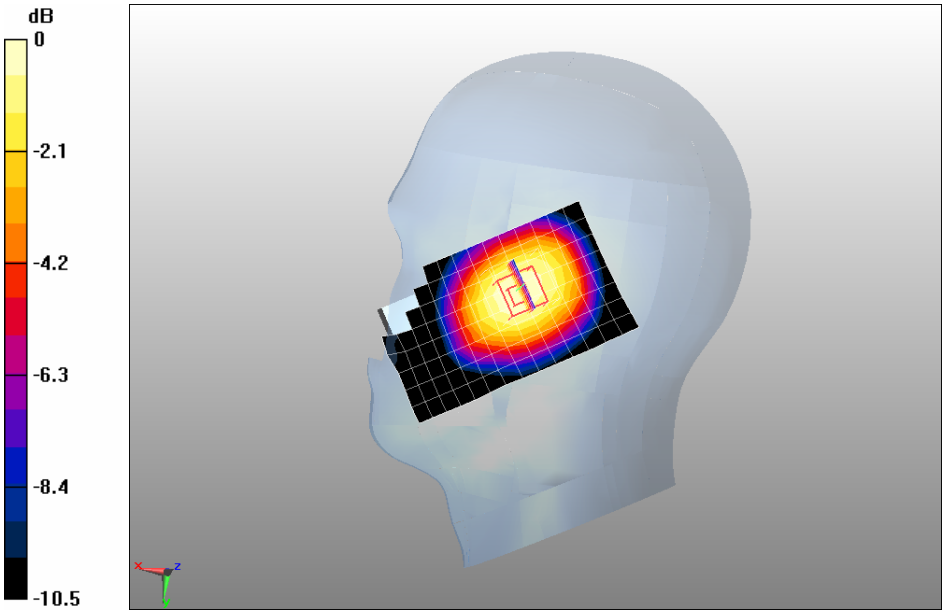
- Probe: EX3DV4 - SN3710; ConvF(8.83, 8.83, 8.83); Calibrated: 05/03/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 09/03/2010
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/GSM 850 Mid Right-Touch/Area Scan (9x15x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.794 mW/g

Configuration/GSM 850 Mid Right-Touch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 24.4 V/m; Power Drift = -0.186 dB

Peak SAR (extrapolated) = 0.974 W/kg

SAR(1 g) = 0.737 mW/g; SAR(10 g) = 0.525 mW/g Maximum value of SAR (measured) = 0.786 mW/g



0 dB = 0.786mW/g