SAR TEST REPORT

The following samples were submitted and identified on behalf of the client as:

Equipment Under Test	PlayStation(R) Vita
Model Name	PCH-1101
Brand Name	SONY
Model Difference	Please refer to "Note" on page 6
FCC ID	AK8PCH1101A
IC ID	409B-PCH1101A
Company Name	Sony Computer Entertainment Inc.
Company Address	1-7-1 Konan, Minato-ku, Tokyo 108-0075 Japan
Standards	FCC OET 65 supplement C, IEEE /ANSI C95.1 , C95.3, IEEE 1528,KDB Inquiry No. 670851;RSS-102
FCC KDB inquiry tracking number	670851
Date of Receipt	2011.09.13
Date of Test(s)	2011.09.14-2011.09.15; 2012.04.20; 2012.05.04; 2012.05.11
Date of Issue	2012.05.17

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.

Signed for on the behalf of SGS

Ricky Huang
Supervisor
Date: 2012.05.17

Nick Hsu
Supervisor
Date: 2012.05.17

Version

Report Number	Revision	Date	Memo
ES/2011/90017-01	00	2012/04/25	Initial creation of test report.
ES/2011/90017-01	01	2012/05/08	1st modification
ES/2011/90017-01	02	2012/05/17	2nd modification

This test report contains a reference to the previous version test report that it replaces.

Contents

1. General Information

1.1 Testing Laboratory

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1.2 Details of Applicant

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1.3 Description of EUT

EUT Name	PlayStation(R) Vita	
Model Name	PCH-1101	
Model Difference	Please refer to "Note" on page 6	
Brand Name	SONY	
IMEI Code	358458040005397	
Mode of Operation	☒GPRS ☒EDGE ☒WCDMA ☒HSDPA ☒HSUPA ☒WLAN802.11 b/g/n (☒H20 ☐H40) band	
Definition	Production unit	
Duty Cycle	GPRS/ EDGE	1/4 (multi class 10)
	WCDMA Band II	1
	WCDMA Band V	1
	WLAN802.11 b/g/n	1

TX Frequency Range (MHz)	GPRS 850		824.20	—	848.80
	GPRS 1900		1850.2	—	1909.8
	WCDMA Band II		1852.40	—	1907.6
	WCDMA Band V		826.4	—	846.6
	WLAN802.11 b/g/n		2412	—	2462
Channel Number (ARFCN)	GPRS 850		128	—	251
	GPRS 1900		512	—	810
	WCDMA Band II		9262	—	9538
	WCDMA Band V		4132	—	4233
	WLAN802.11 b/g/n		1	—	11
VOIP Function	☒YES ☐NO				
Max. SAR Measured (Unit: mW/g)	GPRS850	10g	1.67	☒Lap-held ☐Front ☐Primary Landscape 251 Channel (Test distance is 0mm)	
		1 g	0.963	☒Lap-held ☐Front ☐Primary Landscape 190 Channel (Test distance is 10mm)	
	GPRS1900	10g	1.37	☐Lap-held ☐Front ☒Primary Landscape 810 Channel (Test distance is 0mm)	
		1 g	0.508	☒Lap-held ☐Front ☐Primary Landscape 512 Channel (Test distance is 10mm)	
	WCDMA Band II	10g	1.32	☐Lap-held ☐Front ☒Primary Landscape 9400 Channel (Test distance is 0mm)	
		1 g	0.615	☒Lap-held ☐Front ☐Primary Landscape 9262 Channel (Test distance is 10mm)	

	WCDMA Band V	10g	1.58	☒Lap-held ☐Front ☐Primary Landscape 4132 Channel (Test distance is 0mm)
		1 g	0.916	☒Lap-held ☐Front ☐Primary Landscape 4183 Channel (Test distance is10mm)
Note	Models PCH-1102, PCH-1103, PCH-1104 and PCH-1108 are identical to Model PCH-1101above except for distributed countries.			

According KDB inquiry No.670851.

#. GPRS/EDGE conducted power table:

Band	Channel	Burst average power		Source-based time averaged	
		1Dn1UP	1Dn2UP	1Dn1UP	1Dn2UP
GPRS850	128	32.20	31.10	23.17	25.08
	190	32.00	31.10	22.97	25.08
	251	31.90	30.90	22.87	24.88
EDGE850	128	27.10	26.70	18.07	20.68
	190	27.00	26.60	17.97	20.58
	251	26.90	26.60	17.87	20.58
GPRS1900	512	29.70	29.80	20.67	23.78
	661	29.90	29.80	20.87	23.78
	810	29.90	29.80	20.87	23.78
EDGE1900	512	25.80	25.80	16.77	19.98
	661	25.80	25.80	16.77	19.78
	810	25.90	26.00	16.87	19.98

#. WCDMA /HSDPA/HSUPA conducted power table:

Band	Channel	Rel99	HSDPA mode				HSUPA mode				
		Rel99	1	2	3	4	1	2	3	4	5
WCDMA Band II	9262	23.95	24.12	23.83	23.64	23.71	23.87	21.92	22.93	22.05	23.76
	9400	23.85	23.74	23.71	23.29	23.30	23.83	21.90	22.85	21.95	23.69
	9538	23.77	23.63	23.62	23.10	23.22	23.71	21.75	22.79	21.79	23.62
WCDMA Band V	4132	24.28	24.07	24.21	23.61	23.66	24.24	22.30	23.28	22.35	24.10
	4183	24.00	23.86	23.89	23.38	23.42	23.93	22.01	22.99	22.07	23.76
	4233	24.18	24.30	24.05	23.81	23.87	24.10	22.14	23.18	22.22	23.99

#.WLAN802.11 b/g/n(20M) conducted power table:

WLAN802.11 b	2412	2437	2462
Avg power (dBm)	**10.11**	**10.22**	**10.7**
WLAN802.11 g	2412	2442	2472
Avg power (dBm)	**10.05**	**10.18**	**10.65**
WLAN802.11 n(20M)	2412	2442	2472
Avg power (dBm)	**10**	**10.19**	**10.62**

1.4 Test Environment

Ambient Temperature: 22±2° C
Tissue Simulating Liquid: 22±2° C

1.5 Operation Description

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.

The test configuration tested at the low, middle and high frequency channels, and then test of set in highest power. Finally, we will test it by dividing into 3 configurations:

- According to KDB inquiry No.670851

WWAN:

Configuration 1: Lap-held mode.

Configuration 2: Secondary portrait mode. (Antenna to user distance > 2.5cm)
(No need SAR testing due to the distance between antenna and Primary Landscape of the device is bigger than 2.5cm referred as the meeting minutes of TCB workshop, Oct. 2010")

Configuration 3: Secondary landscape mode. (Antenna to user distance > 2.5cm)
(No need SAR testing due to the distance between antenna and Primary Landscape of the device is bigger than 2.5cm referred as the meeting minutes of TCB workshop, Oct. 2010")

Configuration 4: Primary Landscape mode.

Configuration 5: Primary portrait mode. (Antenna to user distance >2.5cm)
(No need SAR testing due to the distance between antenna and Primary Landscape of the device is bigger than 2.5cm referred as the meeting minutes of TCB workshop, Oct. 2010")

Configuration 6: Front side.(Front side of EUT is paralleled with flat phantom)

- When the maximum transmitter and antenna output power are ≦ 60/f(GHz) (mW) SAR evaluation is not required for FCC or TCB approval.
  (BT power=2.33dBm, WLAN power=10.7dBm)
- Using KDB941225 D03 to exclude SAR test requirements for EDGE modes due to thesource-based time-averaged output power for edge mode is lower than that in the GPRS mode.
- Using KDB941225 D01 to exclude SAR test requirements for HSPA modes due to the maximum average output power of HSPA active is less than 1/4 dB higher than that measured without HSPA using 12.2kbps RMC

1.6 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 EX3DV4 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ ($|Ei|^2$)/ ρ where σ and ρ are the conductivity and mass density of the tissue-simulant.

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

- A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension 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.

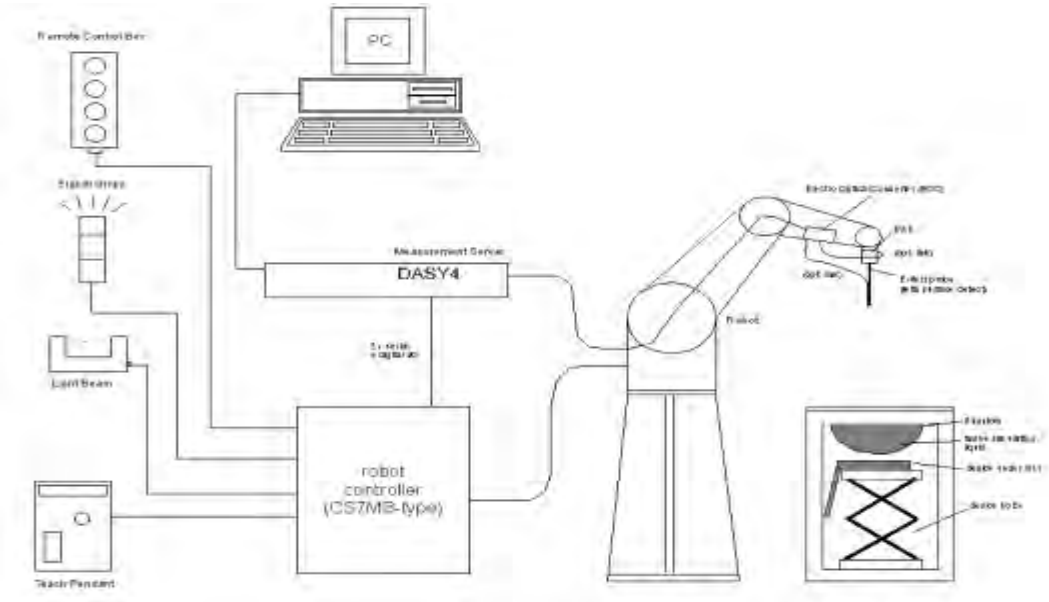


Fig.a The block diagram of SAR system

- 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.

1.7 System Components

EX3DV4/ES3DV3 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)	
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL835/1900 MHz 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: ± 0.6 dB (noise: typically < 1 µW/g)	
Dimensions	Overall length: 337 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: 810 mm; Length: 1000 mm; Width: 500 mm	

DEVICE HOLDER

Construction	The device holder (Supporter) for Notebook is made by POM (polyoxymethylene resin) , which is non-metal and non-conductive. The height can be adjusted to fit varies kind of notebooks.	 Device Holder

1.8 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 +/- 5% from the target SAR values. These tests were done at 835/1900 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 (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the ambient temperature of the laboratory was in the range 22.1°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.

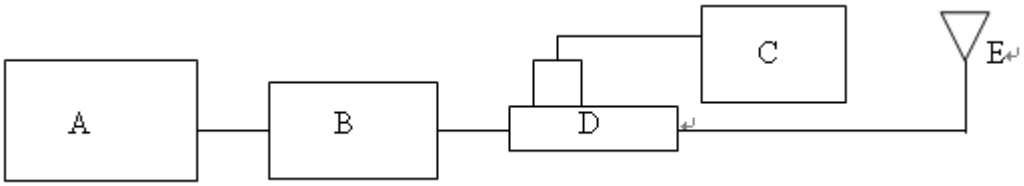
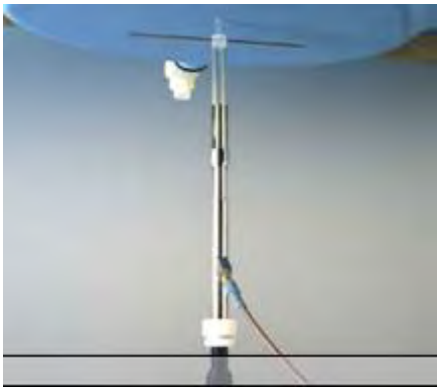


Fig.b The block diagram of system verification

A. Signal Generator
B. Amplifier
C. Power Meter
D. Dual directional coupling
E. Reference dipole antenna



Photograph of the dipole Antenna

Validation Kit	S/N	Frequency (MHz)		Target SAR (1g) (Pin=250mW) (mW/g)	Measured SAR (1g) (mW/g)	Measured Date
D835V2	4d063	835	Body	2.43	2.52	Sep. 14, 2011
D1900V2	5d027	1900	Body	9.93	9.71	Sep. 15, 2011
D835V2	4d063	835	Body	2.43	2.36	Apr. 20, 2012
D835V2	4d063	835	Body	2.43	2.34	May 04, 2012
D835V2	4d063	835	Body	2.43	2.35	May 11, 2012

Table 1. Results of system validation

1.9 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this body-simulant fluid were measured by using the Agilent Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with Network Analyzer.

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

Frequency (MHz)	Tissue type	Dielectric Parameters	Recommended Limits	Measured	Measurement date
835	Body	ρ	51.21-56.60	54.3	Sep. 14, 2011
		σ (S/m)	0.95-1.05	0.998	
		Simulated Tissue Temperature(° C)	20-24	21.7	
1900	Body	ρ	48.55-53.66	51.2	Sep. 15, 2011
		σ (S/m)	1.44-1.60	1.56	
		Simulated Tissue Temperature(° C)	20-24	21.7	
835	Body	ρ	51.21-56.60	52.3	Apr. 20, 2012
		σ (S/m)	0.95-1.05	0.97	
		Simulated Tissue Temperature(° C)	20-24	21.7	
835	Body	ρ	51.21-56.60	52.2	May 04, 2012
		σ (S/m)	0.95-1.05	0.967	
		Simulated Tissue Temperature(° C)	20-24	21.7	
835	Body	ρ	51.21-56.60	52.2	May 11, 2012
		σ (S/m)	0.95-1.05	0.965	
		Simulated Tissue Temperature(° C)	20-24	21.7	

Table 2. Dielectric Parameters of Tissue Simulant Fluid

The composition of the brain tissue simulating liquid:

Frequency (MHz)	Mode	Ingredient						Total amount
		DGMBE	Water	Salt	Preventol D-7	Cellulose	Sugar	
835	Body	—	631.68	11.72	1.2	—	600	1 L(1.0kg)
1900	Body	300.67	716.56	4.0	—	—	—	1 L(1.0kg)

Table 3. Recipes for tissue simulating liquid (Unit: g)

1.10 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.

1.11 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).

(2) 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.

(3) Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any

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

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
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

GRRS 850

Band	Mode	Test Configuration	Averaged SAR over 10g (W/kg)			SAR Limit 10g (W/kg)
			CH 128	CH 190	CH 251	
			824.20 MHz	836.60 MHz	848.80 MHz	
GSM850	GPRS Multi-class 10	Lap-held	1.47	1.44	1.67	4.0
		-with headset (PCH-ZHS1 G)	—	—	1.32	4.0
		-with 2nd headset (PCH-ZHS1 E)	—	—	1.5	4.0
		Front	0.310	0.317	0.309	4.0
		Primary Landscape	0.908	0.981	0.989	4.0

Test distance is 0mm.

Band	Mode	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
			CH 128	CH 190	CH 251	
			824.20 MHz	836.60 MHz	848.80 MHz	
GSM850	GPRS Multi-class 10	Lap-held	0.890	0.963	0.846	1.6
		-with headset (PCH-ZHS1 G)	—	0.890	—	1.6
		-with 2nd headset (PCH-ZHS1 E)	—	0.891	—	1.6
		Front	0.205	0.206	0.201	1.6
		Primary Landscape	0.362	0.380	0.361	1.6

Test distance is 10mm.

Using KDB941225 D03 to exclude SAR test requirements for EDGE modes due to the source-based time-averaged output power for edge mode is lower than that in the GPRS mode.

GPRS 1900

Band	Mode	Test Configuration	Averaged SAR over 10g (W/kg)			SAR Limit 10g (W/kg)
			CH 512	CH 661	CH810	
			1850.2 MHz	1880 MHz	1909.8 MHz	
GPRS1900	GPRS Multi-class 10	Lap-held	0.919	0.890	0.948	4.0
		Front	0.216	0.230	0.258	4.0
		Primary Landscape	1.28	1.35	1.37	4.0

Test distance is 0mm.

Band	Mode	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
			CH 512	CH 661	CH810	
			1850.2 MHz	1880 MHz	1909.8 MHz	
GPRS1900	GPRS Multi-class 10	Lap-held	0.508	0.506	0.490	1.6
		Front	0.130	0.136	0.146	1.6
		Primary Landscape	0.371	0.393	0.436	1.6

Test distance is 10mm.

Using KDB941225 D03 to exclude SAR test requirements for EDGE modes due to thesource-based time-averaged output power for edge mode is lower than that in the GPRS mode.

WCDMA Band II

Band	Mode	Test Configuration	Averaged SAR over 10g (W/kg)			SAR Limit 10g (W/kg)
			CH 9262	CH 9400	CH 9538	
			1852.4 MHz	1880 MHz	1907.6 MHz	
WCDMA Band II	R99	Lap-held	1.15	1.28	1.09	4.0
		Front	0.361	0.359	0.324	4.0
		Primary Landscape	1.27	1.32	1.25	4.0

Test distance is 0mm.

Band	Mode	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
			CH 9262	CH 9400	CH 9538	
			1852.4 MHz	1880 MHz	1907.6 MHz	
WCDMA Band II	R99	Lap-held	0.615	0.555	0.556	1.6
		Front	0.145	0.151	0.176	1.6
		Primary Landscape	0.440	0.478	0.548	1.6

Test distance is 10mm.

Using KDB941225 D03 to exclude SAR test requirements for EDGE modes due to the source-based time-averaged output power for edge mode is lower than that in the GPRS mode.

WCDMA Band V

Band	Mode	Test Configuration	Averaged SAR over 10g (W/kg)			SAR Limit 10g (W/kg)
			CH 4132	CH 4183	CH 4233	
			826.4 MHz	836.6 MHz	846.6 MHz	
WCDMA Band V	R99	Lap-held	1.58	1.13	1.41	4.0
		Front	0.267	0.348	0.299	4.0
		Primary Landscape	0.795	0.719	0.760	4.0

Test distance is 0mm.

Band	Mode	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
			CH 4132	CH 4183	CH 4233	
			826.4 MHz	836.6 MHz	846.6 MHz	
WCDMA Band V	R99	Lap-held	0.748	0.916	0.821	1.6
		Front	0.189	0.247	0.210	1.6
		Primary Landscape	0.271	0.329	0.282	1.6

Test distance is 10mm.

Using KDB941225 D01 to exclude SAR test requirements for HSPA modes due to the maximum average output power of HSPA active is less than 1/4 dB higher than that measured without HSPA using 12.2kbps RMC

3. Instruments List

Manufacturer	Device	Type	Serial number	Last Cal.	Cal DUE.
Schmid & Partner Engineering AG	Dosimetric E-Field Probe	EX3DV4	3703 3831	Aug.25.2011 Jan. 04.2012	Aug.24.2012 Jan.03.2013
		ES3DV3	3172	Aug.23.2011	Aug.22.2012
Schmid & Partner Engineering AG	850/1900 MHz System Validation Dipole	D835V2 D1900V2	4d063 5d027	May.25.2011 Apr.19.2011	May 24.2012 Apr.18.2012
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	679 547 1260	Jun.24.2011 Aug.29.2011 Aug.22.2011	Jun.23.2012 Aug.28.2012 Aug.21.2012
Schmid & Partner Engineering AG	Software	DASY 4 V4.7 Build 80	N/A	Calibration not required	Calibration not required
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration not required	Calibration not required
HP	Network Analyzer	8753D	3410A05547	Mar.16.2011 Mar.15.2012	Mar.15.2012 Mar.16.2013
HP	Dielectric Probe Kit	85070D	US01440168	Calibration not required	Calibration not required
Agilent	Dual-directional coupler	778D	50313	Aug.19.2011	Aug.18.2012
Agilent	RF Signal Generator	8648D	3847M00432	Jun.01.2011	May 31.2012
Agilent	Power Sensor	U2001B	MY48100169	Apr.30.2011	Apr.29.2012
Agilent	Power meter	E4417A	MY51410006	Oct.24.2011	Oct.23.2012
R&S	Radio Communication Test	CMU200	113505	May 31.2011	May 30.2012

4. Measurements

Date: 2012/4/20

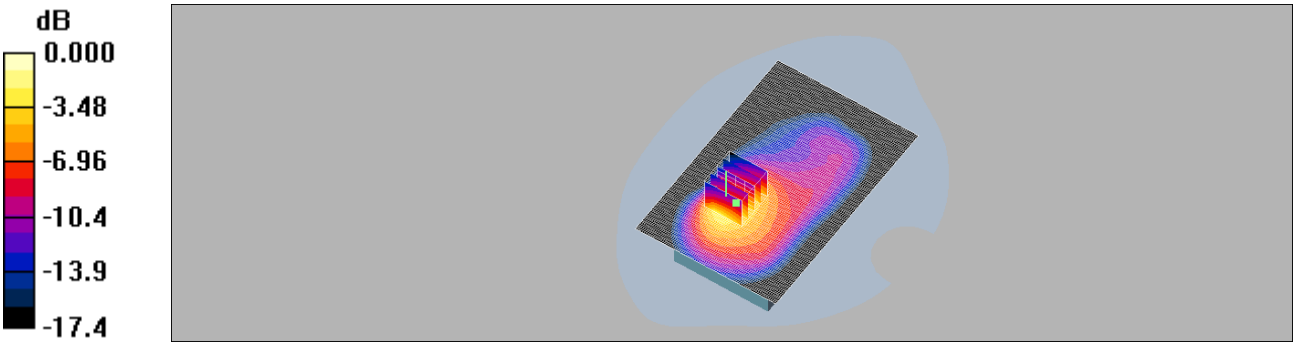
Lap-held_GPRS 850_CH128_0mm

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.959 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.73 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.9 V/m; Power Drift = 0.049 dB
Peak SAR (extrapolated) = 6.70 W/kg
SAR(1 g) = 2.85 mW/g; SAR(10 g) = 1.47 mW/g
Maximum value of SAR (measured) = 3.31 mW/g



0 dB = 3.31mW/g

Date: 2012/4/20

Lap-held_GPRS 850_CH190_0mm

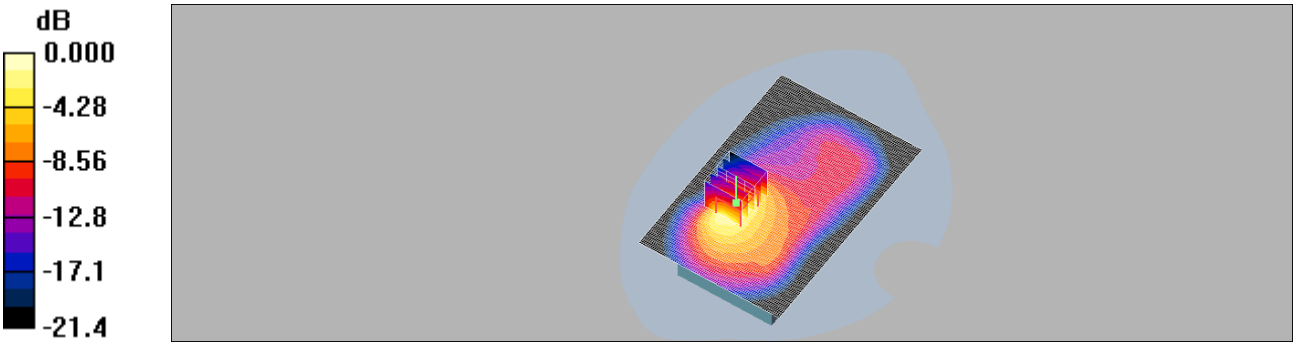
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 0.972 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.22 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.7 V/m; Power Drift = -0.116 dB
Peak SAR (extrapolated) = 6.79 W/kg
SAR(1 g) = 2.84 mW/g; SAR(10 g) = 1.44 mW/g
Maximum value of SAR (measured) = 3.64 mW/g



0 dB = 3.64mW/g

Date: 2012/4/20

Lap-held_GPRS 850_CH251_0mm

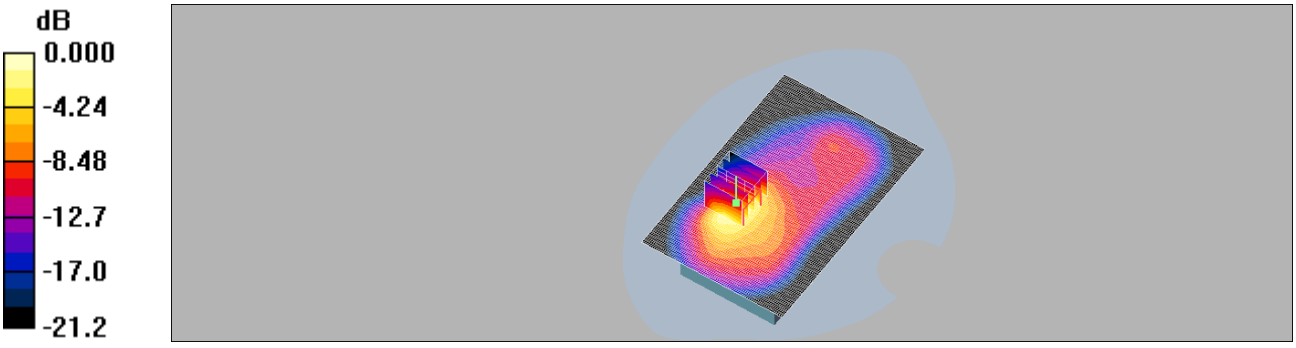
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 849 MHz; σ = 0.984 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.65 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.5 V/m; Power Drift = 0.162 dB
Peak SAR (extrapolated) = 7.91 W/kg
SAR(1 g) = 3.3 mW/g; SAR(10 g) = 1.67 mW/g
Maximum value of SAR (measured) = 4.08 mW/g



0 dB = 4.08mW/g

Lap-held_GPRS850_CH251_0mm_repeated with headset (PCH-ZHS1 G)

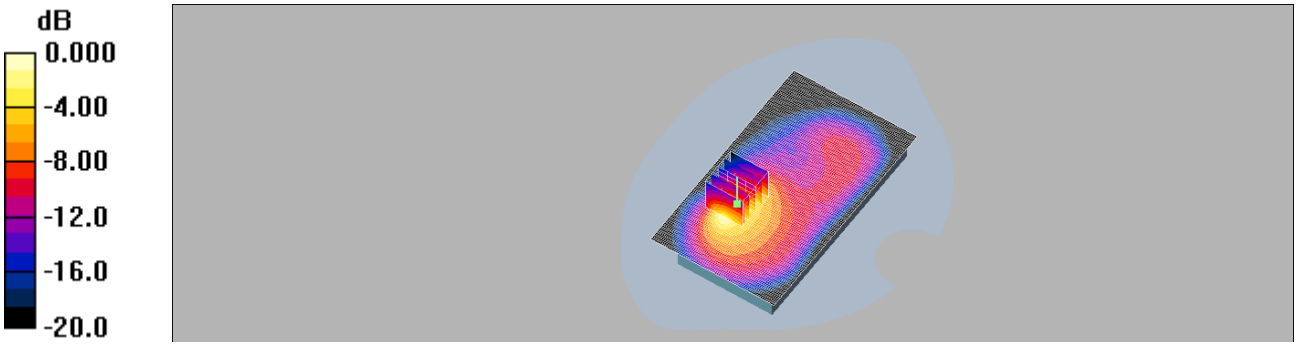
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 849 MHz; σ = 0.983 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.79 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.1 V/m; Power Drift = -0.154 dB
Peak SAR (extrapolated) = 5.35 W/kg
SAR(1 g) = 2.54 mW/g; SAR(10 g) = 1.32 mW/g
Maximum value of SAR (measured) = 3.98 mW/g



0 dB = 3.98mW/g

Lap-held_GPRS850_CH251_0mm_repeated with headset (PCH-ZHS1 E)

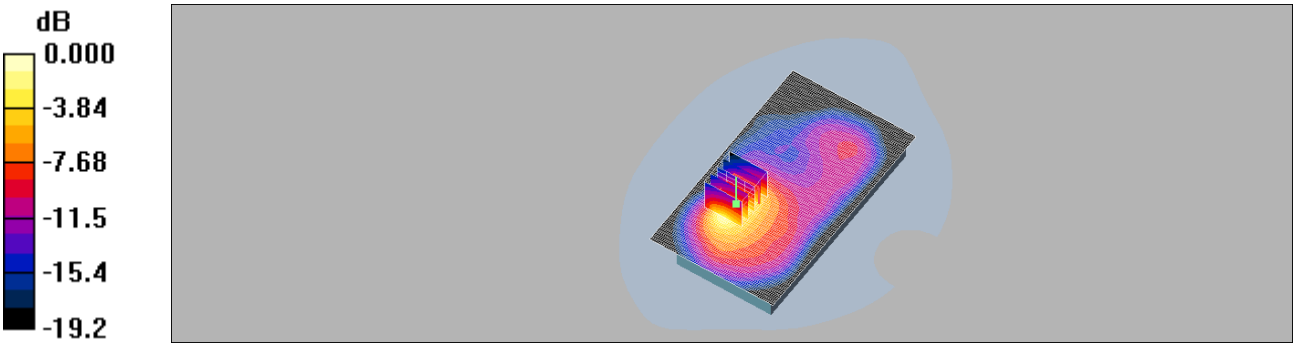
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 849 MHz; σ = 0.985 mho/m; ε_r = 51.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 5.42 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.7 V/m; Power Drift = 0.127 dB
Peak SAR (extrapolated) = 5.70 W/kg
SAR(1 g) = 2.84 mW/g; SAR(10 g) = 1.5 mW/g
Maximum value of SAR (measured) = 4.37 mW/g



0 dB = 4.37mW/g

Lap-held_GPRS 850_CH128_10mm

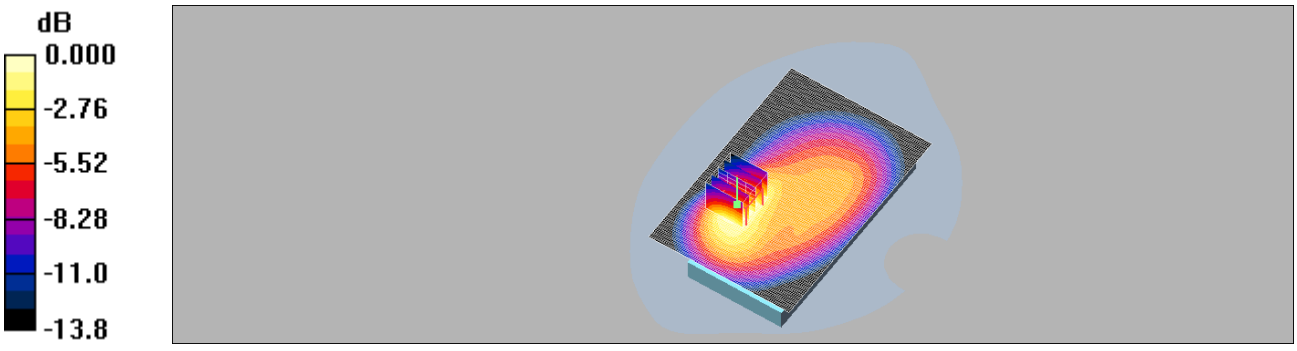
Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.959 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.12 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.6 V/m; Power Drift = -0.113 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.890 mW/g; SAR(10 g) = 0.576 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.09mW/g

Date: 2012/4/20

Lap-held_GPRS 850_CH190_10mm

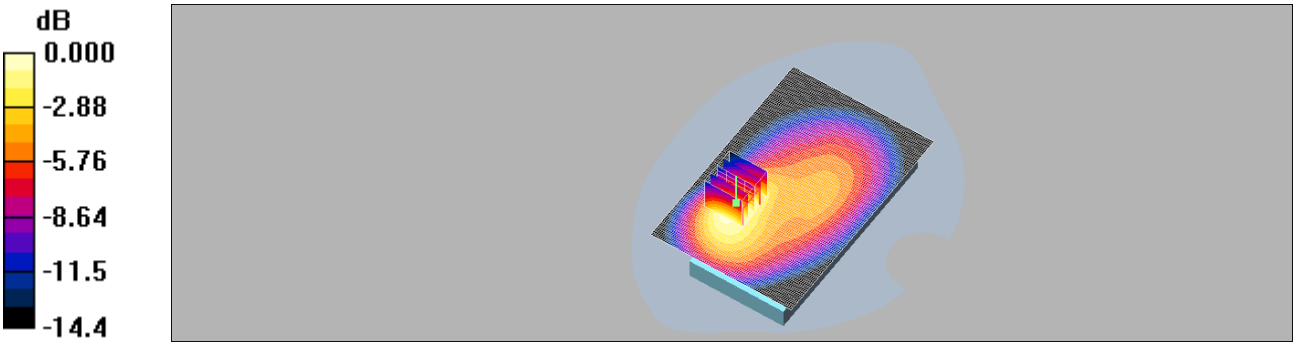
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 0.972 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

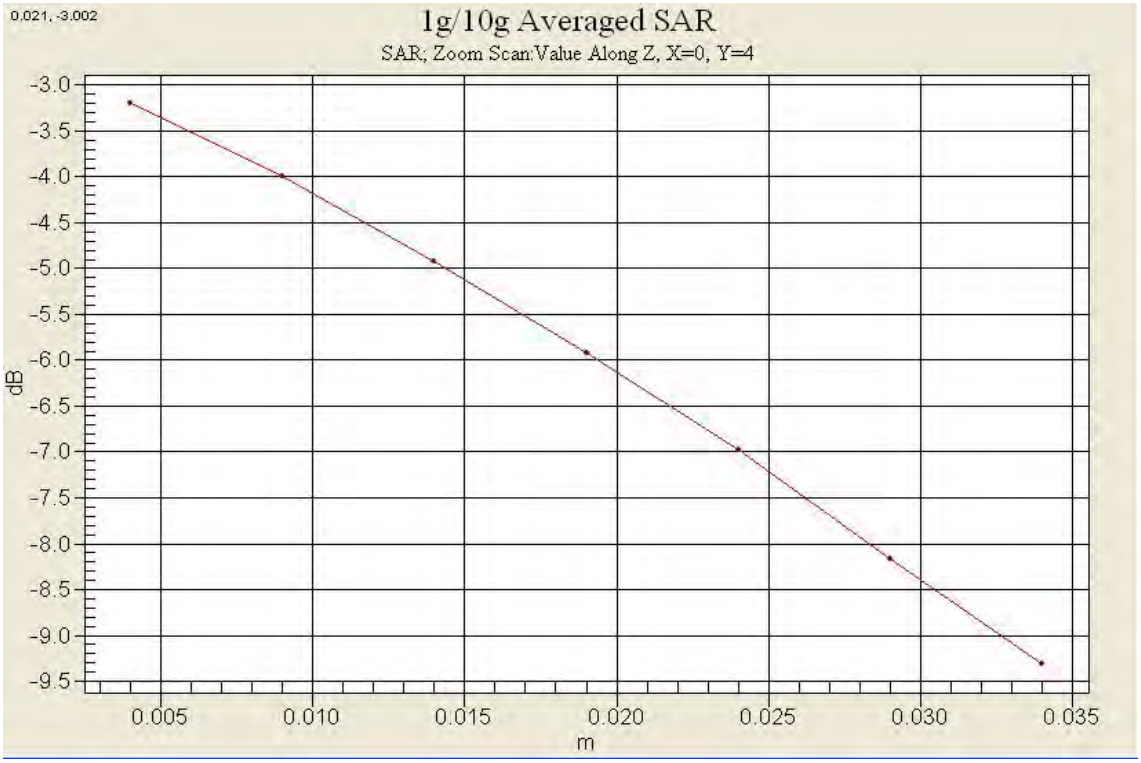
- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.14 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.9 V/m; Power Drift = 0.128 dB
Peak SAR (extrapolated) = 1.51 W/kg
SAR(1 g) = 0.963 mW/g; SAR(10 g) = 0.617 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.09mW/g



Lap-held_GPRS 850_CH251_10mm

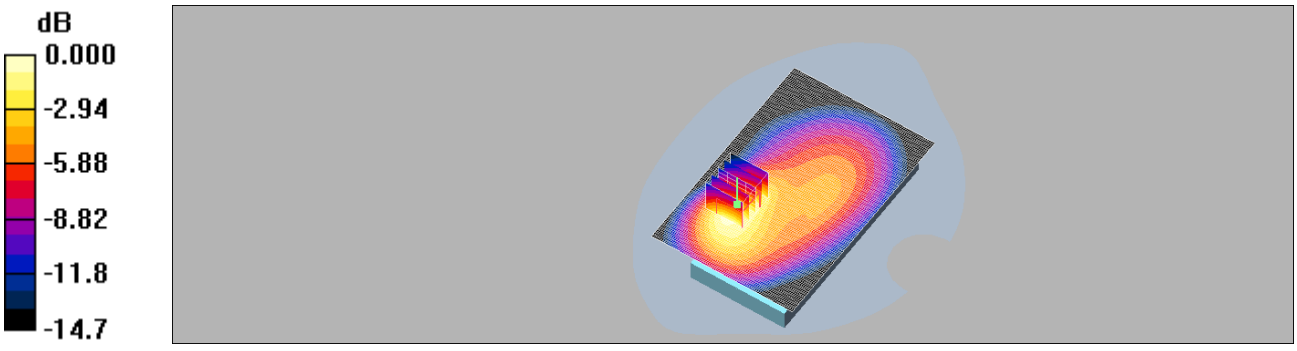
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 849 MHz; σ = 0.984 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.01 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.1 V/m; Power Drift = -0.096 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.846 mW/g; SAR(10 g) = 0.545 mW/g
Maximum value of SAR (measured) = 0.961 mW/g



0 dB = 0.961mW/g

Lap-held_GPRS850_CH190_10mm_repeated with headset (PCH-ZHS1 G)

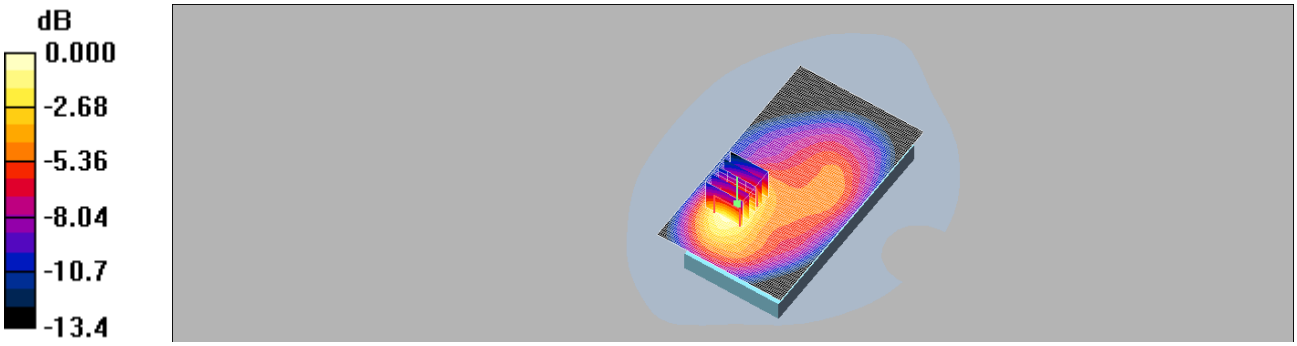
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 0.969 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.19 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.2 V/m; Power Drift = 0.164 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.890 mW/g; SAR(10 g) = 0.577 mW/g
Maximum value of SAR (measured) = 1.15 mW/g



0 dB =1.15mW/g

Lap-held_GPRS850_CH190_10mm_repeated with headset (PCH-ZHS1 E)

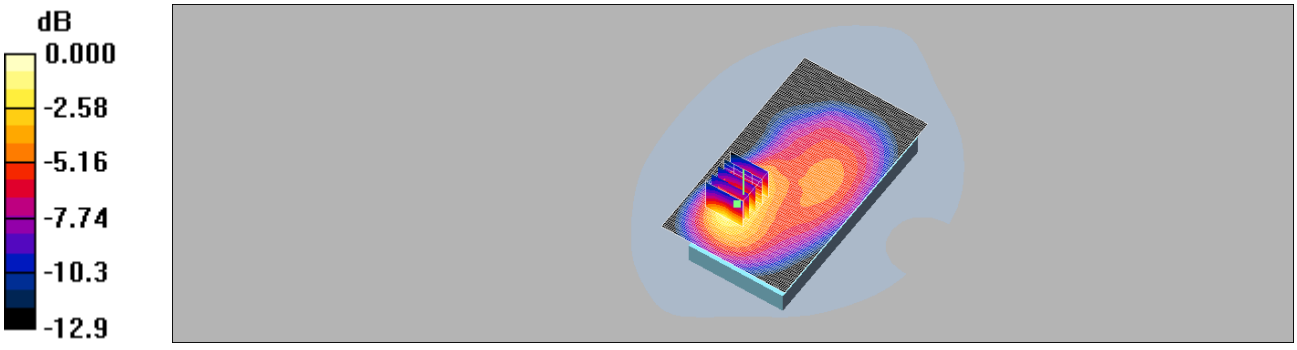
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 0.972 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.12 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.7 V/m; Power Drift = 0.176 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.891 mW/g; SAR(10 g) = 0.559 mW/g
Maximum value of SAR (measured) = 1.14 mW/g



0 dB = 1.14mW/g

Date: 2012/4/20

Front side_GPRS 850_CH128_0mm

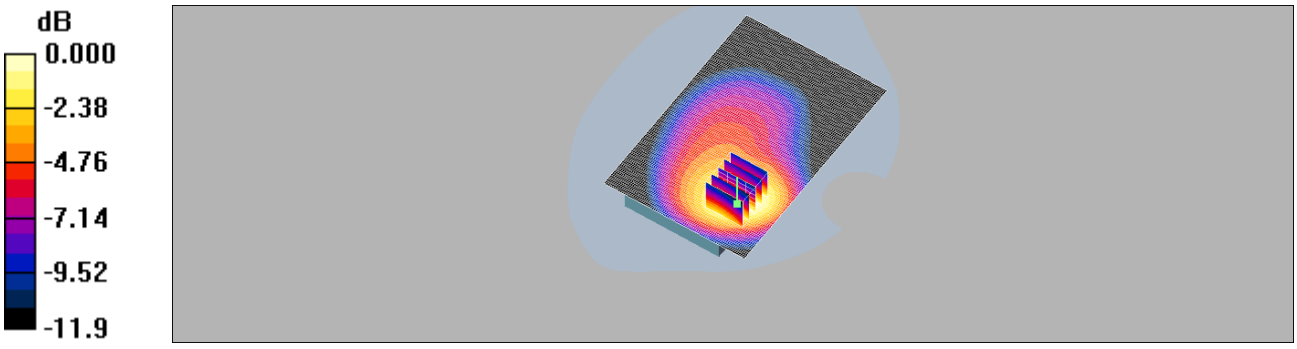
Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.959 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.551 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.067 dB
Peak SAR (extrapolated) = 0.735 W/kg
SAR(1 g) = 0.475 mW/g; SAR(10 g) = 0.310 mW/g
Maximum value of SAR (measured) = 0.533 mW/g



0 dB = 0.533mW/g

Date: 2012/4/20

Front side_GPRS 850_CH190_0mm

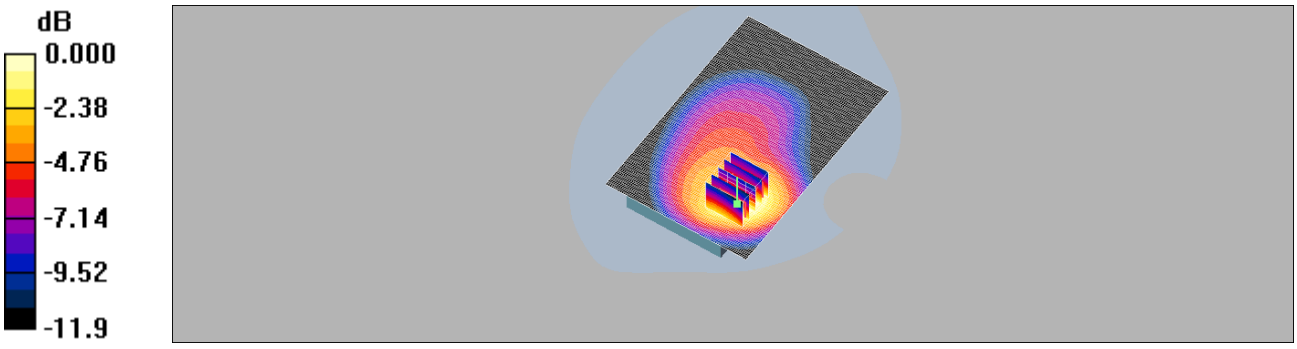
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 0.972 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.557 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = 0.182 dB
Peak SAR (extrapolated) = 0.777 W/kg
SAR(1 g) = 0.489 mW/g; SAR(10 g) = 0.317 mW/g
Maximum value of SAR (measured) = 0.544 mW/g



0 dB = 0.544mW/g

Date: 2012/4/20

Front side_GPRS 850_CH251_0mm

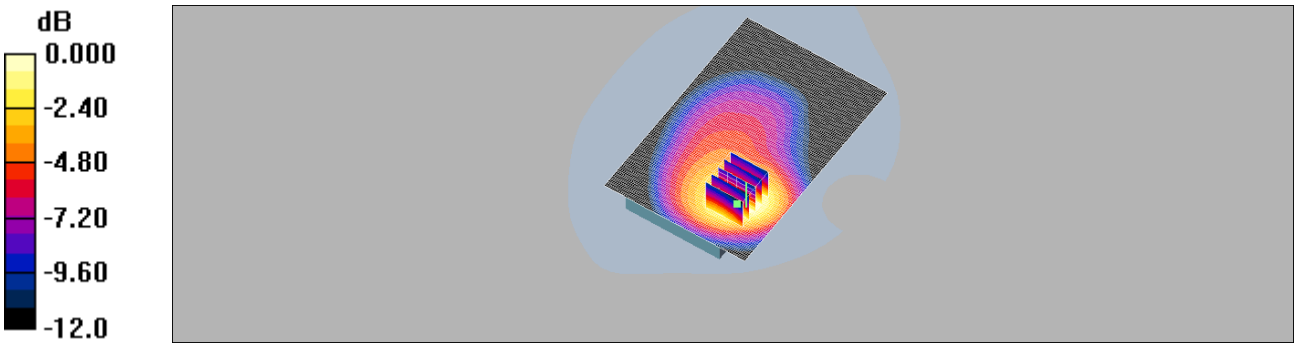
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 849 MHz; σ = 0.984 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.538 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.3 V/m; Power Drift = -0.012 dB
Peak SAR (extrapolated) = 0.754 W/kg
SAR(1 g) = 0.478 mW/g; SAR(10 g) = 0.309 mW/g
Maximum value of SAR (measured) = 0.532 mW/g



0 dB = 0.532mW/g

Front side_GPRS 850_CH128_10mm

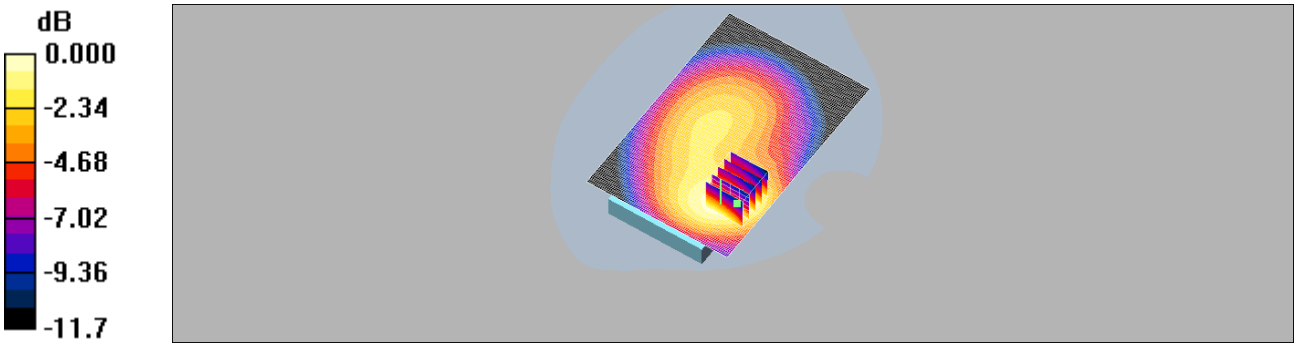
Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.959 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.223 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = -0.107 dB
Peak SAR (extrapolated) = 0.286 W/kg
SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.143 mW/g
Maximum value of SAR (measured) = 0.224 mW/g



0 dB = 0.224mW/g

Date: 2012/4/20

Front side_GPRS 850_CH190_10mm

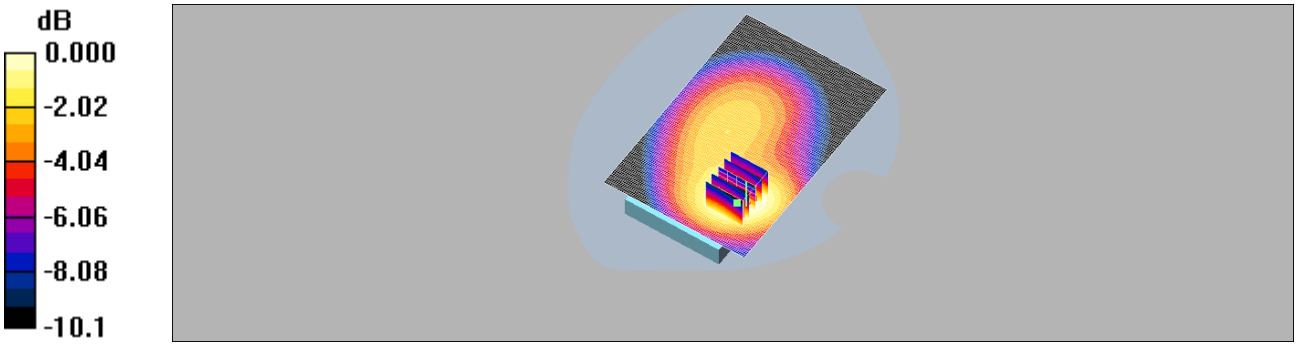
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 0.972 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.238 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.9 V/m; Power Drift = -0.083 dB
Peak SAR (extrapolated) = 0.288 W/kg
SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.147 mW/g
Maximum value of SAR (measured) = 0.229 mW/g



0 dB = 0.229mW/g

Date: 2012/4/20

Front side_GPRS 850_CH251_10mm

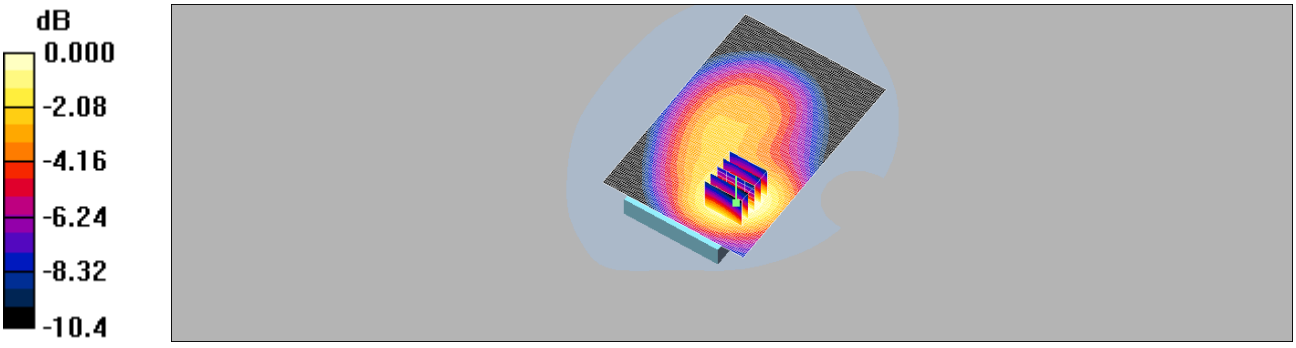
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 849 MHz; σ = 0.984 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.227 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.2 V/m; Power Drift = -0.189 dB
Peak SAR (extrapolated) = 0.283 W/kg
SAR(1 g) = 0.201 mW/g; SAR(10 g) = 0.140 mW/g
Maximum value of SAR (measured) = 0.224 mW/g



0 dB = 0.224mW/g

Primary Landscape_GPRS 850_CH128_0mm

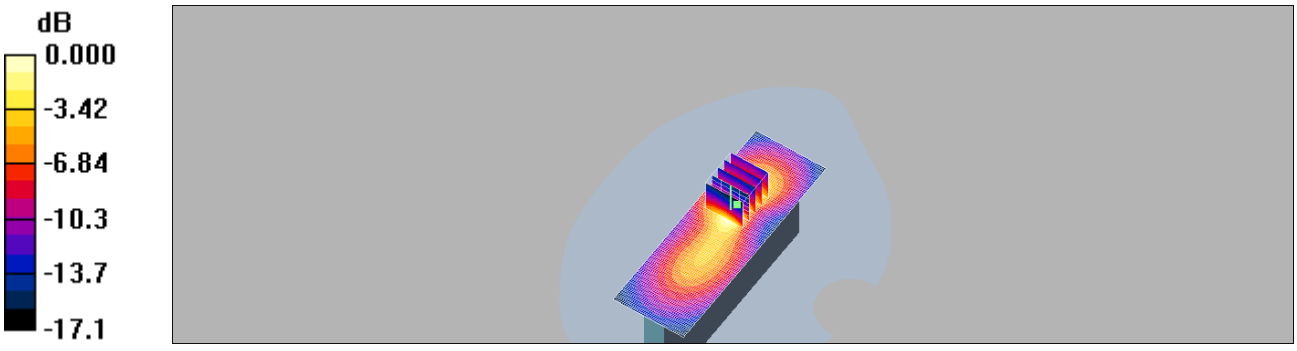
Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.959 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.52 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.4 V/m; Power Drift = -0.144 dB
Peak SAR (extrapolated) = 4.93 W/kg
SAR(1 g) = 1.81 mW/g; SAR(10 g) = 0.908 mW/g
Maximum value of SAR (measured) = 2.14 mW/g



0 dB = 2.14mW/g

Date: 2012/4/20

Primary Landscape_GPRS 850_CH190_0mm

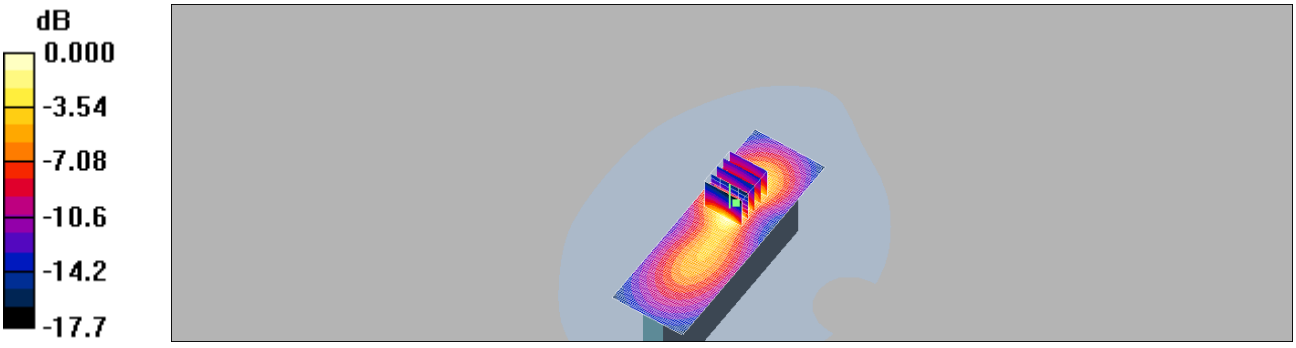
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 0.972 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.69 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.6 V/m; Power Drift = 0.008 dB
Peak SAR (extrapolated) = 5.60 W/kg
SAR(1 g) = 1.99 mW/g; SAR(10 g) = 0.981 mW/g
Maximum value of SAR (measured) = 2.34 mW/g



0 dB = 2.34mW/g

Date: 2012/4/20

Primary Landscape_GPRS 850_CH251_0mm

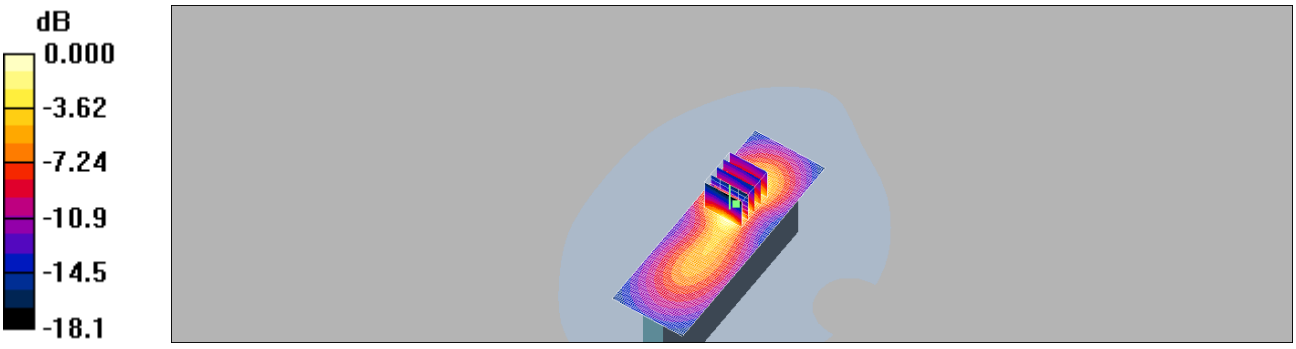
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 849 MHz; σ = 0.984 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1270
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.73 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.4 V/m; Power Drift = -0.123 dB
Peak SAR (extrapolated) = 5.95 W/kg
SAR(1 g) = 2.05 mW/g; SAR(10 g) = 0.989 mW/g
Maximum value of SAR (measured) = 2.42 mW/g



0 dB = 2.42mW/g

Primary Landscape_GPRS 850_CH128_10mm

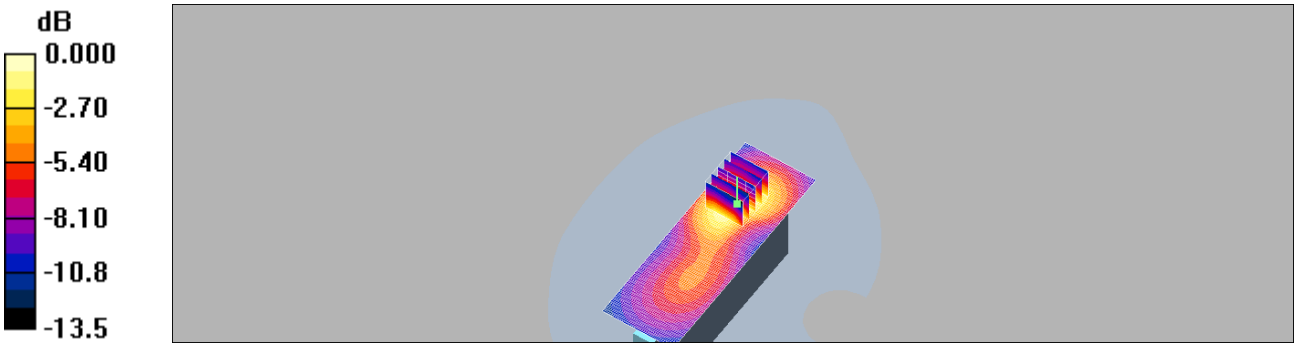
Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.959 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.397 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.2 V/m; Power Drift = 0.172 dB
Peak SAR (extrapolated) = 0.583 W/kg
SAR(1 g) = 0.362 mW/g; SAR(10 g) = 0.222 mW/g
Maximum value of SAR (measured) = 0.418 mW/g



0 dB = 0.418mW/g

Date: 2012/4/20

Primary Landscape_GPRS 850_CH190_10mm

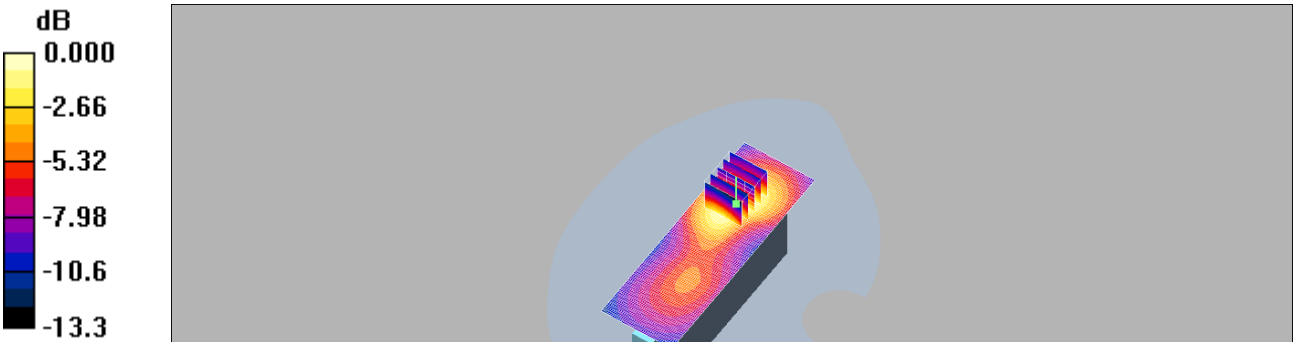
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 0.972 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.454 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.2 V/m; Power Drift = 0.042 dB
Peak SAR (extrapolated) = 0.611 W/kg
SAR(1 g) = 0.380 mW/g; SAR(10 g) = 0.236 mW/g
Maximum value of SAR (measured) = 0.438 mW/g



0 dB = 0.438mW/g

Date: 2012/4/20

Primary Landscape_GPRS 850_CH251_10mm

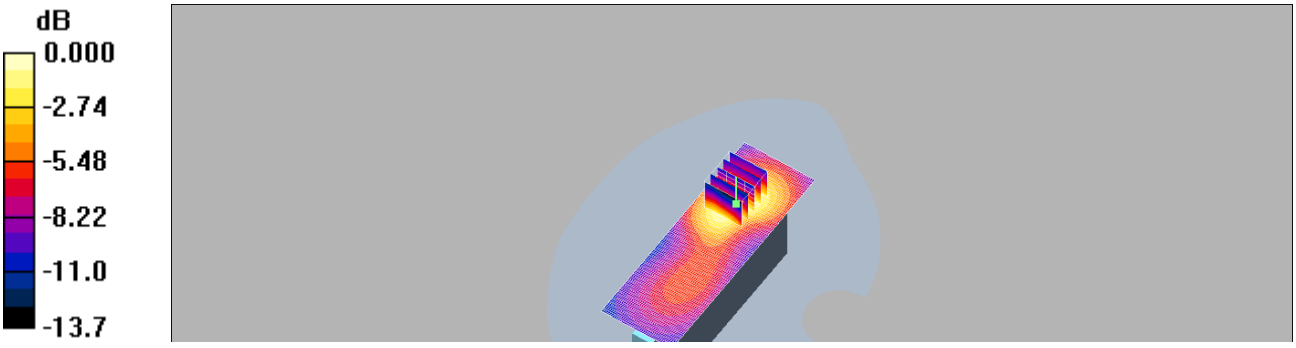
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:4.1
Medium: Muscle 900 MHz Medium parameters used: f = 849 MHz; σ = 0.984 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.418 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.5 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 0.594 W/kg
SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.221 mW/g
Maximum value of SAR (measured) = 0.419 mW/g



0 dB = 0.419mW/g

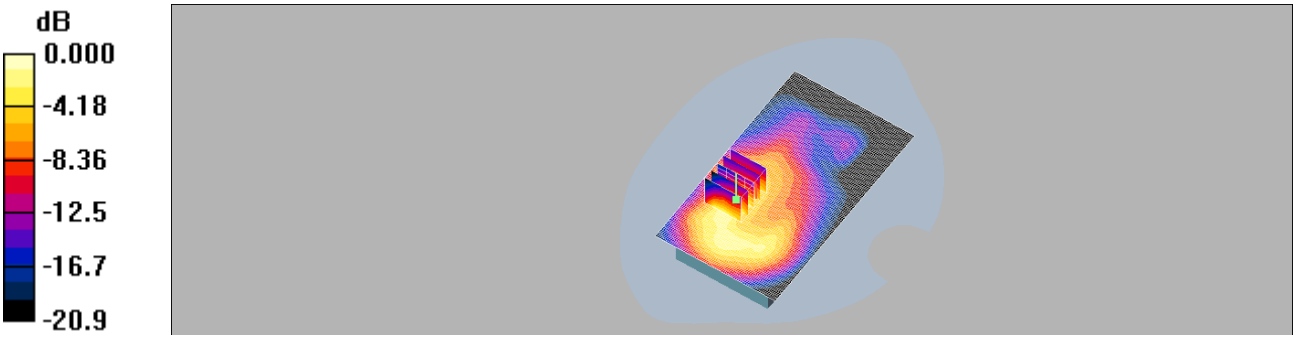
Lap-held_GPRS1900_CH512_0mm

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.52 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.13 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.6 V/m; Power Drift = 0.015 dB
Peak SAR (extrapolated) = 3.61 W/kg
SAR(1 g) = 1.84 mW/g; SAR(10 g) = 0.919 mW/g
Maximum value of SAR (measured) = 2.11 mW/g



0 dB = 2.11mW/g

Date: 2011/9/15

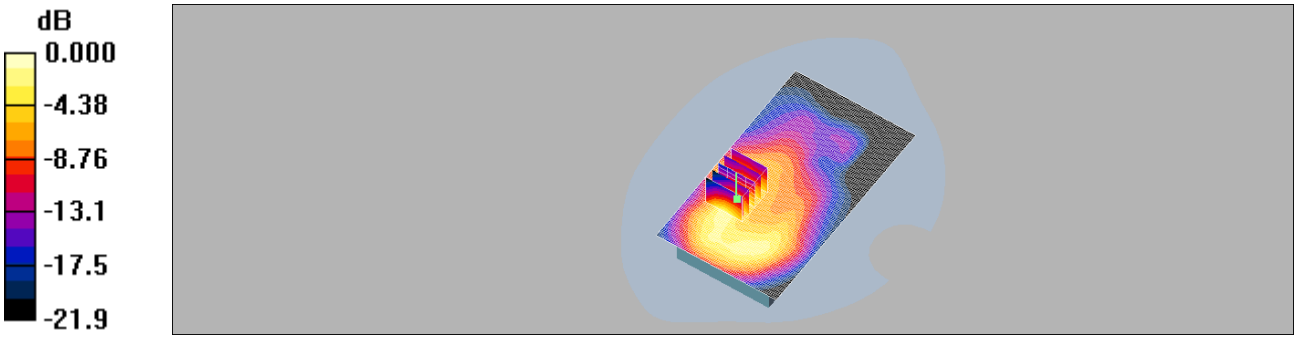
Lap-held_GPRS1900_CH661_0mm

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.03 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.6 V/m; Power Drift = 0.174 dB
Peak SAR (extrapolated) = 3.40 W/kg
SAR(1 g) = 1.76 mW/g; SAR(10 g) = 0.890 mW/g
Maximum value of SAR (measured) = 2.07 mW/g



0 dB = 2.07mW/g

Date: 2011/9/15

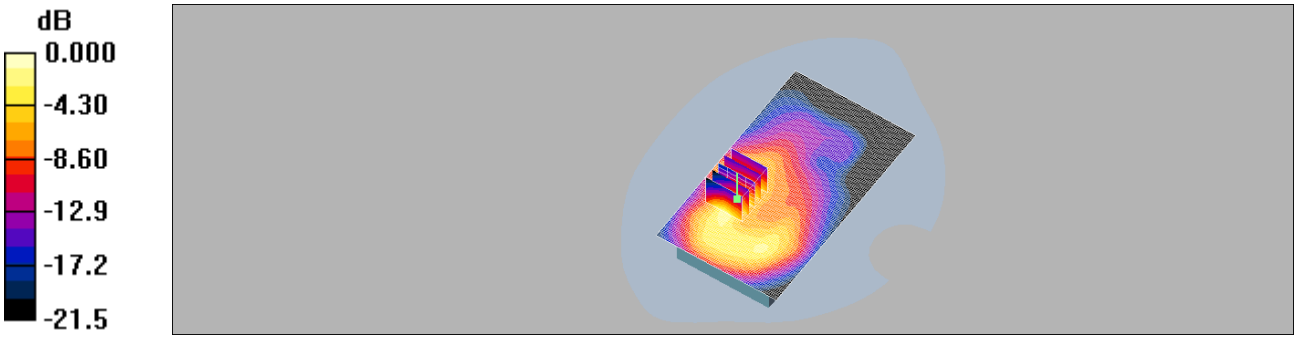
Lap-held_GPRS1900_CH810_0mm

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used: f = 1910 MHz; σ = 1.58 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.03 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.2 V/m; Power Drift = -0.047 dB
Peak SAR (extrapolated) = 3.78 W/kg
SAR(1 g) = 1.93 mW/g; SAR(10 g) = 0.948 mW/g
Maximum value of SAR (measured) = 2.25 mW/g



0 dB = 2.25mW/g

Date: 2011/9/15

Lap-held_GPRS1900_CH512_10mm

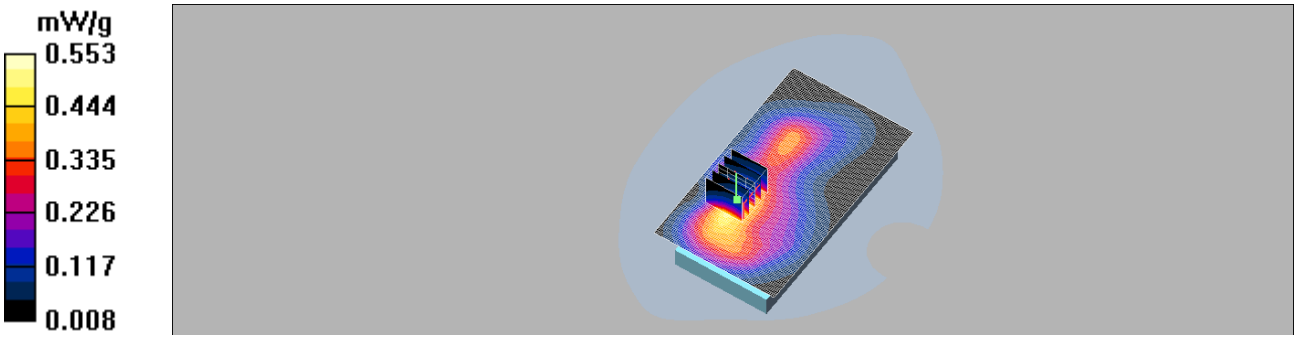
Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.52 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.572 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.6 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 0.812 W/kg
SAR(1 g) = 0.508 mW/g; SAR(10 g) = 0.314 mW/g
Maximum value of SAR (measured) = 0.553 mW/g



Date: 2011/9/15

Lap-held_GPRS1900_CH661_10mm

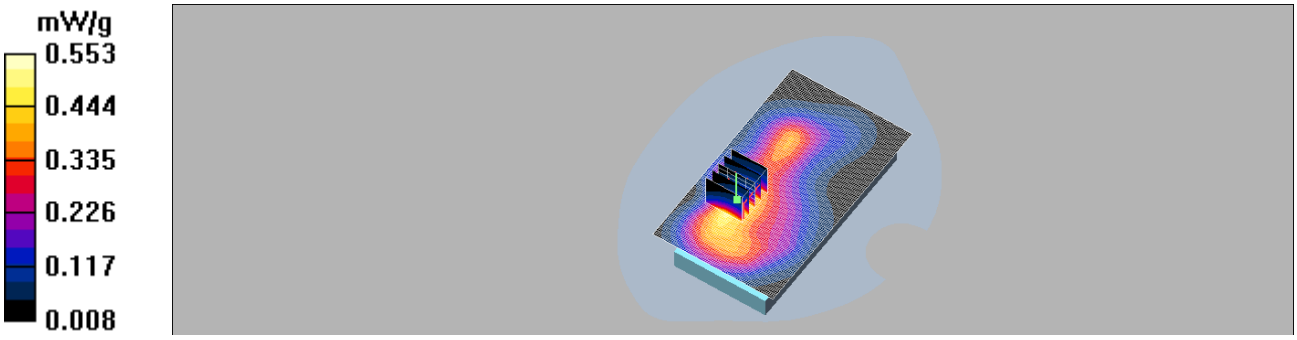
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.54mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.575 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.9 V/m; Power Drift = 0.002 dB
Peak SAR (extrapolated) = 0.819 W/kg
SAR(1 g) = 0.506 mW/g; SAR(10 g) = 0.311 mW/g
Maximum value of SAR (measured) = 0.553 mW/g



Date: 2011/9/15

Lap-held_GPRS1900_CH810_10mm

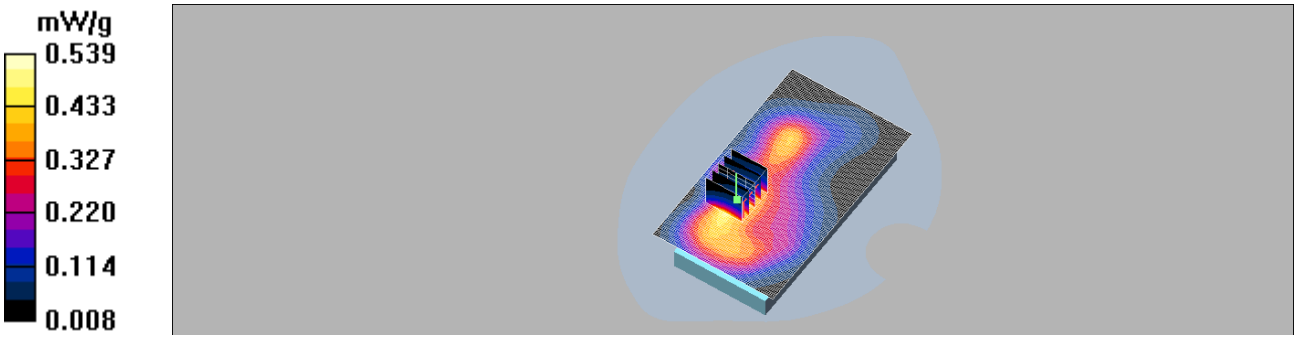
Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used: f = 1910 MHz; σ = 1.58 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.556 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = -0.171 dB
Peak SAR (extrapolated) = 0.808 W/kg
SAR(1 g) = 0.490 mW/g; SAR(10 g) = 0.296 mW/g
Maximum value of SAR (measured) = 0.539 mW/g



Date: 2011/9/15

Front side_GPRS1900_CH512_0mm

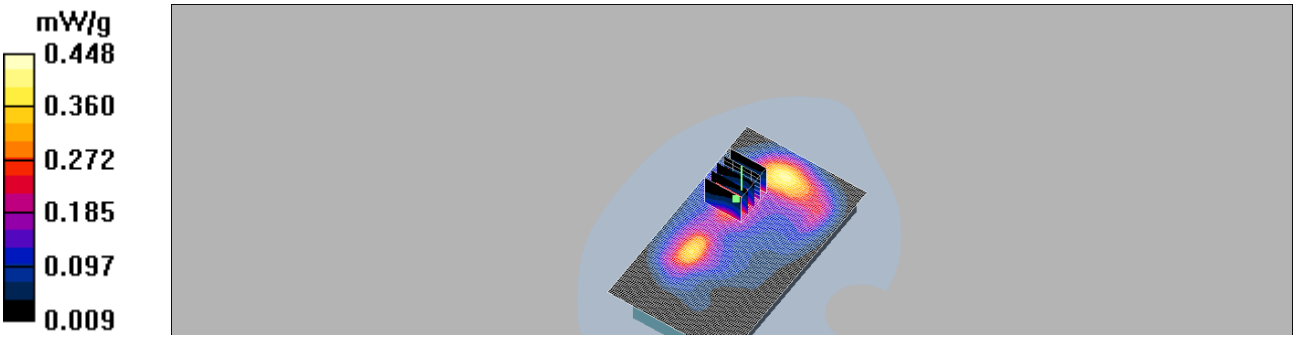
Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.52 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.515 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.28 V/m; Power Drift = 0.060 dB
Peak SAR (extrapolated) = 0.726 W/kg
SAR(1 g) = 0.395 mW/g; SAR(10 g) = 0.216 mW/g
Maximum value of SAR (measured) = 0.448 mW/g



Date: 2011/9/15

Front side_GPRS1900_CH661_0mm

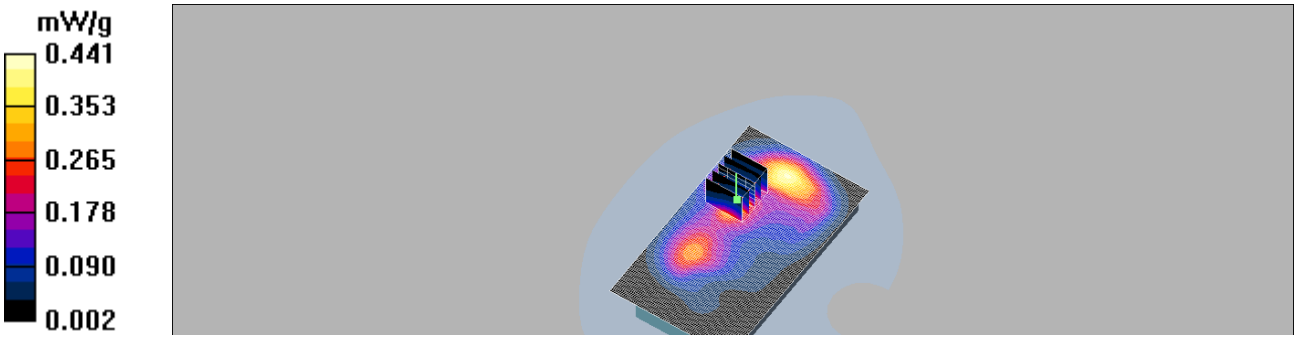
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.441 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.48 V/m; Power Drift = 0.062 dB
Peak SAR (extrapolated) = 0.702 W/kg
SAR(1 g) = 0.403 mW/g; SAR(10 g) = 0.230 mW/g
Maximum value of SAR (measured) = 0.441 mW/g



Date: 2011/9/15

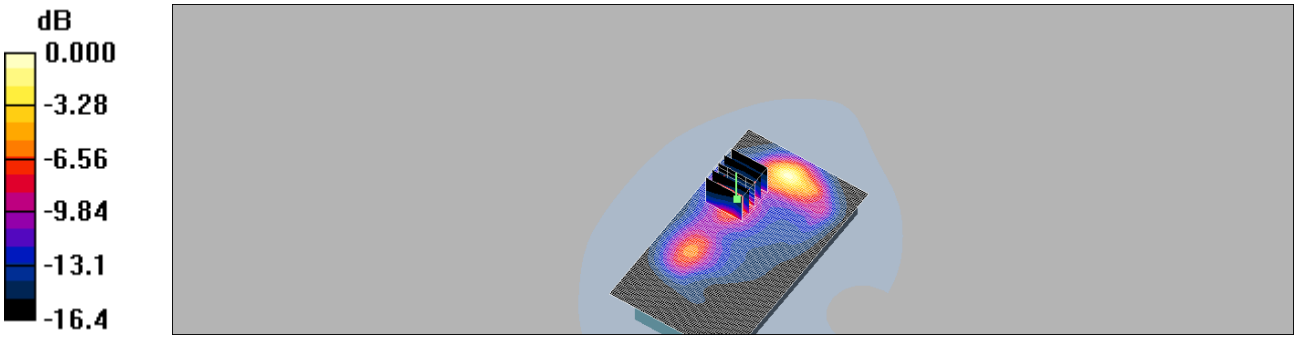
Front side_GPRS1900_CH810_0mm

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used: f = 1910 MHz; σ = 1.58 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.498 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.90 V/m; Power Drift = -0.169 dB
Peak SAR (extrapolated) = 0.852 W/kg
SAR(1 g) = 0.465 mW/g; SAR(10 g) = 0.258 mW/g
Maximum value of SAR (measured) = 0.513 mW/g



0 dB = 0.513mW/g

Date: 2011/9/15

Front side_GPRS1900_CH512_10mm

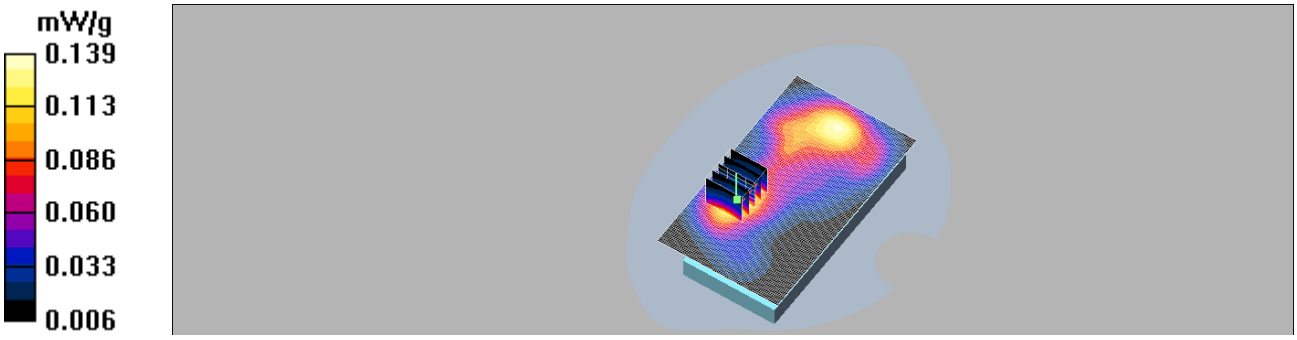
Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.52 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.143 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.05 V/m; Power Drift = 0.134 dB
Peak SAR (extrapolated) = 0.197 W/kg
SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.083 mW/g
Maximum value of SAR (measured) = 0.139 mW/g



Date: 2011/9/15

Front side_GPRS1900_CH661_10mm

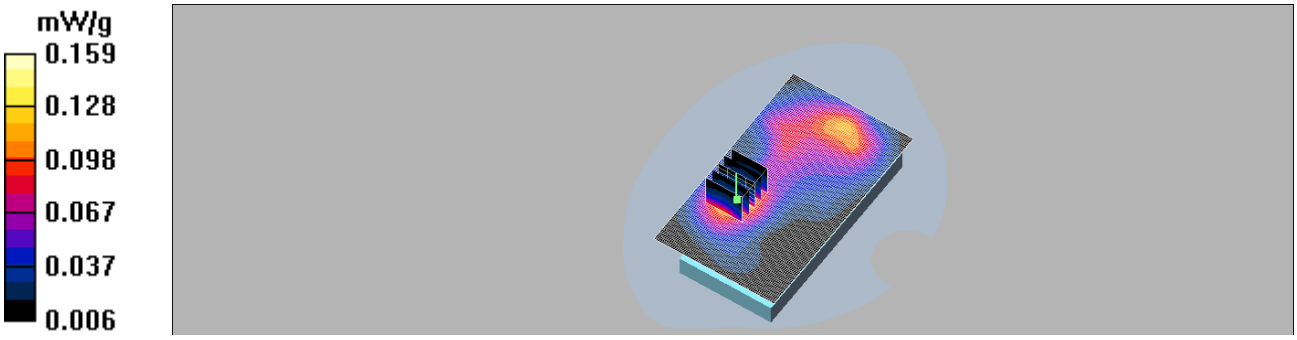
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.126 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.15 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.217 W/kg
SAR(1 g) = 0.136 mW/g; SAR(10 g) = 0.079 mW/g
Maximum value of SAR (measured) = 0.159 mW/g



Date: 2011/9/15

Front side_GPRS1900_CH810_10mm

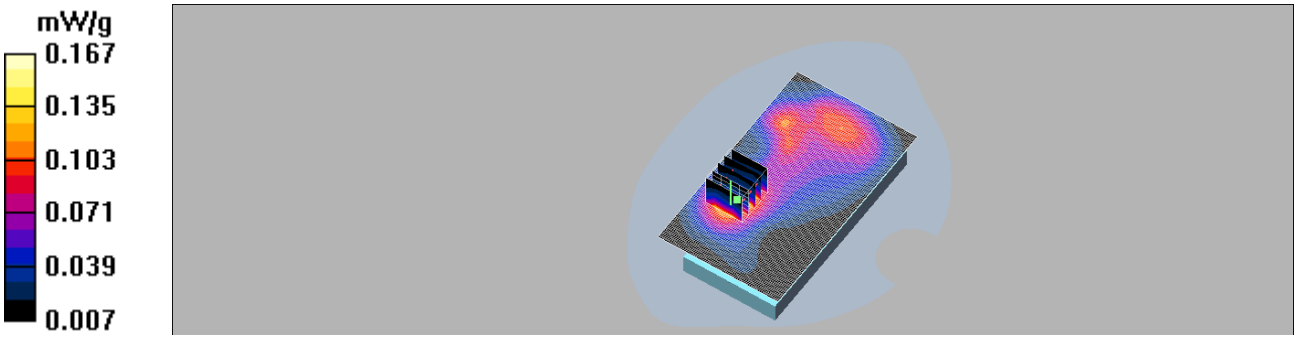
Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used: f = 1910 MHz; σ = 1.58 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.143 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.75 V/m; Power Drift = -0.127 dB
Peak SAR (extrapolated) = 0.254 W/kg
SAR(1 g) = 0.146 mW/g; SAR(10 g) = 0.090 mW/g
Maximum value of SAR (measured) = 0.167 mW/g



Date: 2011/9/15

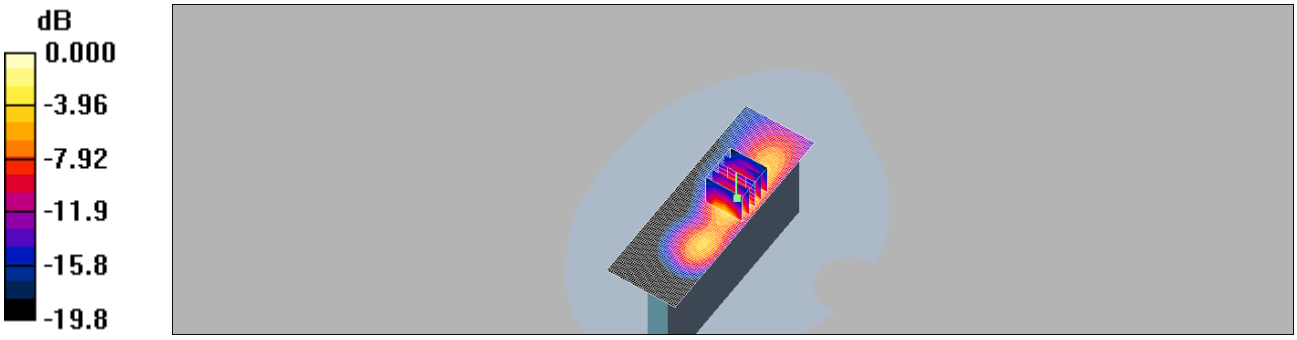
Primary Landscape_GPRS1900_CH512_0mm

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.52 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.52 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.3 V/m; Power Drift = 0.051 dB
Peak SAR (extrapolated) = 4.95 W/kg
SAR(1 g) = 2.72 mW/g; SAR(10 g) = 1.28 mW/g
Maximum value of SAR (measured) = 3.23 mW/g



0 dB = 3.23mW/g

Primary Landscape_GPRS1900_CH661_0mm

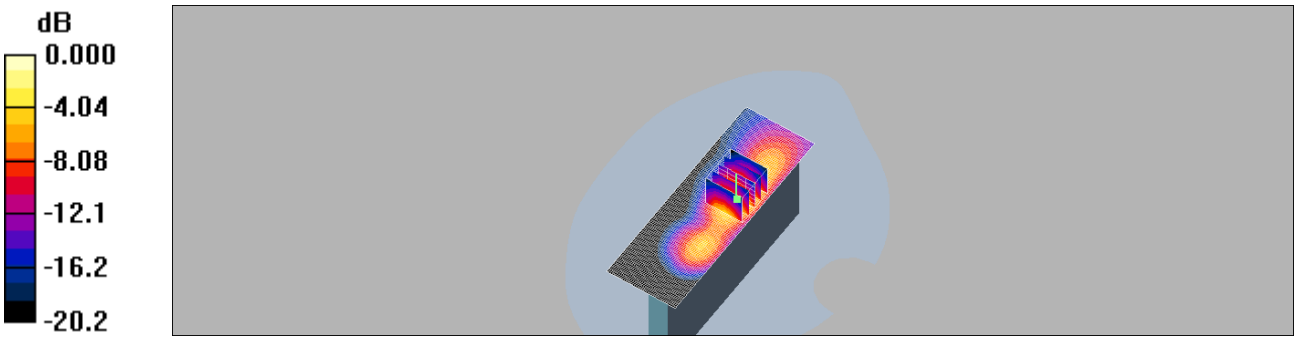
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.73 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.8 V/m; Power Drift = 0.036 dB
Peak SAR (extrapolated) = 5.46 W/kg
SAR(1 g) = 2.9 mW/g; SAR(10 g) = 1.35 mW/g
Maximum value of SAR (measured) = 3.44 mW/g



0 dB = 3.44mW/g

Date: 2011/9/15

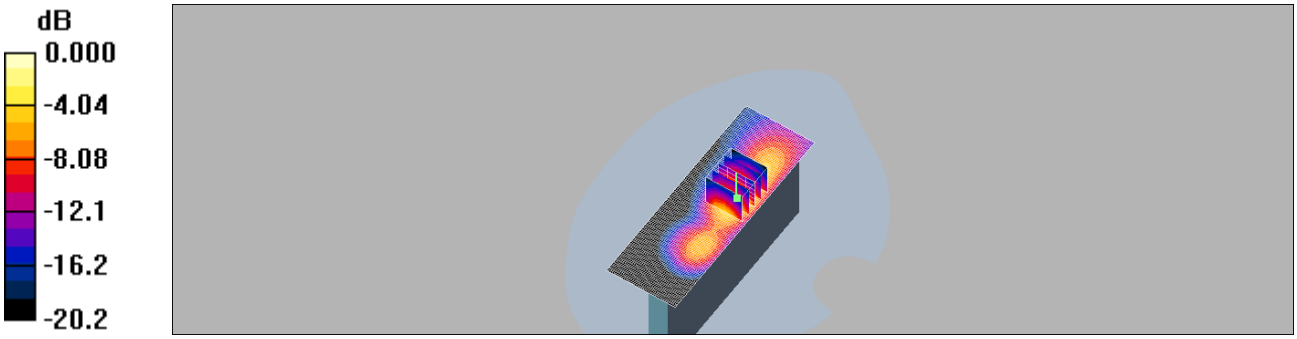
Primary Landscape_GPRS1900_CH810_0mm

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used: f = 1910 MHz; σ = 1.58 mho/m; ε_r = 51.2;; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.79 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.0 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 5.68 W/kg
SAR(1 g) = 2.98 mW/g; SAR(10 g) = 1.37 mW/g
Maximum value of SAR (measured) = 3.57 mW/g



0 dB = 3.57mW/g

Date: 2011/9/15

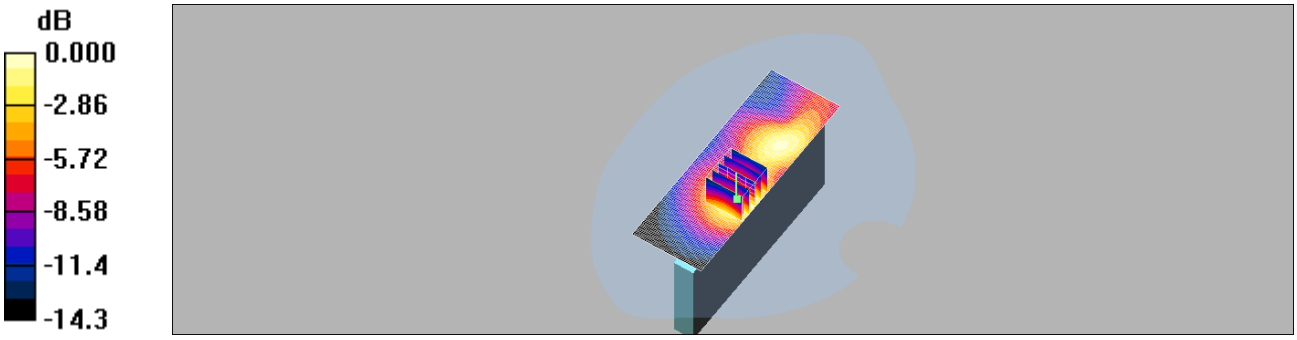
Primary Landscape_GPRS1900_CH512_10mm

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.52 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.414 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.1 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 0.572 W/kg
SAR(1 g) = 0.371 mW/g; SAR(10 g) = 0.226 mW/g
Maximum value of SAR (measured) = 0.402 mW/g



0 dB = 0.402mW/g

Date: 2011/9/15

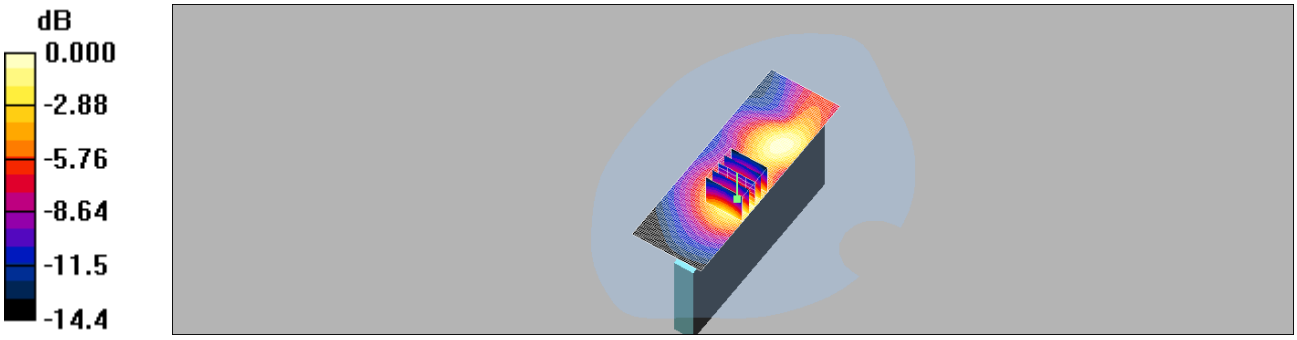
Primary Landscape_GPRS1900_CH661_10mm

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.442 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.6 V/m; Power Drift = -0.039 dB
Peak SAR (extrapolated) = 0.616 W/kg
SAR(1 g) = 0.393 mW/g; SAR(10 g) = 0.238 mW/g
Maximum value of SAR (measured) = 0.428 mW/g



0 dB = 0.428mW/g

Date: 2011/9/15

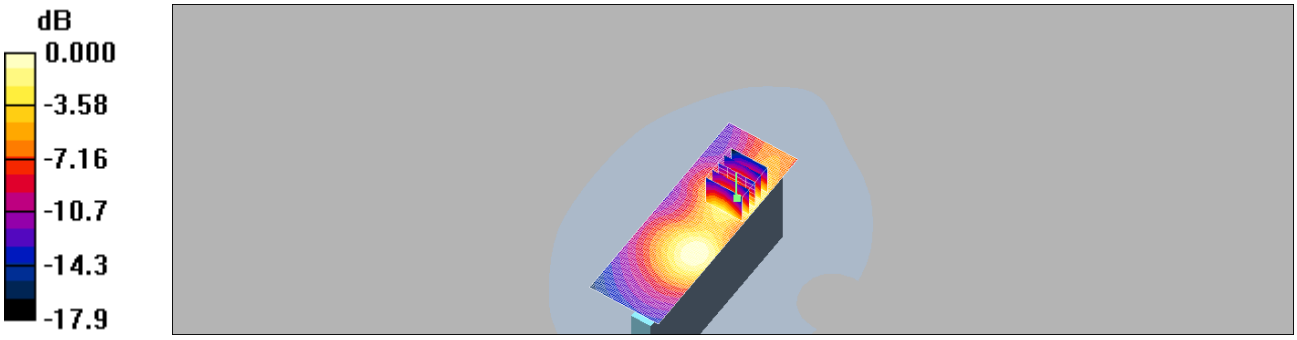
Primary Landscape_GPRS1900_CH810_10mm

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:4.1
Medium: M1800 & 1900 Medium parameters used: f = 1910 MHz; σ = 1.58 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.479 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.1 V/m; Power Drift = -0.004 dB
Peak SAR (extrapolated) = 0.679 W/kg
SAR(1 g) = 0.436 mW/g; SAR(10 g) = 0.252 mW/g
Maximum value of SAR (measured) = 0.476 mW/g



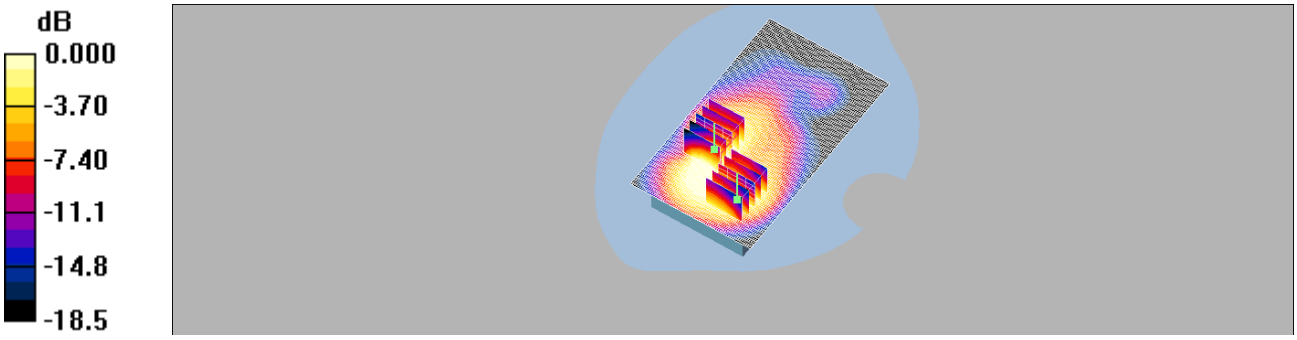
0 dB = 0.476mW/g

Lap-held_WCDMA B2_CH9262_0mm

Communication System: WCDMA Band II; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.52 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.43 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.2 V/m; Power Drift = 0.105 dB
Peak SAR (extrapolated) = 4.55 W/kg
SAR(1 g) = 2.34 mW/g; SAR(10 g) = 1.15 mW/g
Maximum value of SAR (measured) = 2.61 mW/g
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.2 V/m; Power Drift = 0.105 dB
Peak SAR (extrapolated) = 2.34 W/kg
SAR(1 g) = 1.38 mW/g; SAR(10 g) = 0.818 mW/g
Maximum value of SAR (measured) = 1.53 mW/g



0 dB = 1.53mW/g

Lap-held_WCDMA B2_CH9400_0mm

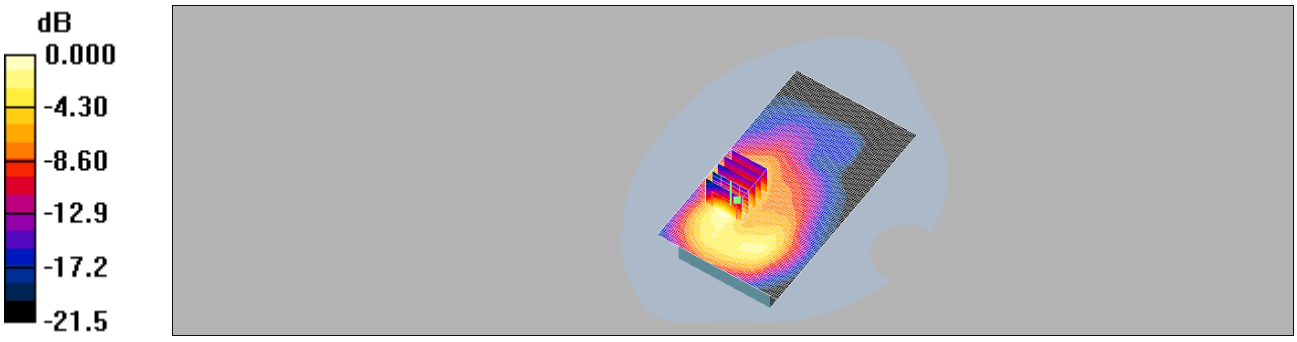
Communication System: WCDMA Band II; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.79 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.0 V/m; Power Drift = -0.189 dB
Peak SAR (extrapolated) = 5.13 W/kg
SAR(1 g) = 2.59 mW/g; SAR(10 g) = 1.28 mW/g
Maximum value of SAR (measured) = 2.91 mW/g



0 dB = 2.91mW/g

Date: 2011/9/15

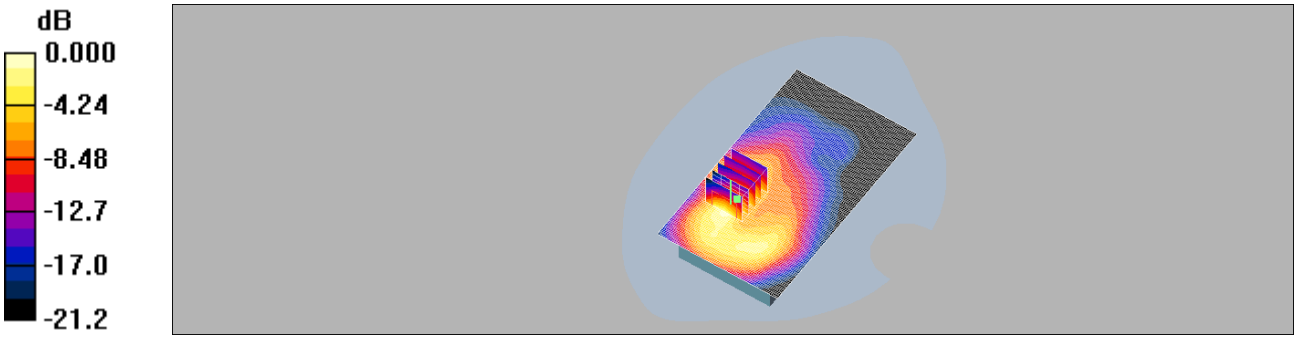
Lap-held_WCDMA B2_CH9538_0mm

Communication System: WCDMA Band II; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1908 MHz; σ = 1.57 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.36 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.0 V/m; Power Drift = 0.144 dB
Peak SAR (extrapolated) = 4.31 W/kg
SAR(1 g) = 2.2 mW/g; SAR(10 g) = 1.09 mW/g
Maximum value of SAR (measured) = 2.46 mW/g



0 dB = 2.46mW/g

Date: 2011/9/15

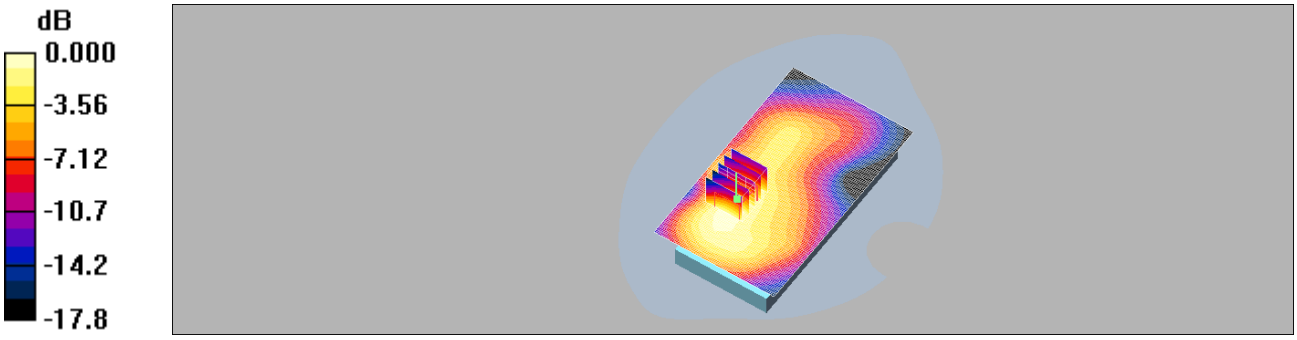
Lap-held_WCDMA B2_CH9262_10mm

Communication System: WCDMA Band II; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.52 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.693 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.3 V/m; Power Drift = 0.042 dB
Peak SAR (extrapolated) = 0.989 W/kg
SAR(1 g) = 0.615 mW/g; SAR(10 g) = 0.378 mW/g
Maximum value of SAR (measured) = 0.676 mW/g



0 dB = 0.676mW/g

Date: 2011/9/15

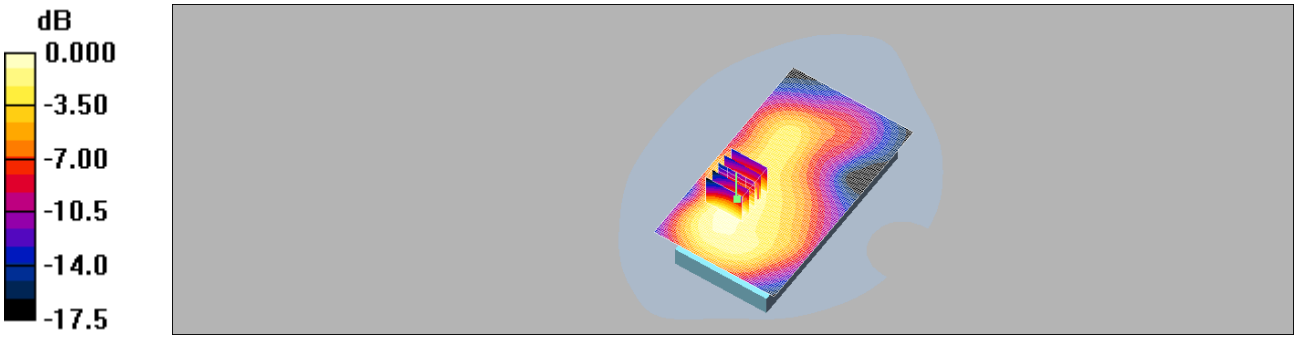
Lap-held_WCDMA B2_CH9400_10mm

Communication System: WCDMA Band II; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.628 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.3 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 0.903 W/kg
SAR(1 g) = 0.555 mW/g; SAR(10 g) = 0.340 mW/g
Maximum value of SAR (measured) = 0.605 mW/g



0 dB = 0.605mW/g

Date: 2011/9/15

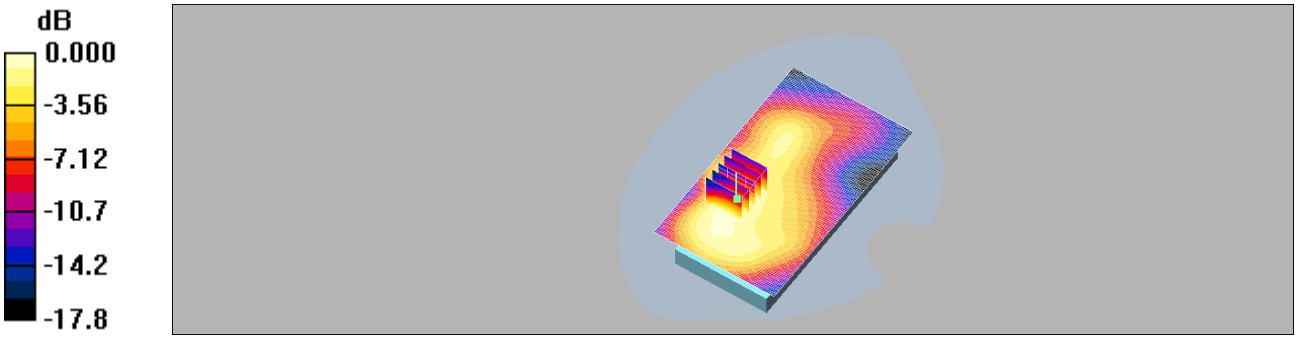
Lap-held_WCDMA B2_CH9538_10mm

Communication System: WCDMA Band II; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1908 MHz; σ = 1.57 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.622 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.2 V/m; Power Drift = -0.167 dB
Peak SAR (extrapolated) = 0.919 W/kg
SAR(1 g) = 0.556 mW/g; SAR(10 g) = 0.336 mW/g
Maximum value of SAR (measured) = 0.607 mW/g



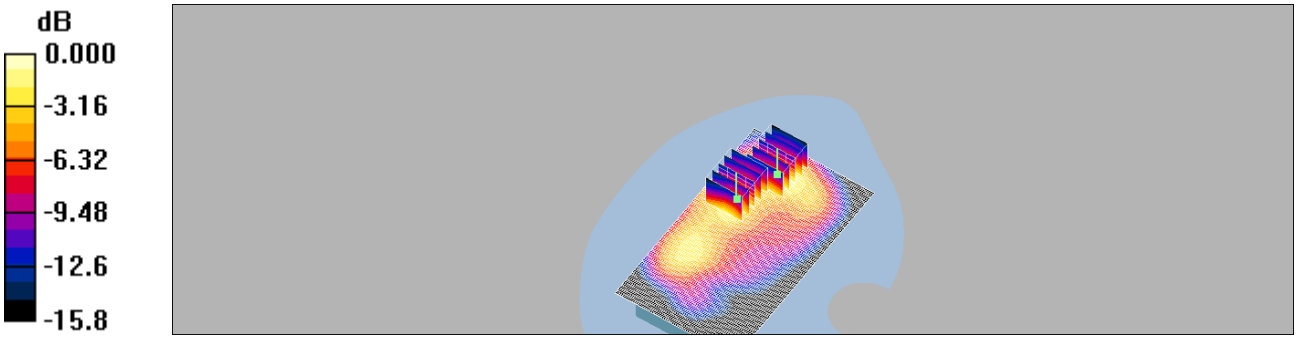
0 dB = 0.607mW/g

Front side_WCDMA Band II_CH9262_0mm

Communication System: WCDMA Band II; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.52 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.619 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.54 V/m; Power Drift = 0.170 dB
Peak SAR (extrapolated) = 0.964 W/kg
SAR(1 g) = 0.588 mW/g; SAR(10 g) = 0.351 mW/g
Maximum value of SAR (measured) = 0.646 mW/g
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.54 V/m; Power Drift = 0.170 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.629 mW/g; SAR(10 g) = 0.361 mW/g
Maximum value of SAR (measured) = 0.690 mW/g



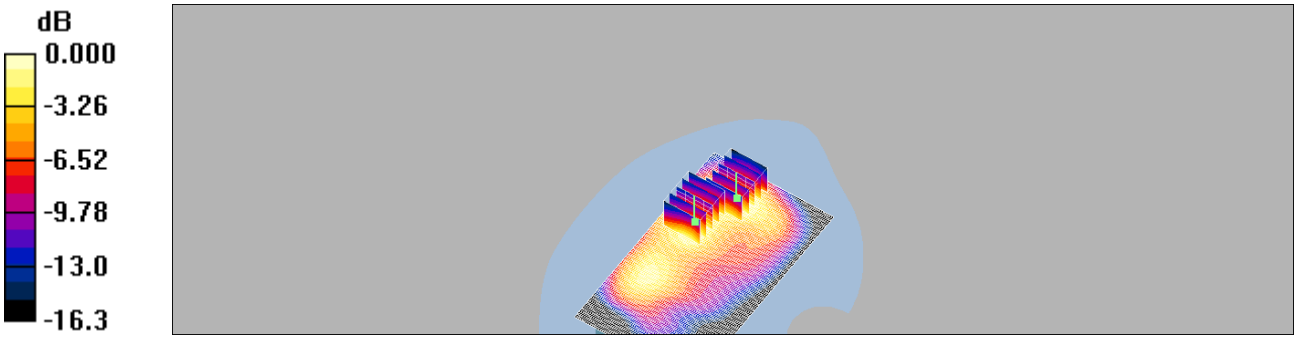
0 dB = 0.690mW/g

Front side_WCDMA Band II_CH9400_0mm

Communication System: WCDMA Band II; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.617 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.42 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.630 mW/g; SAR(10 g) = 0.359 mW/g
Maximum value of SAR (measured) = 0.708 mW/g
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.42 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 0.884 W/kg
SAR(1 g) = 0.549 mW/g; SAR(10 g) = 0.327 mW/g
Maximum value of SAR (measured) = 0.604 mW/g



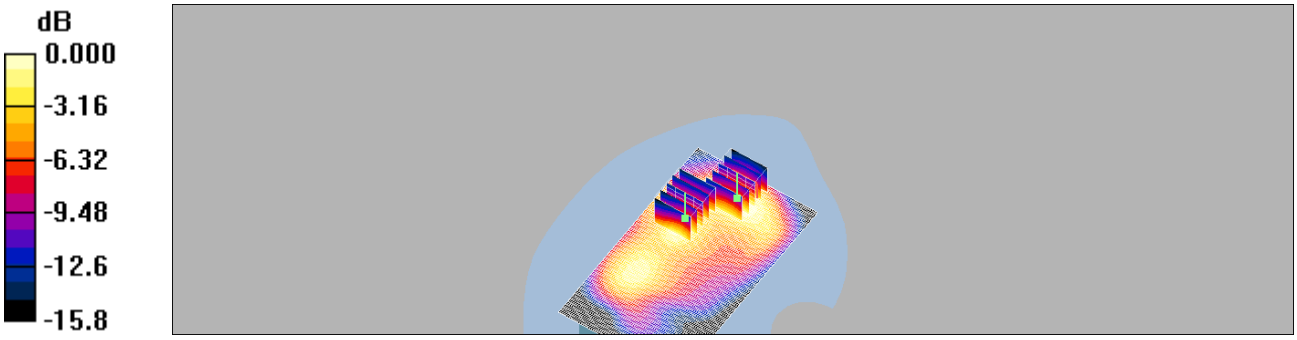
0 dB = 0.604mW/g

Front side_WCDMA Band II_CH9538_0mm

Communication System: WCDMA Band II; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1908 MHz; σ = 1.57 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.649 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.41 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.573 mW/g; SAR(10 g) = 0.323 mW/g
Maximum value of SAR (measured) = 0.645 mW/g
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.41 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 0.848 W/kg
SAR(1 g) = 0.536 mW/g; SAR(10 g) = 0.324 mW/g
Maximum value of SAR (measured) = 0.573 mW/g



0 dB = 0.573mW/g

Front side_WCDMA Band II_CH9262_10mm

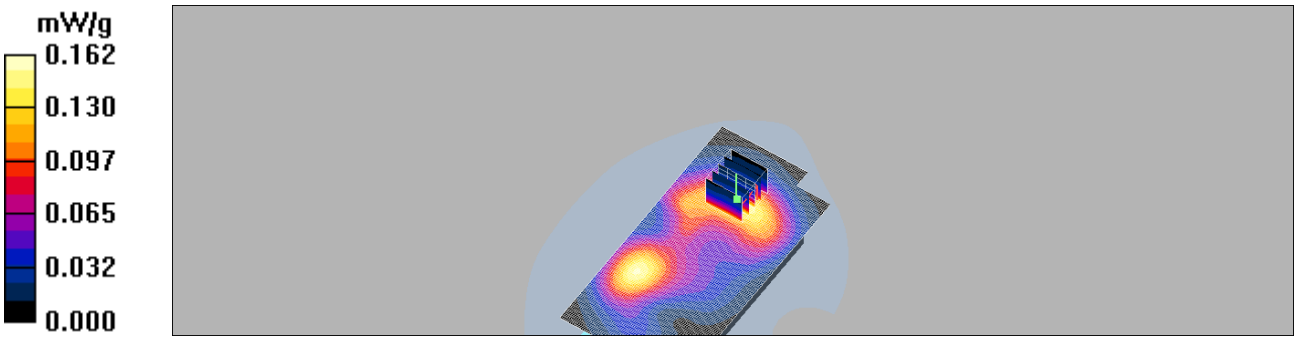
Communication System: WCDMA Band II; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.52 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.162 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.21 V/m; Power Drift = 0.049 dB
Peak SAR (extrapolated) = 0.221 W/kg
SAR(1 g) = 0.145 mW/g; SAR(10 g) = 0.093 mW/g
Maximum value of SAR (measured) = 0.154 mW/g



Date: 2011/9/15

Front side_WCDMA Band II_CH9400_10mm

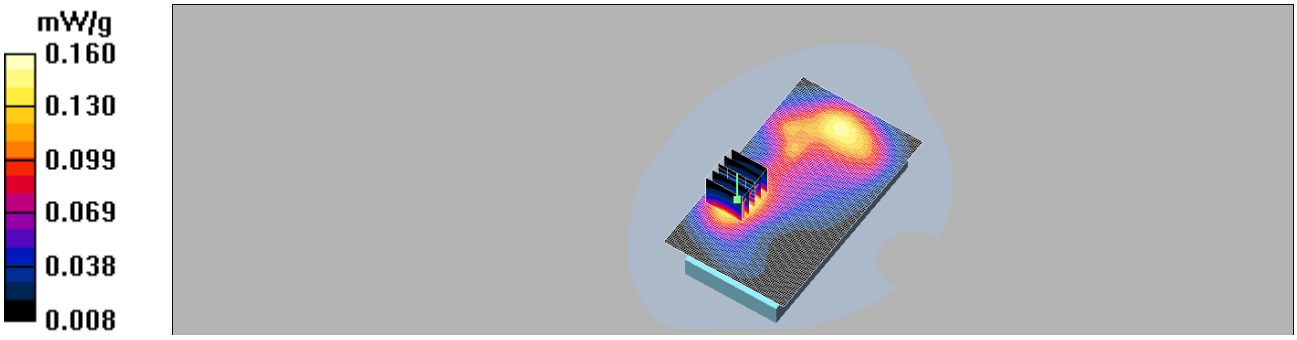
Communication System: WCDMA Band II; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.164 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.13 V/m; Power Drift = 0.117 dB
Peak SAR (extrapolated) = 0.234 W/kg
SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.096 mW/g
Maximum value of SAR (measured) = 0.160 mW/g



Date: 2011/9/15

Front side_WCDMA Band II_CH9538_10mm

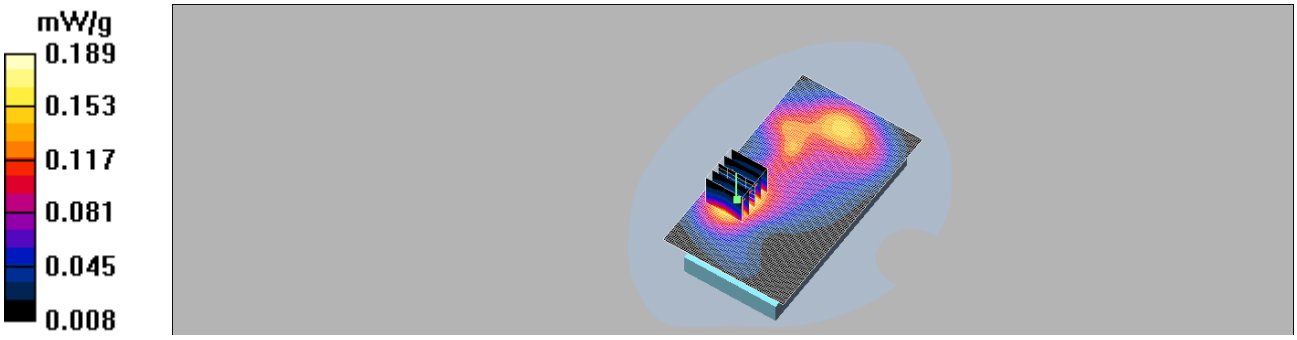
Communication System: WCDMA Band II; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1908 MHz; σ = 1.57 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.190 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.61 V/m; Power Drift = 0.060 dB
Peak SAR (extrapolated) = 0.273 W/kg
SAR(1 g) = 0.176 mW/g; SAR(10 g) = 0.110 mW/g
Maximum value of SAR (measured) = 0.189 mW/g



Date: 2011/9/15

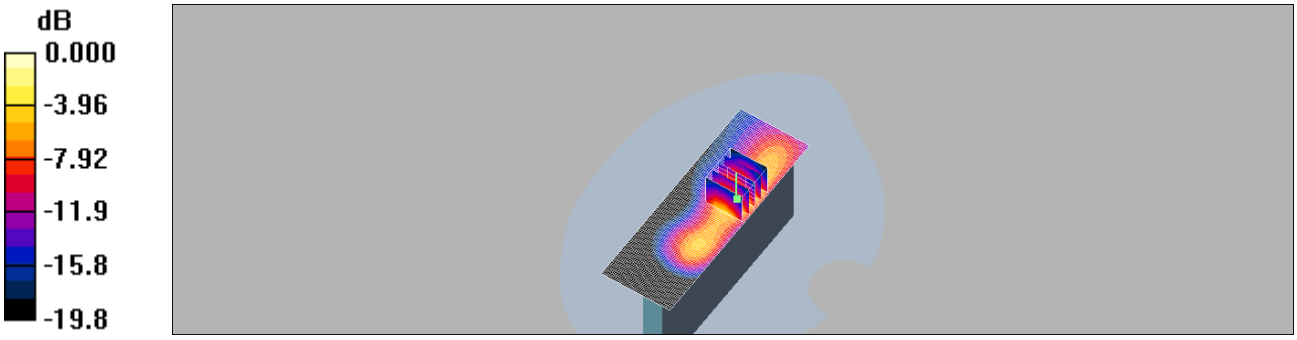
Primary Landscape_WCDMA Band II_CH9262_0mm

Communication System: WCDMA Band II; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.52 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.52 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.5 V/m; Power Drift = 0.085 dB
Peak SAR (extrapolated) = 4.95 W/kg
SAR(1 g) = 2.7 mW/g; SAR(10 g) = 1.27 mW/g
Maximum value of SAR (measured) = 3.18 mW/g



0 dB = 3.18mW/g

Date: 2011/9/15

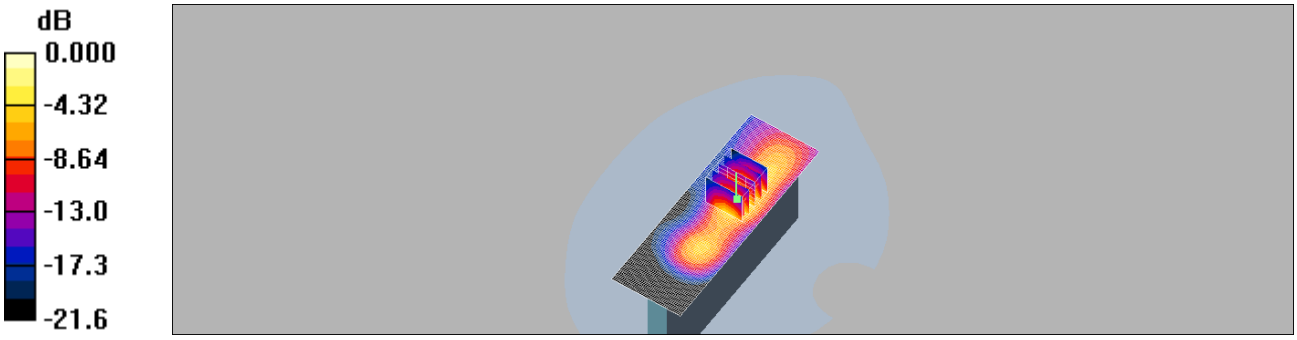
Primary Landscape_WCDMA Band II_CH9400_0mm

Communication System: WCDMA Band II; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.92 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.4 V/m; Power Drift = 0.168 dB
Peak SAR (extrapolated) = 5.13 W/kg
SAR(1 g) = 2.79 mW/g; SAR(10 g) = 1.32 mW/g
Maximum value of SAR (measured) = 3.26 mW/g



0 dB = 3.26mW/g

Date: 2011/9/15

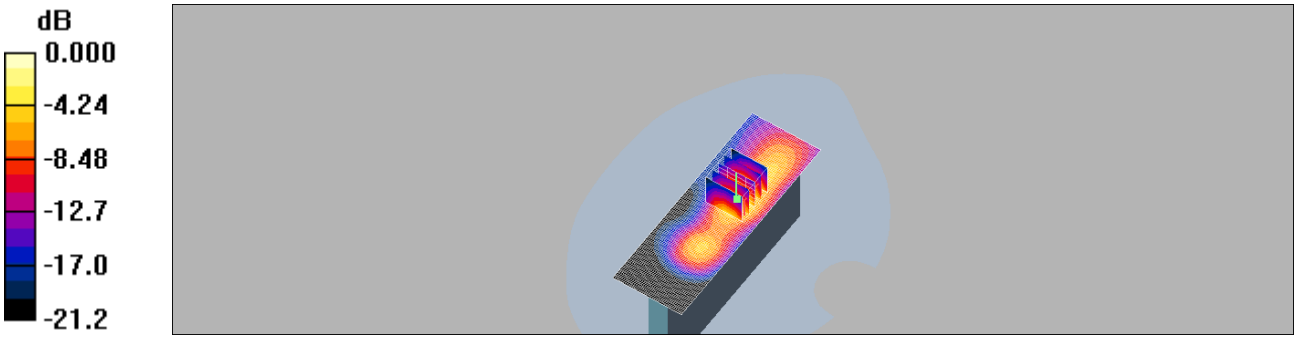
Primary Landscape_WCDMA Band II_CH9538_0mm

Communication System: WCDMA Band II; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1908 MHz; σ = 1.57 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.78 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.1 V/m; Power Drift = 0.090 dB
Peak SAR (extrapolated) = 4.99 W/kg
SAR(1 g) = 2.68 mW/g; SAR(10 g) = 1.25 mW/g
Maximum value of SAR (measured) = 3.10 mW/g



0 dB = 3.10mW/g

Date: 2011/9/15

Primary Landscape_WCDMA Band II_CH9262_10mm

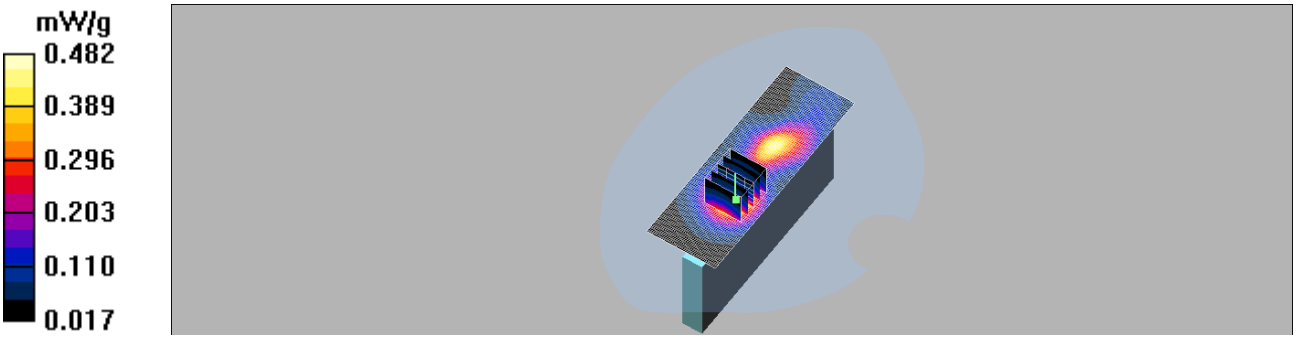
Communication System: WCDMA Band II; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.52 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.488 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.76 V/m; Power Drift = 0.058 dB
Peak SAR (extrapolated) = 0.687 W/kg
SAR(1 g) = 0.440 mW/g; SAR(10 g) = 0.270 mW/g
Maximum value of SAR (measured) = 0.482 mW/g

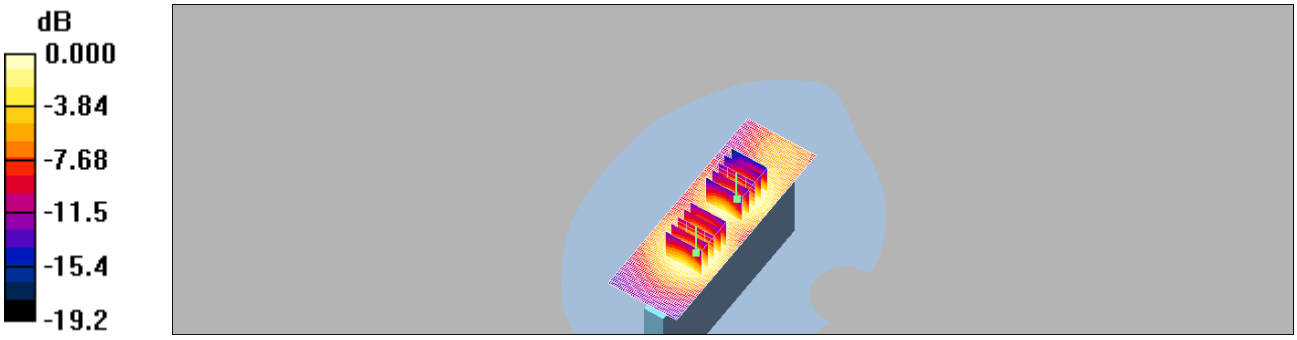


Primary Landscape_WCDMA Band II_CH9400_10mm

Communication System: WCDMA Band II; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.541 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.84 V/m; Power Drift = -0.141 dB
Peak SAR (extrapolated) = 0.753 W/kg
SAR(1 g) = 0.478 mW/g; SAR(10 g) = 0.287 mW/g
Maximum value of SAR (measured) = 0.529 mW/g
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.84 V/m; Power Drift = -0.141 dB
Peak SAR (extrapolated) = 0.647 W/kg
SAR(1 g) = 0.415 mW/g; SAR(10 g) = 0.240 mW/g
Maximum value of SAR (measured) = 0.463 mW/g



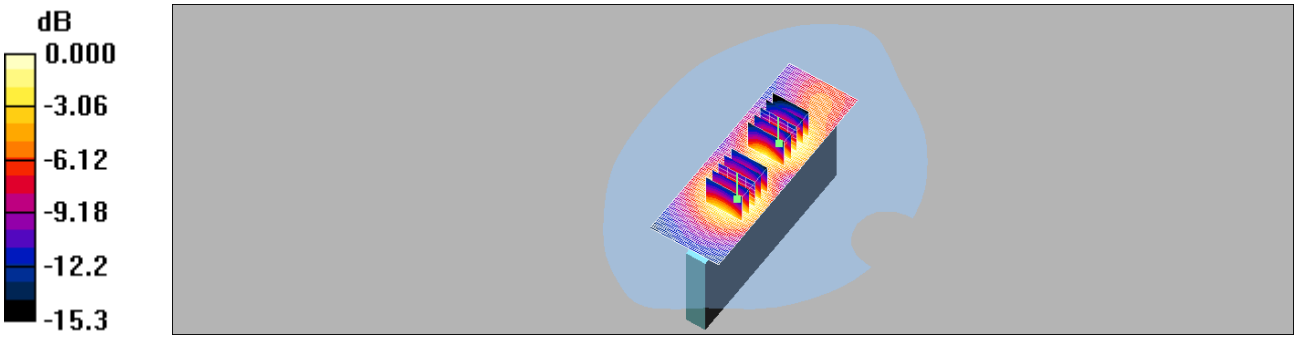
0 dB = 0.463mW/g

Primary Landscape_WCDMA Band II_CH9538_10mm

Communication System: WCDMA Band II; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1908 MHz; σ = 1.57 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.657 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.2 V/m; Power Drift = -0.074 dB
Peak SAR (extrapolated) = 0.867 W/kg
SAR(1 g) = 0.548 mW/g; SAR(10 g) = 0.316 mW/g
Maximum value of SAR (measured) = 0.609 mW/g
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.2 V/m; Power Drift = -0.074 dB
Peak SAR (extrapolated) = 0.818 W/kg
SAR(1 g) = 0.522 mW/g; SAR(10 g) = 0.316 mW/g
Maximum value of SAR (measured) = 0.567 mW/g



0 dB = 0.567mW/g

Date: 2011/9/14

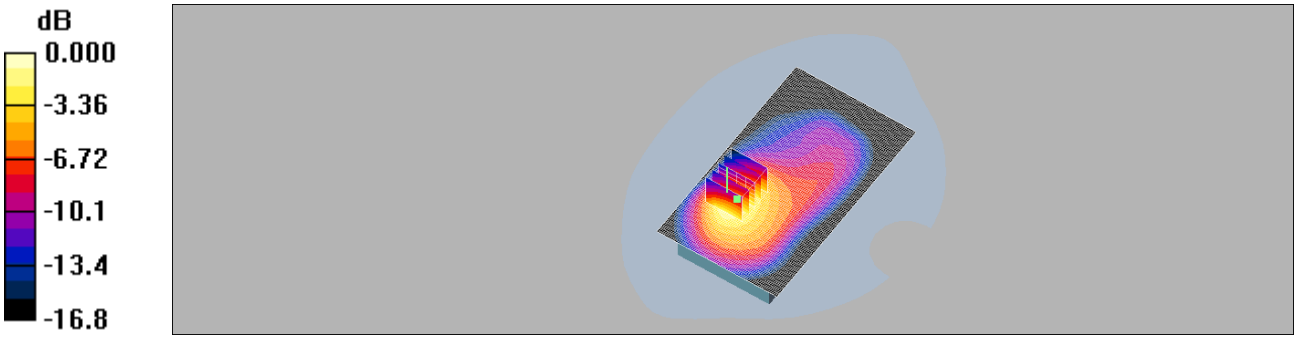
Lap-held_WCDMA Band V_CH4132_0mm

Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.989 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.87 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.6 V/m; Power Drift = 0.007 dB
Peak SAR (extrapolated) = 5.83 W/kg
SAR(1 g) = 2.8 mW/g; SAR(10 g) = 1.58 mW/g
Maximum value of SAR (measured) = 2.84 mW/g



0 dB = 2.84mW/g

Date: 2011/9/14

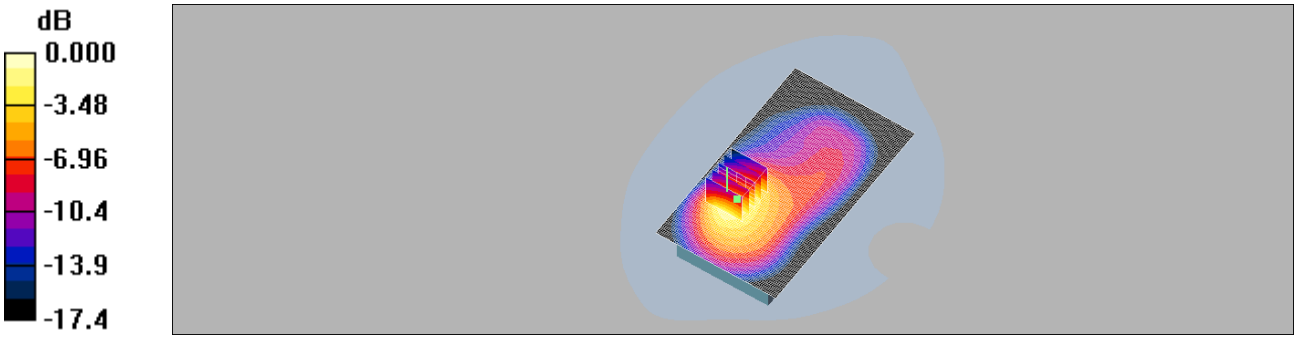
Lap-held_WCDMA Band V_CH4183_0mm

Communication System: WCDMA Band V; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.08 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.5 V/m; Power Drift = 0.084 dB
Peak SAR (extrapolated) = 4.26 W/kg
SAR(1 g) = 2.02 mW/g; SAR(10 g) = 1.13 mW/g
Maximum value of SAR (measured) = 2.06 mW/g



0 dB = 2.06mW/g

Date: 2011/9/14

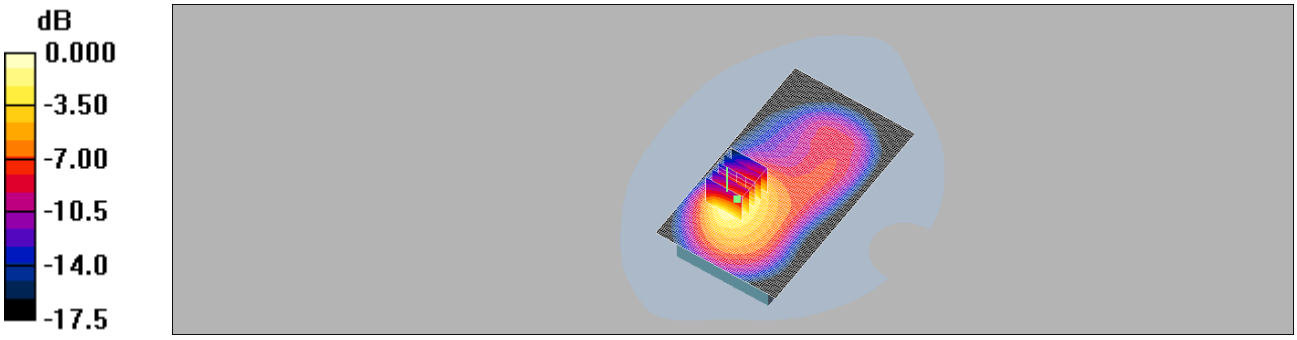
Lap-held_WCDMA Band V_CH4233_0mm

Communication System: WCDMA Band V; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 847 MHz; σ = 1.01 mho/m; ε_r = 54.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.62 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.6 V/m; Power Drift = -0.072 dB
Peak SAR (extrapolated) = 5.29 W/kg
SAR(1 g) = 2.55 mW/g; SAR(10 g) = 1.41 mW/g
Maximum value of SAR (measured) = 2.62 mW/g



0 dB = 2.62mW/g

Date: 2011/9/14

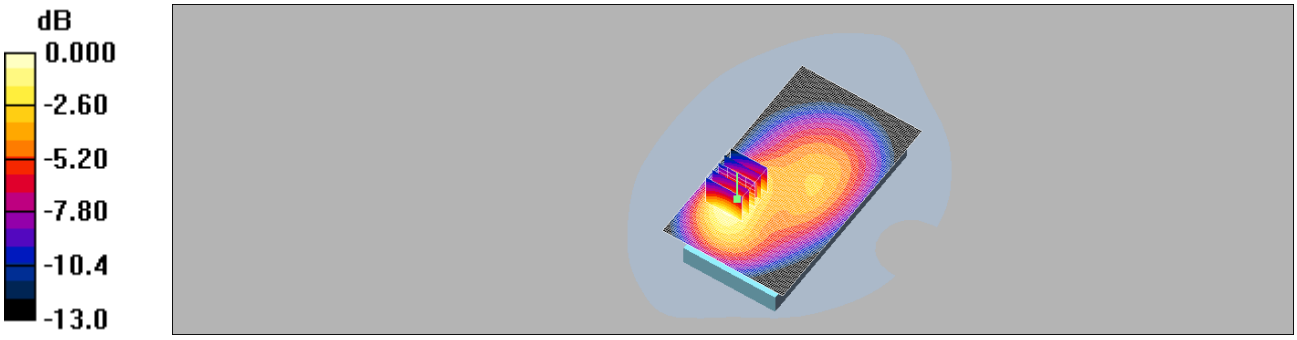
Lap-held_WCDMA Band V_CH4132_10mm

Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.989 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.786 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.7 V/m; Power Drift = 0.090 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.748 mW/g; SAR(10 g) = 0.485 mW/g
Maximum value of SAR (measured) = 0.801 mW/g



0 dB = 0.801mW/g

Date: 2011/9/14

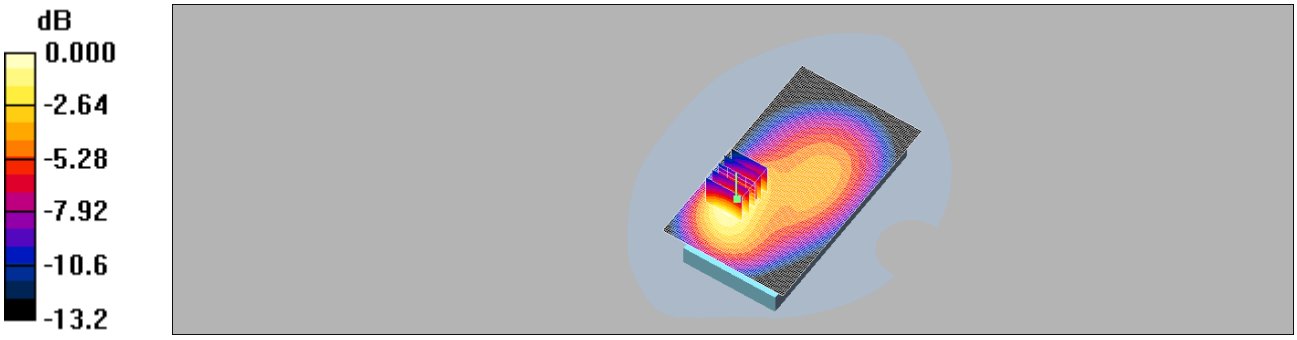
Lap-held_WCDMA Band V_CH4183_10mm

Communication System: WCDMA Band V; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.976 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.0 V/m; Power Drift = -0.060 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 0.916 mW/g; SAR(10 g) = 0.593 mW/g
Maximum value of SAR (measured) = 0.990 mW/g



0 dB = 0.990mW/g

Lap-held_WCDMA Band V_CH4233_10mm

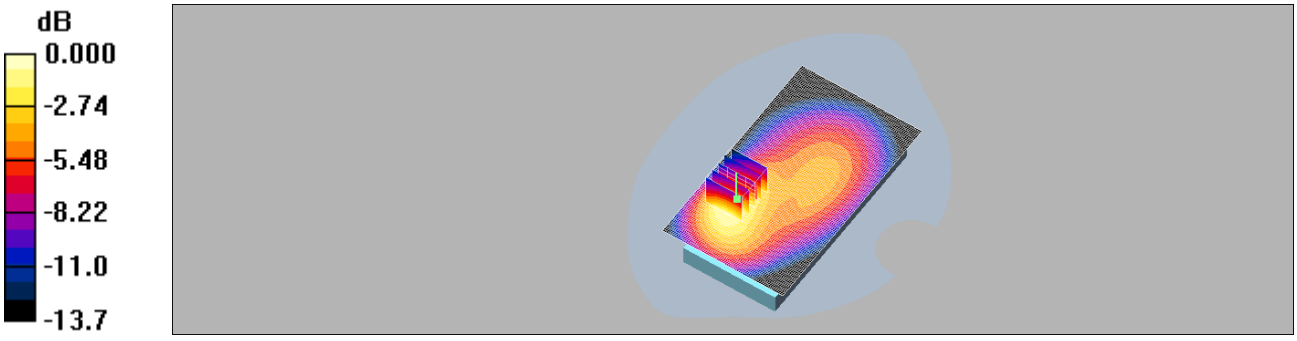
Communication System: WCDMA Band V; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 847 MHz; σ = 1.01 mho/m; ε_r = 54.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.872 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.0 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.821 mW/g; SAR(10 g) = 0.528 mW/g
Maximum value of SAR (measured) = 0.893 mW/g



0 dB = 0.893mW/g

Date: 2011/9/14

Front side_WCDMA Band V_CH4132_0mm

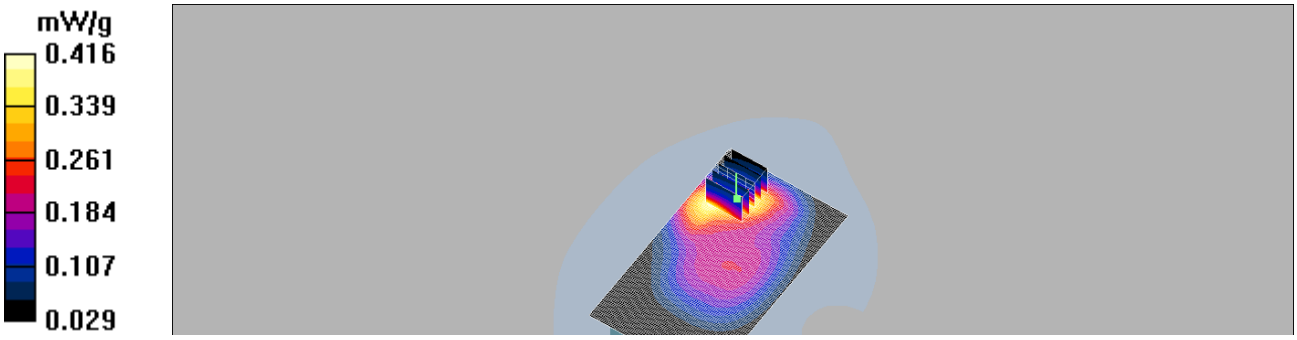
Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.989 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.425 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.7 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 0.550 W/kg
SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.267 mW/g
Maximum value of SAR (measured) = 0.416 mW/g



Date: 2011/9/14

Front side_WCDMA Band V_CH4183_0mm

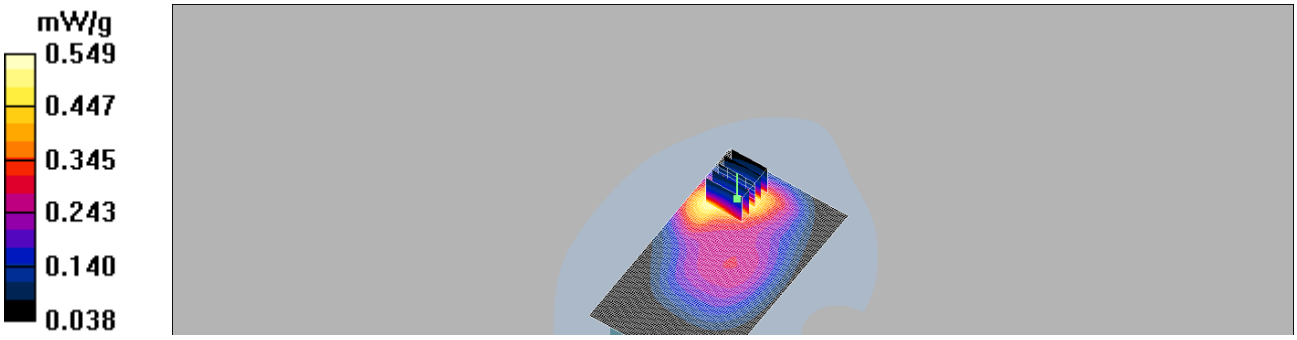
Communication System: WCDMA Band V; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.563 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.0 V/m; Power Drift = -0.108 dB
Peak SAR (extrapolated) = 0.739 W/kg
SAR(1 g) = 0.509 mW/g; SAR(10 g) = 0.348 mW/g
Maximum value of SAR (measured) = 0.549 mW/g



Date: 2011/9/14

Front side_WCDMA Band V_CH4233_0mm

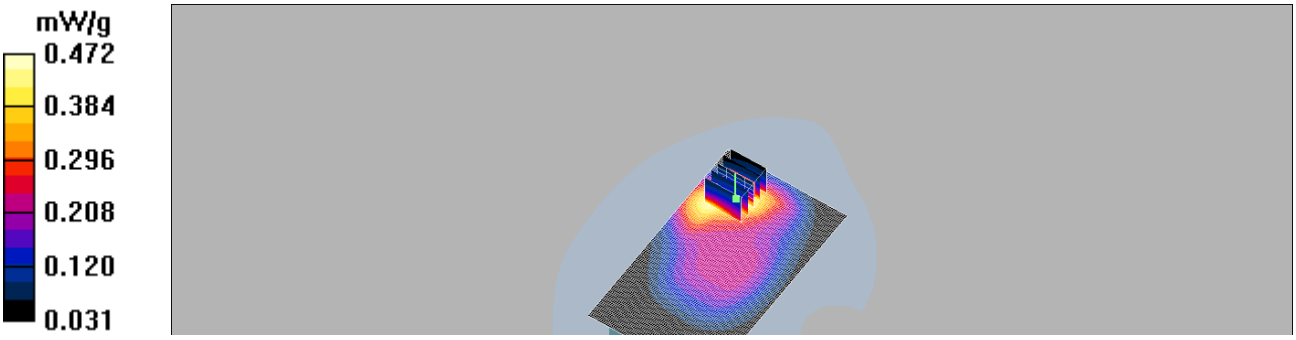
Communication System: WCDMA Band V; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 847 MHz; σ = 1.01 mho/m; ε_r = 54.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.486 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 0.636 W/kg
SAR(1 g) = 0.439 mW/g; SAR(10 g) = 0.299 mW/g
Maximum value of SAR (measured) = 0.472 mW/g



Date: 2011/9/14

Front side_WCDMA Band V_CH4132_10mm

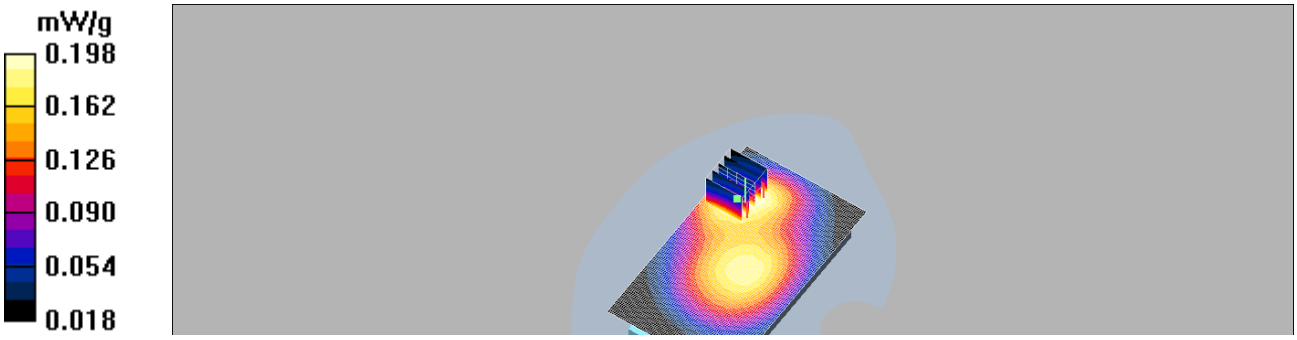
Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.989 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.200 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.4 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 0.257 W/kg
SAR(1 g) = 0.189 mW/g; SAR(10 g) = 0.138 mW/g
Maximum value of SAR (measured) = 0.198 mW/g



Date: 2011/9/14

Front side_WCDMA Band V_CH4183_10mm

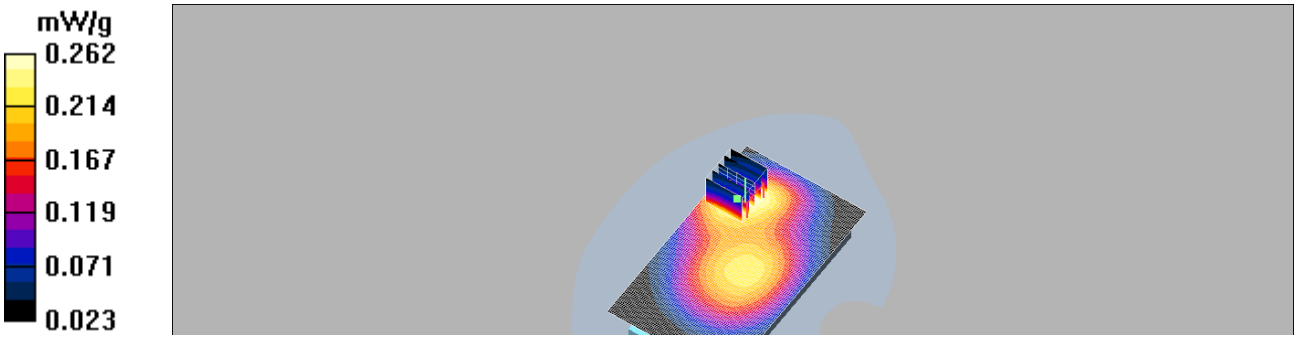
Communication System: WCDMA Band V; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.258 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.0 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 0.335 W/kg
SAR(1 g) = 0.247 mW/g; SAR(10 g) = 0.179 mW/g
Maximum value of SAR (measured) = 0.262 mW/g



Date: 2011/9/14

Front side_WCDMA Band V_CH4233_10mm

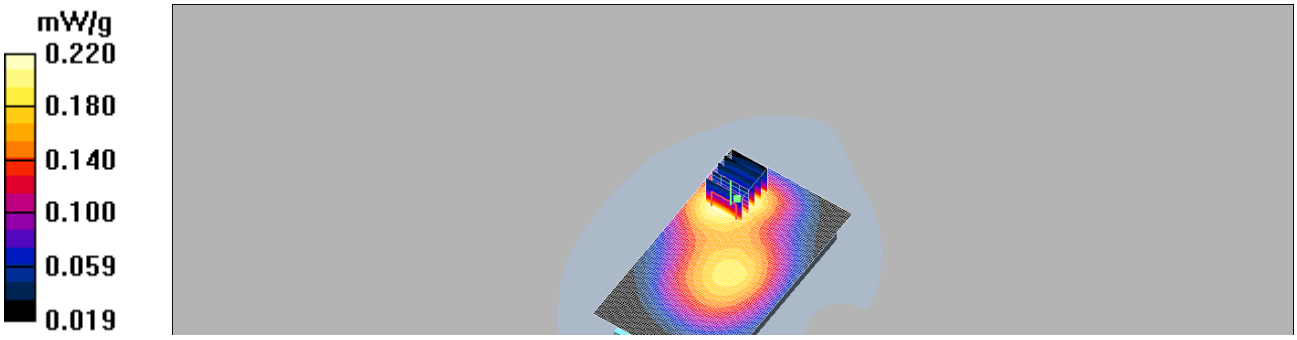
Communication System: WCDMA Band V; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 847 MHz; σ = 1.01 mho/m; ε_r = 54.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.221 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.4 V/m; Power Drift = 0.054 dB
Peak SAR (extrapolated) = 0.290 W/kg
SAR(1 g) = 0.210 mW/g; SAR(10 g) = 0.151 mW/g
Maximum value of SAR (measured) = 0.220 mW/g



Date: 2011/9/14

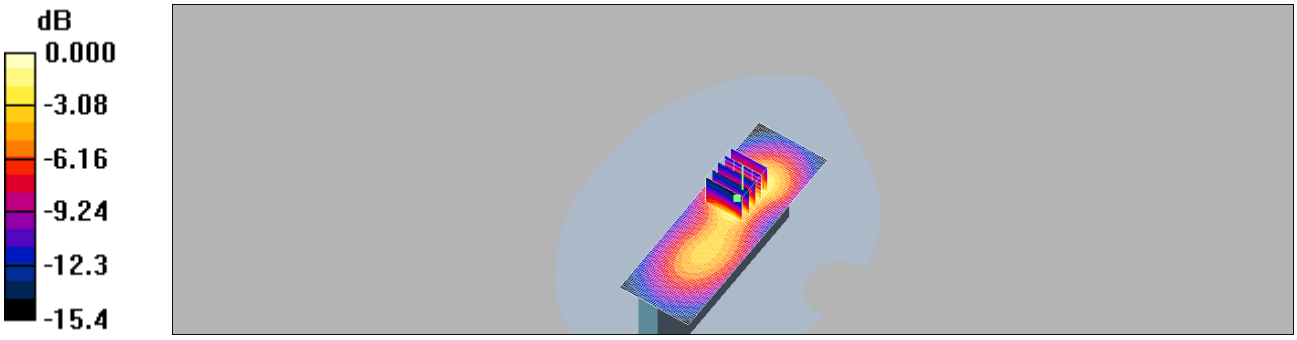
Primary Landscape_WCDMA Band V_CH4132_0mm

Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.989 mho/m; ε_r =54.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.63, 8.63, 8.63); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.57 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.2 V/m; Power Drift = -0.073 dB
Peak SAR (extrapolated) = 3.28 W/kg
SAR(1 g) = 1.39 mW/g; SAR(10 g) = 0.795 mW/g
Maximum value of SAR (measured) = 1.51 mW/g



0 dB = 1.51mW/g

Date: 2011/9/14

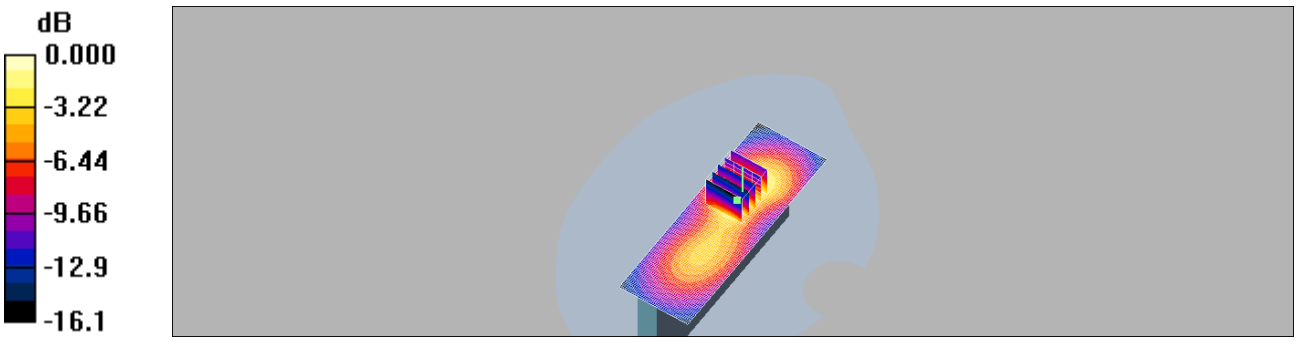
Primary Landscape_WCDMA Band V_CH4183_0mm

Communication System: WCDMA Band V; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ =1 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.63, 8.63, 8.63); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.47 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.9 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 3.09 W/kg
SAR(1 g) = 1.27 mW/g; SAR(10 g) = 0.719 mW/g
Maximum value of SAR (measured) = 1.37 mW/g



0 dB = 1.37mW/g

Date: 2011/9/14

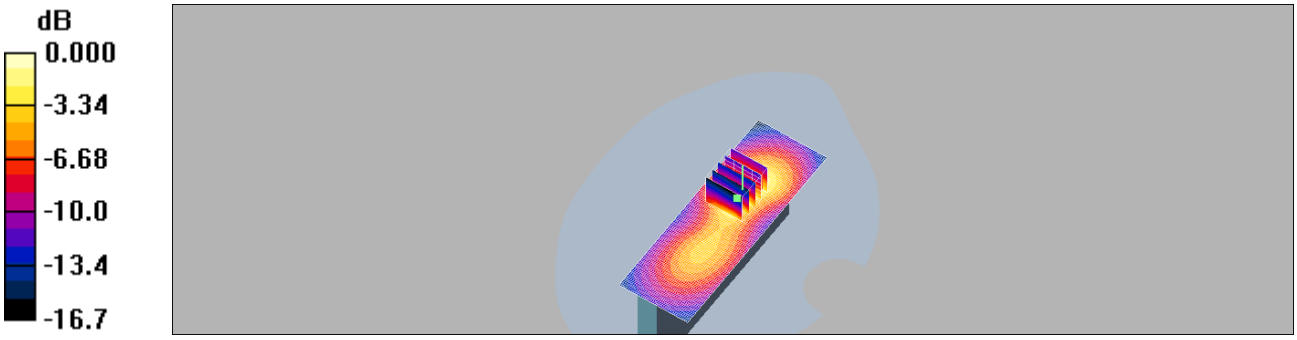
Primary Landscape_WCDMA Band V_CH4233_0mm

Communication System: WCDMA Band V; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 847 MHz; σ = 1.01 mho/m; ε_r = 54.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.63, 8.63, 8.63); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.57 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.4 V/m; Power Drift = -0.164 dB
Peak SAR (extrapolated) = 3.37 W/kg
SAR(1 g) = 1.35 mW/g; SAR(10 g) = 0.760 mW/g
Maximum value of SAR (measured) = 1.47 mW/g



0 dB = 1.47mW/g

Date: 2011/9/14

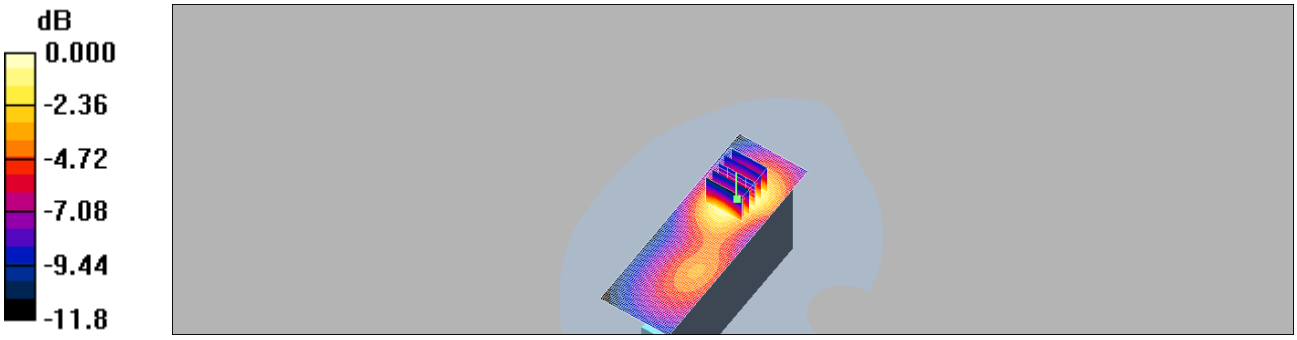
Primary Landscape_WCDMA Band V_CH4132_10mm

Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.989 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.63, 8.63, 8.63); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.296 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.84 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 0.420 W/kg
SAR(1 g) = 0.271 mW/g; SAR(10 g) = 0.172 mW/g
Maximum value of SAR (measured) = 0.292 mW/g



0 dB = 0.292mW/g

Date: 2011/9/14

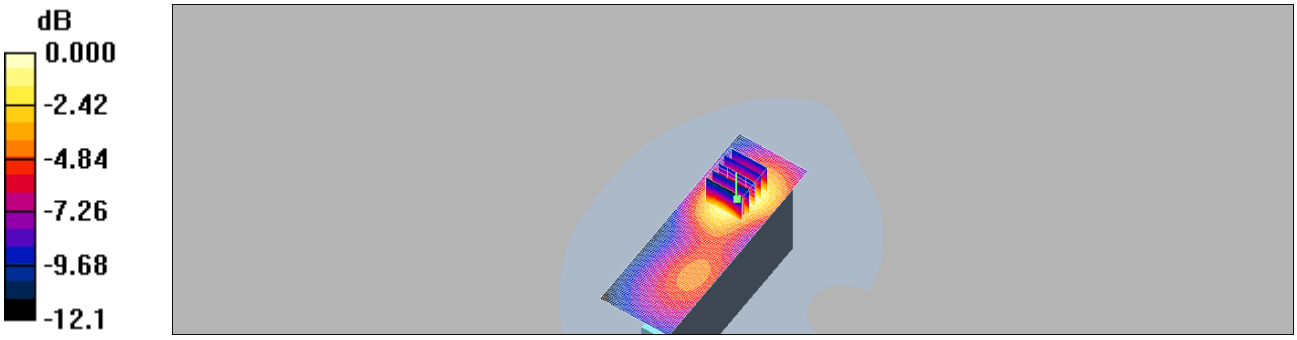
Primary Landscape_WCDMA Band V_CH4183_10mm

Communication System: WCDMA Band V; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r =54.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.63, 8.63, 8.63); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.352 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = 0.107 dB
Peak SAR (extrapolated) = 0.506 W/kg
SAR(1 g) = 0.329 mW/g; SAR(10 g) = 0.208 mW/g
Maximum value of SAR (measured) = 0.357 mW/g



0 dB = 0.357mW/g

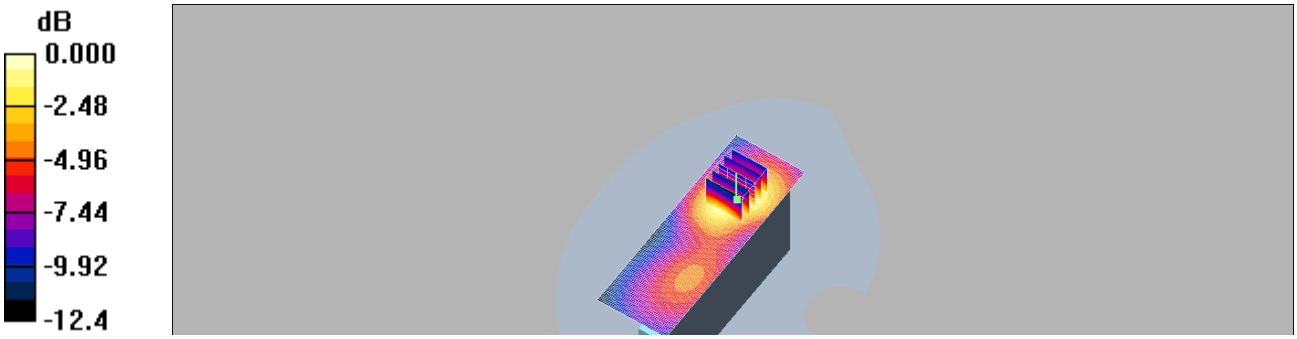
Primary Landscape_WCDMA Band V_CH4233_10mm

Communication System: WCDMA Band V; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 847 MHz; σ = 1.01 mho/m; ε_r =54.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.63, 8.63, 8.63); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.305 mW/g
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.95 V/m; Power Drift = 0.061 dB
Peak SAR (extrapolated) = 0.443 W/kg
SAR(1 g) = 0.282 mW/g; SAR(10 g) = 0.176 mW/g
Maximum value of SAR (measured) = 0.307 mW/g



0 dB = 0.307mW/g

5. SAR System Performance Verification

Date: 2011/9/14

DUT: Dipole 835 MHz;

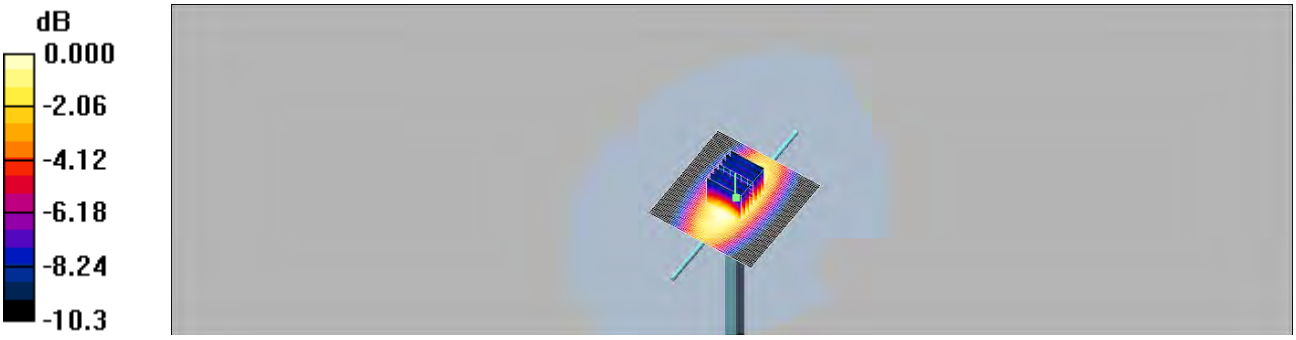
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 835 MHz; σ = 0.998 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.05 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.1 V/m; Power Drift = 0.006 dB
Peak SAR (extrapolated) = 4.16 W/kg
SAR(1 g) = 2.52 mW/g; SAR(10 g) = 1.75 mW/g
Maximum value of SAR (measured) = 3.05 mW/g



0 dB = 3.05mW/g

Date: 2011/9/15

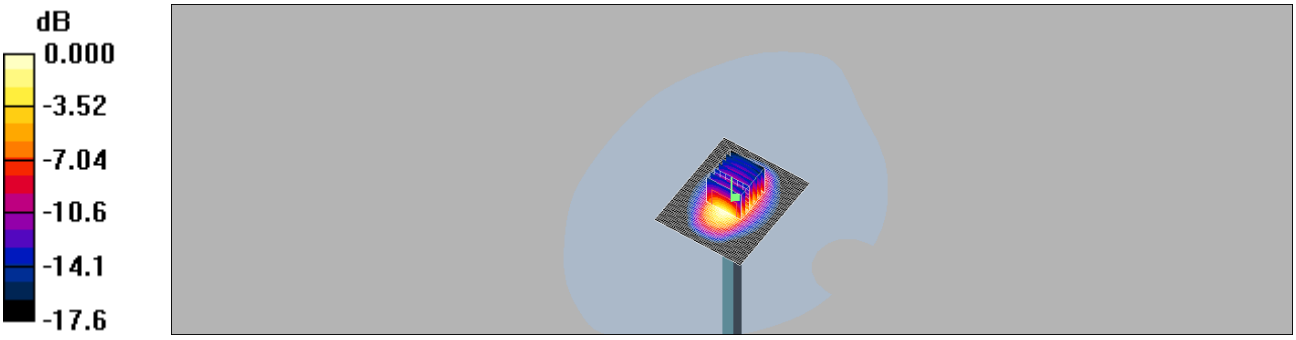
DUT: Dipole 1900 MHz;

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: M1800 & 1900 Medium parameters used: f = 1900 MHz; σ = 1.56 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2011/6/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (51x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.0 mW/g
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 84.8 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 17.5 W/kg
SAR(1 g) = 9.71 mW/g; SAR(10 g) = 4.98 mW/g
Maximum value of SAR (measured) = 10.8 mW/g



0 dB = 10.8mW/g

Date: 2012/4/20

DUT: Dipole 835 MHz;

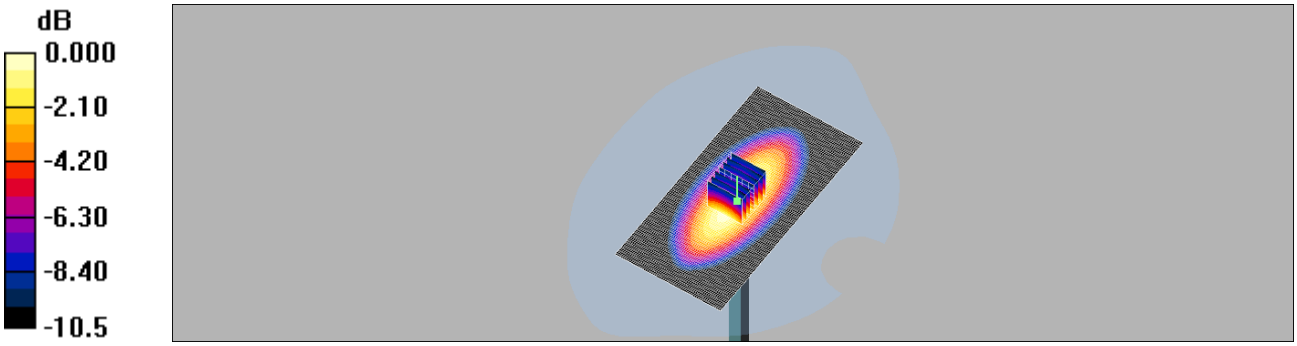
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(5.83, 5.83, 5.83); Calibrated: 2011/8/23
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.67 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 = 0.004 dB
Peak SAR (extrapolated) = 3.53 W/kg
SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.64 mW/g
Maximum value of SAR (measured) = 2.66 mW/g



0 dB = 2.66mW/g

DUT: Dipole 835 MHz;

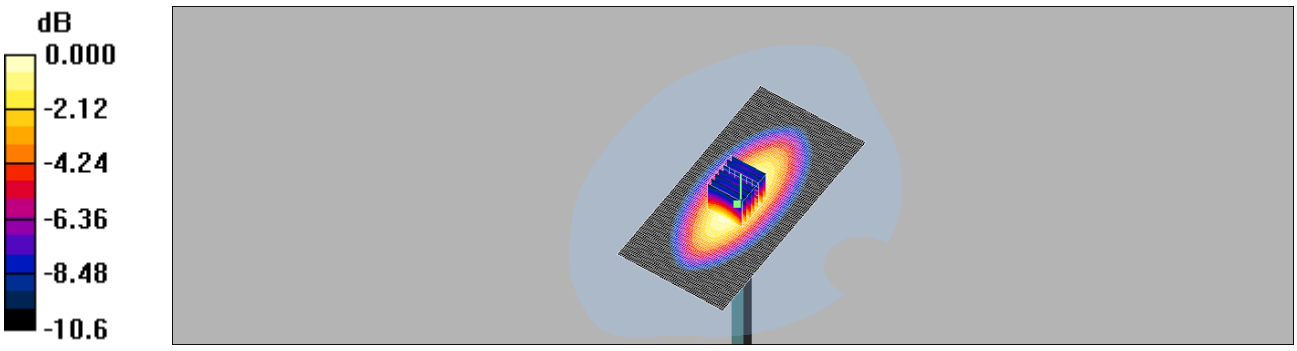
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 835 MHz; σ = 0.967 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.67 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 = -0.015 dB
Peak SAR (extrapolated) = 3.51 W/kg
SAR(1 g) = 2.34 mW/g; SAR(10 g) = 1.63 mW/g
Maximum value of SAR (measured) = 2.64 mW/g



0 dB = 2.64mW/g

DUT: Dipole 835 MHz;

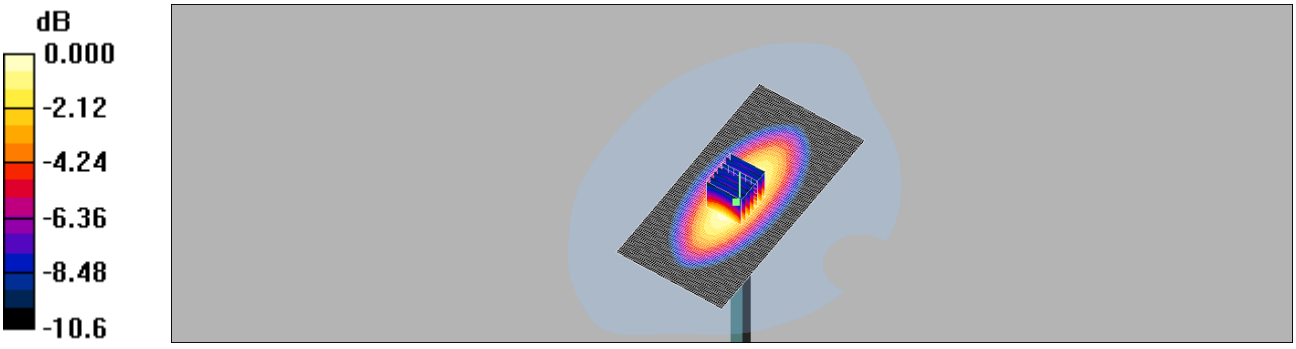
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: Muscle 900 MHz Medium parameters used: f = 835 MHz; σ = 0.965 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.02, 9.02, 9.02); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2011/8/22
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.65 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 = -0.007 dB
Peak SAR (extrapolated) = 3.52 W/kg
SAR(1 g) = 2.35 mW/g; SAR(10 g) = 1.63 mW/g
Maximum value of SAR (measured) = 2.65 mW/g



0 dB = 2.65mW/g

6. DAE & Probe Calibration Certificate

Schmid & Partner Engineering AG
s p e a g
Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 44 245 9700, Fax +41 44 245 9779
info@speag.com, http://www.speag.com

IMPORTANT NOTICE

USAGE OF THE DAE 4

The DAE unit is a delicate, high precision instrument and requires careful treatment by the user. There are no serviceable parts inside the DAE. Special attention shall be given to the following points:

Battery Exchange: The battery cover of the DAE4 unit is closed using a screw, over tightening the screw may cause the threads inside the DAE to wear out.

Shipping of the DAE: Before shipping the DAE to SPEAG for calibration, remove the batteries and pack the DAE in an antistatic bag. This antistatic bag shall then be packed into a larger box or container which protects the DAE from impacts during transportation. The package shall be marked to indicate that a fragile instrument is inside.

E-Stop Failures: Touch detection may be malfunctioning due to broken magnets in the E-stop. Rough handling of the E-stop may lead to damage of these magnets. Touch and collision errors are often caused by dust and dirt accumulated in the E-stop. To prevent E-stop failure, the customer shall always mount the probe to the DAE carefully and keep the DAE unit in a non-dusty environment if not used for measurements.

Repair: Minor repairs are performed at no extra cost during the annual calibration. However, SPEAG reserves the right to charge for any repair especially if rough unprofessional handling caused the defect.

DASY Configuration Files: Since the exact values of the DAE input resistances, as measured during the calibration procedure of a DAE unit, are not used by the DASY software, a nominal value of 200 MOhm is given in the corresponding configuration file.

Important Note:
Warranty and calibration is void if the DAE unit is disassembled partly or fully by the Customer.

Important Note:
Never attempt to grease or oil the E-stop assembly. Cleaning and readjusting of the E-stop assembly is allowed by certified SPEAG personnel only and is part of the annual calibration procedure.

Important Note:
To prevent damage of the DAE probe connector pins, use great care when installing the probe to the DAE. Carefully connect the probe with the connector notch oriented in the mating position. Avoid any rotational movement of the probe body versus the DAE while turning the locking nut of the connector. The same care shall be used when disconnecting the probe from the DAE.

Schmid & Partner Engineering

TN_BR040315AD DAE4.doc 11.12.2009

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

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

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

Accreditation No.: SCS 108

Client Auden

Certificate No: DAE4-679_Jun11

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 679
Calibration procedure(s)	QA CAL-06.v23 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	June 24, 2011

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
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-10 (No:10376)	Sep-11
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	08-Jun-11 (in house check)	In house check: Jun-12

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Technician	
Approved by:	Fin Bomholt	R&D Director	i.V.

Issued: June 24, 2011

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

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

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Accreditation No.: **SCS 108**

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range:	1LSB =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.451 ± 0.1% (k=2)	404.898 ± 0.1% (k=2)	405.032 ± 0.1% (k=2)
Low Range	3.98048 ± 0.7% (k=2)	3.95978 ± 0.7% (k=2)	3.98468 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	316.0 ° ± 1 °

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Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199987.9	-2.58	-0.00
Channel X	+ Input	19999.87	0.07	0.00
Channel X	- Input	-19995.28	4.12	-0.02
Channel Y	+ Input	200007.3	-1.59	-0.00
Channel Y	+ Input	20000.42	0.52	0.00
Channel Y	- Input	-19999.78	-0.38	0.00
Channel Z	+ Input	199995.5	-3.20	-0.00
Channel Z	+ Input	19998.26	-1.44	-0.01
Channel Z	- Input	-19999.47	0.83	-0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.4	0.35	0.02
Channel X	+ Input	200.90	1.00	0.50
Channel X	- Input	-199.34	0.76	-0.38
Channel Y	+ Input	2000.5	0.67	0.03
Channel Y	+ Input	199.95	0.15	0.08
Channel Y	- Input	-199.95	0.25	-0.12
Channel Z	+ Input	1999.7	-0.18	-0.01
Channel Z	+ Input	200.33	0.33	0.16
Channel Z	- Input	-199.92	-0.02	0.01

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	3.71	2.37
	- 200	-1.43	-2.69
Channel Y	200	4.26	4.13
	- 200	-6.01	-5.91
Channel Z	200	-4.42	-4.52
	- 200	3.55	3.28

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	1.43	-0.05
Channel Y	200	2.49	-	2.93
Channel Z	200	2.21	1.32	-

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4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16151	16737
Channel Y	15471	15918
Channel Z	16048	16506

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	1.43	0.14	2.46	0.42
Channel Y	-1.24	-3.08	0.25	0.65
Channel Z	0.80	-0.58	1.95	0.49

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

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IMPORTANT NOTICE

USAGE OF THE DAE 4

The DAE unit is a delicate, high precision instrument and requires careful treatment by the user. There are no serviceable parts inside the DAE. Special attention shall be given to the following points:

Battery Exchange: The battery cover of the DAE4 unit is closed using a screw, over tightening the screw may cause the threads inside the DAE to wear out.

Shipping of the DAE: Before shipping the DAE to SPEAG for calibration, remove the batteries and pack the DAE in an antistatic bag. This antistatic bag shall then be packed into a larger box or container which protects the DAE from impacts during transportation. The package shall be marked to indicate that a fragile instrument is inside.

E-Stop Failures: Touch detection may be malfunctioning due to broken magnets in the E-stop. Rough handling of the E-stop may lead to damage of these magnets. Touch and collision errors are often caused by dust and dirt accumulated in the E-stop. To prevent E-stop failure, the customer shall always mount the probe to the DAE carefully and keep the DAE unit in a non-dusty environment if not used for measurements.

Repair: Minor repairs are performed at no extra cost during the annual calibration. However, SPEAG reserves the right to charge for any repair especially if rough unprofessional handling caused the defect.

DASY Configuration Files: Since the exact values of the DAE input resistances, as measured during the calibration procedure of a DAE unit, are not used by the DASY software, a nominal value of 200 MOhm is given in the corresponding configuration file.

Important Note:
Warranty and calibration is void if the DAE unit is disassembled partly or fully by the Customer.

Important Note:
Never attempt to grease or oil the E-stop assembly. Cleaning and readjusting of the E-stop assembly is allowed by certified SPEAG personnel only and is part of the annual calibration procedure.

Important Note:
To prevent damage of the DAE probe connector pins, use great care when installing the probe to the DAE. Carefully connect the probe with the connector notch oriented in the mating position. Avoid any rotational movement of the probe body versus the DAE while turning the locking nut of the connector. The same care shall be used when disconnecting the probe from the DAE.

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TN_BR040315AD DAE4.doc 11.12.2009

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Accreditation No.: SCS 108

Client SGS-TW | Certificate No: DAE4-547_Aug11

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 547
Calibration procedure(s)	QA CAL-06.v23 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	August 29, 2011

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
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-10 (No:10376)	Sep-11
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	08-Jun-11 (in house check)	In house check: Jun-12

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Technician	
Approved by:	Fin Bomholt	R&D Director	i.V.

Issued: August 29, 2011

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Accreditation No.: SCS 108

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range:	1LSB =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	403.973 ± 0.1% (k=2)	404.010 ± 0.1% (k=2)	404.164 ± 0.1% (k=2)
Low Range	3.95430 ± 0.7% (k=2)	3.94841 ± 0.7% (k=2)	3.97224 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	161.0 ° ± 1 °

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Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199994.4	-6.57	-0.00
Channel X	+ Input	20004.04	4.34	0.02
Channel X	- Input	-19994.97	5.03	-0.03
Channel Y	+ Input	199993.5	-6.48	-0.00
Channel Y	+ Input	19995.66	-3.94	-0.02
Channel Y	- Input	-20001.22	-1.32	0.01
Channel Z	+ Input	199995.8	0.28	0.00
Channel Z	+ Input	19999.92	0.22	0.00
Channel Z	- Input	-20002.54	-2.64	0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	1999.9	-0.09	-0.00
Channel X	+ Input	200.38	0.48	0.24
Channel X	- Input	-199.03	0.87	-0.43
Channel Y	+ Input	2000.0	-0.10	-0.01
Channel Y	+ Input	199.80	-0.10	-0.05
Channel Y	- Input	-199.95	0.05	-0.03
Channel Z	+ Input	1999.5	-0.62	-0.03
Channel Z	+ Input	199.92	-0.08	-0.04
Channel Z	- Input	-200.74	-0.74	0.37

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	2.82	1.24
	- 200	-0.16	-1.27
Channel Y	200	-10.25	-10.43
	- 200	9.49	9.16
Channel Z	200	20.61	20.31
	- 200	-22.47	-22.72

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	2.77	0.69
Channel Y	200	1.88	-	3.84
Channel Z	200	0.74	-0.29	-

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4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16135	16769
Channel Y	16449	16848
Channel Z	15983	16813

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	-0.13	-1.81	0.62	0.38
Channel Y	-0.69	-3.52	-0.02	0.41
Channel Z	-0.77	-1.68	3.11	0.58

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	–0.01	-8	-9

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IMPORTANT NOTICE

USAGE OF THE DAE 4

The DAE unit is a delicate, high precision instrument and requires careful treatment by the user. There are no serviceable parts inside the DAE. Special attention shall be given to the following points:

Battery Exchange: The battery cover of the DAE4 unit is closed using a screw, over tightening the screw may cause the threads inside the DAE to wear out.

Shipping of the DAE: Before shipping the DAE to SPEAG for calibration, remove the batteries and pack the DAE in an antistatic bag. This antistatic bag shall then be packed into a larger box or container which protects the DAE from impacts during transportation. The package shall be marked to indicate that a fragile instrument is inside.

E-Stop Failures: Touch detection may be malfunctioning due to broken magnets in the E-stop. Rough handling of the E-stop may lead to damage of these magnets. Touch and collision errors are often caused by dust and dirt accumulated in the E-stop. To prevent E-stop failure, the customer shall always mount the probe to the DAE carefully and keep the DAE unit in a non-dusty environment if not used for measurements.

Repair: Minor repairs are performed at no extra cost during the annual calibration. However, SPEAG reserves the right to charge for any repair especially if rough unprofessional handling caused the defect.

DASY Configuration Files: Since the exact values of the DAE input resistances, as measured during the calibration procedure of a DAE unit, are not used by the DASY software, a nominal value of 200 MOhm is given in the corresponding configuration file.

Important Note:
Warranty and calibration is void if the DAE unit is disassembled partly or fully by the Customer.

Important Note:
Never attempt to grease or oil the E-stop assembly. Cleaning and readjusting of the E-stop assembly is allowed by certified SPEAG personnel only and is part of the annual calibration procedure.

Important Note:
To prevent damage of the DAE probe connector pins, use great care when installing the probe to the DAE. Carefully connect the probe with the connector notch oriented in the mating position. Avoid any rotational movement of the probe body versus the DAE while turning the locking nut of the connector. The same care shall be used when disconnecting the probe from the DAE.

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Client SGS (Auden) Certificate No: DAE4-1260_Aug11

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 1260
Calibration procedure(s)	QA CAL-06.v23 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	August 22, 2011

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
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-10 (No:10376)	Sep-11
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	08-Jun-11 (in house check)	In house check: Jun-12

	Name	Function	Signature
Calibrated by:	Eric Hainfeld	Technician	
Approved by:	Fin Bomholt	R&D Director	i.V.

Issued: August 22, 2011

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Accreditation No.: SCS 108

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range:	1LSB =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	406.004 ± 0.1% (k=2)	404.956 ± 0.1% (k=2)	405.556 ± 0.1% (k=2)
Low Range	3.95601 ± 0.7% (k=2)	4.01927 ± 0.7% (k=2)	4.00399 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	179.0 ° ± 1 °

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Appendix

1. DC Voltage Linearity

High Range		Reading (µV)	Difference (µV)	Error (%)
Channel X	+ Input	199997.7	5.90	0.00
Channel X	+ Input	20002.71	3.31	0.02
Channel X	- Input	-19996.91	2.89	-0.01
Channel Y	+ Input	199990.1	-0.85	-0.00
Channel Y	+ Input	19999.25	-0.35	-0.00
Channel Y	- Input	-19999.22	0.58	-0.00
Channel Z	+ Input	199999.4	-3.57	-0.00
Channel Z	+ Input	19998.93	-0.47	-0.00
Channel Z	- Input	-20000.48	-0.68	0.00

Low Range		Reading (µV)	Difference (µV)	Error (%)
Channel X	+ Input	2000.2	0.06	0.00
Channel X	+ Input	200.93	1.13	0.57
Channel X	- Input	-199.54	0.66	-0.33
Channel Y	+ Input	1999.6	-0.56	-0.03
Channel Y	+ Input	200.02	0.12	0.06
Channel Y	- Input	-200.40	-0.40	0.20
Channel Z	+ Input	1999.9	-0.28	-0.01
Channel Z	+ Input	199.09	-0.91	-0.46
Channel Z	- Input	-200.84	-0.94	0.47

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (µV)	Low Range Average Reading (µV)
Channel X	200	-0.15	-2.12
	- 200	4.13	1.79
Channel Y	200	12.24	11.93
	- 200	-13.72	-13.81
Channel Z	200	-2.45	-1.93
	- 200	-0.71	-0.36

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (µV)	Channel Y (µV)	Channel Z (µV)
Channel X	200	-	5.11	-1.01
Channel Y	200	2.60	-	5.42
Channel Z	200	1.73	0.39	-

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4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15925	16002
Channel Y	15815	15768
Channel Z	16047	16670

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	-0.44	-2.66	0.28	0.41
Channel Y	-0.80	-2.28	0.37	0.41
Channel Z	-1.59	-2.59	-0.14	0.44

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

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Accreditation No.: SCS 108

Client SGS-TW (Auden)

Certificate No: EX3-3703_Aug11

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3703

Calibration procedure(s): QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: August 25, 2011

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	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: August 25, 2011

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Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., 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 affect 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 with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z*: *A, B, C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 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 EX3DV4

SN:3703

Manufactured: July 21, 2009
Calibrated: August 25, 2011

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3703

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.46	0.47	0.50	± 10.1 %
DCP (mV)[B]	98.6	96.4	97.9	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	108.6	±1.9 %
			Y	0.00	0.00	1.00	112.0	
			Z	0.00	0.00	1.00	115.8	

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 Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3703

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	9.01	9.01	9.01	0.61	0.74	± 12.0 %
835	41.5	0.90	8.63	8.63	8.63	0.65	0.72	± 12.0 %
900	41.5	0.97	8.53	8.53	8.53	0.69	0.68	± 12.0 %
1750	40.1	1.37	8.07	8.07	8.07	0.72	0.65	± 12.0 %
1900	40.0	1.40	7.74	7.74	7.74	0.70	0.65	± 12.0 %
2000	40.0	1.40	7.65	7.65	7.65	0.69	0.65	± 12.0 %
2450	39.2	1.80	6.81	6.81	6.81	0.64	0.68	± 12.0 %
2600	39.0	1.96	6.68	6.68	6.68	0.54	0.77	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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DASY/EASY - Parameters of Probe: EX3DV4- SN:3703

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	8.88	8.88	8.88	0.69	0.74	± 12.0 %
835	55.2	0.97	8.87	8.87	8.87	0.75	0.68	± 12.0 %
900	55.0	1.05	8.70	8.70	8.70	0.76	0.66	± 12.0 %
1750	53.4	1.49	7.41	7.41	7.41	0.80	0.65	± 12.0 %
1900	53.3	1.52	6.97	6.97	6.97	0.80	0.63	± 12.0 %
2000	53.3	1.52	7.14	7.14	7.14	0.80	0.62	± 12.0 %
2450	52.7	1.95	6.62	6.62	6.62	0.80	0.60	± 12.0 %
2600	52.5	2.16	6.56	6.56	6.56	0.80	0.59	± 12.0 %
5200	49.0	5.30	4.00	4.00	4.00	0.45	1.95	± 13.1 %
5300	48.9	5.42	3.79	3.79	3.79	0.50	1.95	± 13.1 %
5600	48.5	5.77	3.28	3.28	3.28	0.65	1.95	± 13.1 %
5800	48.2	6.00	3.55	3.55	3.55	0.60	1.95	± 13.1 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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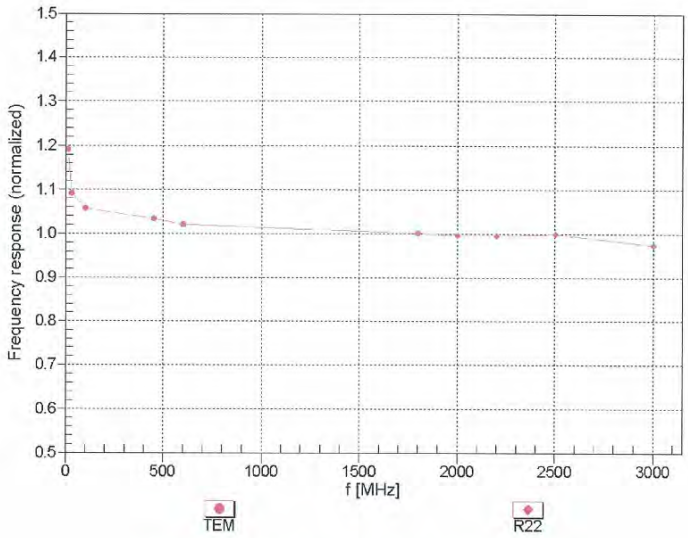
EX3DV4– SN:3703 August 25, 2011

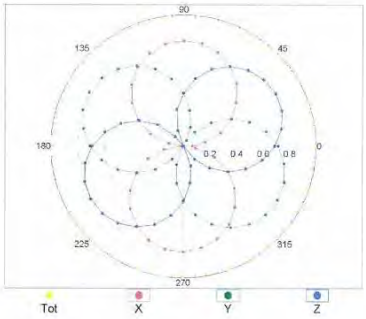
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



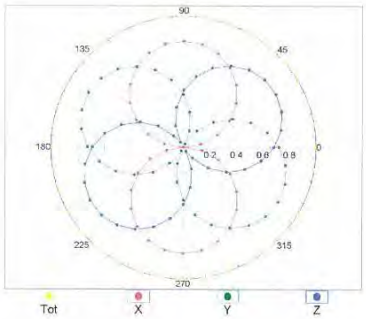
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

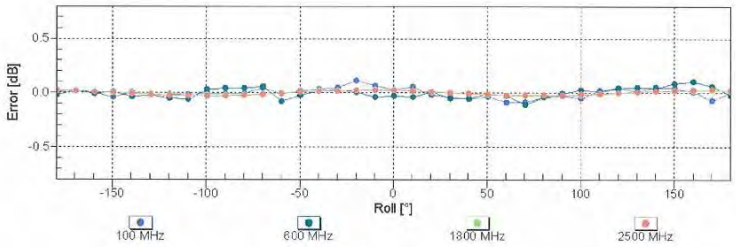
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



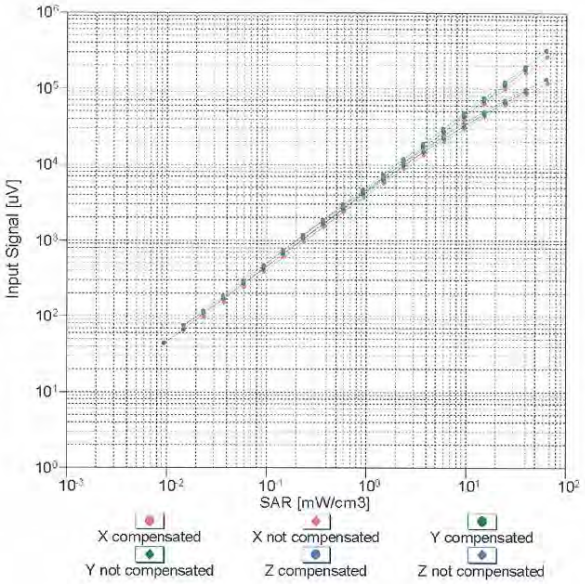
f=1800 MHz,R22

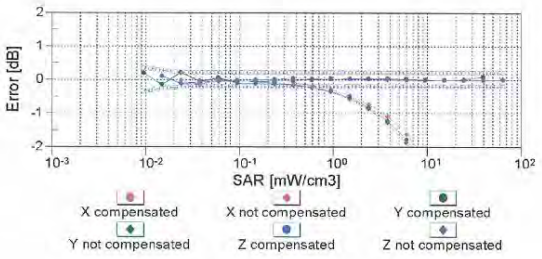




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR$_{head}$)
(TEM cell , f = 900 MHz)



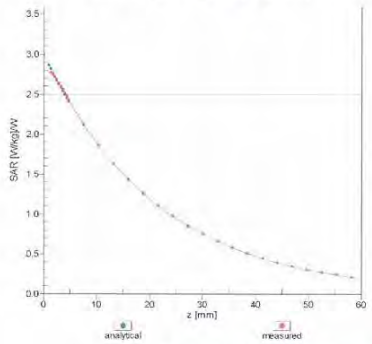


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

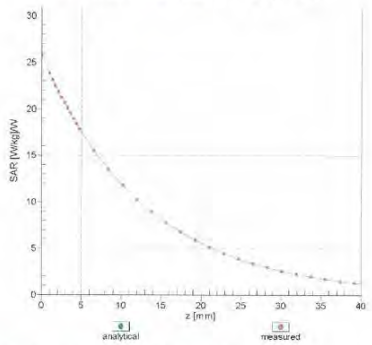
EX3DV4– SN:3703 August 25, 2011

Conversion Factor Assessment

f = 750 MHz,WGLS R9 (H_convF)

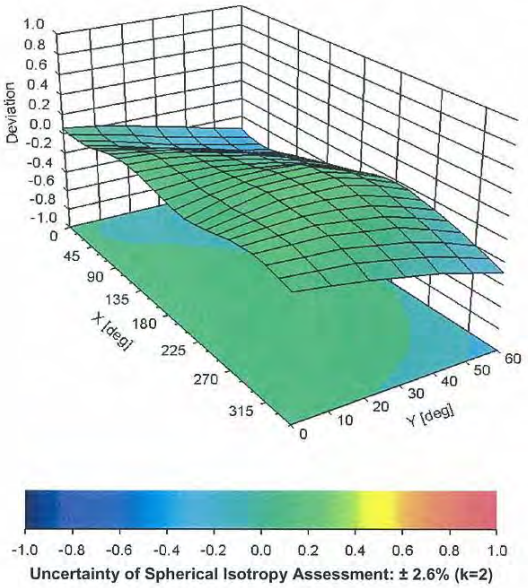


f = 1750 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



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

Certificate No: EX3-3703_Aug11 Page 10 of 11

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3703

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

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

S Schweizerischer Kalibrierdienst
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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-TW (Auden) **Certificate No: ES3-3172_Aug11**

CALIBRATION CERTIFICATE

Object	ES3DV3 - SN:3172
Calibration procedure(s)	QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4 Calibration procedure for dosimetric E-field probes
Calibration date:	August 23, 2011

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	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: August 23, 2011

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

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

S Schweizerischer Kalibrierdienst
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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
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., 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 affect 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 with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z: A, B, C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 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 ES3DV3

SN:3172

Manufactured: January 23, 2008
Calibrated: August 23, 2011

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

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DASY/EASY - Parameters of Probe: ES3DV3 - SN:3172

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.38	1.15	0.97	± 10.1 %
DCP (mV)[B]	100.5	105.1	95.2	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	117.7	±2.7 %
			Y	0.00	0.00	1.00	110.5	
			Z	0.00	0.00	1.00	93.7	

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 Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3172

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	6.06	6.06	6.06	1.00	1.00	± 12.0 %
835	41.5	0.90	5.83	5.83	5.83	1.00	1.00	± 12.0 %
900	41.5	0.97	5.77	5.77	5.77	1.00	1.00	± 12.0 %
1750	40.1	1.37	4.94	4.94	4.94	0.95	1.09	± 12.0 %
1900	40.0	1.40	4.78	4.78	4.78	0.95	1.12	± 12.0 %
2000	40.0	1.40	4.77	4.77	4.77	0.97	1.08	± 12.0 %
2300	39.5	1.67	4.50	4.50	4.50	0.76	1.24	± 12.0 %
2450	39.2	1.80	4.17	4.17	4.17	0.80	1.19	± 12.0 %
2600	39.0	1.96	4.11	4.11	4.11	0.64	1.46	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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DASY/EASY - Parameters of Probe: ES3DV3- SN:3172

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	5.89	5.89	5.89	1.00	1.00	± 12.0 %
835	55.2	0.97	5.83	5.83	5.83	1.00	1.00	± 12.0 %
900	55.0	1.05	5.72	5.72	5.72	1.00	1.00	± 12.0 %
1750	53.4	1.49	4.60	4.60	4.60	0.88	1.25	± 12.0 %
1900	53.3	1.52	4.38	4.38	4.38	0.78	1.34	± 12.0 %
2000	53.3	1.52	4.46	4.46	4.46	0.77	1.32	± 12.0 %
2300	52.9	1.81	4.18	4.18	4.18	1.00	1.05	± 12.0 %
2450	52.7	1.95	3.99	3.99	3.99	1.00	1.00	± 12.0 %
2600	52.5	2.16	3.90	3.90	3.90	1.00	1.00	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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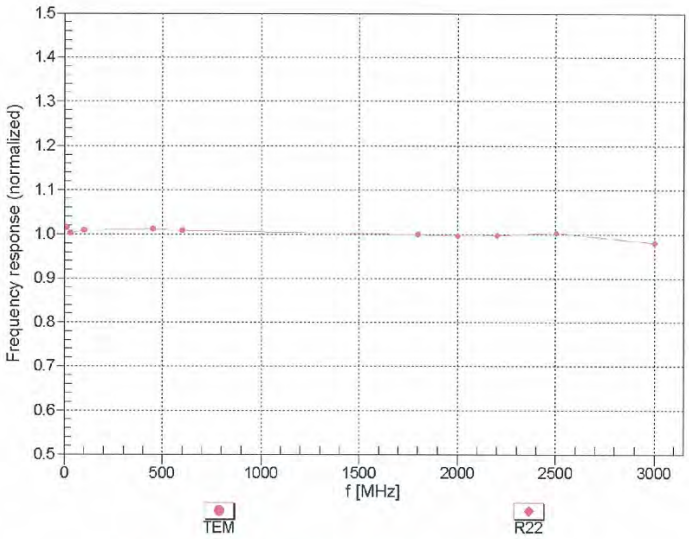
ES3DV3– SN:3172 August 23, 2011

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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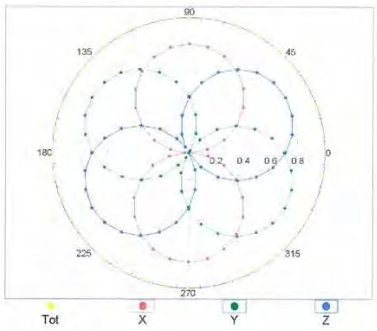
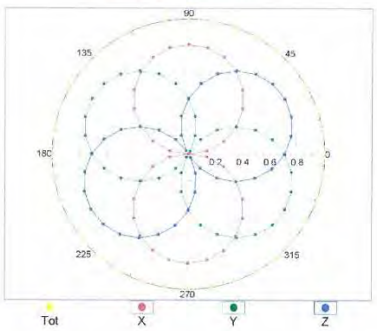
ES3DV3– SN:3172 August 23, 2011

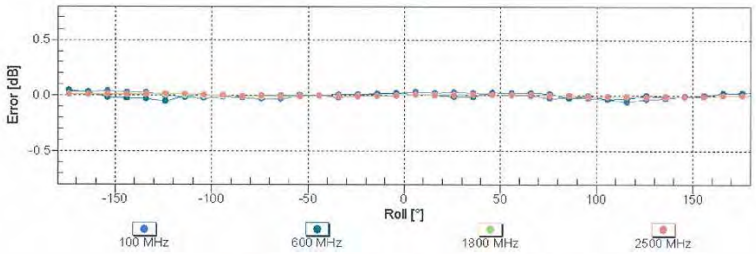
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



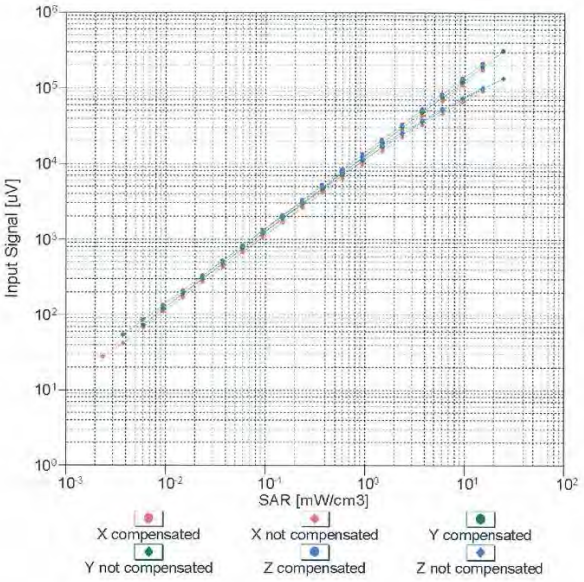
f=1800 MHz,R22

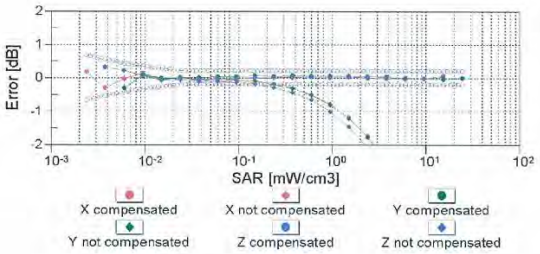




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})
(TEM cell , f = 900 MHz)



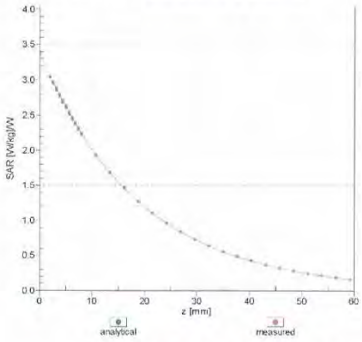


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

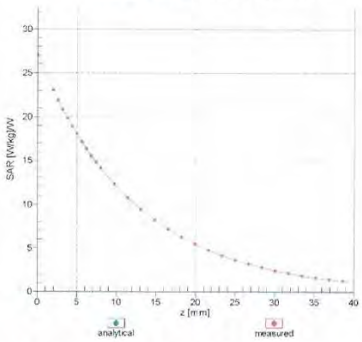
ES3DV3– SN:3172 August 23, 2011

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

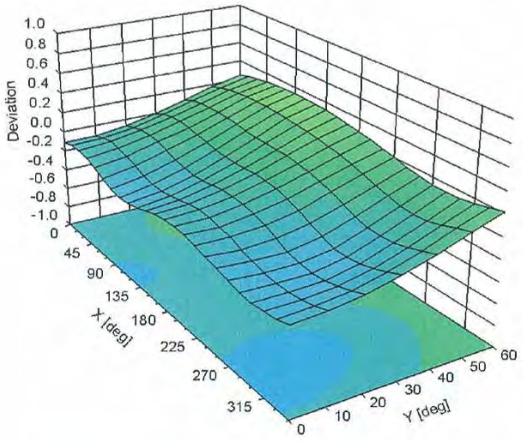


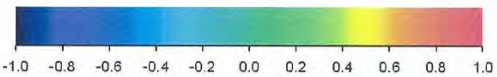
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3172

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Client SGS-TW (Auden)

Certificate No: EX3-3831_Jan12

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3831

Calibration procedure(s) QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: January 4, 2012

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	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: January 5, 2012

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

Certificate No: EX3-3831_Jan12 Page 1 of 11

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

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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
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., 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 affect 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 with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z: A, B, C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 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 EX3DV4

SN:3831

Manufactured: September 6, 2011
Calibrated: January 4, 2012

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.44	0.41	0.43	± 10.1 %
DCP (mV)[B]	101.7	101.4	99.5	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	111.7	±3.0 %
			Y	0.00	0.00	1.00	96.2	
			Z	0.00	0.00	1.00	106.7	

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 Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	9.32	9.32	9.32	0.44	0.84	± 12.0 %
835	41.5	0.90	8.82	8.82	8.82	0.19	1.48	± 12.0 %
900	41.5	0.97	8.71	8.71	8.71	0.22	1.38	± 12.0 %
1750	40.1	1.37	8.03	8.03	8.03	0.39	0.81	± 12.0 %
1900	40.0	1.40	7.76	7.76	7.76	0.44	0.77	± 12.0 %
2000	40.0	1.40	7.65	7.65	7.65	0.61	0.63	± 12.0 %
2300	39.5	1.67	7.44	7.44	7.44	0.41	0.83	± 12.0 %
2450	39.2	1.80	6.84	6.84	6.84	0.49	0.73	± 12.0 %
2600	39.0	1.96	6.67	6.67	6.67	0.33	0.96	± 12.0 %
5200	36.0	4.66	4.64	4.64	4.64	0.42	1.80	± 13.1 %
5300	35.9	4.76	4.37	4.37	4.37	0.44	1.80	± 13.1 %
5600	35.5	5.07	4.10	4.10	4.10	0.48	1.80	± 13.1 %
5800	35.3	5.27	4.12	4.12	4.12	0.45	1.80	± 13.1 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

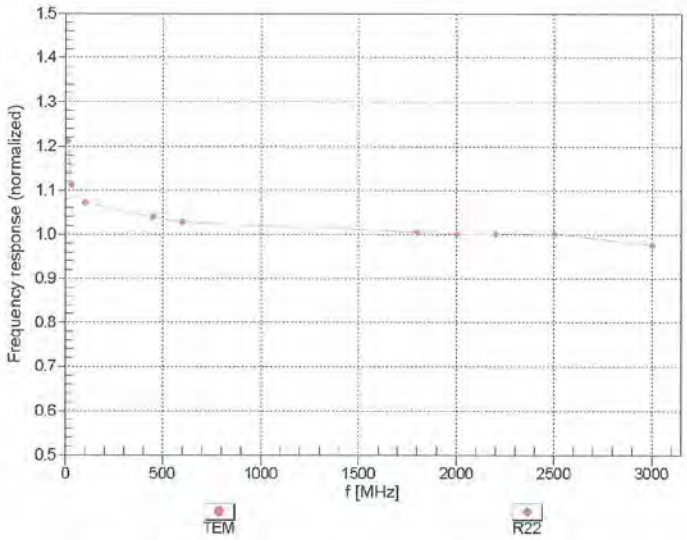
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	9.24	9.24	9.24	0.23	1.25	± 12.0 %
835	55.2	0.97	9.02	9.02	9.02	0.28	1.13	± 12.0 %
900	55.0	1.05	8.93	8.93	8.93	0.25	1.28	± 12.0 %
1750	53.4	1.49	7.67	7.67	7.67	0.38	0.87	± 12.0 %
1900	53.3	1.52	7.25	7.25	7.25	0.57	0.70	± 12.0 %
2000	53.3	1.52	7.31	7.31	7.31	0.27	1.09	± 12.0 %
2300	52.9	1.81	7.26	7.26	7.26	0.71	0.66	± 12.0 %
2450	52.7	1.95	6.82	6.82	6.82	0.74	0.62	± 12.0 %
2600	52.5	2.16	6.63	6.63	6.63	0.80	0.50	± 12.0 %
5200	49.0	5.30	4.12	4.12	4.12	0.50	1.90	± 13.1 %
5300	48.9	5.42	3.92	3.92	3.92	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.30	3.30	3.30	0.65	1.90	± 13.1 %
5800	48.2	6.00	3.77	3.77	3.77	0.60	1.90	± 13.1 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

EX3DV4- SN:3831 January 4, 2012

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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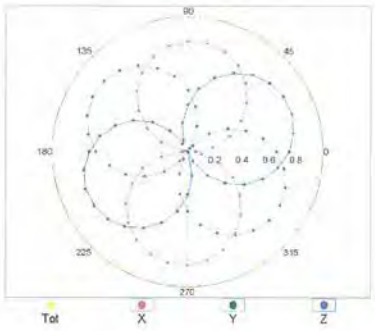
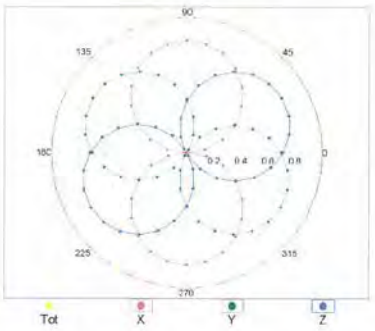
EX3DV4– SN:3831 January 4, 2012

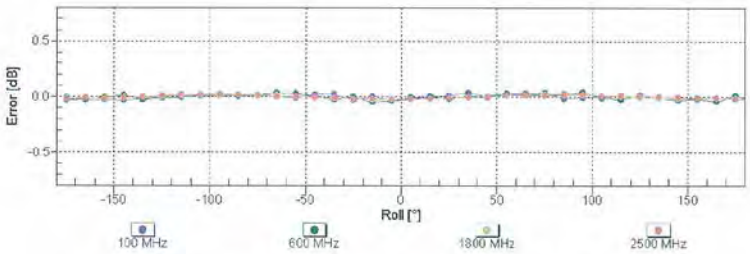
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



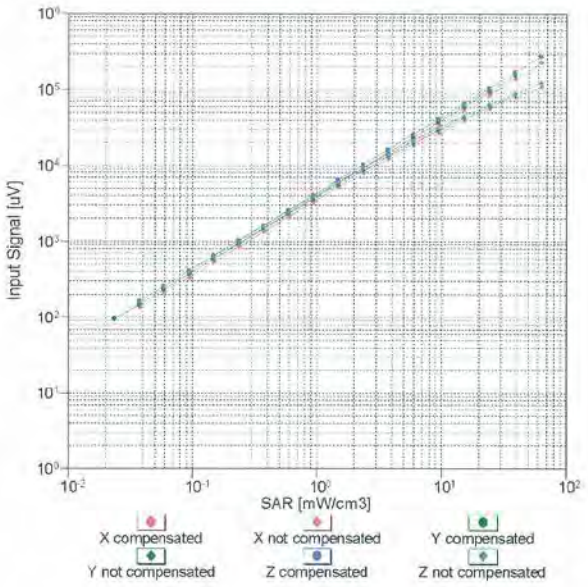
f=1800 MHz,R22

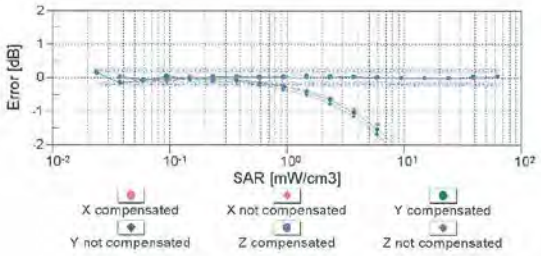




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR$_{head}$)
(TEM cell , f = 900 MHz)



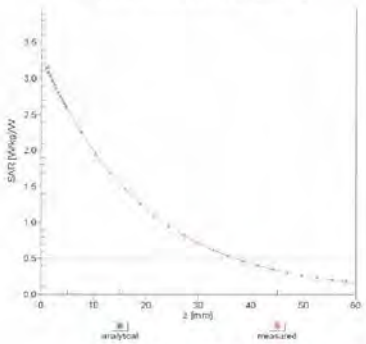


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

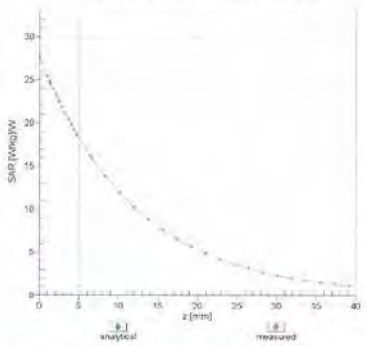
EX3DV4– SN:3831 January 4, 2012

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

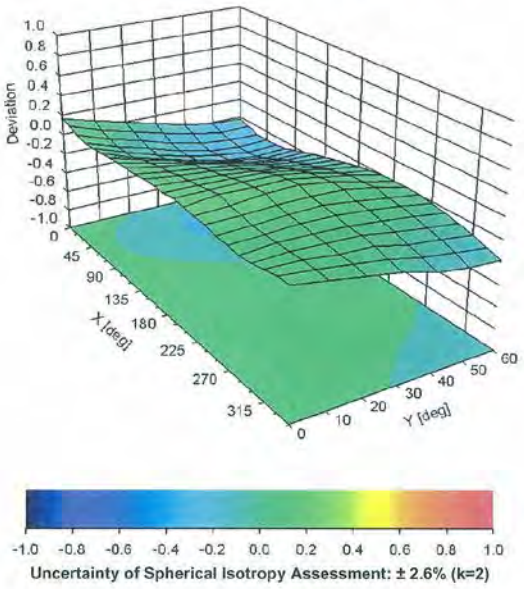


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



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

Certificate No: EX3-3831_Jan12 Page 10 of 11

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

End of 1st part of report