SAR TEST REPORT

Equipment Under Test	GSM Mobile phone
Product Name	KITTY-B
Model Name	GB110
Company Name	Total Light Enterprise Co., Ltd.
Company Address	5F., No.62, Zhouzi St., Neihu District, Taipei City 114, Taiwan (R.O.C.)
Date of Receipt	2008.10.09
Date of Test(s)	2008.10.28-2008.10.29
Date of Issue	2008.11.18

Standards:

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

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

Remarks:

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

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

Tested by : **Ricky Huang** **Date** : **2008.11.18**
Asst. Supervisor

Approved by : **Robert Chang** **Date** : **2008.11.18**
Tech Manager

Contents

1. General Information

1.1 Testing Laboratory

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Fax	+886-2-2298-0488
Internet	http://www.tw.sgs.com/

1.2 Details of Applicant

Company Name	Total Light Enterprise Co., Ltd.
Company Address	5F., No.62, Zhouzi St., Neihu District, Taipei City 114, Taiwan (R.O.C.)
Contact Person	Kevin Hsieh
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1.3 Description of EUT

EUT Name	GSM Mobile phone
Product Name	KITTY-B
FCC ID	VPV-KITTY
Model Name	GB110
Brand Name	GPLUS
IMEI Code	355173029990900
Mode of Operation	GSM/GPRS mode

Definition	Production unit	
Modulation Mode	GSM/GMSK	
Duty Cycle	GSM	GPRS
	1/8	1/2
Maximum RF Conducted Power (Average)	GSM 850	GSM1900
	31.29dbm	29.58dbm
TX Frequency Range (MHz)	GSM 850	GSM1900
	824.2-848.8	1850-1910
Channel Number (ARFCN)	GSM 850	GSM1900
	128-251	512-810
Battery Type	3.7 V Lithium-Ion	
Antenna Type	Internal Antenna	
Max. SAR Measured (1 g)	Head	Body
	1.04 mW/g (At GSM1900 Right Head (Cheek Position)_ 661 Channel)	**1.45 mW/g** (At GSM 1900 Body 661 Channel)

1.4 Test Environment

Ambient Temperature: 22.2° C
Tissue Simulating Liquid: 21.7° C
Relative Humidity: 62 %

1.5 Operation description

General:

1. The EUT is controlled by using a Radio Communication Tester (R&S CMU200), and the communication between the EUT and the tester is established by air link. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s). The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.
2. During the SAR testing, the DASY4 system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.
3. Testing Head SAR at lowest, middle and highest channel for all bands with LET/LEC/RET/REC conditions.
4. Testing body-worn SAR by separating **1.5cm** between the back of the EUT and the flat phantom in GPRS mode.

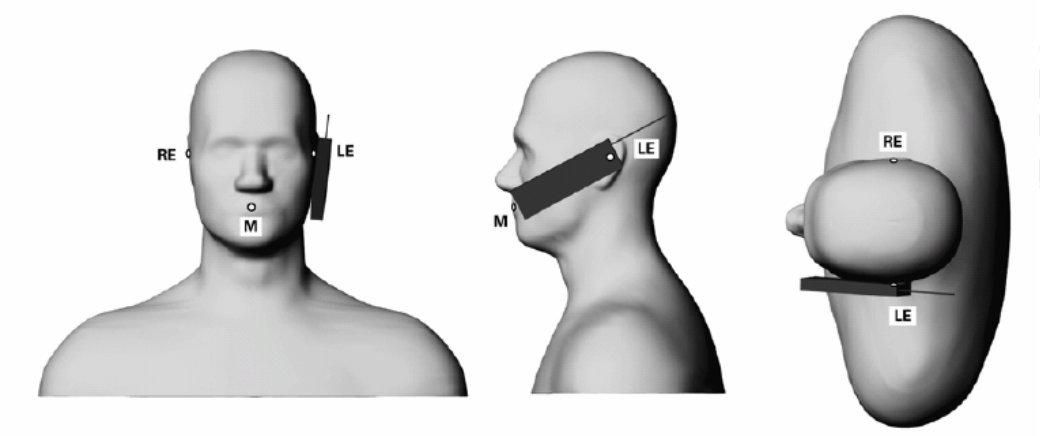
Worse case-Head:

5. Testing SAR with dominant transmitter ON and co-located Bluetooth transmitter both ON for head-position worst case configuration.
6. For highest SAR configuration in this band repeated with external Memory card inside.

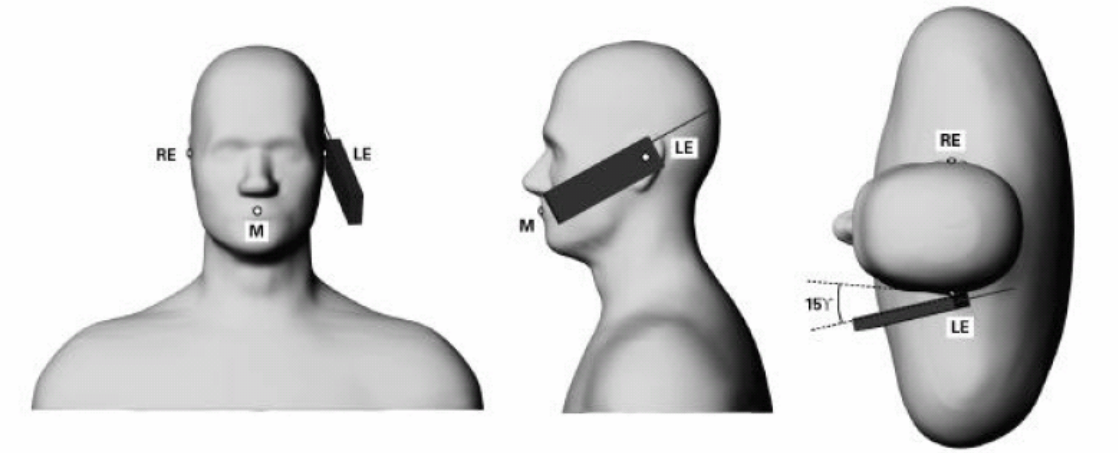
Worse case-Body:

7. Testing body-worn SAR with Handset and with Bluetooth transmitter OFF by separating **1.5cm** between the front of the EUT and the flat phantom in GPRS mode.
8. Testing body-worn SAR with Handset and with Bluetooth transmitter ON in GPRS mode at the body-worn worst case configuration.
9. For highest SAR configuration in this band repeated with external Memory card inside.
10. For highest SAR configuration in this band repeated with headset

1.6 Positioning Procedure



Phone position 1, "cheek" or "touch" position. The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning



Phone position 2, "tilted position." The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning

Cheek/Touch Position:

the handset was brought toward the mouth of the head phantom by pivoting against the ear reference point until any point of the mouthpiece or keypad touched the phantom.

Ear/Tilt Position:

With the phone aligned in the Cheek/Touch position, the handset was tilted away from the mouth with respect to the test device reference point by 15 degrees.

1.7 EVALUATION PROCEDURES

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

1. The extraction of the measured data (grid and values) from the Zoom Scan.
2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. The generation of a high-resolution mesh within the measured volume
4. The interpolation of all measured values from the measurement grid to the high-resolution grid
5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. The calculation of the averaged SAR within masses of 1g and 10g.

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

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

The maximum search is automatically performed after each area scan measurement. It

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

1.8 The SAR Measurement System

A photograph of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 4 professional system). A Model EX3DV3 3526-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= $\sigma (|Ei|^2)/ \rho$ where σ and ρ are the conductivity and mass density of the tissue-simulant.
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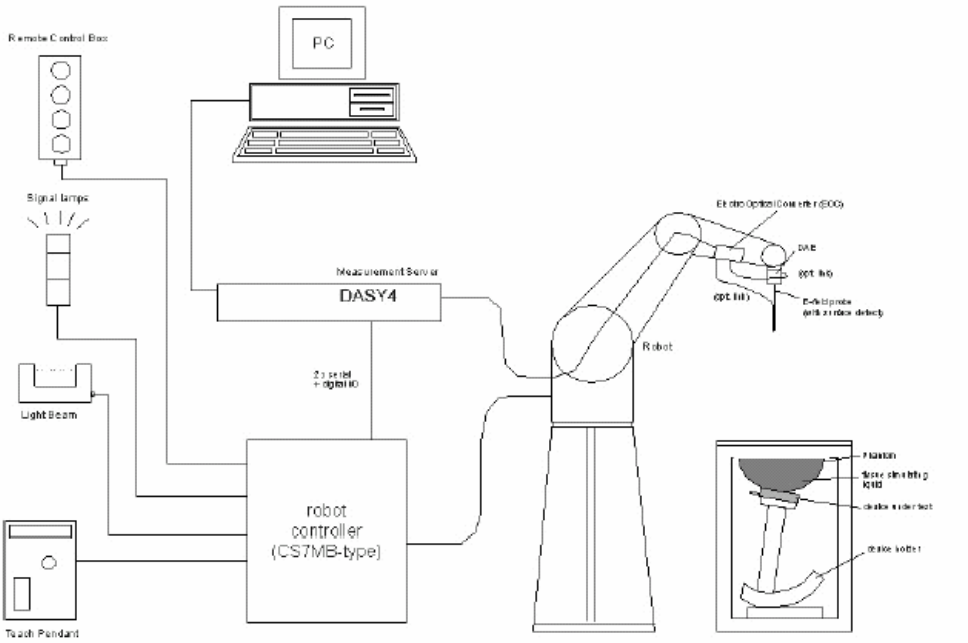


Fig.a The block diagram of SAR system

The DASY4 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe

positioning.

- A computer operating Windows 2000 or Windows XP.
- DASY4 software.

- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validate the proper functioning of the system.

1.9 System Components

EX3DV3 E-Field Probe

Construction:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	 EX3DV3 E-Field Probe
Calibration:	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL850/1900 Additional CF for other liquids and frequencies upon request	
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%.	

SAM PHANTOM V4.0C

Construction:	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, CENELEC 50361 and IEC 62209. 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 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 with the robot.
Shell Thickness:	2 ± 0.2 mm
Filling Volume:	Approx. 25 liters
Dimensions:	Height: 251 mm; Length: 1000 mm; Width: 500 mm

DEVICE HOLDER

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

Device Holder

1.10 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. These tests were done at 850/1900 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system

accuracy verification are displayed in the table 1. During the tests, the ambient temperature of the laboratory was in the range 22.2°C, the relative humidity was in the range 62% and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

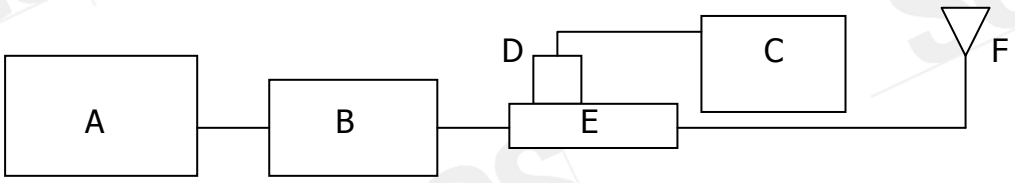
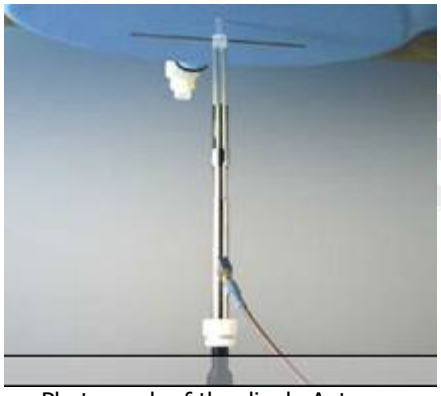


Fig.b The microwave circuit arrangement used for SAR system verification

A. Agilent Model 8648D Signal Generator
B. Mini circuits Model ZHL-42 Amplifier
C. Agilent Model E4416A Power Meter
D. Agilent Model 8481H Power Sensor
E. Agilent Model 778D Dual directional coupling
F. Reference dipole antenna



Photograph of the dipole Antenna

Validation Kit	Frequency (MHz)	Target SAR (1g) (Pin=250mW)	Measured SAR (1g)	Variation	Measured Date
D835V2 S/N: 4d063	835 MHz (Head)	2.29 mW/g	2.38 mW/g	3.9%	2008/10/28
D835V2 S/N: 4d063	835 MHz (Body)	2.44 mW/g	2.54 mW/g	4.1%	2008/10/29
D1900V2 S/N: 5d027	1900 MHz (Head)	10.3 mW/g	10.7 mW/g	3.9%	2008/10/28
D1900V2 S/N: 5d027	1900 MHz (Body)	9.64 mW/g	9.71 mW/g	0.7%	2008/10/29

Table 1. System validation (follow manufacture target value)

1.11 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this Head-simulant fluid were measured by using the HP Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjuncation with HP 8753D Network Analyzer (30 KHz-6000MHz) by using a procedure detailed in Section V.

All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The depth of the tissue simulant in the ear reference point of the phantom was 15cm±5mm during all tests. (Appendix Fig .2)

Frequency (MHz)	Tissue type	Measurement date/ Limits	Dielectric Parameters		
			ρ	σ (S/m)	Simulated Tissue Temperature(° C)
850	Head	Measured, 2008.10.28	42.6	0.899	21.7
		Recommended Limits	39.4-43.6	0.86-1.03	20-24
850	Body	Measured, 2008.10.29	55	1	21.7
		Recommended Limits	52.3-57.8	0.92-1.1	20-24
1900	Head	Measured, 2008.10.28	39.9	1.39	21.7
		Recommended Limits	38-42	1.29-1.47	20-24
1900	Body	Measured, 2008.10.29	52.6	1.58	21.7
		Recommended Limits	50.6-56	1.38-1.6	20-24

Table 2. Dielectric Parameters of Tissue Simulant Fluid

The composition of the brain tissue simulating liquid for 850 &1900 band:

Ingredient	850MHz (Head)	850MHz (Body)	1900MHz (Head)	1900MHz (Body)
DGMBE	X	X	444.52 g	300.67g
Water	532.98 g	631.68 g	552.42 g	716.56 g
Salt	18.3 g	11.72 g	3.06 g	4.0 g
Preventol D-7	2.4 g	1.2 g	X	X
Cellulose	3.2 g	X	X	X
Sugar	766.0 g	600 g	X	X
Total amount	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)

Table 3. Recipes for tissue simulating liquid

1.12 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate ("SAR") in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.1–1992, Copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

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

(2) Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the

hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.(Table .6)

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

Table 4. RF exposure limits

Notes:
1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.
2. Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.

2. Summary of Results

GSM 850 MHZ

Right Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	128	824.2	33.6dbm	0.727	22.1	21.7
	190	836.6	33.3dbm	0.626	22.1	21.7
	251	848.8	33.2dbm	0.401	22.1	21.7
Left Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	128	824.2	33.6dbm	0.675	22.1	21.7
	190	836.6	33.3dbm	0.564	22.1	21.7
	251	848.8	33.2dbm	0.363	22.1	21.7
Right Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	128	824.2	33.6dbm	0.473	22.1	21.7
	190	836.6	33.3dbm	0.341	22.1	21.7
	251	848.8	33.2dbm	0.233	22.1	21.7
Left Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	128	824.2	33.6dbm	0.417	22.1	21.7
	190	836.6	33.3dbm	0.304	22.1	21.7
	251	848.8	33.2dbm	0.204	22.1	21.7
Body worn (testing in GPRS mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	128	824.2	30.98dbm	0.917	22.1	21.7
	190	836.6	33.6dbm	0.590	22.1	21.7
	251	848.8	33.3dbm	0.392	22.1	21.7

PCS 1900 MHZ

Right Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	512	1850.2	30.32dbm	0.688	22.1	21.7
	661	1880	30.21dbm	1.04	22.1	21.7
	810	1909.8	30.01dbm	0.894	22.1	21.7
Left Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	512	1850.2	30.32dbm	0.513	22.1	21.7
	661	1880	30.21dbm	0.632	22.1	21.7
	810	1909.8	30.01dbm	0.588	22.1	21.7
Right Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	512	1850.2	30.32dbm	0.623	22.1	21.7
	661	1880	30.21dbm	0.903	22.1	21.7
	810	1909.8	30.01dbm	0.797	22.1	21.7
Left Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	512	1850.2	30.32dbm	0.423	22.1	21.7
	661	1880	30.21dbm	0.584	22.1	21.7
	810	1909.8	30.01dbm	0.550	22.1	21.7
Right Head (Cheek Position)_repeated with Memory card						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	661	1880	30.21dbm	0.934	22.1	21.7
Right Head (Cheek Position)_repeated with Bluetooth active						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	661	1880	30.21dbm	0.906	22.1	21.7

Body worn (testing in GPRS mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	512	1850.2	30.32dbm	1.2	22.1	21.7
	661	1880	30.21dbm	1.45	22.1	21.7
	810	1909.8	30.01dbm	1.34	22.1	21.7
Body worn (testing in GPRS mode)_repeated for EUT front to phantom						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	661	1880	30.21dbm	0.574	22.1	21.7
Body worn (testing in GPRS mode)_repeated with Memory card						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	661	1880	30.21dbm	1.37	22.1	21.7
Body worn (testing in GPRS mode)_repeated with Bluetooth active						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	661	1880	30.21dbm	1.36	22.1	21.7
Body worn (testing in GPRS mode)_repeated with Headset						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	661	1880	30.21dbm	1.4	22.1	21.7

Note: SAR measurement results for the Mobile Phone at maximum output power.

3. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration
Schmid & Partner Engineering AG	Dosimetric E-FieldProbe	EX3DV3	3526	Aug.26.2008
Schmid & Partner Engineering AG	850/1900MHz System Validation Dipole	D835V2 D1900V2	4d063 5d027	Jun.06.2008 Apr.15.2008
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	547	Jan.24.2008
Schmid & Partner Engineering AG	Software	DASY 4 V4.7 Build71	N/A	Calibration isn't necessary
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration isn't necessary
Agilent	Network Analyzer	8753D	3410A05547	Nov.15.2007
Agilent	Dielectric Probe Kit	85070D	US01440168	Calibration isn't necessary
Agilent	Dual-directional coupler	778D	50313	Aug.26.2008
Agilent	RF Signal Generator	E4438c	MY45093613	May.21.2008
Agilent	Power Sensor	8481H	MY41091361	May.20.2008
R&S	Radio Communication Test	CMU200	109326	Mar.11.2008

4. Measurements

Date/Time: 2008/10/28 05:46:41

RE Cheek_CH128

DUT:GB110;

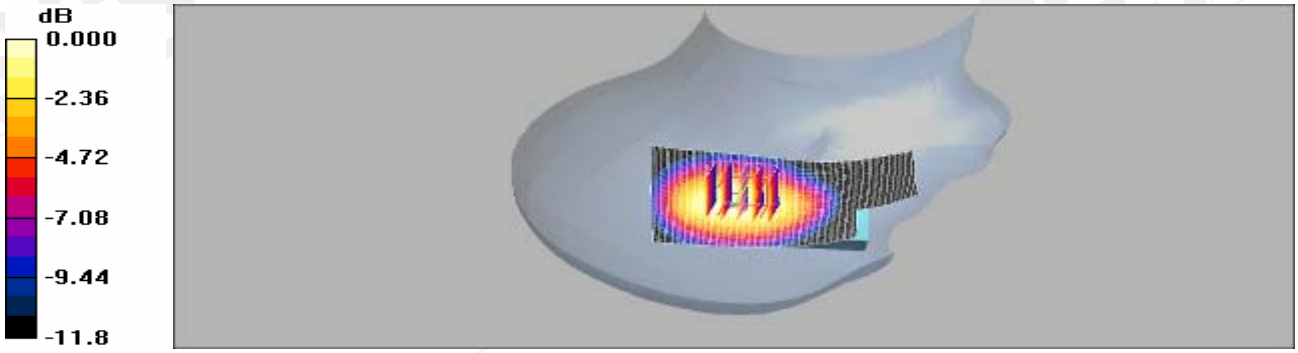
Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium: Head 850 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.89 mho/m; ε_r = 42.7; ρ = 1000 kg/m^3
Phantom section: Right Section

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.777 mW/g

RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.6 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.727 mW/g; SAR(10 g) = 0.484 mW/g
Maximum value of SAR (measured) = 0.782 mW/g



0 dB = 0.782mW/g

Date/Time: 2008/10/28 06:15:41

RE Cheek_CH190

DUT:GB110;

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: Head 850 MHz Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ε_r = 42.6; ρ = 1000 kg/m^3
Phantom section: Right Section

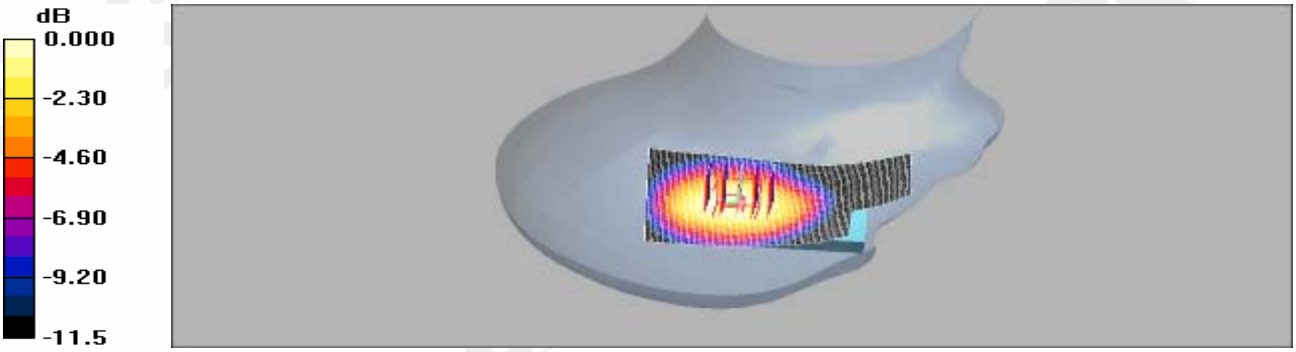
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.686 mW/g

RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.9 V/m; Power Drift = -0.162 dB
Peak SAR (extrapolated) = 0.903 W/kg

SAR(1 g) = 0.626 mW/g; SAR(10 g) = 0.417 mW/g
Maximum value of SAR (measured) = 0.671 mW/g



0 dB = 0.671mW/g

Date/Time: 2008/10/28 06:47:53

RE Cheek_CH251

DUT:GB110;

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium: Head 850 MHz Medium parameters used: f = 849 MHz; σ = 0.913 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Phantom section: Right Section

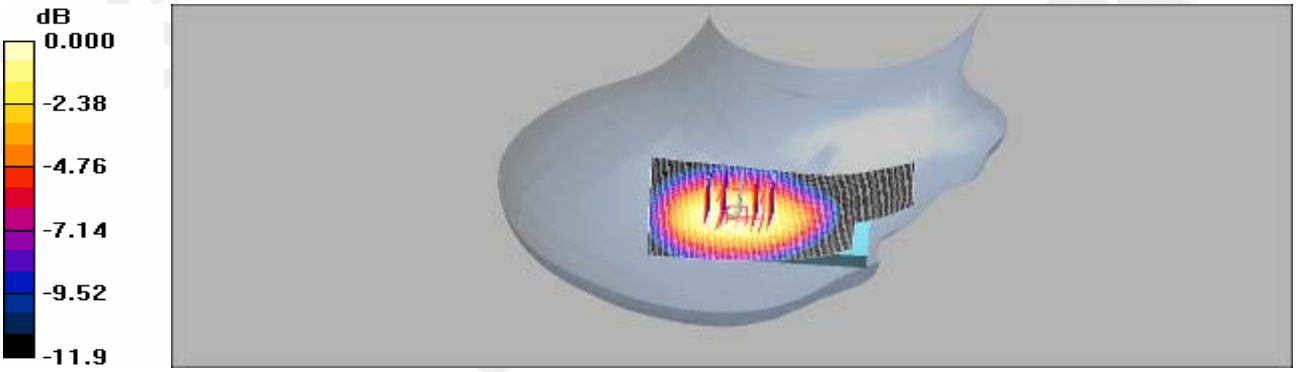
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.439 mW/g

RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.9 V/m; Power Drift = -0.162 dB
Peak SAR (extrapolated) = 0.589 W/kg

SAR(1 g) = 0.401 mW/g; SAR(10 g) = 0.266 mW/g
Maximum value of SAR (measured) = 0.428 mW/g



0 dB = 0.428mW/g

Date/Time: 2008/10/28 09:03:40

LE Cheek_CH128

DUT:GB110;

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium: Head 850 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.89 mho/m; ε_r = 42.7; ρ = 1000 kg/m^3
Phantom section: Left Section

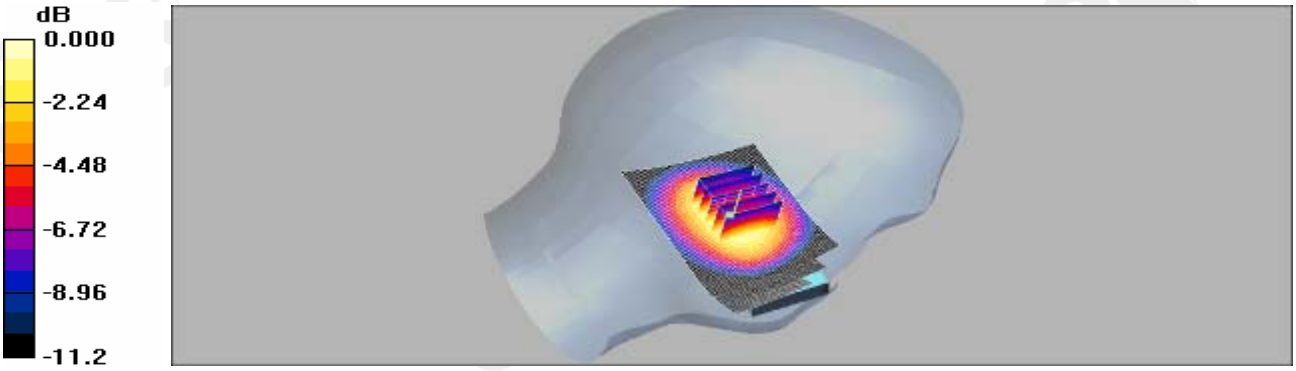
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.733 mW/g

LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.7 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 0.939 W/kg

SAR(1 g) = 0.675 mW/g; SAR(10 g) = 0.457 mW/g
Maximum value of SAR (measured) = 0.722 mW/g



0 dB = 0.722mW/g

Date/Time: 2008/10/28 09:38:03

LE Cheek_CH190

DUT:GB110;

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: Head 850 MHz Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ε_r = 42.6; ρ = 1000 kg/m^3
Phantom section: Left Section

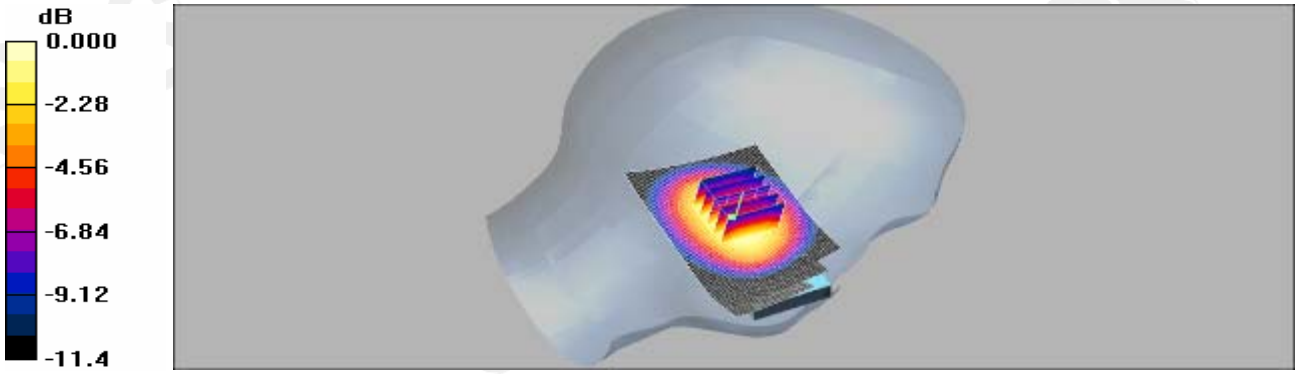
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.619 mW/g

LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.7 V/m; Power Drift = -0.156 dB
Peak SAR (extrapolated) = 0.786 W/kg

SAR(1 g) = 0.564 mW/g; SAR(10 g) = 0.380 mW/g
Maximum value of SAR (measured) = 0.605 mW/g



0 dB = 0.605mW/g

Date/Time: 2008/10/28 10:10:52

LE Cheek_CH251

DUT:GB110;

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium: Head 850 MHz Medium parameters used: f = 849 MHz; σ = 0.913 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Phantom section: Left Section

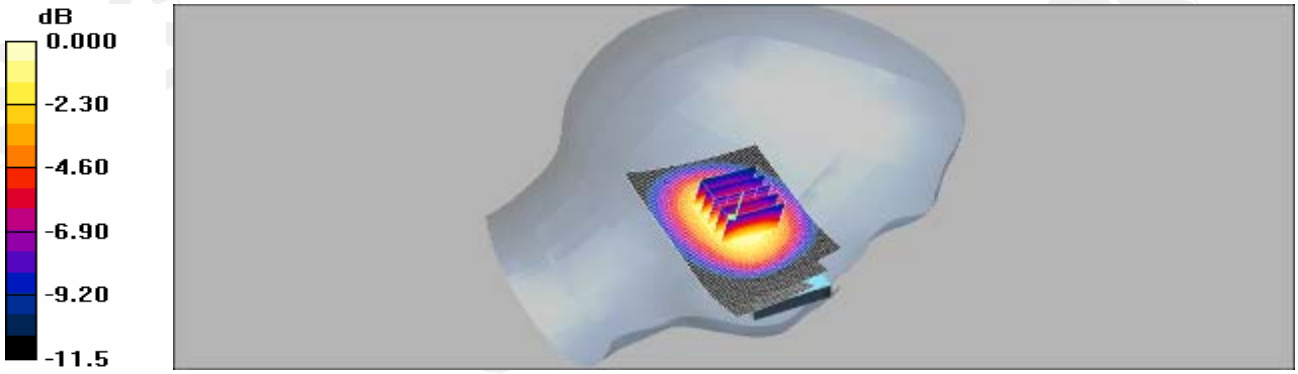
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.396 mW/g

LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.2 V/m; Power Drift = -0.063 dB
Peak SAR (extrapolated) = 0.507 W/kg

SAR(1 g) = 0.363 mW/g; SAR(10 g) = 0.244 mW/g
Maximum value of SAR (measured) = 0.389 mW/g



0 dB = 0.389mW/g

Date/Time: 2008/10/28 07:18:14

RE Tilt_CH128

DUT:GB110;

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium: Head 850 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.89 mho/m; ε_r = 42.7; ρ = 1000 kg/m^3
Phantom section: Right Section

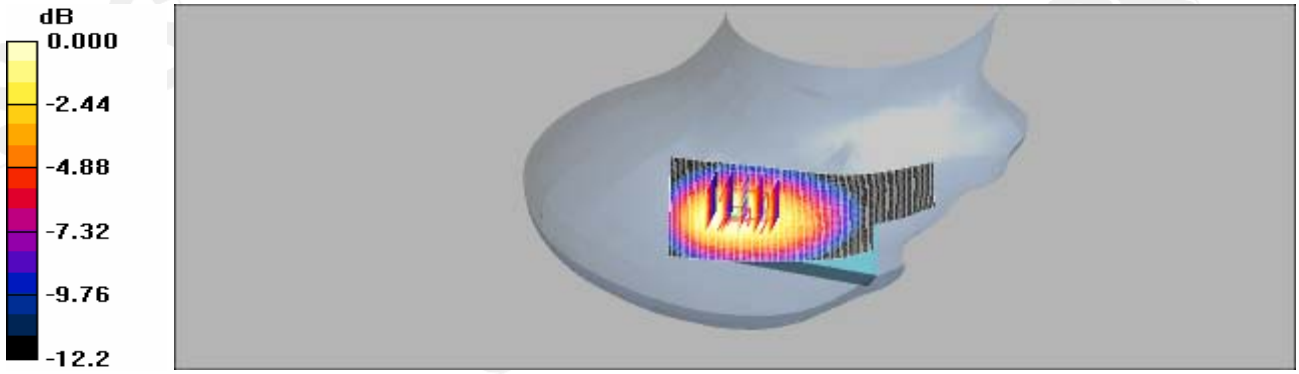
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Tilt/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.524 mW/g

RE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.3 V/m; Power Drift = -0.032 dB
Peak SAR (extrapolated) = 0.693 W/kg

SAR(1 g) = 0.473 mW/g; SAR(10 g) = 0.313 mW/g
Maximum value of SAR (measured) = 0.502 mW/g



0 dB = 0.502mW/g

Date/Time: 2008/10/28 07:47:51

RE Tilt_CH190

DUT:GB110;

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: Head 850 MHz Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ε_r = 42.6; ρ = 1000 kg/m^3
Phantom section: Right Section

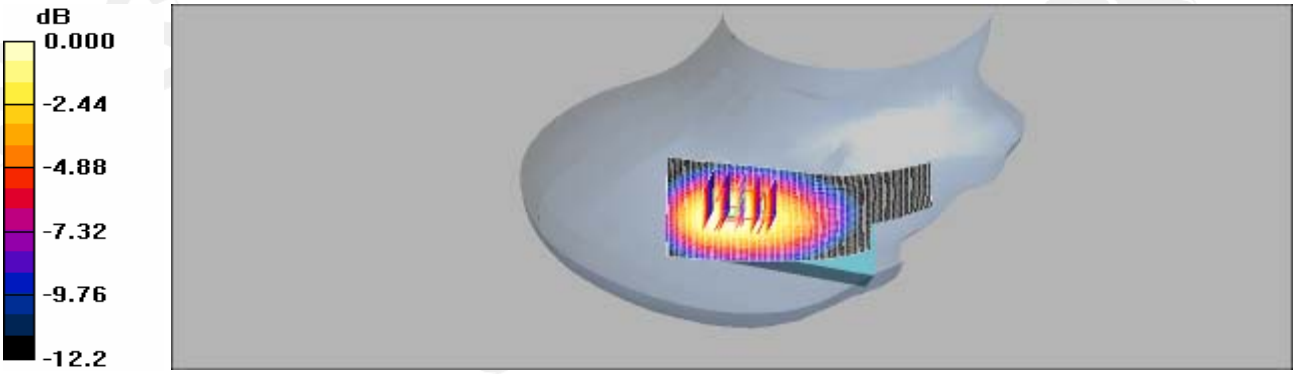
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Tilt/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.379 mW/g

RE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.9 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 0.501 W/kg

SAR(1 g) = 0.341 mW/g; SAR(10 g) = 0.224 mW/g
Maximum value of SAR (measured) = 0.365 mW/g



0 dB = 0.365mW/g

Date/Time: 2008/10/28 08:19:44

RE Tilt_CH251

DUT:GB110;

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium: Head 850 MHz Medium parameters used: f = 849 MHz; σ = 0.913 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Phantom section: Right Section

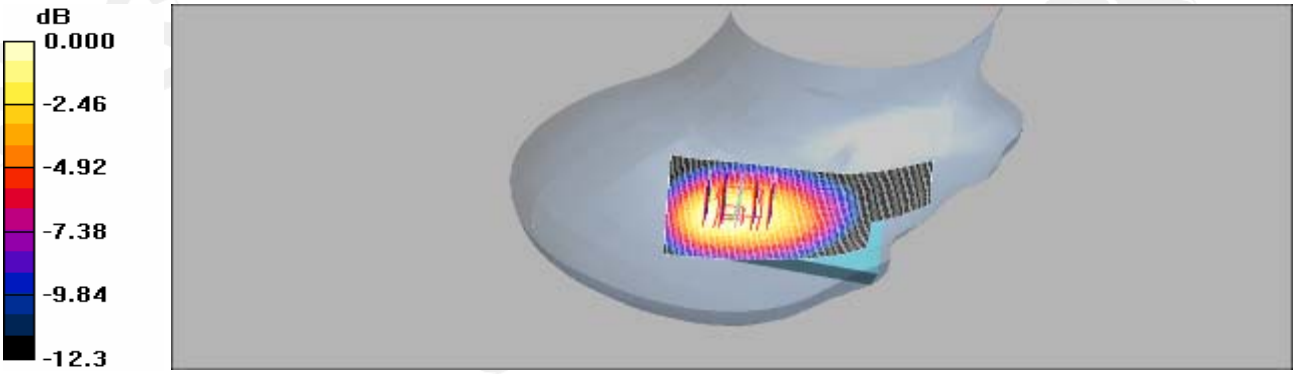
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Tilt/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.261 mW/g

RE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.7 V/m; Power Drift = -0.082 dB
Peak SAR (extrapolated) = 0.343 W/kg

SAR(1 g) = 0.233 mW/g; SAR(10 g) = 0.153 mW/g
Maximum value of SAR (measured) = 0.252 mW/g



0 dB = 0.252mW/g

Date/Time: 2008/10/28 10:43:00

LE Tilt_CH128

DUT:GB110;

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium: Head 850 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.89 mho/m; ε_r = 42.7; ρ = 1000 kg/m^3
Phantom section: Left Section

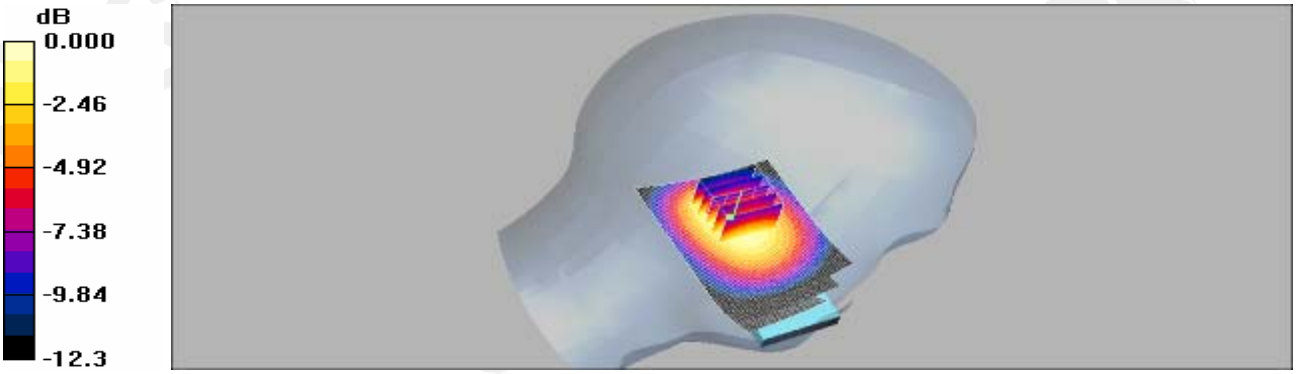
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LE_Tilt/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.459 mW/g

LE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.8 V/m; Power Drift = -0.067 dB
Peak SAR (extrapolated) = 0.580 W/kg

SAR(1 g) = 0.417 mW/g; SAR(10 g) = 0.282 mW/g
Maximum value of SAR (measured) = 0.447 mW/g



0 dB = 0.447mW/g

Date/Time: 2008/10/28 11:17:31

LE Tilt_CH190

DUT:GB110;

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: Head 850 MHz Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ε_r = 42.6; ρ = 1000 kg/m^3
Phantom section: Left Section

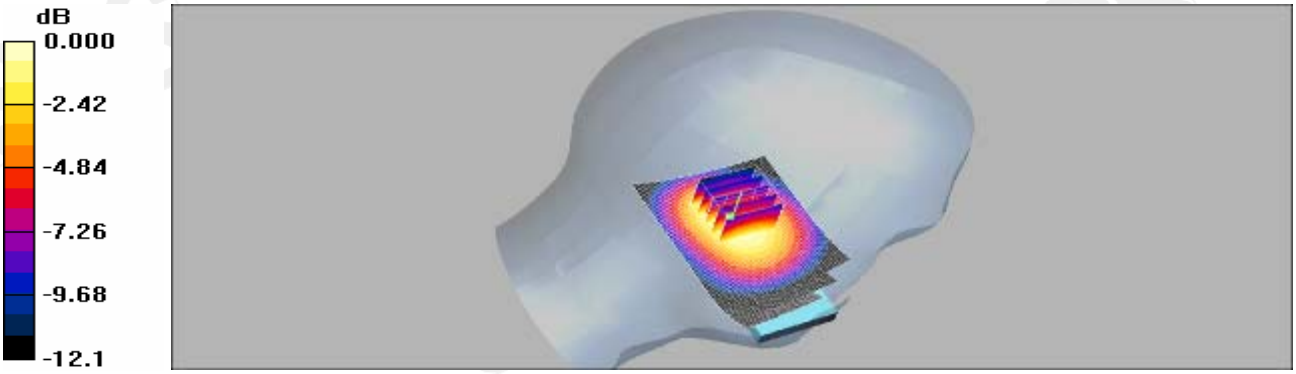
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LE_Tilt/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.343 mW/g

LE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.1 V/m; Power Drift = -0.175 dB
Peak SAR (extrapolated) = 0.421 W/kg

SAR(1 g) = 0.304 mW/g; SAR(10 g) = 0.205 mW/g
Maximum value of SAR (measured) = 0.326 mW/g



0 dB = 0.326mW/g

Date/Time: 2008/10/28 11:47:23

LE Tilt_CH251

DUT:GB110;

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium: Head 850 MHz Medium parameters used: f = 849 MHz; σ = 0.913 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Phantom section: Left Section

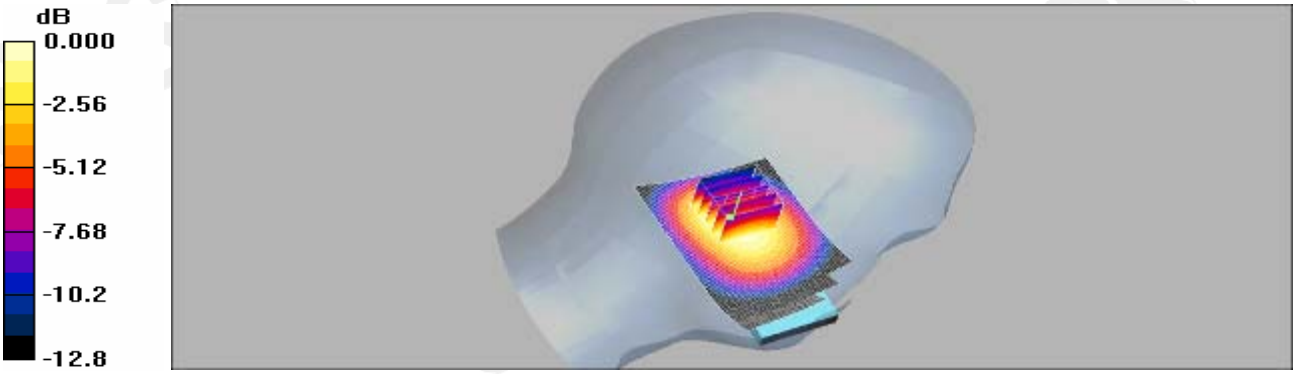
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LE_Tilt/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.232 mW/g

LE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.5 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 0.285 W/kg

SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.137 mW/g
Maximum value of SAR (measured) = 0.217 mW/g



0 dB = 0.217mW/g

Date/Time: 2008/10/29 11:38:55

BODY_CH128

DUT:GB110;

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:2
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.995 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

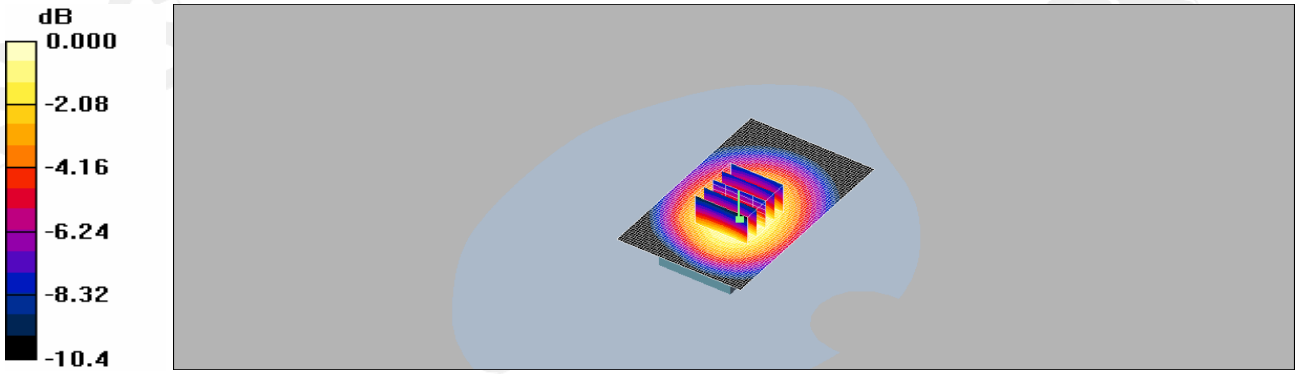
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

BODY/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.05 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.7 V/m; Power Drift = -0.155 dB
Peak SAR (extrapolated) = 1.28 W/kg

SAR(1 g) = 0.917 mW/g; SAR(10 g) = 0.635 mW/g
Maximum value of SAR (measured) = 0.976 mW/g



0 dB = 0.976mW/g

Date/Time: 2008/10/29 12:13:54

BODY_CH190

DUT:GB110;

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1.01 mho/m; ε_r = 55; ρ = 1000 kg/m^3
Phantom section: Flat Section

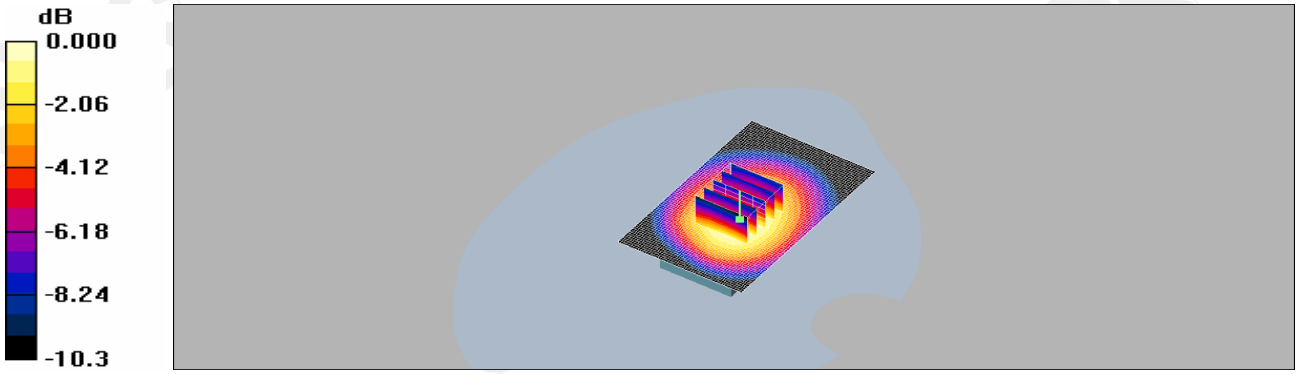
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

BODY/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.655 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.7 V/m; Power Drift = -0.127 dB
Peak SAR (extrapolated) = 0.834 W/kg

SAR(1 g) = 0.590 mW/g; SAR(10 g) = 0.408 mW/g
Maximum value of SAR (measured) = 0.629 mW/g



0 dB = 0.629mW/g

Date/Time: 2008/10/29 12:46:34

BODY_CH251

DUT:GB110 ;

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:2
Medium: Muscle 900 MHz Medium parameters used: f = 849 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

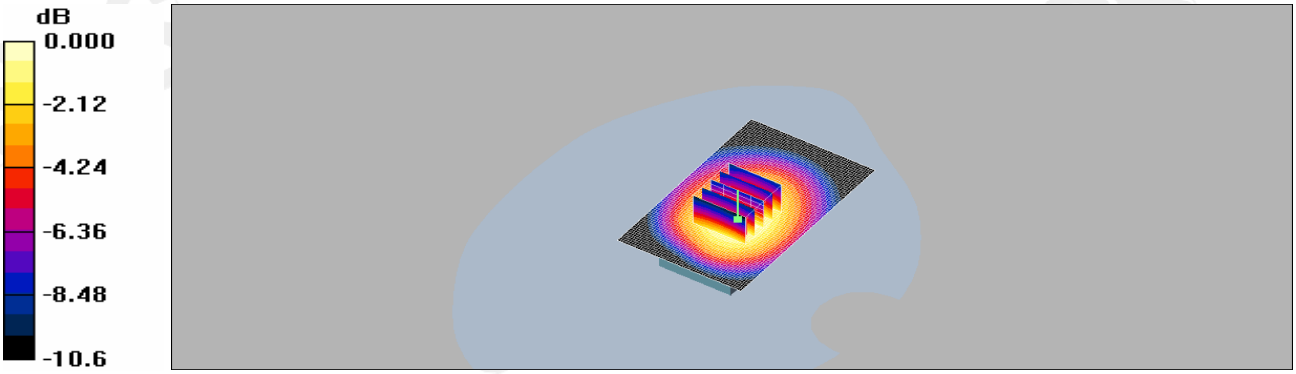
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

BODY/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.439 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.0 V/m; Power Drift = -0.118 dB
Peak SAR (extrapolated) = 0.557 W/kg

SAR(1 g) = 0.392 mW/g; SAR(10 g) = 0.270 mW/g
Maximum value of SAR (measured) = 0.418 mW/g



0 dB = 0.418mW/g

Date/Time: 2008/10/28 14:24:17

RE Cheek_CH512

DUT:GB110;

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.35 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Right Section

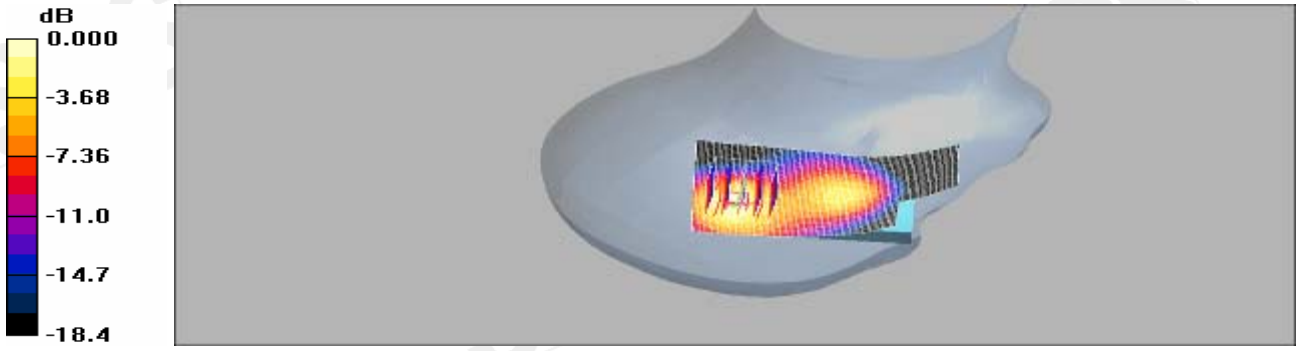
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.804 mW/g

RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.8 V/m; Power Drift = -0.191 dB
Peak SAR (extrapolated) = 1.27 W/kg

SAR(1 g) = 0.688 mW/g; SAR(10 g) = 0.353 mW/g
Maximum value of SAR (measured) = 0.782 mW/g



0 dB = 0.782mW/g

Date/Time: 2008/10/28 14:56:24

RE Cheek_CH661

DUT:GB110;

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used: f = 1880 MHz; σ = 1.38 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Right Section

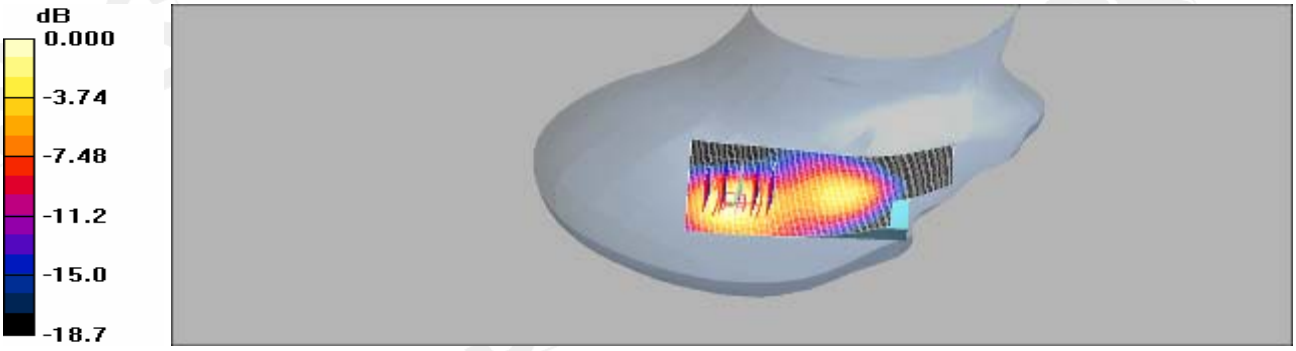
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

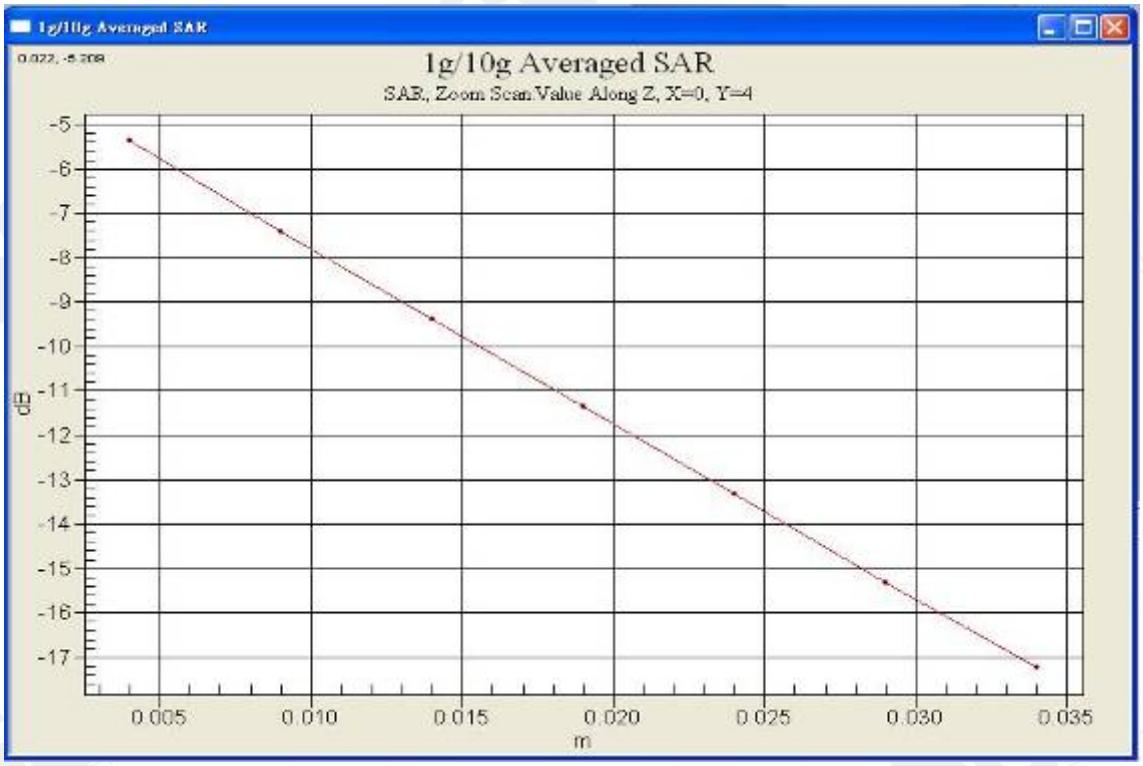
RE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.20 mW/g

RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.5 V/m; Power Drift = -0.121 dB
Peak SAR (extrapolated) = 1.92 W/kg

SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.540 mW/g
Maximum value of SAR (measured) = 1.17 mW/g



0 dB = 1.17mW/g



Date/Time: 2008/10/28 15:30:32

RE Cheek_CH810

DUT:GB110;

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used: f = 1910 MHz; σ = 1.4 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Right Section

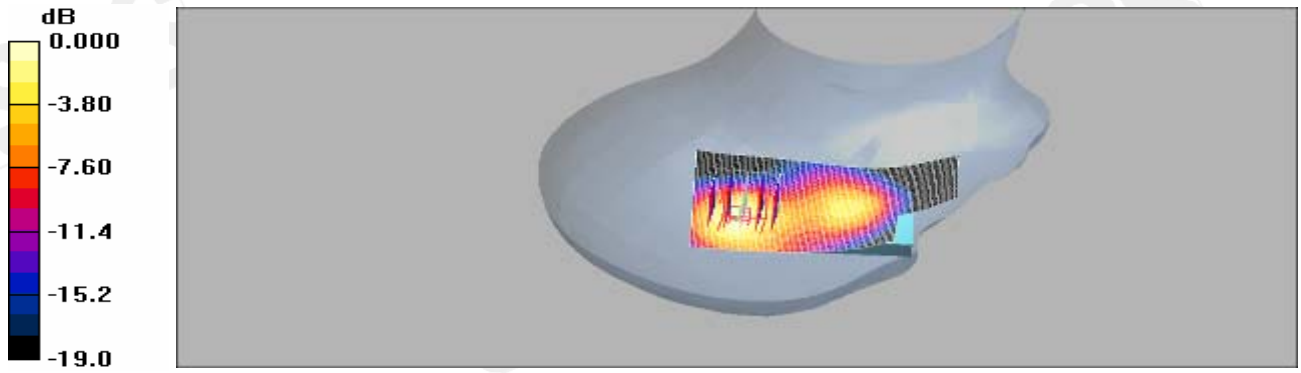
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.03 mW/g

RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.6 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 1.65 W/kg

SAR(1 g) = 0.894 mW/g; SAR(10 g) = 0.465 mW/g
Maximum value of SAR (measured) = 1.00 mW/g



0 dB = 1.00mW/g

Date/Time: 2008/10/28 17:48:49

LE Cheek_CH512

DUT:GB110;

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.35 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Left Section

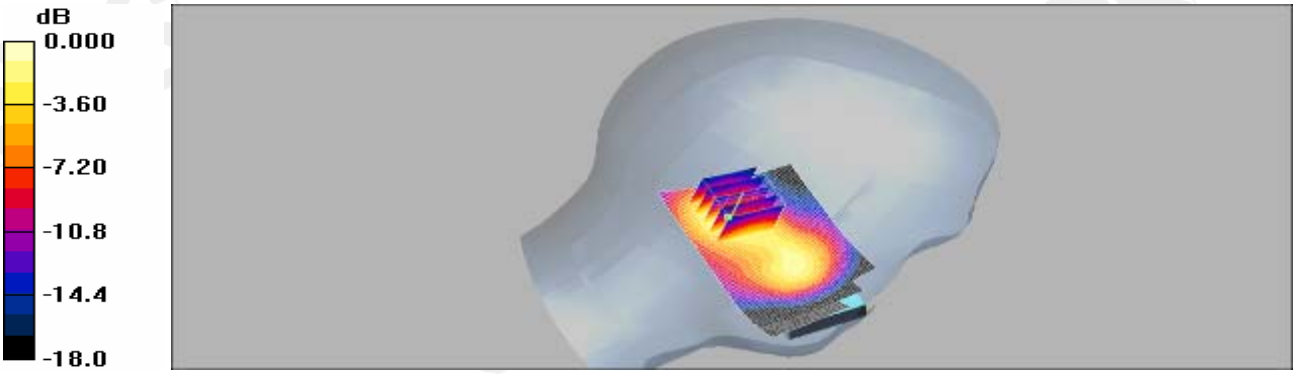
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.585 mW/g

LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.7 V/m; Power Drift = -0.144 dB
Peak SAR (extrapolated) = 0.897 W/kg

SAR(1 g) = 0.513 mW/g; SAR(10 g) = 0.280 mW/g
Maximum value of SAR (measured) = 0.572 mW/g



0 dB = 0.572mW/g

Date/Time: 2008/10/28 18:21:11

LE Cheek_CH661

DUT:GB110;

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used: f = 1880 MHz; σ = 1.38 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Left Section

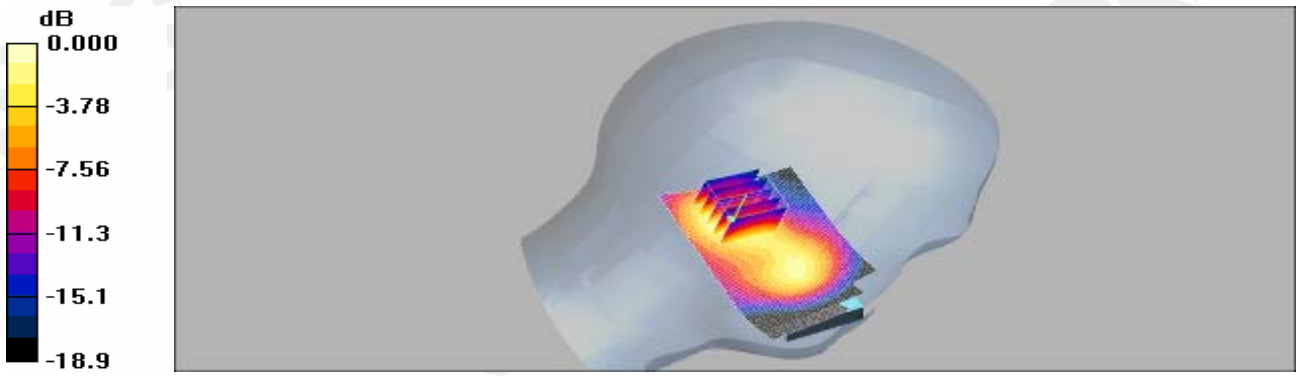
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.705 mW/g

LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.1 V/m; Power Drift = -0.131 dB
Peak SAR (extrapolated) = 1.10 W/kg

SAR(1 g) = 0.632 mW/g; SAR(10 g) = 0.343 mW/g
Maximum value of SAR (measured) = 0.699 mW/g



0 dB = 0.699mW/g

Date/Time: 2008/10/28 18:51:03

LE Cheek_CH810

DUT:GB110;

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used: f = 1910 MHz; σ = 1.4 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Left Section

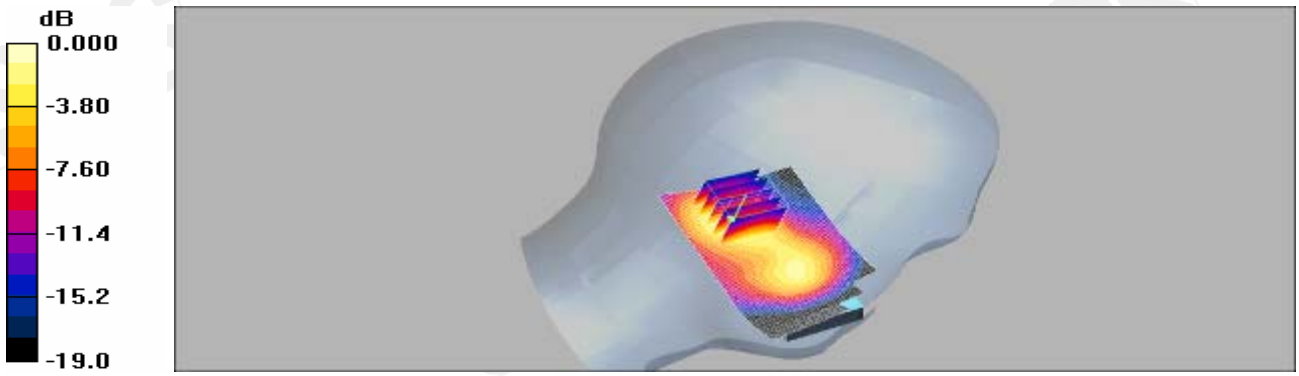
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.658 mW/g

LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.3 V/m; Power Drift = 0.021 dB
Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.588 mW/g; SAR(10 g) = 0.317 mW/g
Maximum value of SAR (measured) = 0.656 mW/g



0 dB = 0.656mW/g

Date/Time: 2008/10/28 16:02:56

RE Tilt_CH512

DUT:GB110;

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.35 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Right Section

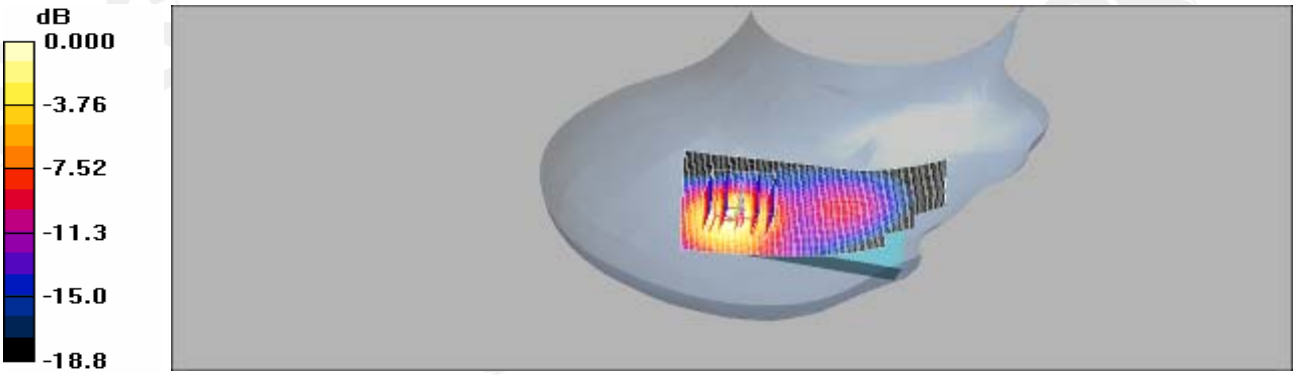
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Tilt/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.729 mW/g

RE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.6 V/m; Power Drift = -0.183 dB
Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.623 mW/g; SAR(10 g) = 0.321 mW/g
Maximum value of SAR (measured) = 0.701 mW/g



0 dB = 0.701mW/g

Date/Time: 2008/10/28 16:35:38

RE Tilt_CH661

DUT:GB110;

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used: f = 1880 MHz; σ = 1.38 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Right Section

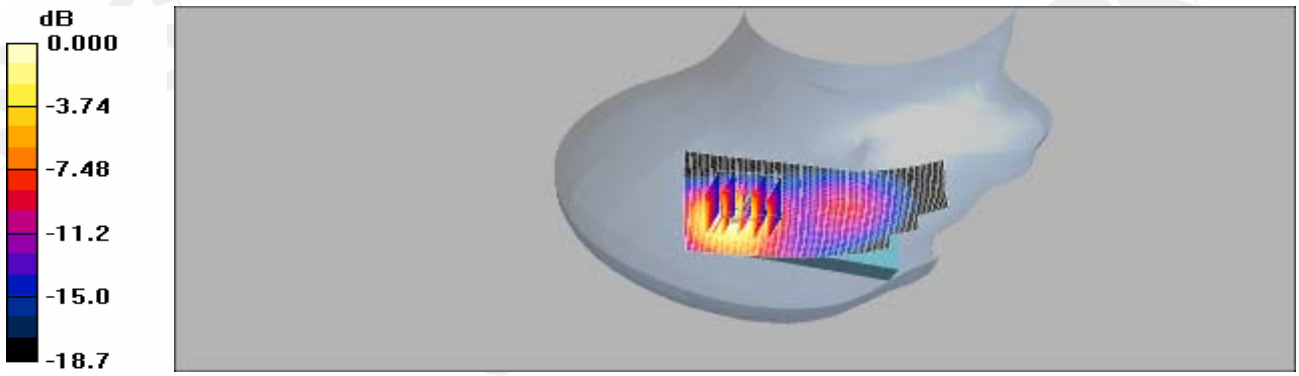
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Tilt/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.04 mW/g

RE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.8 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 1.64 W/kg

SAR(1 g) = 0.903 mW/g; SAR(10 g) = 0.465 mW/g
Maximum value of SAR (measured) = 1.01 mW/g



0 dB = 1.01mW/g

Date/Time: 2008/10/28 17:06:16

RE Tilt_CH810

DUT:GB110;

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used: f = 1910 MHz; σ = 1.4 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Right Section

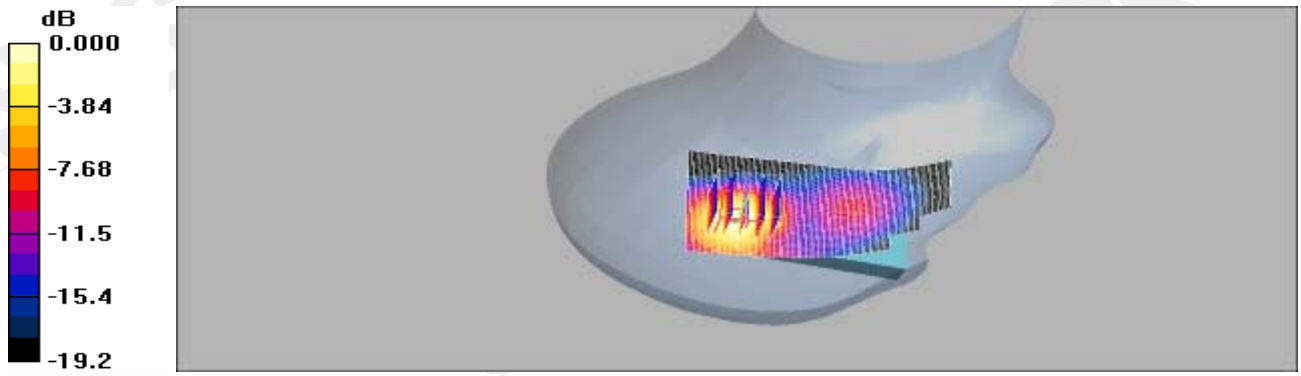
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Tilt/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.919 mW/g

RE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.3 V/m; Power Drift = 0.077 dB
Peak SAR (extrapolated) = 1.46 W/kg

SAR(1 g) = 0.797 mW/g; SAR(10 g) = 0.404 mW/g
Maximum value of SAR (measured) = 0.906 mW/g



0 dB = 0.906mW/g

Date/Time: 2008/10/28 19:26:13

LE Tilt_CH512

DUT:GB110;

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.35 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Left Section

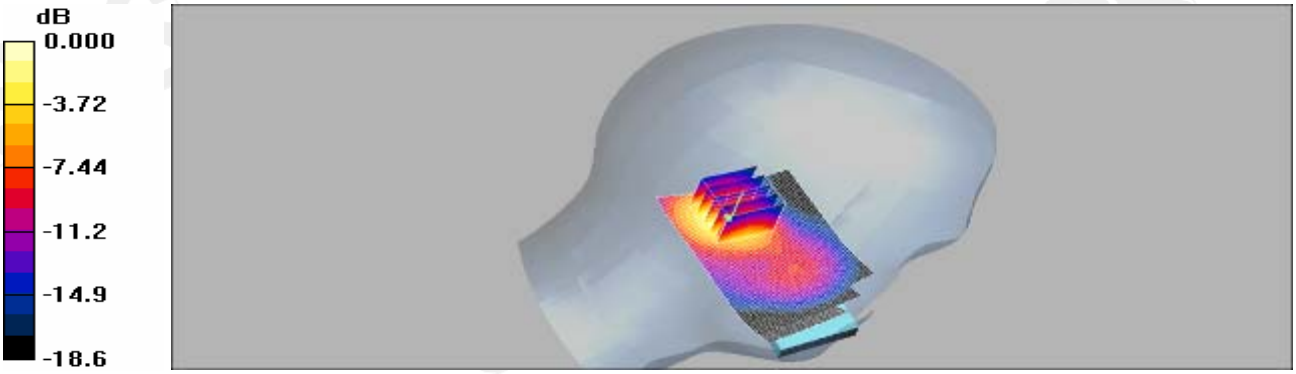
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LE_Tilt/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.494 mW/g

LE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.4 V/m; Power Drift = -0.082 dB
Peak SAR (extrapolated) = 0.738 W/kg

SAR(1 g) = 0.423 mW/g; SAR(10 g) = 0.226 mW/g
Maximum value of SAR (measured) = 0.466 mW/g



0 dB = 0.466mW/g

Date/Time: 2008/10/28 19:56:58

LE Tilt_CH661

DUT:GB110;

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used: f = 1880 MHz; σ = 1.38 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Left Section

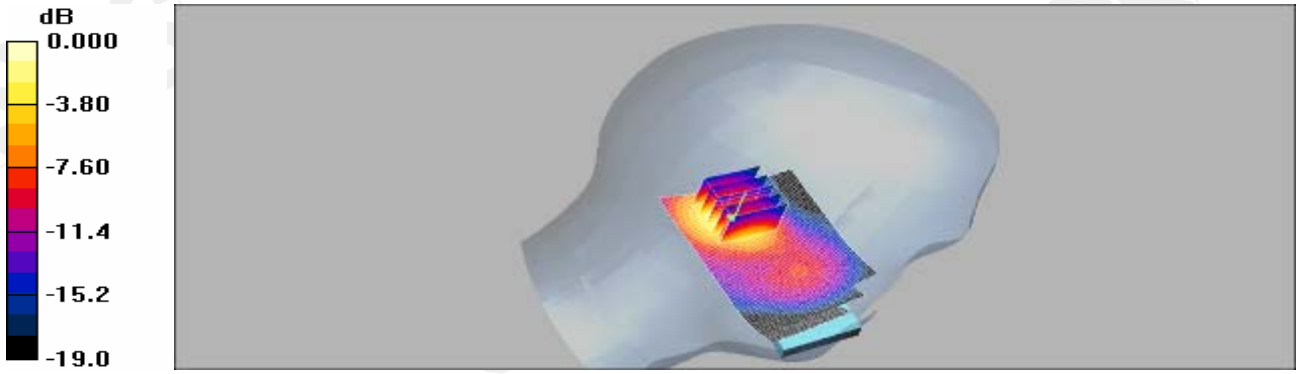
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LE_Tilt/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.683 mW/g

LE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.8 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.584 mW/g; SAR(10 g) = 0.312 mW/g
Maximum value of SAR (measured) = 0.640 mW/g



0 dB = 0.640mW/g

Date/Time: 2008/10/28 20:30:36

LE Tilt_CH810

DUT:GB110;

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used: f = 1910 MHz; σ = 1.4 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Left Section

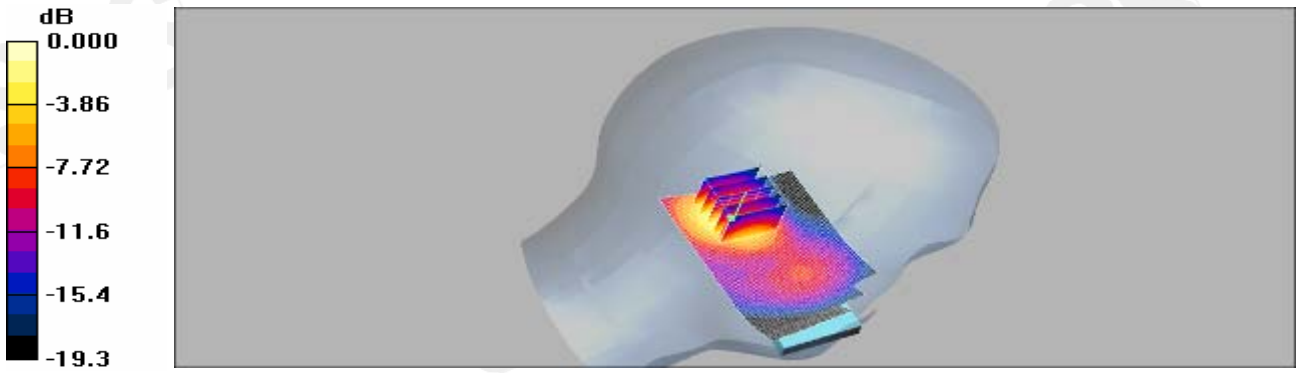
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LE_Tilt/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.647 mW/g

LE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.1 V/m; Power Drift = -0.024 dB
Peak SAR (extrapolated) = 0.972 W/kg

SAR(1 g) = 0.550 mW/g; SAR(10 g) = 0.291 mW/g
Maximum value of SAR (measured) = 0.600 mW/g



0 dB = 0.600mW/g

Date/Time: 2008/10/28 21:23:08

RE Cheek_CH661_ repeated with Memory card

DUT:GB110;

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used: f = 1880 MHz; σ = 1.38 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Right Section

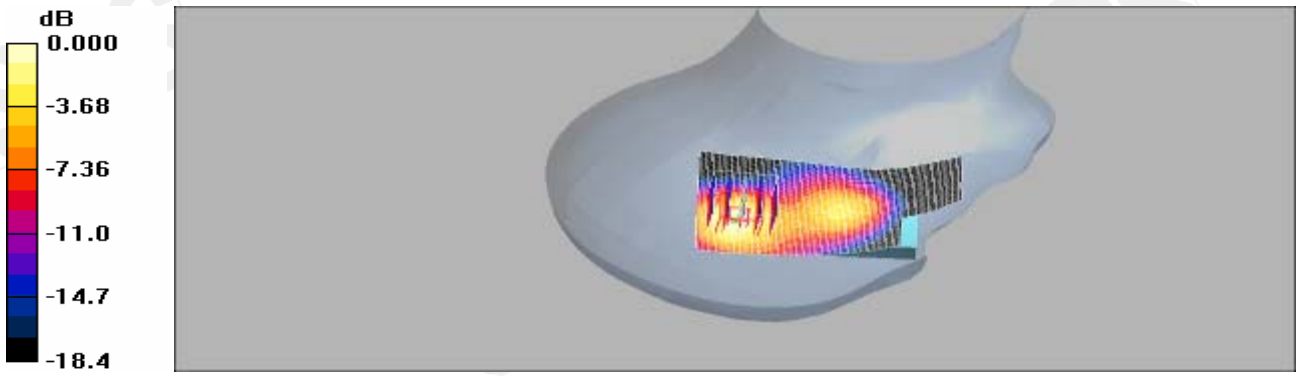
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.11 mW/g

RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.7 V/m; Power Drift = -0.109 dB
Peak SAR (extrapolated) = 1.75 W/kg

SAR(1 g) = 0.934 mW/g; SAR(10 g) = 0.478 mW/g
Maximum value of SAR (measured) = 1.06 mW/g



0 dB = 1.06mW/g

Date/Time: 2008/10/28 22:19:54

RE Cheek_CH661_ repeated with Bluetooth active

DUT:GB110;

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: Head 1900 MHz Medium parameters used: f = 1880 MHz; σ = 1.38 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Right Section

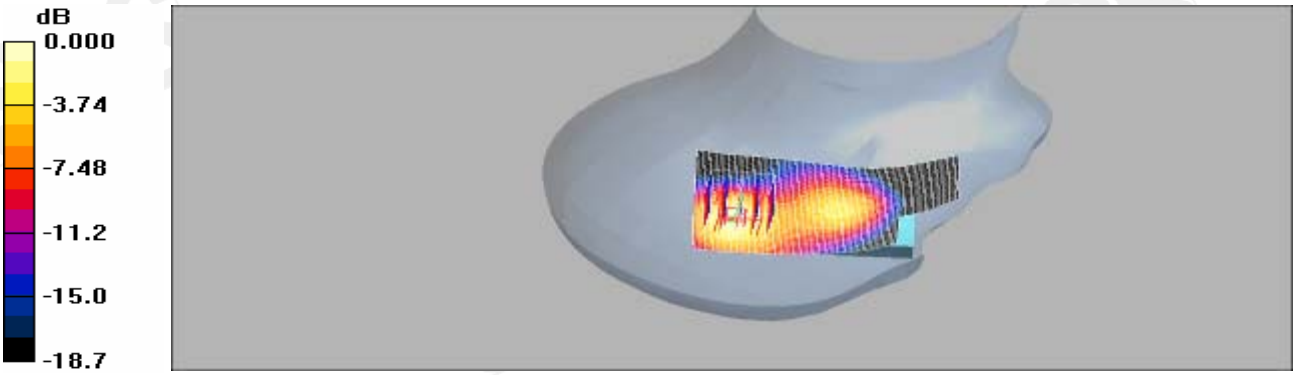
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.46, 9.46, 9.46); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

RE_Cheek/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.06 mW/g

RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.5 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 1.67 W/kg

SAR(1 g) = 0.906 mW/g; SAR(10 g) = 0.468 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



0 dB = 1.02mW/g

Date/Time: 2008/10/29 15:18:08

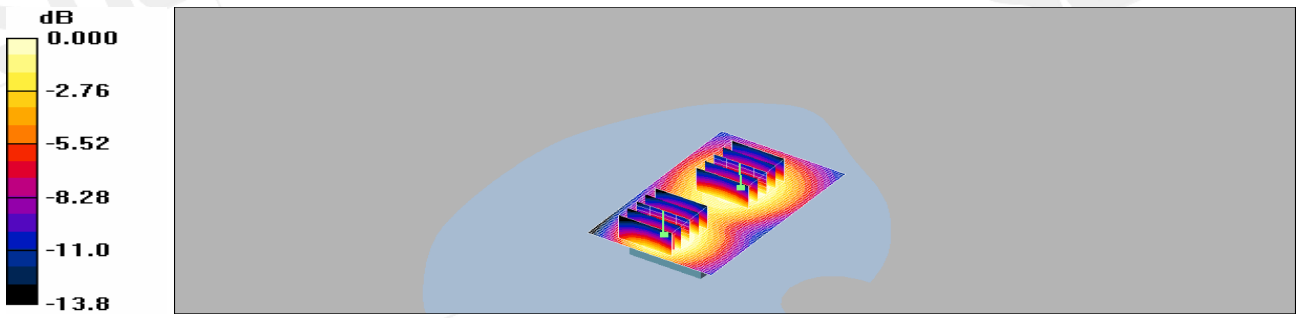
BODY_CH512

DUT:GB110 ;

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:2
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.52 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

BODY/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.48 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.2 V/m; Power Drift = -0.113 dB
Peak SAR (extrapolated) = 2.02 W/kg
SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.685 mW/g
Maximum value of SAR (measured) = 1.33 mW/g
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.2 V/m; Power Drift = -0.113 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.886 mW/g; SAR(10 g) = 0.561 mW/g
Maximum value of SAR (measured) = 0.961 mW/g



0 dB = 0.961mW/g

Date/Time: 2008/10/29 15:53:56

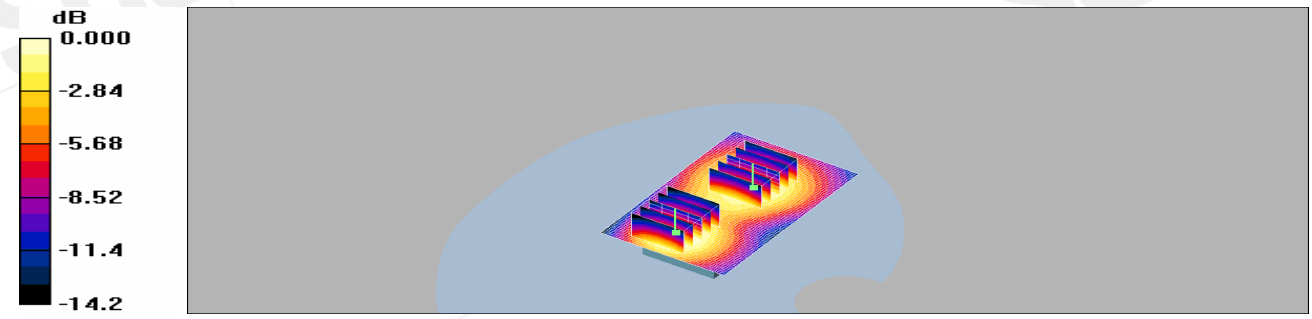
BODY_CH661

DUT:GB110 ;

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

BODY/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.68 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.0 V/m; Power Drift = -0.027 dB
Peak SAR (extrapolated) = 2.40 W/kg
SAR(1 g) = 1.45 mW/g; SAR(10 g) = 0.827 mW/g
Maximum value of SAR (measured) = 1.58 mW/g
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.0 V/m; Power Drift = -0.027 dB
Peak SAR (extrapolated) = 1.73 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.716 mW/g
Maximum value of SAR (measured) = 1.24 mW/g



0 dB = 1.24mW/g

Date/Time: 2008/10/29 16:26:23

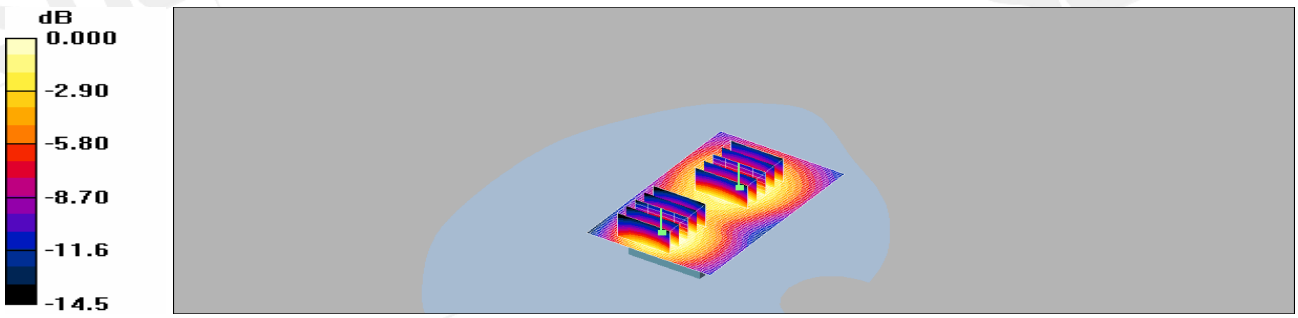
BODY_CH810

DUT:GB110 ;

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:2
Medium: M1800 & 1900 Medium parameters used: f = 1910 MHz; σ = 1.59 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

BODY/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.53 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.3 V/m; Power Drift = 0.047 dB
Peak SAR (extrapolated) = 2.25 W/kg
SAR(1 g) = 1.34 mW/g; SAR(10 g) = 0.760 mW/g
Maximum value of SAR (measured) = 1.48 mW/g
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.3 V/m; Power Drift = 0.047 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.692 mW/g
Maximum value of SAR (measured) = 1.19 mW/g



0 dB = 1.19mW/g

Date/Time: 2008/10/29 17:19:31

BODY_CH661_ repeated for EUT front to phantom

DUT:GB110 ;

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

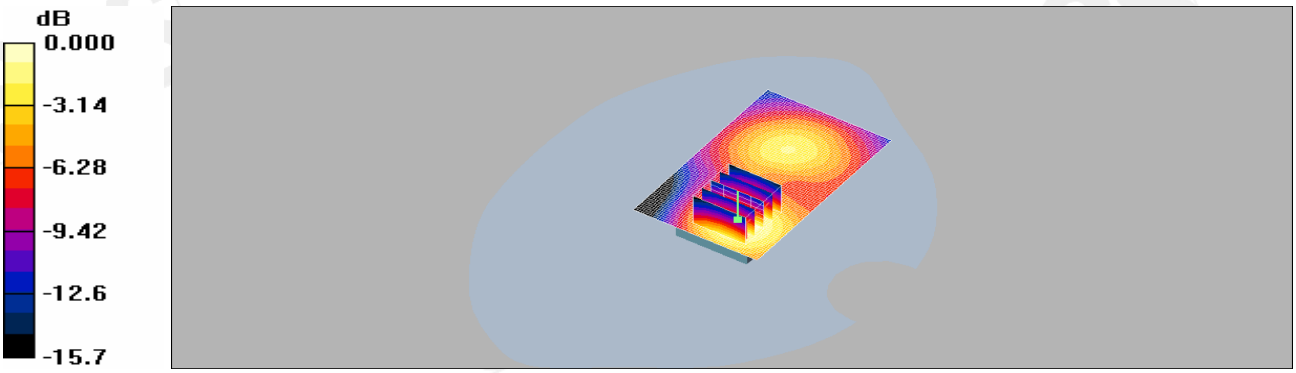
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

BODY/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.648 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.9 V/m; Power Drift = -0.107 dB
Peak SAR (extrapolated) = 0.920 W/kg

SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.340 mW/g
Maximum value of SAR (measured) = 0.625 mW/g



0 dB = 0.625mW/g

Date/Time: 2008/10/29 18:13:57

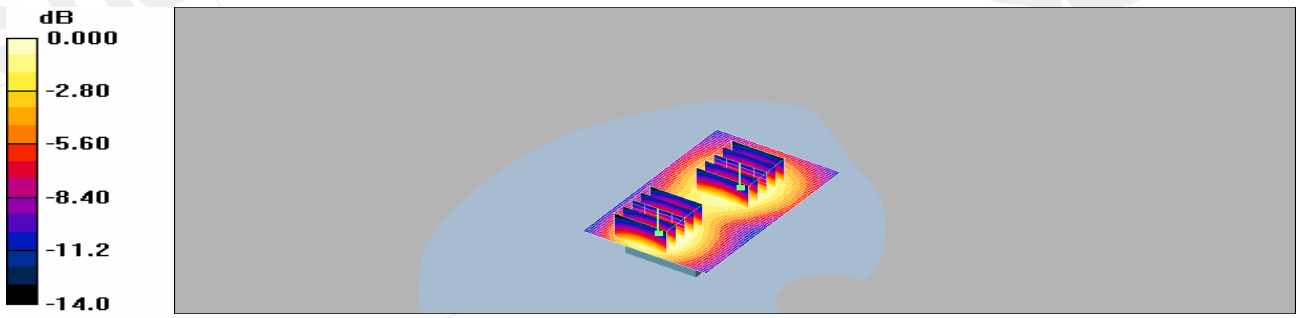
BODY_CH661_ repeated with Memory card

DUT:GB110 ;

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

BODY/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.62 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.3 V/m; Power Drift = -0.152 dB
Peak SAR (extrapolated) = 2.25 W/kg
SAR(1 g) = 1.37 mW/g; SAR(10 g) = 0.788 mW/g
Maximum value of SAR (measured) = 1.52 mW/g
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.3 V/m; Power Drift = -0.152 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.976 mW/g; SAR(10 g) = 0.615 mW/g
Maximum value of SAR (measured) = 1.05 mW/g



0 dB = 1.05mW/g

Date/Time: 2008/10/29 19:32:25

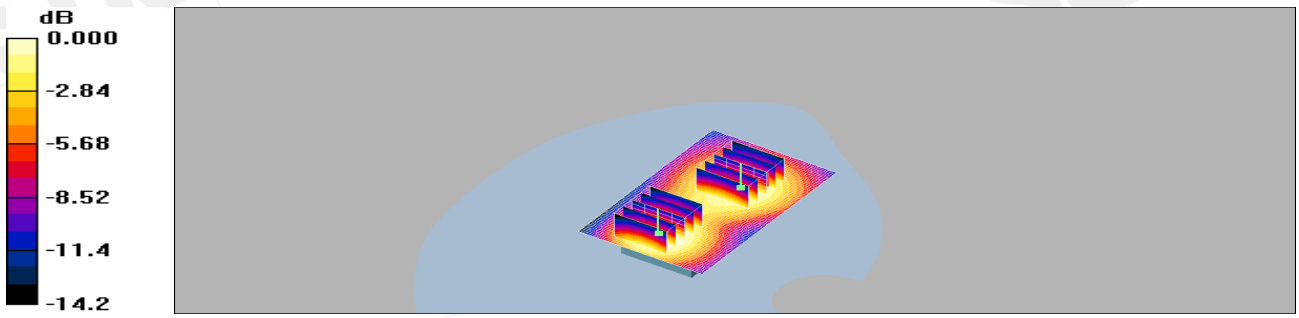
BODY_CH661_ repeated with Bluetooth active

DUT:GB110 ;

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

BODY/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.59 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.4 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 2.28 W/kg
SAR(1 g) = 1.36 mW/g; SAR(10 g) = 0.773 mW/g
Maximum value of SAR (measured) = 1.49 mW/g
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.4 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 0.963 mW/g; SAR(10 g) = 0.604 mW/g
Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.04mW/g

Date/Time: 2008/10/29 20:39:02

BODY_CH661_ repeated with Headset

DUT:GB110 ;

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

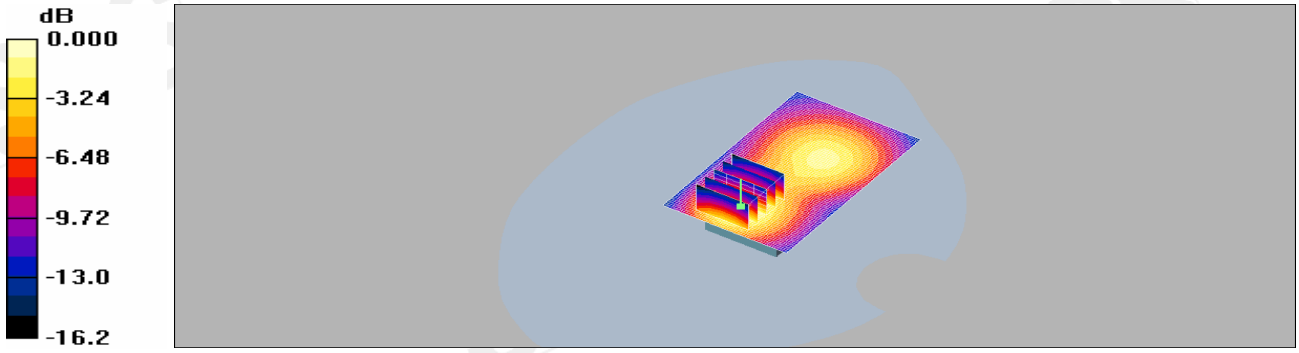
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

BODY/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.66 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.9 V/m; Power Drift = -0.198 dB
Peak SAR (extrapolated) = 2.29 W/kg

SAR(1 g) = 1.4 mW/g; SAR(10 g) = 0.808 mW/g
Maximum value of SAR (measured) = 1.54 mW/g



0 dB = 1.54mW/g

5. System Verification

Date/Time: 2008/10/28 04:33:35

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d063

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: Head 900 MHz Medium parameters used: f = 835 MHz; σ = 0.899 mho/m; ε_r = 42.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

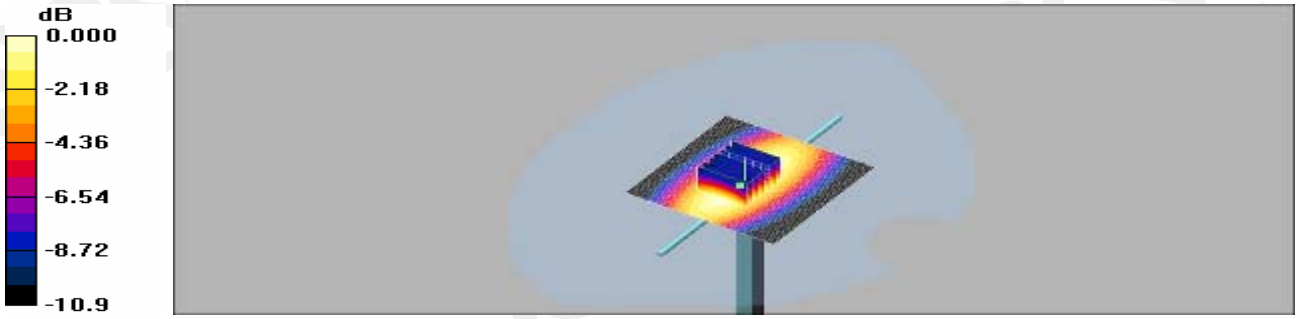
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.63 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.9 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 3.70 W/kg

SAR(1 g) = 2.38 mW/g; SAR(10 g) = 1.57 mW/g
Maximum value of SAR (measured) = 2.61 mW/g



0 dB = 2.61mW/g

Date/Time: 2008/10/29 10:22:37

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d063

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 55; ρ = 1000 kg/m^3
Phantom section: Flat Section

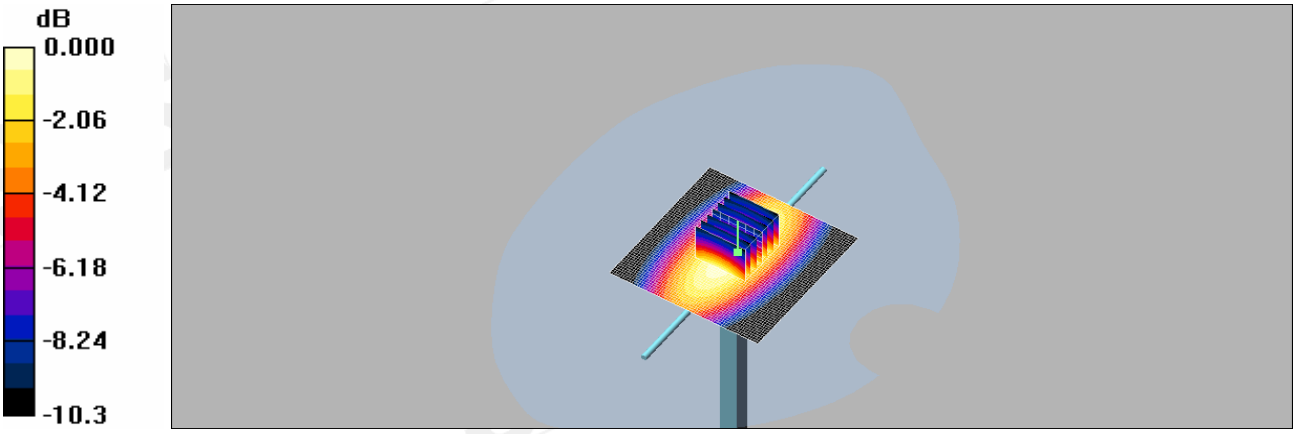
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.85 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.3 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 3.95 W/kg

SAR(1 g) = 2.54 mW/g; SAR(10 g) = 1.63 mW/g
Maximum value of SAR (measured) = 2.84 mW/g



0 dB = 2.84mW/g

Date/Time: 2008/10/28 13:16:18

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d027

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: Head 1900MHz Medium parameters used: f = 1900 MHz; σ = 1.39 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

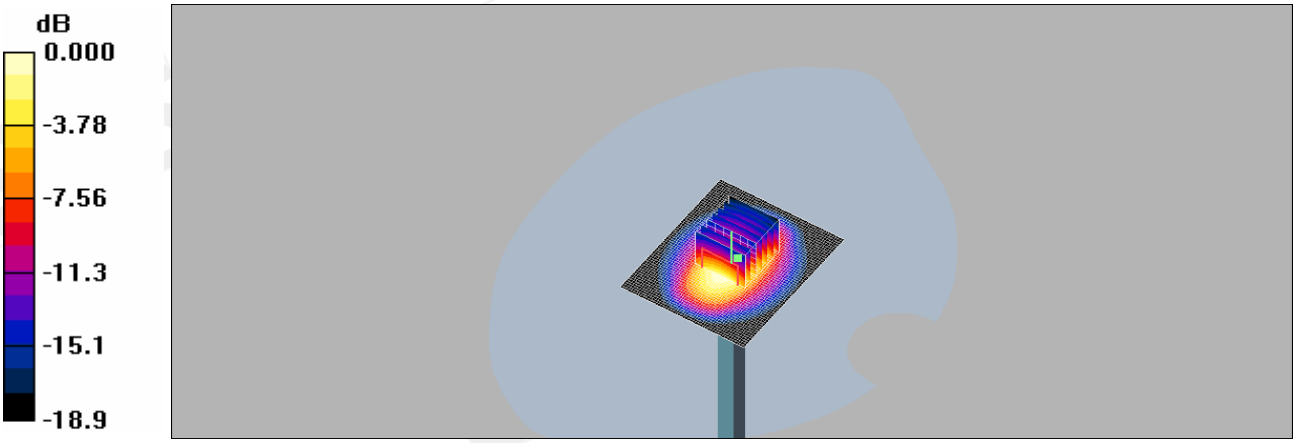
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Pin=250mw/Area Scan (51x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.4 mW/g

Pin=250mw/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.1 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 20.1 W/kg

SAR(1 g) = 10.7 mW/g; SAR(10 g) = 5.52 mW/g
Maximum value of SAR (measured) = 11.9 mW/g



0 dB = 11.9mW/g

Date/Time: 2008/10/29 14:04:37

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d027

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1900 MHz; σ = 1.58 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

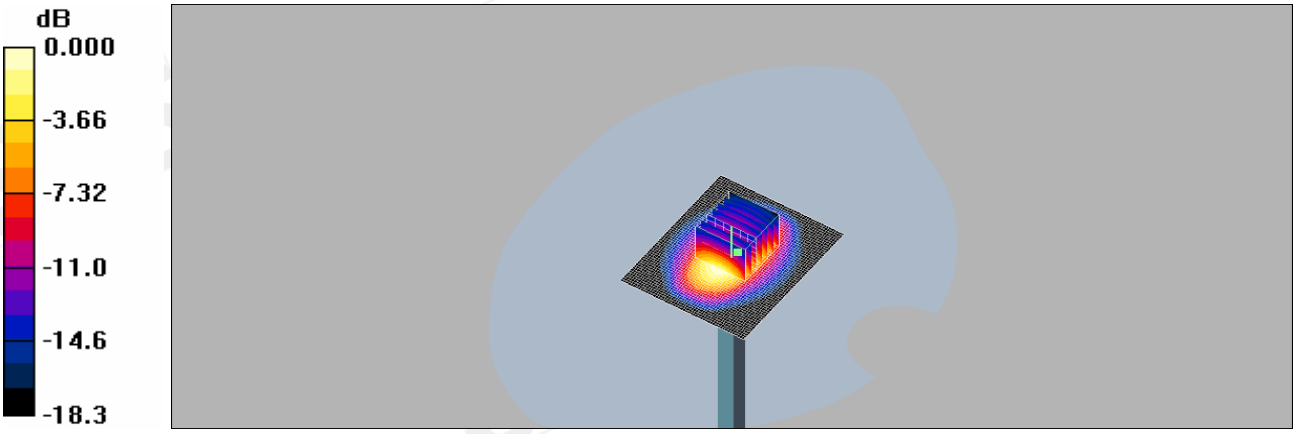
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Pin=250mW/Area Scan (51x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.3 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 83.9 V/m; Power Drift = -0.022 dB
Peak SAR (extrapolated) = 17.9 W/kg

SAR(1 g) = 9.71 mW/g; SAR(10 g) = 5.01 mW/g
Maximum value of SAR (measured) = 10.9 mW/g



0 dB = 10.9mW/g

6. DAE & Probe Calibration certificate

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

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

Accreditation No.: SCS 108

Client SGS (Auden)

Certificate No: DAE4-547_Jan08

CALIBRATION CERTIFICATE

Object: DAE4 - SD 000 D04 BA - SN: 547

Calibration procedure(s): QA CAL-06.v12
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: January 24, 2008

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 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Fluke Process Calibrator Type 702	SN: 6295803	04-Oct-07 (Elcal AG, No: 6467)	Oct-08
Keithley Multimeter Type 2001	SN: 0810278	03-Oct-07 (Elcal AG, No: 6465)	Oct-08
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	25-Jun-07 (SPEAG, in house check)	In house check Jun-08

	Name	Function	Signature
Calibrated by:	Daniel Hess	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: January 24, 2008

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

Certificate No: DAE4-547_Jan08 Page 1 of 5

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

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client **SGS (Auden)** Certificate No: **EX3-3526_Aug08**

CALIBRATION CERTIFICATE

Object	EX3DV3 - SN:3526
Calibration procedure(s)	QA CAL-01.v6, QA CAL-14.v3 and QA CAL-23.v3 Calibration procedure for dosimetric E-field probes
Calibration date:	August 26, 2008
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 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41495277	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41498087	1-Apr-08 (No. 217-00788)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	1-Jul-08 (No. 217-00865)	Jul-09
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-08 (No. 217-00787)	Apr-09
Reference 30 dB Attenuator	SN: S5129 (30b)	1-Jul-08 (No. 217-00866)	Jul-09
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 660	3-Sep-07 (No. DAE4-660_Sep07)	Sep-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: August 26, 2008

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Certificate No: EX3-3526_Aug08 Page 1 of 9

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S Swiss Calibration Service

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe EX3DV3

SN:3526

Manufactured:	March 19, 2004
Last calibrated:	August 29, 2007
Recalibrated:	August 26, 2008

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

EX3DV3 SN:3526 August 26, 2008

DASY - Parameters of Probe: EX3DV3 SN:3526

Sensitivity in Free Space[A]

NormX	**0.99** ± 10.1%	μV/(V/m)^2	DCP X	**93** mV
NormY	**0.81** ± 10.1%	μV/(V/m)^2	DCP Y	**94** mV
NormZ	**0.89** ± 10.1%	μV/(V/m)^2	DCP Z	**94** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **900 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	8.9	5.3
SAR_{be} [%]	With Correction Algorithm	0.8	0.4

TSL **1810 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	6.8	3.6
SAR_{be} [%]	With Correction Algorithm	0.5	0.2

Sensor Offset

Probe Tip to Sensor Center	**1.0** mm

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

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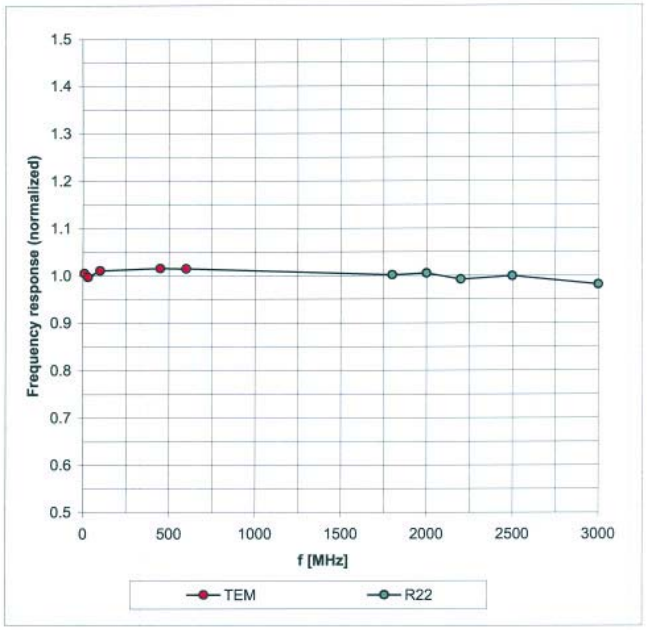
EX3DV3 SN:3526 August 26, 2008

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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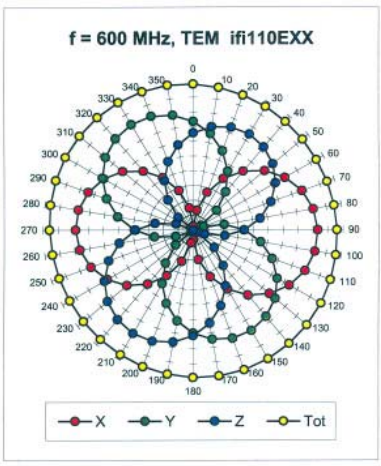
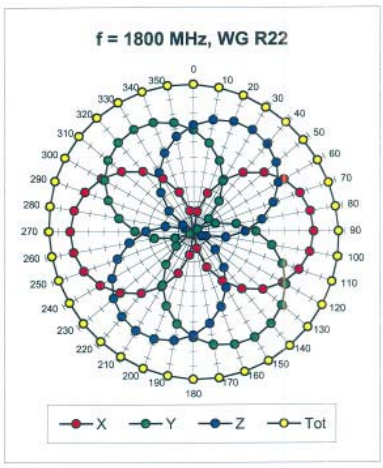
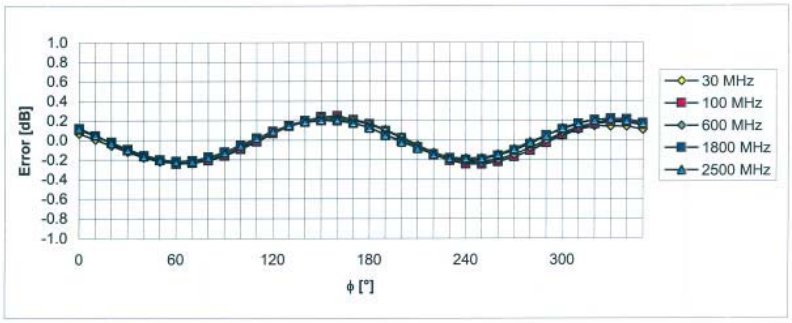
EX3DV3 SN:3526 August 26, 2008

Receiving Pattern (ϕ), ϑ = 0°







Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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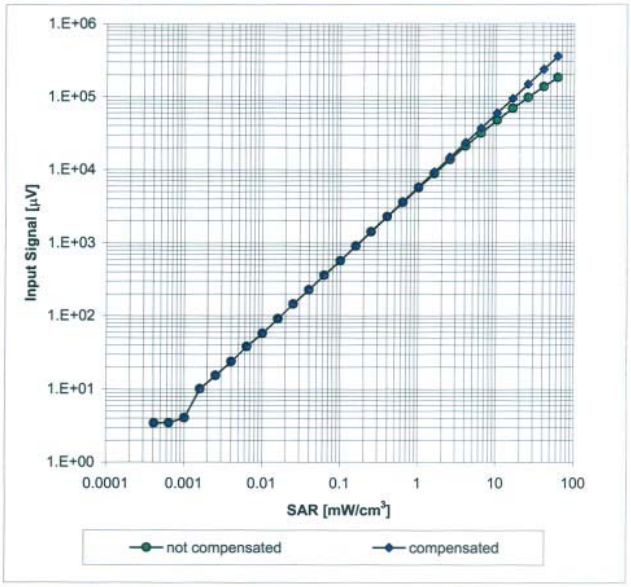
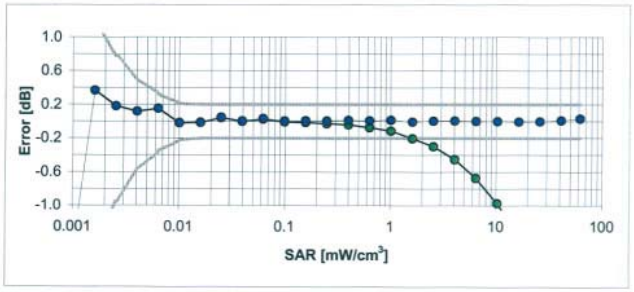
EX3DV3 SN:3526 August 26, 2008

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)





Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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EX3DV3 SN:3526 August 26, 2008

Conversion Factor Assessment

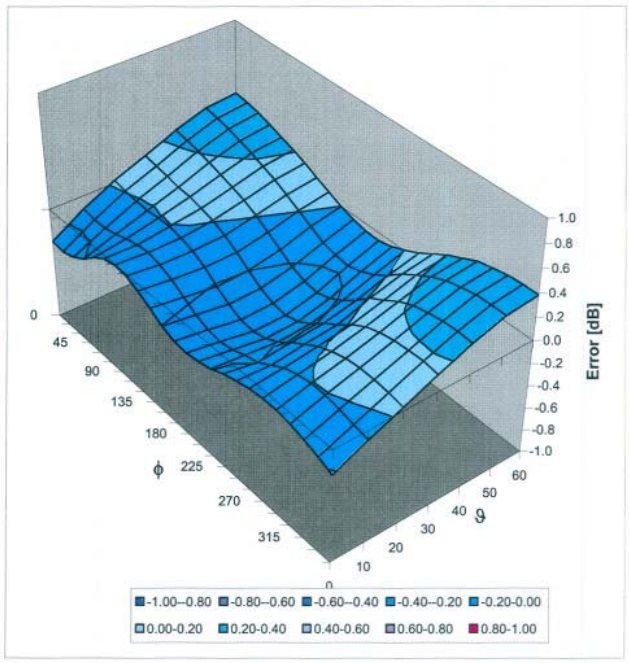
f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.54	0.76	10.93 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.52	0.68	9.46 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.58	0.61	9.15 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.42	0.74	8.49 ± 11.0% (k=2)
2600	± 50 / ± 100	Head	39.0 ± 5%	1.96 ± 5%	0.42	0.75	8.53 ± 11.0% (k=2)
3500	± 50 / ± 100	Head	37.9 ± 5%	2.91 ± 5%	0.30	1.20	8.15 ± 13.1% (k=2)
5200	± 50 / ± 100	Head	36.0 ± 5%	4.66 ± 5%	0.40	1.65	5.68 ± 13.1% (k=2)
5500	± 50 / ± 100	Head	35.6 ± 5%	4.96 ± 5%	0.40	1.65	5.01 ± 13.1% (k=2)
5800	± 50 / ± 100	Head	35.3 ± 5%	5.27 ± 5%	0.40	1.65	4.90 ± 13.1% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.66	0.68	10.87 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.50	0.74	9.28 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.45	0.78	9.17 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.44	0.80	8.18 ± 11.0% (k=2)
2600	± 50 / ± 100	Body	52.5 ± 5%	2.16 ± 5%	0.47	0.76	8.14 ± 11.0% (k=2)
3500	± 50 / ± 100	Body	51.3 ± 5%	3.31 ± 5%	0.30	1.20	7.36 ± 13.1% (k=2)
5200	± 50 / ± 100	Body	49.0 ± 5%	5.30 ± 5%	0.40	1.70	4.89 ± 13.1% (k=2)
5500	± 50 / ± 100	Body	48.6 ± 5%	5.65 ± 5%	0.40	1.70	4.39 ± 13.1% (k=2)
5800	± 50 / ± 100	Body	48.2 ± 5%	6.00 ± 5%	0.40	1.70	4.44 ± 13.1% (k=2)

[C] The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

EX3DV3 SN:3526 August 26, 2008

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

7. Uncertainty Analysis

DASY4 Uncertainty Budget
According to IEEE P1528 [1]

Error Description	Uncertainty value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±4.8%	N	1	1	1	±4.8%	±4.8%	∞
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	±1.0%	N	1	1	1	±1.0%	±1.0%	∞
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 Conditions	±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%	875
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						±10.3%	±10.0%	331
Expanded STD Uncertainty						**±20.6%**	**±20.1%**	

8. Phantom description

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info@speag.com, http://www.speag.com

Certificate of Conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 C
Series No	TP-1150 and higher
Manufacturer	SPEAG Zeughausstrasse 43 CH-8004 Zürich Switzerland

Tests
The series production process used allows the limitation to test of first articles.
Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series items (called samples) or are tested at each item.

Test	Requirement	Details	Units tested
Dimensions	Compliant with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness of shell	Compliant with the requirements according to the standards	2mm +/- 0.2mm in flat and specific areas of head section	First article, Samples, TP-1314 ff.
Material thickness at ERP	Compliant with the requirements according to the standards	6mm +/- 0.2mm at ERP	First article, All items
Material parameters	Dielectric parameters for required frequencies	300 MHz – 6 GHz: Relative permittivity < 5, Loss tangent < 0.05	Material samples
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards if handled and cleaned according to the instructions. Observe technical Note for material compatibility.	DEGMBE based simulating liquids	Pre-series, First article, Material samples
Sagging	Compliant with the requirements according to the standards. Sagging of the flat section when filled with tissue simulating liquid.	< 1% typical < 0.8% if filled with 155mm of HSL900 and without DUT below	Prototypes, Sample testing

Standards
[1] CENELEC EN 50361
[2] IEEE Std 1528-2003
[3] IEC 62209 Part I
[4] FCC OET Bulletin 65, Supplement C, Edition 01-01
(*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of the other documents.

Conformity
Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standards [1] to [4].

Date 07.07.2005

Signature / Stamp

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Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

9. System Validation from Original equipment supplier

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

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

Accredited by the Swiss Accreditation Service (SAS)
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Accreditation No.: SCS 108

Client SGS (Auden)

Certificate No: D835V2-4d063_Jun08

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d063
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	June 06, 2008
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 ± 3)°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-442A	GB37480704	04-Oct-07 (METAS, No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (METAS, No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (METAS, No 217-00718)	Aug-08
Type-N mismatch combination	SN: 5047.2 / 06327	08-Aug-07 (No. 217-00721)	Aug-08
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	04-Aug-99 (SPEAG, in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Oct-07)	In house check: Oct-08

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

Issued: June 13, 2008

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Certificate No: D835V2-4d063_Jun08 Page 1 of 9

DASY4 Validation Report for Head TSL

Date/Time: 05.06.2008 14:11:53

Test Laboratory: SPEAG, Zurich, Switzerland

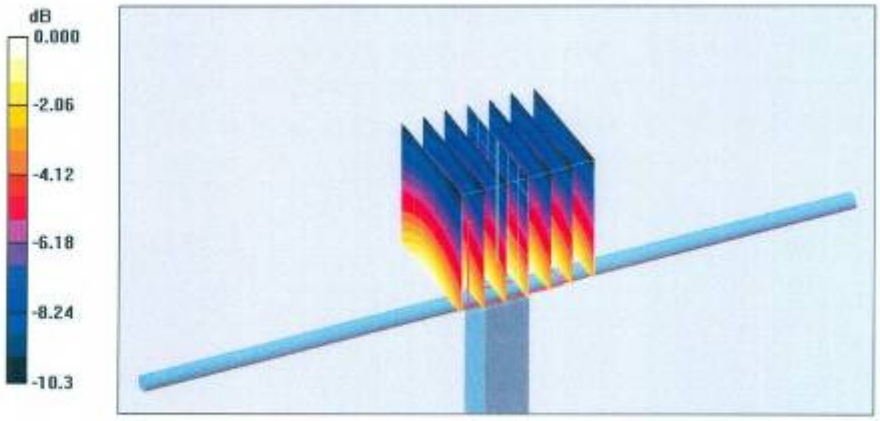
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d063

Communication System: CW-835; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL 900 MHz;
Medium parameters used: f = 835 MHz; σ = 0.879 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(5.97, 5.97, 5.97); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; ;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Pin=250mW; dip=15mm; dist=3.4mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.3 V/m; Power Drift = -0.021 dB
Peak SAR (extrapolated) = 3.36 W/kg
SAR(1 g) = 2.29 mW/g; SAR(10 g) = 1.52 mW/g
Maximum value of SAR (measured) = 2.58 mW/g



0 dB = 2.58mW/g

DASY4 Validation Report for Body TSL

Date/Time: 06.06.2008 14:01:1

Test Laboratory: SPEAG, Zurich, Switzerland

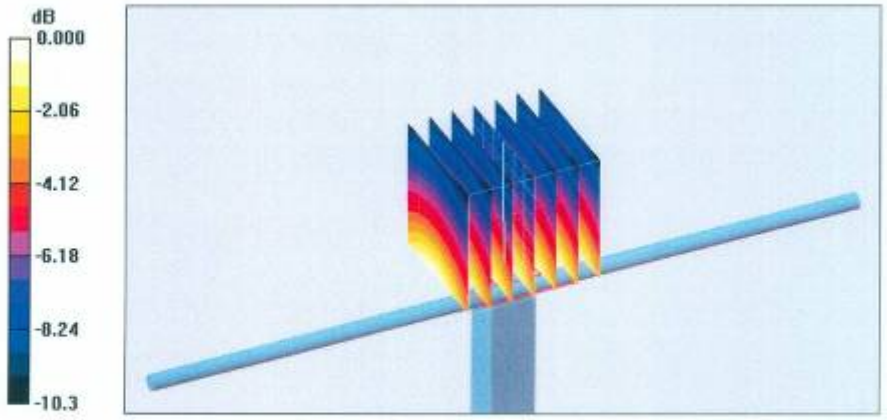
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d063

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL900;
Medium parameters used: f = 835 MHz; σ = 0.99 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(5.9, 5.9, 5.9); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; ;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Pin = 250mW, d = 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.6 V/m; Power Drift = 0.010 dB
Peak SAR (extrapolated) = 3.53 W/kg
SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.61 mW/g
Maximum value of SAR (measured) = 2.73 mW/g



0 dB = 2.73mW/g

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Accreditation No.: SCS 108

Client SGS (Auden)

Certificate No: D1900V2-5d027_Apr08

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d027
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	April 15, 2008
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 ± 3)°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-442A	GB37480704	04-Oct-07 (No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (No. 217-00718)	Aug-08
Type-N mismatch combination	SN: 5047.2 / 06327	08-Aug-07 (No. 217-00721)	Aug-08
Reference Probe ES3DV2	SN: 3025	01-Mar-08 (No. ES3-3025_Mar08)	Mar-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-08
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Marcel Fehr	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 17, 2008

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Certificate No: D1900V2-5d027_Apr08 Page 1 of 9

DASY4 Validation Report for Head TSL

Date/Time: 08.04.2008 13:49:58

Test Laboratory: SPEAG, Zurich, Switzerland

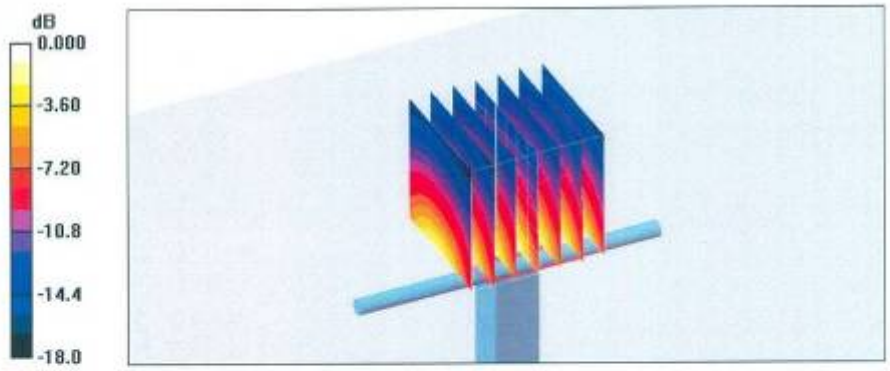
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d027

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL U10 BB;
Medium parameters used: f = 1900 MHz; σ = 1.47 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.9, 4.9, 4.9); Calibrated: 01.03.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.2 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 19.1 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.3 mW/g
Maximum value of SAR (measured) = 11.9 mW/g



0 dB = 11.9mW/g

DASY4 Validation Report for Body TSL

Date/Time: 15.04.2008 13:51:25

Test Laboratory: SPEAG, Zurich, Switzerland

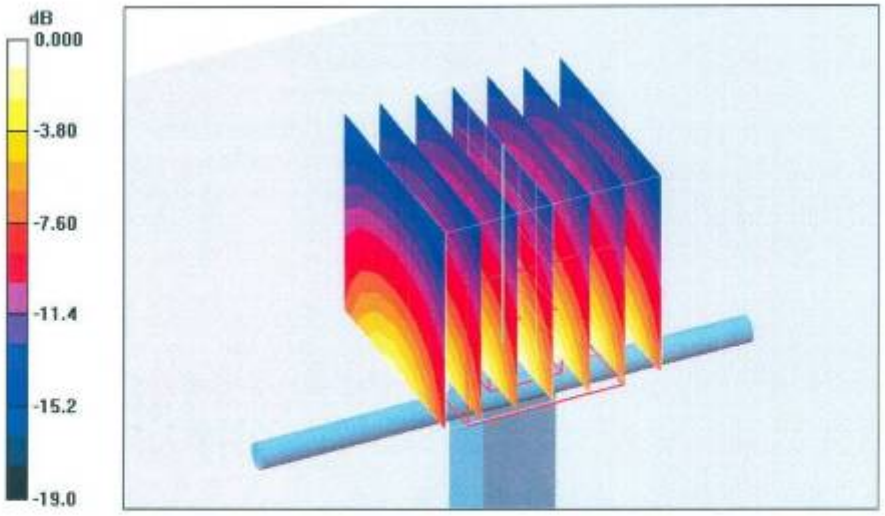
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d027

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL U10 BB;
Medium parameters used: f = 1900 MHz; σ = 1.56 mho/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.5, 4.5, 4.5); Calibrated: 01.03.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.3 V/m; Power Drift = -0.022 dB
Peak SAR (extrapolated) = 17.4 W/kg
SAR(1 g) = 9.64 mW/g; SAR(10 g) = 5.07 mW/g
Maximum value of SAR (measured) = 11.7 mW/g



0 dB = 11.7mW/g

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End of 1st part of report