

SAR TEST REPORT

Equipment Under Test	WLAN VoIP Phone
Model Name	SQ-3000
Company Name	UniData Communication Systems, INC.
Company Address	3F, BuLim-Bldg, 837-6, Bangbae 4-dong, Seocho-gu, Seoul-si, Korea
Date of Receipt	2009.07.24
Date of Test(s)	2009.07.31-2009.08.03;2009.08.25
Date of Issue	2009.08.26

Standards:

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

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

Remarks:

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

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Tested by : Ricky Huang Date : 2009.08.26
Asst. Supervisor

Approved by : Robert Chang Date : 2009.08.26
Tech Manager

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1. General Information

1.1 Testing Laboratory

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Taipei county, Taiwan, R.O.C.	
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1.2 Details of Applicant

Company Name	UniData Communication Systems, INC.
Company Address	3F, BuLim-Bldg, 837-6, Bangbae 4-dong, Seocho-gu, Seoul-si, Korea
Contact Person	Park, Byeong-Gil
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1.3 Description of EUT

EUT Name	WLAN VoIP Phone
Model Name	SQ-3000
FCC ID	SQMSQ-3000
Mode of Operation	WLAN802.11 a/b/g
Definition	Production unit
Duty Cycle	WLAN802.11 a/b/g
	1

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Maximum RF Conducted Power (Peak)	WLAN802.11 b	WLAN802.11 g	WLAN802.11 a
	16.78dbm	16.71dbm	16.33dbm
TX Frequency Range (MHz)	WLAN802.11 b	WLAN802.11 g	WLAN802.11 a
	2412-2462		5150-5250 5725-5850
Channel Number (ARFCN)	WLAN802.11 b	WLAN802.11 g	WLAN802.11 a
	1-11		36-161
Battery Type	3.7 V Lithium-Ion		
Antenna Type	Internal Antenna		
Max. SAR Measured (1 g)	Head		Body
	0.255mW/g (At WLAN802.11 b_Right Head (cheek Position)_ 1 Channel)		0.225 mW/g (At WLAN802.11 a_ 36 Channel)

1.4 Test Environment

Ambient Temperature : $22 \pm 2^{\circ} \text{C}$

Tissue Simulating Liquid: $22 \pm 2^{\circ} \text{C}$

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1.5 Operation description

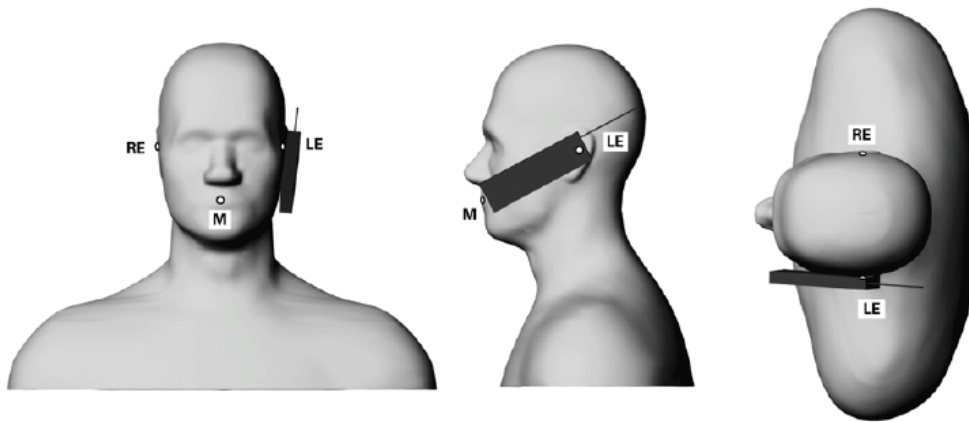
General:

1. Use chipset specific software to control the EUT , and makes it transmit in maximum power. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s).
2. The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.
3. During the SAR testing, the DASY4 system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.
4. Testing Head SAR at lowest, middle and highest channel for all bands with LET/LEC/RET/REC conditions.
5. Testing body-worn SAR by separating **1.5cm** between the back of the EUT and the flat phantom in GPRS mode.

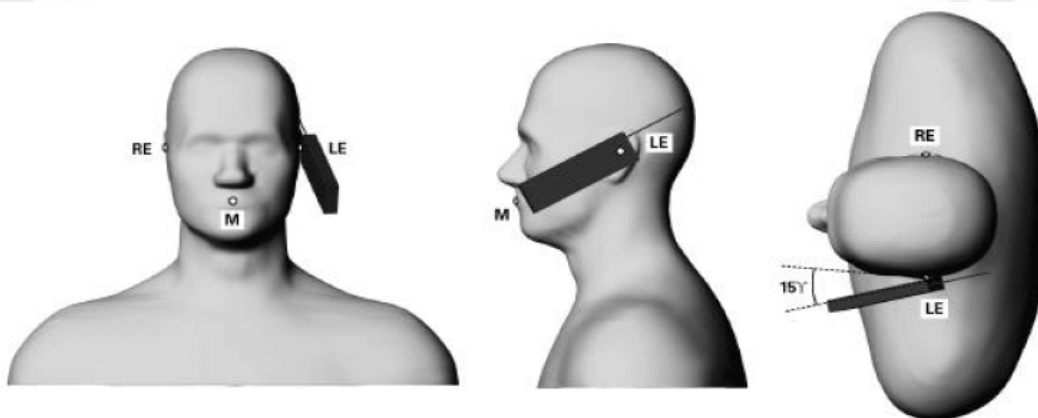
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1.6 Positioning Procedure



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



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

Cheek/Touch Position:

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

Ear/Tilt Position:

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

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1.7 EVALUATION PROCEDURES

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

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

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

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

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area

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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.

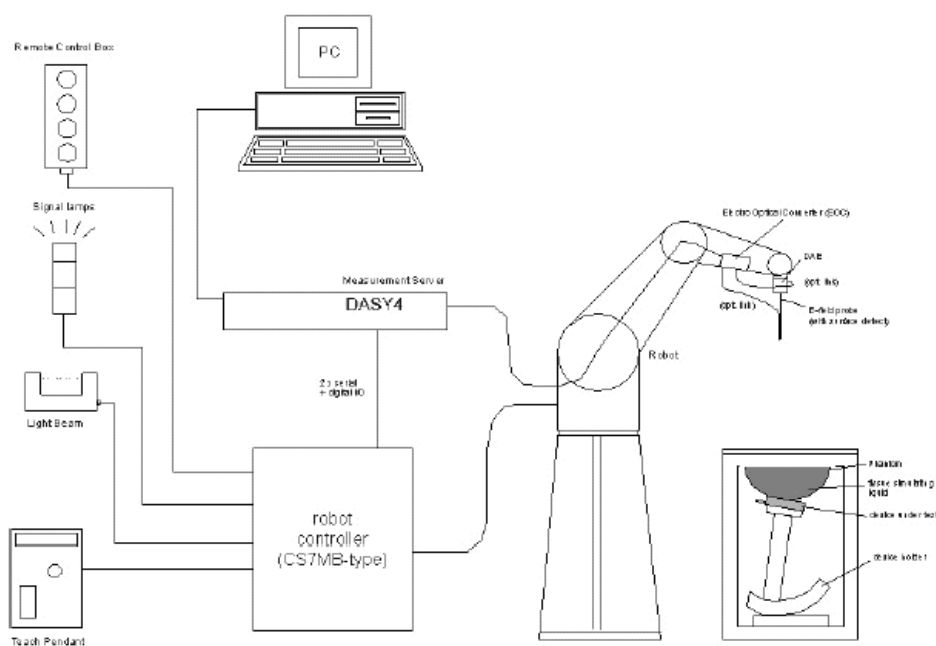
The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 30x30x30mm contains about 30g of tissue. The first procedure is an extrapolation (incl. Boundary correction) to get the points between the lowest measured plane and the surface. The 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 then 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.

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A photograph of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 4 professional system). A Model EX3DV3/ES3DV3 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation $SAR = \sigma (|E_i|^2) / \rho$ where σ and ρ are the conductivity and mass density of the tissue-simulant.



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

- A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion between optical and

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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.

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1.9 System Components

EX3DV3/ES3DV3/EX3DV4 E-Field Probe

Construction:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	 EX3DV3/ES3DV3/EX3DV4 E-Field Probe
Calibration:	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL2450/5200/5800 Additional CF for other liquids and frequencies upon request	
/EXFrequency:	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 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)	
Dimensions:	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
Application:	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	


SAM PHANTOM V4.0C

Construction:	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, CENELEC 50361 and IEC 62209. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.	
Shell Thickness:	2 \pm 0.2 mm	
Filling Volume:	Approx. 25 liters	
Dimensions:	Height: 251 mm; Length: 1000 mm; Width: 500 mm	

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DEVICE HOLDER

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

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within $\pm 5\%$ from the target SAR values.

These tests were done at 2450/5200/5800 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1. During the tests, the ambient temperature of the laboratory was in the range 22.1°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.

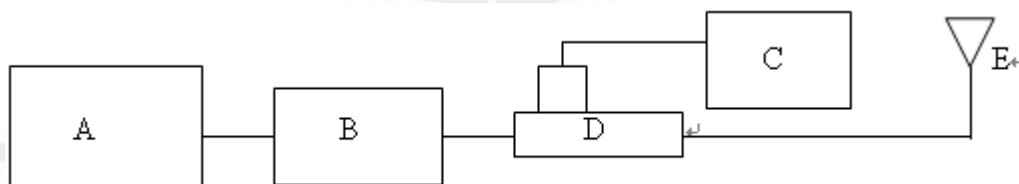
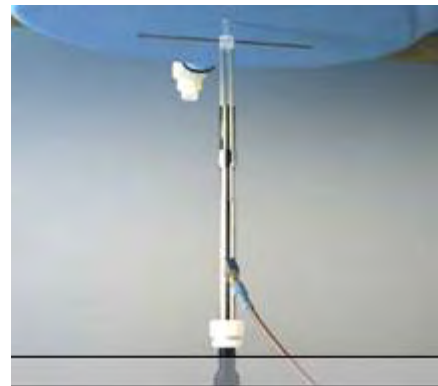


Fig.b The block diagram of system verification

- A. Agilent Model 8648D Signal Generator
- B. Mini circuits Model ZHL-42 Amplifier
- C. Agilent Model U2001B Power Sensor
- D. Agilent Model 777D Dual directional coupling
- E. Reference dipole antenna



Photograph of the dipole Antenna

Validation Kit	Frequency (MHz)	Target SAR (1g) (Pin=250mW)	Measured SAR (1g)	Measured Date
D2450V2 S/N: 727	2450 MHz (Head)	13.5 mW/g	14 mW/g	2009-08-01
D5000V2 S/N: 1023	5200 MHz (Head)	7.7 mW/g	7.99mW/g	2009-07-31
D5000V2 S/N: 1023	5200 MHz (Head)	7.7 mW/g	7.51mW/g	2009-08-25
D5000V2 S/N: 1023	5800 MHz (Head)	7.81 mW/g	8.07mW/g	2009-08-03
D2450V2 S/N: 727	2450 MHz (Body)	13.2 mW/g	13.3mW/g	2009-07-31
D5000V2 S/N: 1023	5200 MHz (Body)	7.4 mW/g	7.5mW/g	2009-07-31
D5000V2 S/N: 1023	5200 MHz (Body)	7.4 mW/g	7.04mW/g	2009-08-25
D5000V2 S/N: 1023	5800 MHz (Body)	7.09 mW/g	7.09mW/g	2009-08-03

Table 1. System validation (follow manufacture target value)

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1.11 Tissue Simulant Fluid for the Frequency Band

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

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

Frequency (MHz)	Tissue type	Measurement date/ Limits	Dielectric Parameters		
			ρ	σ (S/m)	Simulated Tissue Temperature(° C)
2450	Head	Measured, 2009-08-01	39.1	1.9	21.7
		Recommended Limits	36.10-39.90	1.73-1.91	20-24
2450	Body	Measured, 2009-07-31	52.1	2.02	21.7
		Recommended Limits	51.68-57.12	1.88-2.08	20-24
5200	Head	Measured, 2009-07-31	34.8	4.66	21.7
		Recommended Limits	33.63-37.17	4.3-4.76	20-24
5200	Body	Measured, 2009-07-31	49.7	5.34	21.7
		Recommended Limits	45.32-50.09	5.04-5.57	20-24
5200	Head	Measured, 2009-08-25	34.7	4.63	21.7
		Recommended Limits	33.63-37.17	4.3-4.76	20-24
5200	Body	Measured, 2009-08-25	49.5	5.32	21.7
		Recommended Limits	45.32-50.09	5.04-5.57	20-24
5800	Head	Measured, 2009-08-03	35.8	5.3	21.7
		Recommended Limits	32.59-36.02	4.83-5.33	20-24
5800	Body	Measured, 2009-08-03	47	6.28	21.7
		Recommended Limits	43.99-48.62	5.75-6.35	20-24

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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1.12 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate ("SAR") in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.1-1992, Copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017.

These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter.

Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

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

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

Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not

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exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube).

General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure.

Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.(Table .6)

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

Table 4. RF exposure limits

Notes:

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

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2. Summary of Results

WLAN802.11 a

Right Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[° C]	Liquid Temp[° C]
WLAN 802.11 a	36	5180	16.16dbm	0.076	22.1	21.7
	40	5200	16.33dbm	0.093	22.1	21.7
	149	5745	11.37dbm	0.074	22.1	21.7
	165	5825	12.71dbm	0.078	22.1	21.7
Left Head (Cheek Position)						
Fr equency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[° C]	Liquid Temp[° C]
WLAN 802.11 a	36	5180	16.16dbm	0.088	22.1	21.7
	40	5200	16.33dbm	0.090	22.1	21.7
	149	5745	11.37dbm	0.081	22.1	21.7
	165	5825	12.71dbm	0.080	22.1	21.7
Right Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power(Peak)	Measured(W/kg) 1g	Amb. Temp[° C]	Liquid Temp[° C]
WLAN 802.11 a	36	5180	16.16dbm	0.091	22.1	21.7
	40	5200	16.33dbm	0.096	22.1	21.7
	149	5745	11.37dbm	0.1	22.1	21.7
	165	5825	12.71dbm	0.099	22.1	21.7
Left Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[° C]	Liquid Temp[° C]
WLAN 802.11 a	36	5180	16.16dbm	0.122	22.1	21.7
	40	5200	16.33dbm	0.126	22.1	21.7
	149	5745	11.37dbm	0.094	22.1	21.7
	165	5825	12.71dbm	0.107	22.1	21.7

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Body worn						
Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 a	36	5180	16.16dbm	0.225	22.1	21.7
	40	5200	16.33dbm	0.203	22.1	21.7
	149	5745	11.37dbm	0.182	22.1	21.7
	165	5825	12.71dbm	0.196	22.1	21.7
Body worn_repeated for EUT front to phantom						
Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 a	36	5180	16.16dbm	0.015	22.1	21.7
Body worn_repeated with Memory card(micro SD)						
Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 a	36	5180	16.16dbm	0.194	22.1	21.7

WLAN802.11 b

Right Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 b	1	2412	16.78dbm	0.255	22.1	21.7
	6	2437	16.12dbm	0.228	22.1	21.7
	11	2462	15.70dbm	0.228	22.1	21.7
Left Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 b	1	2412	16.78dbm	0.193	22.1	21.7
	6	2437	16.12dbm	0.188	22.1	21.7
	11	2462	15.70dbm	0.190	22.1	21.7

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Right Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 b	1	2412	16.78dbm	0.251	22.1	21.7
	6	2437	16.12dbm	0.227	22.1	21.7
	11	2462	15.70dbm	0.243	22.1	21.7
Left Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 b	1	2412	16.78dbm	0.203	22.1	21.7
	6	2437	16.12dbm	0.208	22.1	21.7
	11	2462	15.70dbm	0.214	22.1	21.7
Right Head (Cheek Position)_repeated with Memory card(micro SD)						
Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 b	1	2412	16.78dbm	0.248	22.1	21.7
Body worn						
Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 b	1	2412	16.78dbm	0.105	22.1	21.7
	6	2437	16.12dbm	0.057	22.1	21.7
	11	2462	15.70dbm	0.052	22.1	21.7

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WLAN802.11 g

Right Head (Cheek Position)

Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 g	1	2412	16.71dbm	0.210	22.1	21.7
	6	2437	16.49dbm	0.205	22.1	21.7
	11	2462	16.24dbm	0.186	22.1	21.7

Left Head (Cheek Position)

Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 g	1	2412	16.71dbm	0.153	22.1	21.7
	6	2437	16.49dbm	0.161	22.1	21.7
	11	2462	16.24dbm	0.154	22.1	21.7

Right Head (15° Tilt Position)

Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 g	1	2412	16.71dbm	0.202	22.1	21.7
	6	2437	16.49dbm	0.206	22.1	21.7
	11	2462	16.24dbm	0.196	22.1	21.7

Left Head (15° Tilt Position)

Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 g	1	2412	16.71dbm	0.208	22.1	21.7
	6	2437	16.49dbm	0.209	22.1	21.7
	11	2462	16.24dbm	0.175	22.1	21.7

Body worn

Frequency	Channel	MHz	Conducted Output Power (Peak)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 g	1	2412	16.71dbm	0.047	22.1	21.7
	6	2437	16.49dbm	0.049	22.1	21.7
	11	2462	16.24dbm	0.076	22.1	21.7

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3. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration
Schmid & Partner Engineering AG	Dosimetric E-FieldProbe	EX3DV3	3526	Aug.26.2008
		ES3DV3	3172	May.27.2009
		EX3DV4	3578	Jun.26.2009
Schmid & Partner Engineering AG	2450/5GMHz System Validation Dipole	D2450V2 D5GHzV2	727 1023	Apr.27.2009 Mar.13.2009
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	547	Jan.20.2009
Schmid & Partner Engineering AG	Software	DASY 4 V4.7 Build80	N/A	Calibration not required
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration not required
HP	Network Analyzer	8753D	3410A05547	Mar.31.2009
Agilent	Dielectric Probe Kit	85070D	US01440168	Calibration not required
Agilent	Dual-directional coupler	777D	50014	Aug.26.2008
Agilent	RF Signal Generator	8648D	MY45093613	May.25.2009
Agilent	Power Sensor	U2001B	MY48100169	Apr.23.2009
R&S	Radio Communication Test	CMU200	113505	Sep.03.2008

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4. Measurements

Date/Time: 2009/7/31 06:21:31

RE Cheek_WLAN802.11 a_CH36

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5180 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 4.6 \text{ mho/m}$; $\epsilon_r = 34.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

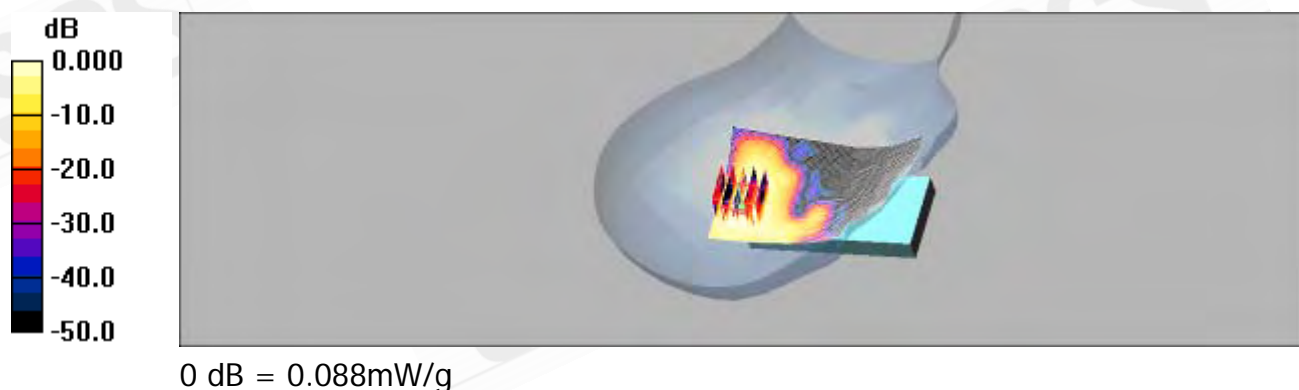
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(5.68, 5.68, 5.68); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

REC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.085 mW/g

REC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 3.13 V/m; Power Drift = 0.107 dB
Peak SAR (extrapolated) = 0.200 W/kg

SAR(1 g) = 0.076 mW/g; SAR(10 g) = 0.029 mW/g
Maximum value of SAR (measured) = 0.088 mW/g



RE Cheek_WLAN802.11 a_CH40

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 4.66 \text{ mho/m}$; $\epsilon_r = 34.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(4.07, 4.07, 4.07); Calibrated: 2009/6/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

REC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.099 mW/g

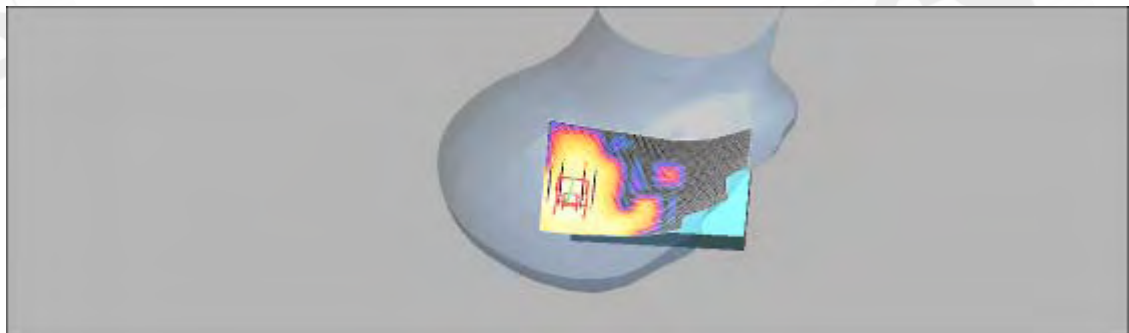
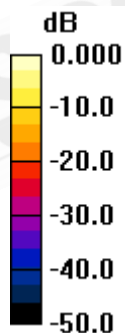
REC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.43 V/m; Power Drift = 0.123 dB

Peak SAR (extrapolated) = 0.249 W/kg

SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.035 mW/g

Maximum value of SAR (measured) = 0.109 mW/g



0 dB = 0.109mW/g

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RE Cheek_WLAN802.11 a_CH149

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used (interpolated): $f = 5745 \text{ MHz}$; $\sigma = 5.23 \text{ mho/m}$;
 $\epsilon_r = 36$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

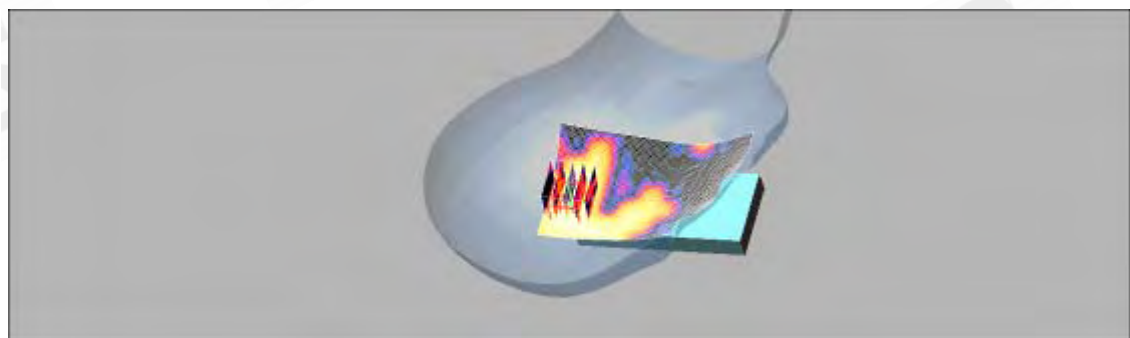
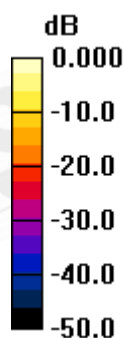
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.9, 4.9, 4.9); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

REC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.079 mW/g

REC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$
Reference Value = 2.68 V/m ; Power Drift = 0.195 dB
Peak SAR (extrapolated) = 0.234 W/kg

SAR(1 g) = 0.074 mW/g ; SAR(10 g) = 0.029 mW/g
Maximum value of SAR (measured) = 0.079 mW/g



0 dB = 0.079 mW/g

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RE Cheek_WLAN802.11 a_CH165

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used (interpolated): $f = 5825 \text{ MHz}$; $\sigma = 5.32 \text{ mho/m}$;
 $\epsilon_r = 35.7$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

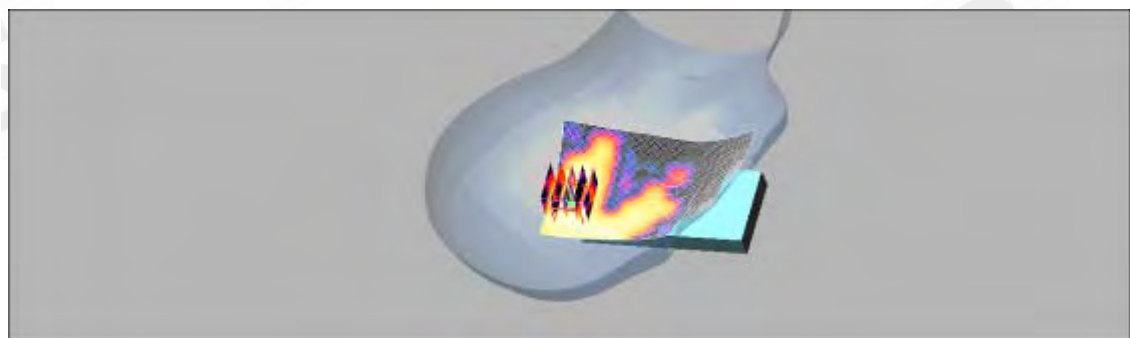
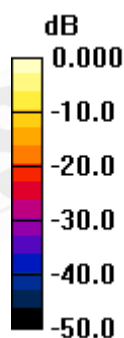
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.9, 4.9, 4.9); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

REC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.080 mW/g

REC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$
Reference Value = 2.65 V/m ; Power Drift = 0.172 dB
Peak SAR (extrapolated) = 0.250 W/kg

SAR(1 g) = 0.078 mW/g ; SAR(10 g) = 0.030 mW/g
Maximum value of SAR (measured) = 0.088 mW/g



0 dB = 0.088 mW/g

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LE Cheek_WLAN802.11 a_CH36

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5180 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 4.6 \text{ mho/m}$; $\epsilon_r = 34.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(5.68, 5.68, 5.68); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LEC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.097 mW/g

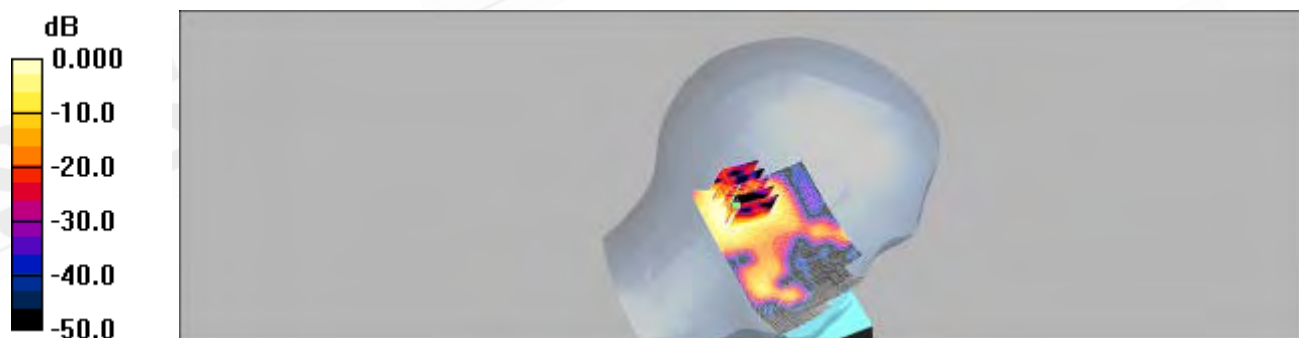
LEC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.81 V/m; Power Drift = 0.118 dB

Peak SAR (extrapolated) = 0.244 W/kg

SAR(1 g) = 0.088 mW/g; SAR(10 g) = 0.034 mW/g

Maximum value of SAR (measured) = 0.101 mW/g



0 dB = 0.101mW/g

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LE Cheek_WLAN802.11 a_CH40

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Head5000 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 4.66 \text{ mho/m}$; $\epsilon_r = 34.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(4.07, 4.07, 4.07); Calibrated: 2009/6/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LEC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.094 mW/g

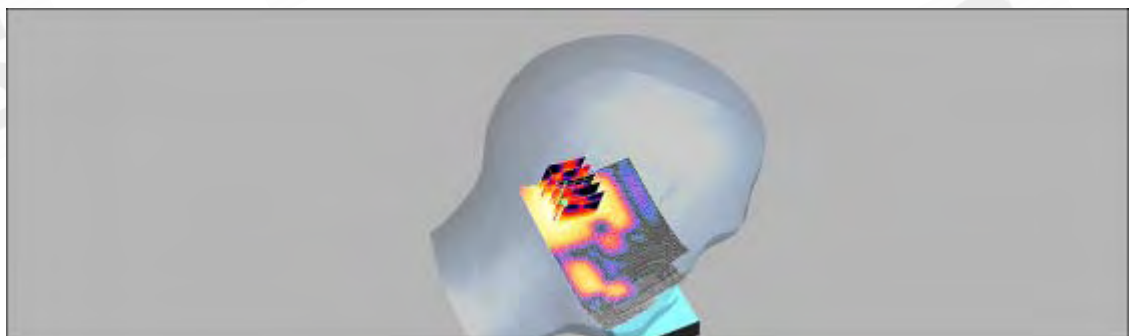
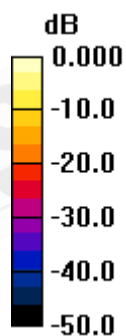
LEC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.93 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.237 W/kg

SAR(1 g) = 0.090 mW/g; SAR(10 g) = 0.034 mW/g

Maximum value of SAR (measured) = 0.107 mW/g



0 dB = 0.107mW/g

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LE Cheek_WLAN802.11 a_CH149

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used (interpolated): $f = 5745 \text{ MHz}$; $\sigma = 5.23 \text{ mho/m}$;
 $\epsilon_r = 36$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.9, 4.9, 4.9); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LEC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.094 mW/g

LEC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 2.35 V/m; Power Drift = 0.155 dB
Peak SAR (extrapolated) = 0.238 W/kg

SAR(1 g) = 0.081 mW/g; SAR(10 g) = 0.031 mW/g
Maximum value of SAR (measured) = 0.093 mW/g



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LE Cheek_WLAN802.11 a_CH165

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used (interpolated): $f = 5825 \text{ MHz}$; $\sigma = 5.32 \text{ mho/m}$;
 $\epsilon_r = 35.7$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.9, 4.9, 4.9); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LEC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

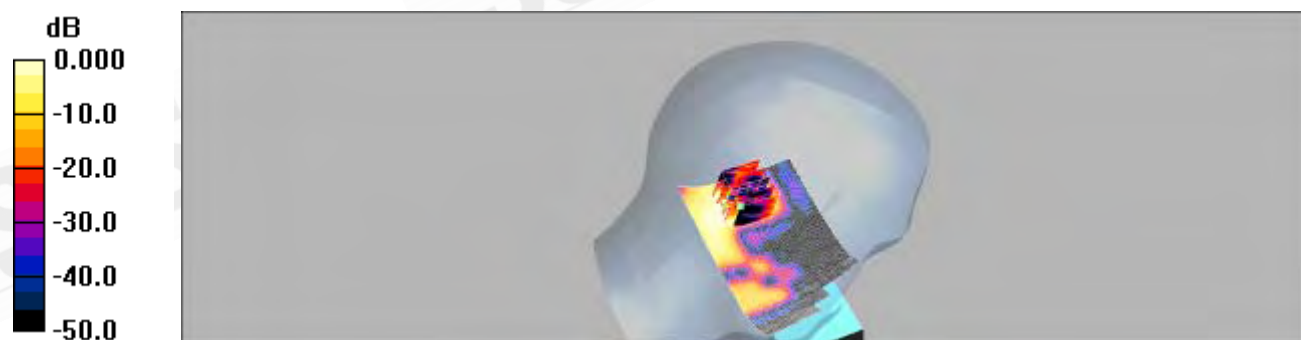
LEC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.34 V/m; Power Drift = 0.147 dB

Peak SAR (extrapolated) = 0.258 W/kg

SAR(1 g) = 0.080 mW/g; SAR(10 g) = 0.028 mW/g

Maximum value of SAR (measured) = 0.104 mW/g



0 dB = 0.104mW/g

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RE Tilt_WLAN802.11 a_CH36

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5180 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 4.6 \text{ mho/m}$; $\epsilon_r = 34.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

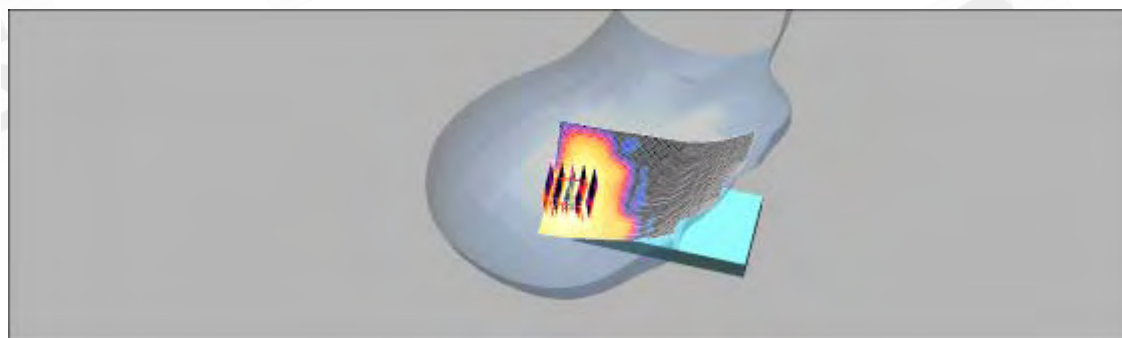
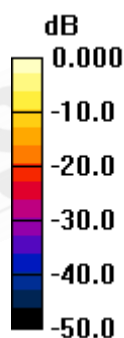
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(5.68, 5.68, 5.68); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.121 mW/g

RET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$
Reference Value = 3.45 V/m; Power Drift = -0.168 dB
Peak SAR (extrapolated) = 0.335 W/kg

SAR(1 g) = 0.091 mW/g; SAR(10 g) = 0.034 mW/g
Maximum value of SAR (measured) = 0.124 mW/g



0 dB = 0.124mW/g

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RE Tilt_WLAN802.11 a_CH40

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 4.66 \text{ mho/m}$; $\epsilon_r = 34.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(4.07, 4.07, 4.07); Calibrated: 2009/6/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.129 mW/g

RET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.40 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.637 W/kg

SAR(1 g) = 0.096 mW/g; SAR(10 g) = 0.037 mW/g

Maximum value of SAR (measured) = 0.136 mW/g



0 dB = 0.136mW/g

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RE Tilt_WLAN802.11 a_CH149

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used (interpolated): $f = 5745 \text{ MHz}$; $\sigma = 5.23 \text{ mho/m}$;
 $\epsilon_r = 36$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

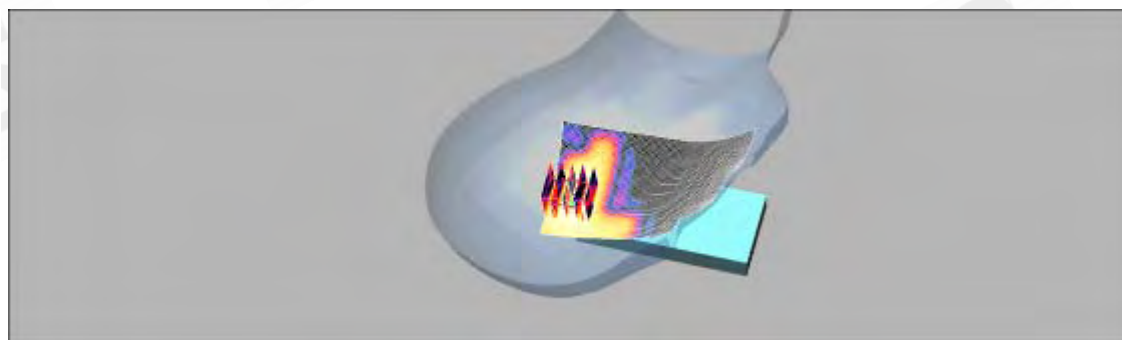
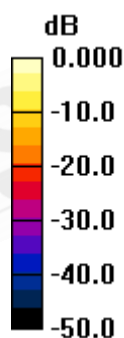
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.9, 4.9, 4.9); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.111 mW/g

RET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$
Reference Value = 2.68 V/m; Power Drift = 0.170 dB
Peak SAR (extrapolated) = 0.293 W/kg

SAR(1 g) = 0.100 mW/g; SAR(10 g) = 0.036 mW/g
Maximum value of SAR (measured) = 0.119 mW/g



0 dB = 0.119mW/g

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RE Tilt_WLAN802.11 a_CH165

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used (interpolated): $f = 5825 \text{ MHz}$; $\sigma = 5.32 \text{ mho/m}$;
 $\epsilon_r = 35.7$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

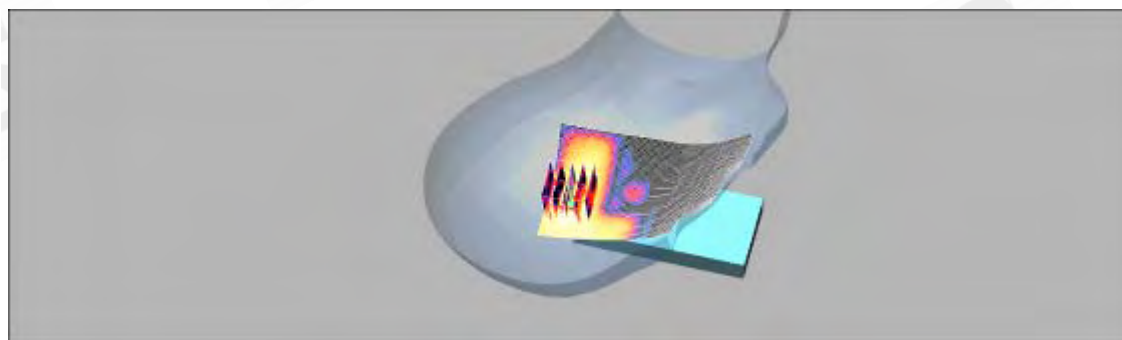
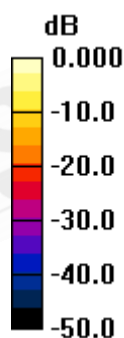
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.9, 4.9, 4.9); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.109 mW/g

RET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$
Reference Value = 2.71 V/m ; Power Drift = 0.161 dB
Peak SAR (extrapolated) = 0.301 W/kg

SAR(1 g) = 0.099 mW/g ; SAR(10 g) = 0.037 mW/g
Maximum value of SAR (measured) = 0.116 mW/g



0 dB = 0.116 mW/g

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LE Tilt_WLAN802.11 a_CH36

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5180 MHz; Duty Cycle: 1:1

Medium: Head5000 Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 4.6 \text{ mho/m}$; $\epsilon_r = 34.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(5.68, 5.68, 5.68); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.117 mW/g

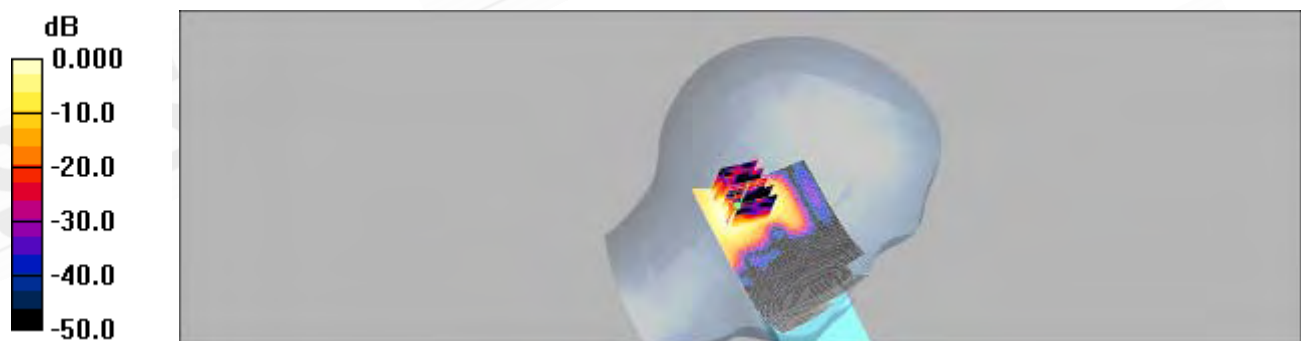
LET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.85 V/m; Power Drift = 0.186 dB

Peak SAR (extrapolated) = 0.446 W/kg

SAR(1 g) = 0.122 mW/g; SAR(10 g) = 0.043 mW/g

Maximum value of SAR (measured) = 0.120 mW/g



0 dB = 0.120mW/g

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LE Tilt_WLAN802.11 a_CH40

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 4.66 \text{ mho/m}$; $\epsilon_r = 34.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(4.07, 4.07, 4.07); Calibrated: 2009/6/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.121 mW/g

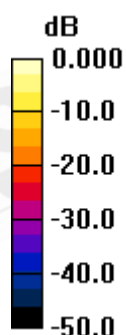
LET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.91 V/m; Power Drift = 0.173 dB

Peak SAR (extrapolated) = 0.418 W/kg

SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.045 mW/g

Maximum value of SAR (measured) = 0.132 mW/g



0 dB = 0.132mW/g

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LE Tilt_WLAN802.11 a_CH149

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used (interpolated): $f = 5745 \text{ MHz}$; $\sigma = 5.23 \text{ mho/m}$;
 $\epsilon_r = 36$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

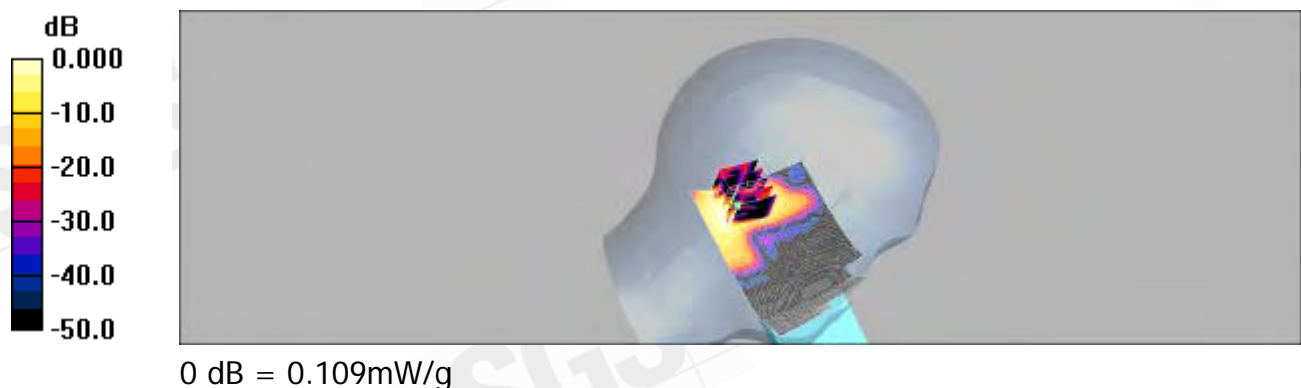
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.9, 4.9, 4.9); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.107 mW/g

LET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 2.34 V/m; Power Drift = 0.118 dB
Peak SAR (extrapolated) = 0.275 W/kg

SAR(1 g) = 0.094 mW/g; SAR(10 g) = 0.035 mW/g
Maximum value of SAR (measured) = 0.109 mW/g



LE Tilt_WLAN802.11 a_CH165

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium: Head5000 Medium parameters used (interpolated): $f = 5825 \text{ MHz}$; $\sigma = 5.32 \text{ mho/m}$;
 $\epsilon_r = 35.7$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

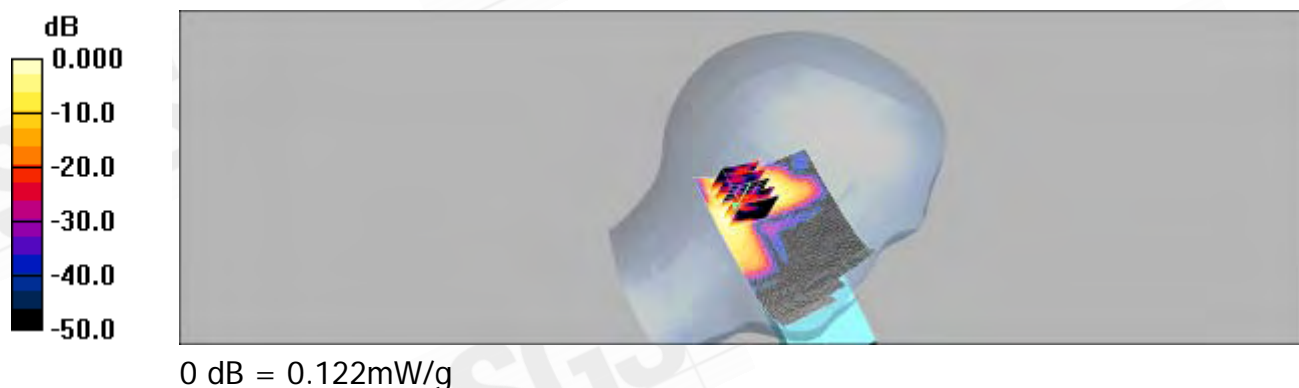
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.9, 4.9, 4.9); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.129 mW/g

LET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 2.44 V/m; Power Drift = 0.166 dB
Peak SAR (extrapolated) = 0.310 W/kg

SAR(1 g) = 0.107 mW/g; SAR(10 g) = 0.040 mW/g
Maximum value of SAR (measured) = 0.122 mW/g



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BODY_WLAN802.11 a_CH36**DUT: SQ-3000;**

Communication System: WLAN802.11 a-FCC; Frequency: 5180 MHz; Duty Cycle: 1:1
Medium: Muscle5000 Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 5.35 \text{ mho/m}$; $\epsilon_r = 49.6$;
 $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.89, 4.89, 4.89); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.225 mW/g

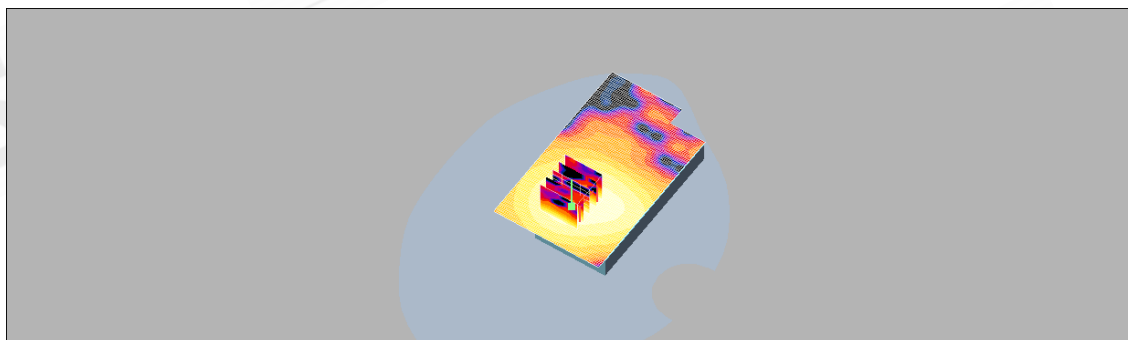
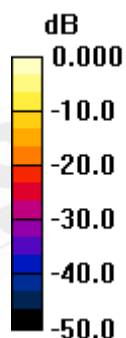
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 4.59 V/m; Power Drift = -0.009 dB

Peak SAR (extrapolated) = 0.748 W/kg

SAR(1 g) = 0.225 mW/g; SAR(10 g) = 0.098 mW/g

Maximum value of SAR (measured) = 0.223 mW/g



0 dB = 0.223mW/g

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BODY_WLAN802.11 a_CH40

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: Muscle5000 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 5.44 \text{ mho/m}$; $\epsilon_r = 49.5$;
 $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.7, 3.7, 3.7); Calibrated: 2009/6/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.205 mW/g

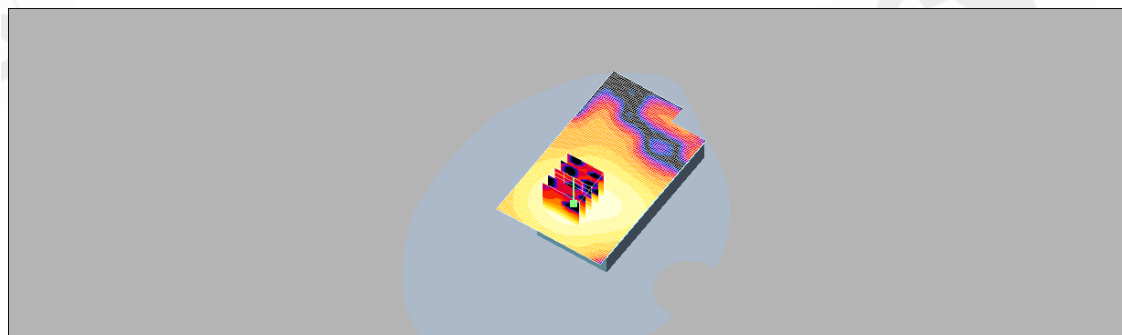
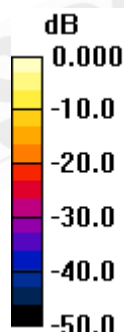
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 4.56 V/m; Power Drift = 0.019 dB

Peak SAR (extrapolated) = 0.677 W/kg

SAR(1 g) = 0.203 mW/g; SAR(10 g) = 0.085 mW/g

Maximum value of SAR (measured) = 0.202 mW/g



0 dB = 0.202mW/g

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BODY_WLAN802.11 a_CH149

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium: Muscle5000 Medium parameters used (interpolated): $f = 5745 \text{ MHz}$; $\sigma = 6.27 \text{ mho/m}$; $\epsilon_r = 47.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.44, 4.44, 4.44); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.203 mW/g

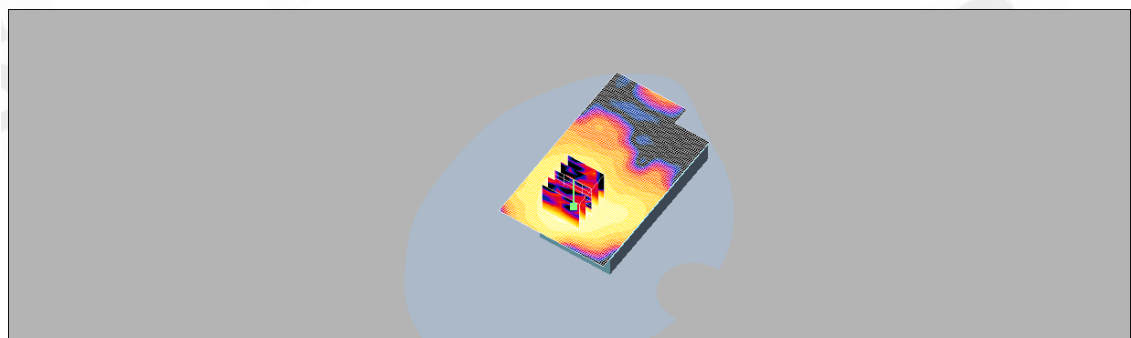
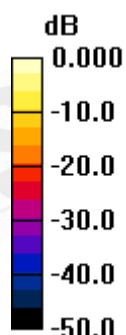
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 4.07 V/m ; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 0.445 W/kg

SAR(1 g) = 0.182 mW/g ; SAR(10 g) = 0.071 mW/g

Maximum value of SAR (measured) = 0.210 mW/g



0 dB = 0.210 mW/g

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BODY_WLAN802.11 a_CH165**DUT: SQ-3000;**

Communication System: WLAN802.11 a-FCC; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium: Muscle5000 Medium parameters used (extrapolated): $f = 5825 \text{ MHz}$; $\sigma = 6.29 \text{ mho/m}$; $\epsilon_r = 47$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

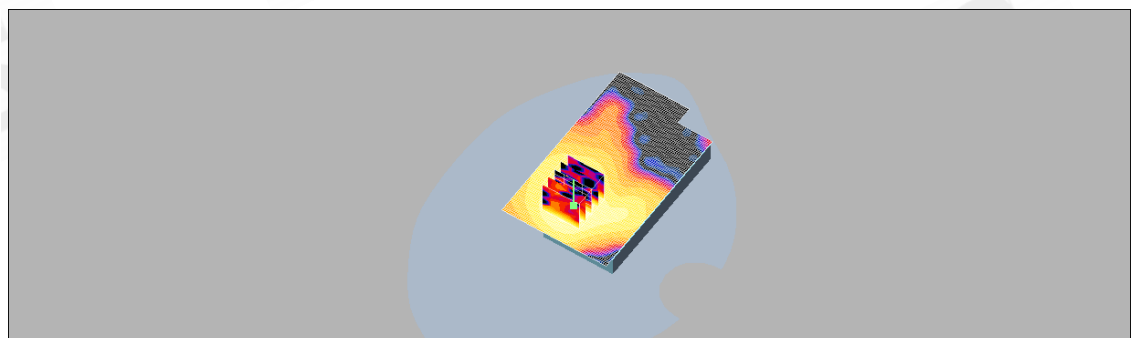
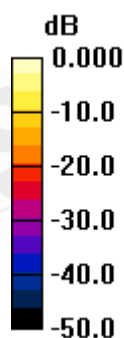
DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.44, 4.44, 4.44); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.215 mW/g

BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$
Reference Value = 4.02 V/m ; Power Drift = 0.193 dB
Peak SAR (extrapolated) = 0.566 W/kg

SAR(1 g) = 0.196 mW/g ; SAR(10 g) = 0.078 mW/g
Maximum value of SAR (measured) = 0.219 mW/g



0 dB = 0.219 mW/g

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BODY_WLAN802.11 a_CH36_ repeated for EUT front to phantom

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5180 MHz; Duty Cycle: 1:1

Medium: Muscle5000 Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 5.35 \text{ mho/m}$; $\epsilon_r = 49.6$;

$\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.89, 4.89, 4.89); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.017 mW/g

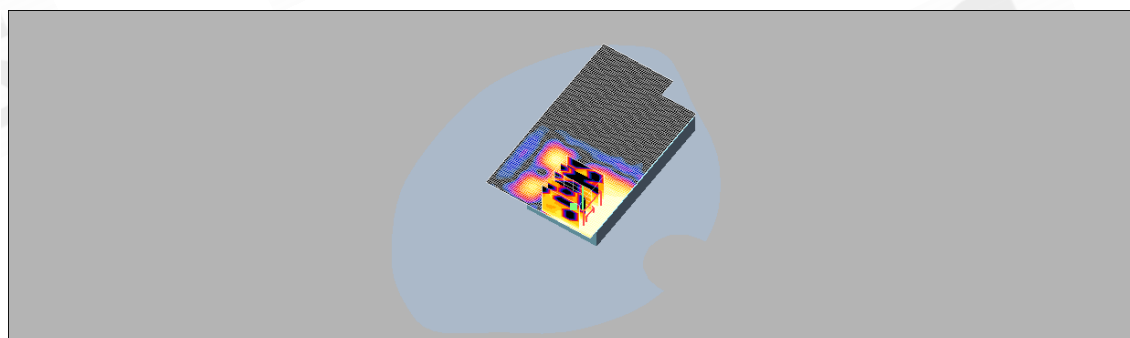
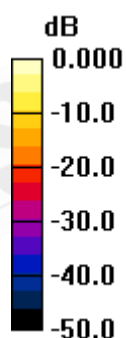
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 1.36 V/m ; Power Drift = 0.143 dB

Peak SAR (extrapolated) = 0.057 W/kg

SAR(1 g) = 0.015 mW/g ; SAR(10 g) = 0.00604 mW/g

Maximum value of SAR (measured) = 0.017 mW/g



0 dB = 0.017mW/g

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BODY_WLAN802.11 a_CH36_repeated with Memory card (micro SD)

DUT: SQ-3000;

Communication System: WLAN802.11 a-FCC; Frequency: 5180 MHz; Duty Cycle: 1:1
Medium: Muscle5000 Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 5.35 \text{ mho/m}$; $\epsilon_r = 49.6$;
 $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.89, 4.89, 4.89); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.191 mW/g

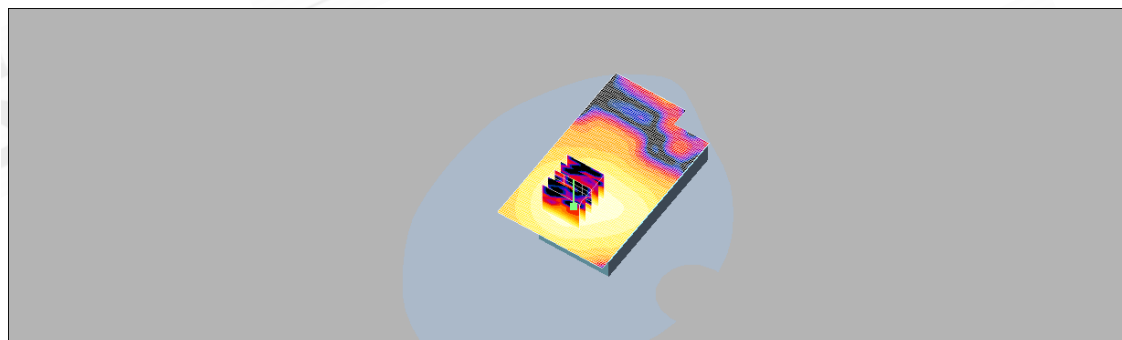
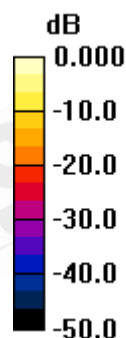
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 4.39 V/m; Power Drift = -0.075 dB

Peak SAR (extrapolated) = 0.655 W/kg

SAR(1 g) = 0.194 mW/g; SAR(10 g) = 0.083 mW/g

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



0 dB = 0.194mW/g

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RE Cheek_WLAN802.11 b_CH1

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.87 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

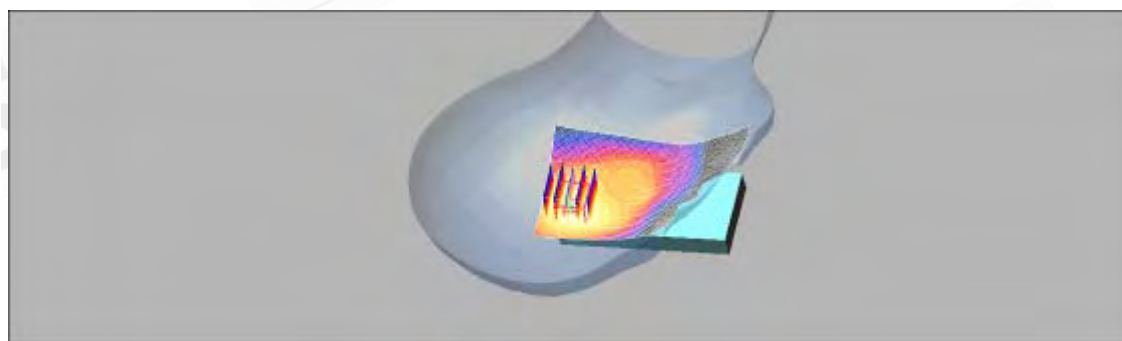
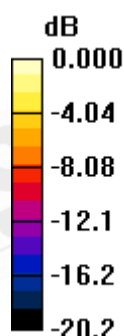
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_Cheek/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.264 mW/g

RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.50 V/m; Power Drift = 0.101 dB
Peak SAR (extrapolated) = 0.477 W/kg

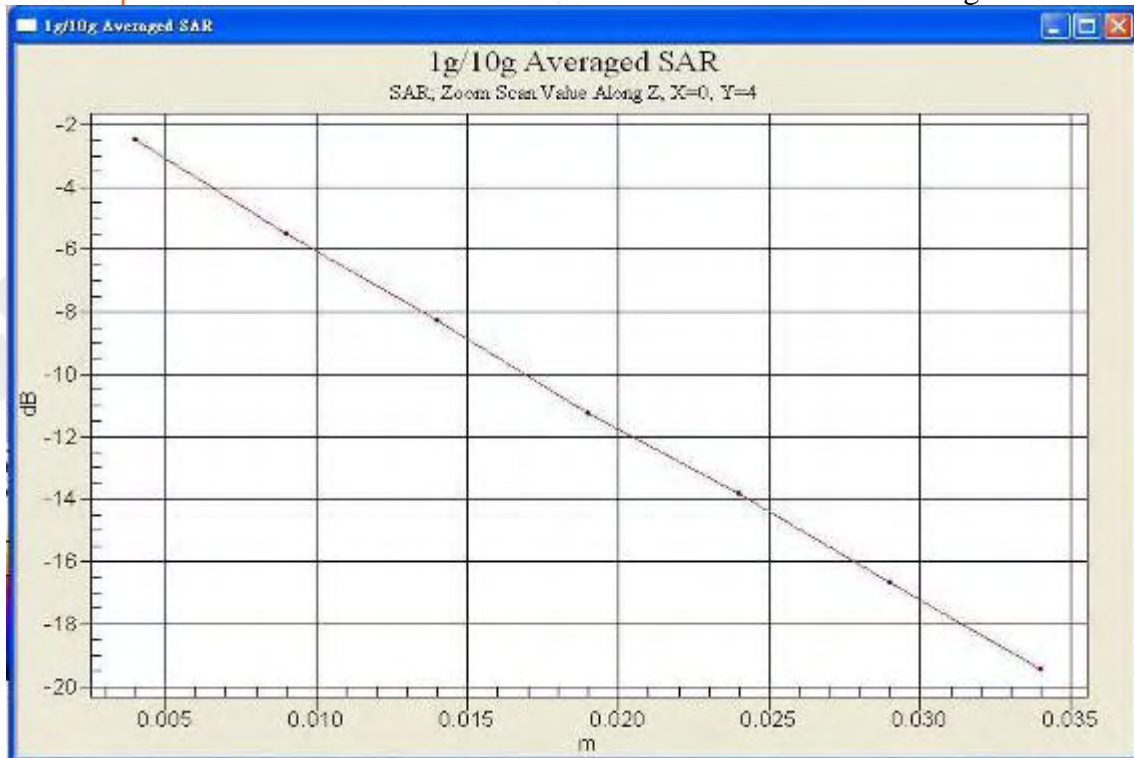
SAR(1 g) = 0.255 mW/g; SAR(10 g) = 0.138 mW/g
Maximum value of SAR (measured) = 0.275 mW/g



0 dB = 0.275mW/g

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RE Cheek_WLAN802.11 b_CH6

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.89 \text{ mho/m}$; $\epsilon_r = 39.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

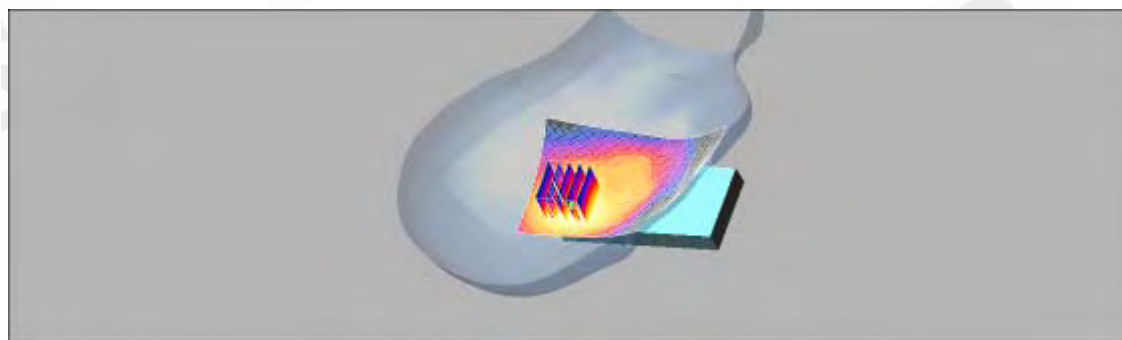
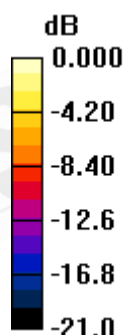
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

REC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.243 mW/g

REC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.17 V/m ; Power Drift = 0.049 dB
Peak SAR (extrapolated) = 0.437 W/kg

SAR(1 g) = 0.228 mW/g ; SAR(10 g) = 0.121 mW/g
Maximum value of SAR (measured) = 0.240 mW/g



0 dB = 0.240 mW/g

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RE Cheek_WLAN802.11 b_CH11

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.90 \text{ mho/m}$; $\epsilon_r = 39$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

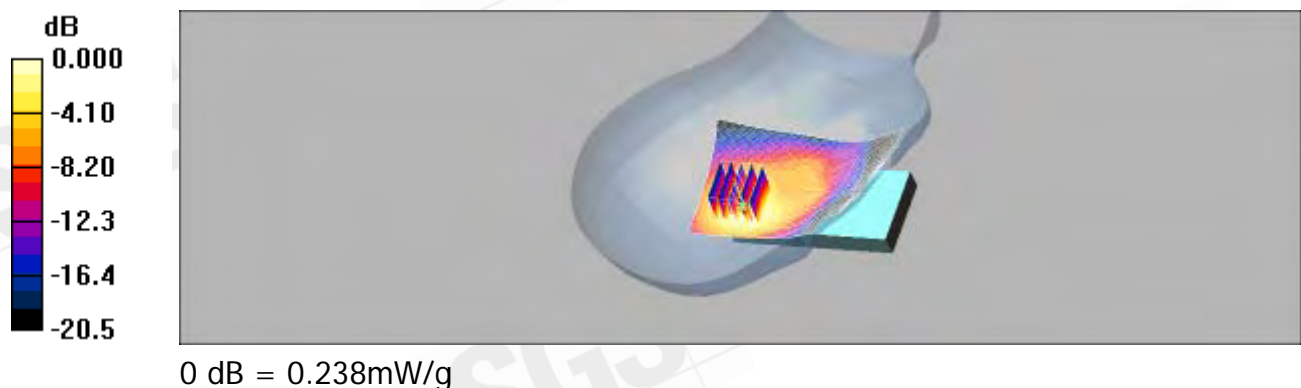
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

REC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.242 mW/g

REC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.18 V/m; Power Drift = 0.105 dB
Peak SAR (extrapolated) = 0.437 W/kg

SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.122 mW/g
Maximum value of SAR (measured) = 0.238 mW/g



LE Cheek_WLAN802.11 b_CH1

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.87 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

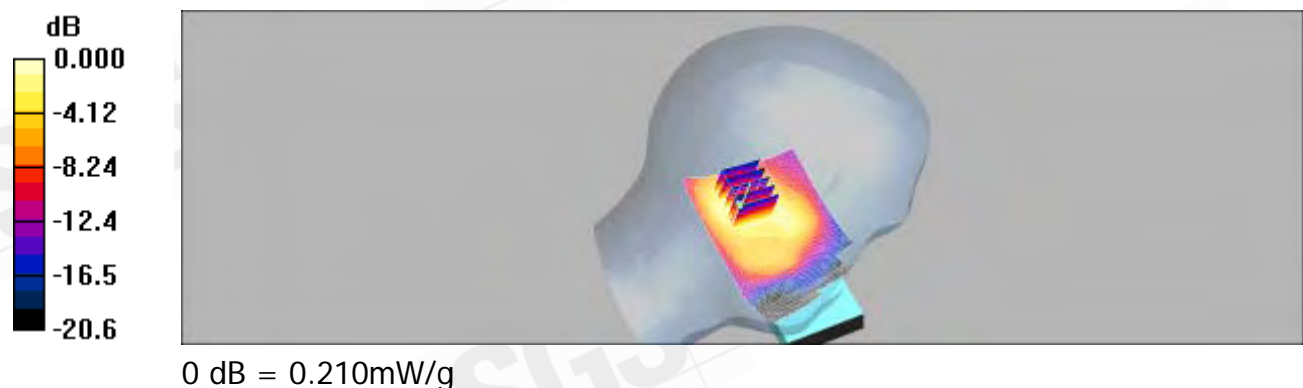
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:14190020
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LEC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.209 mW/g

LEC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.22 V/m ; Power Drift = 0.076 dB
Peak SAR (extrapolated) = 0.364 W/kg

SAR(1 g) = 0.193 mW/g ; SAR(10 g) = 0.104 mW/g
Maximum value of SAR (measured) = 0.210 mW/g



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LE Cheek_WLAN802.11 b_CH6

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.89 \text{ mho/m}$; $\epsilon_r = 39.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

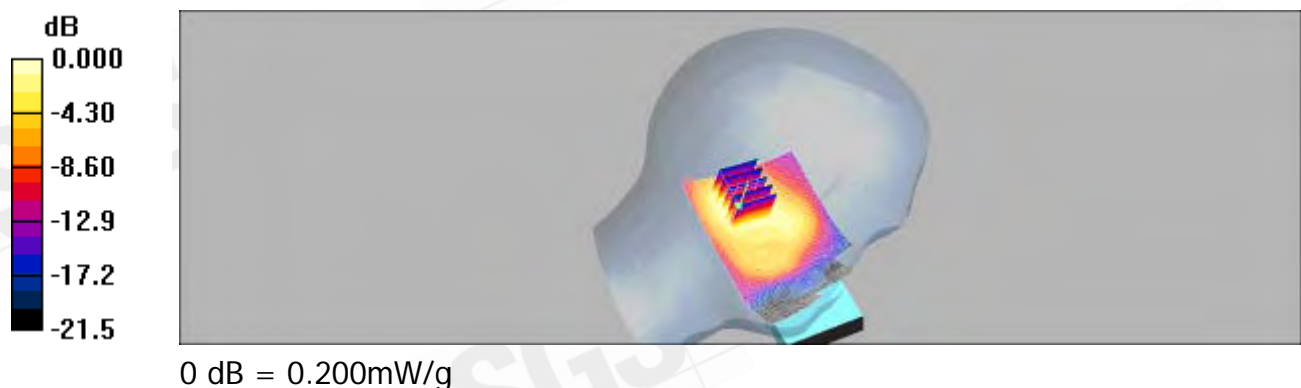
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LEC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.199 mW/g

LEC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.01 V/m; Power Drift = 0.127 dB
Peak SAR (extrapolated) = 0.353 W/kg

SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.102 mW/g
Maximum value of SAR (measured) = 0.200 mW/g



LE Cheek_WLAN802.11 b_CH11

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.90 \text{ mho/m}$; $\epsilon_r = 39$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

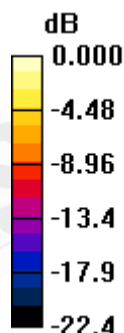
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LEC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.205 mW/g

LEC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 8.93 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 0.358 W/kg

SAR(1 g) = 0.190 mW/g; SAR(10 g) = 0.102 mW/g
Maximum value of SAR (measured) = 0.203 mW/g



0 dB = 0.203mW/g

RE Tilt_WLAN802.11 b_CH1

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: HEAD 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.87 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.277 mW/g

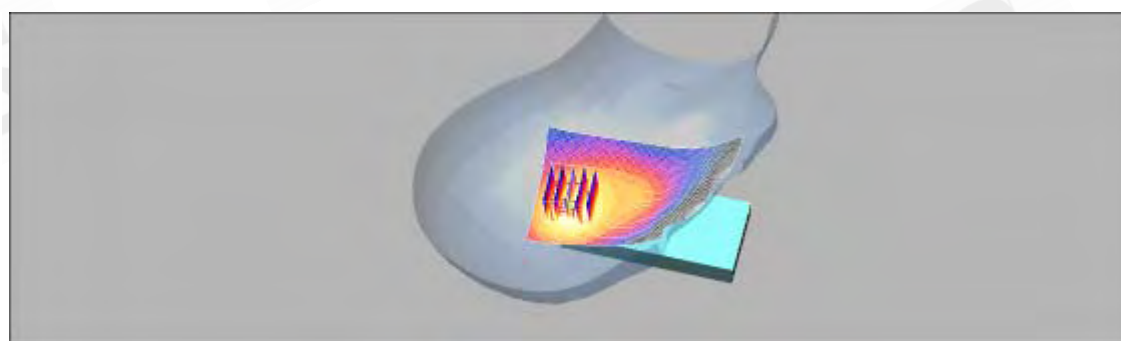
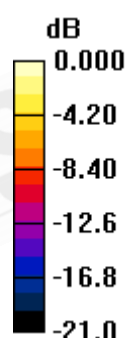
RET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.4 V/m ; Power Drift = 0.017 dB

Peak SAR (extrapolated) = 0.487 W/kg

SAR(1 g) = 0.251 mW/g ; SAR(10 g) = 0.130 mW/g

Maximum value of SAR (measured) = 0.266 mW/g



0 dB = 0.266 mW/g

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RE Tilt_WLAN802.11 b_CH6

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.89 \text{ mho/m}$; $\epsilon_r = 39.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

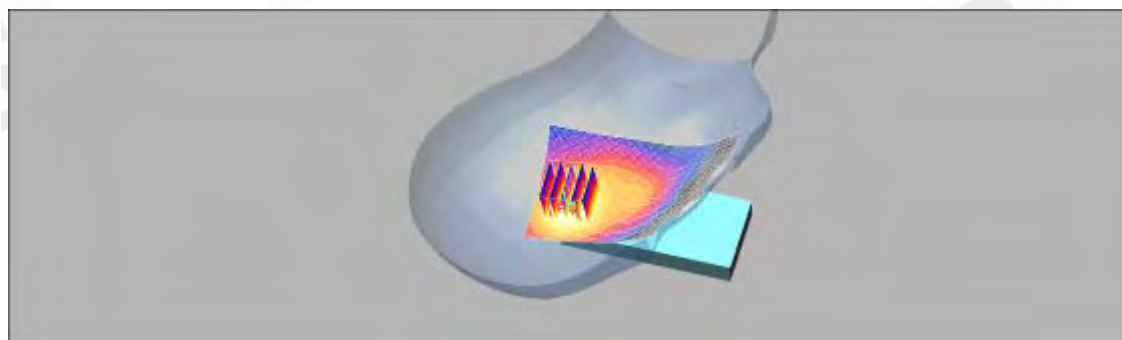
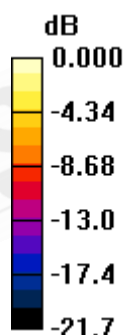
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.246 mW/g

RET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.80 V/m ; Power Drift = -0.012 dB
Peak SAR (extrapolated) = 0.448 W/kg

SAR(1 g) = 0.227 mW/g ; SAR(10 g) = 0.117 mW/g
Maximum value of SAR (measured) = 0.240 mW/g



0 dB = 0.240 mW/g

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RE Tilt_WLAN802.11 b_CH11

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.90 \text{ mho/m}$; $\epsilon_r = 39$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

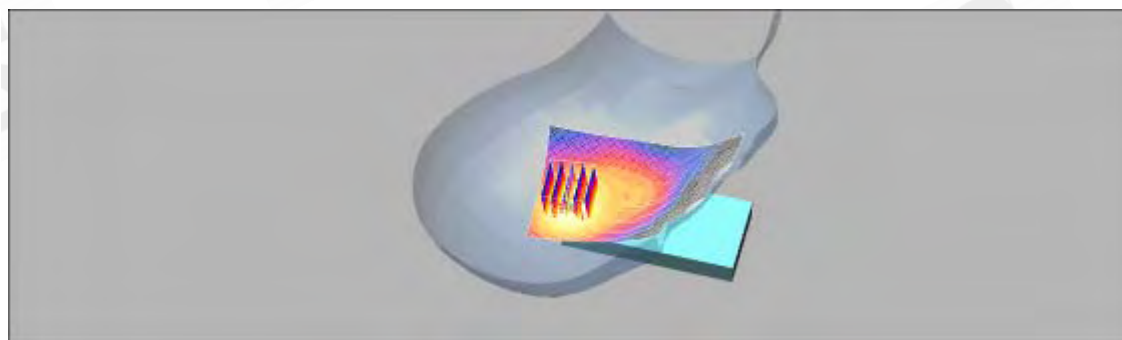
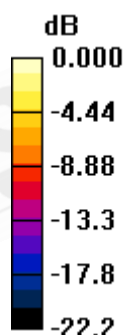
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.266 mW/g

RET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$
Reference Value = 10.0 V/m; Power Drift = 0.139 dB
Peak SAR (extrapolated) = 0.480 W/kg

SAR(1 g) = 0.243 mW/g; SAR(10 g) = 0.124 mW/g
Maximum value of SAR (measured) = 0.260 mW/g



0 dB = 0.260mW/g

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LE Tilt_WLAN802.11 b_CH1

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.87 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

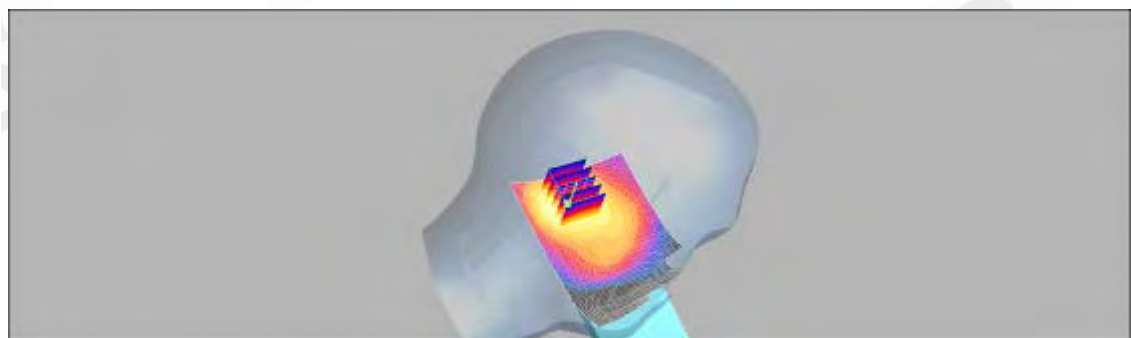
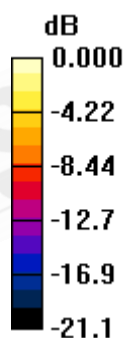
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.228 mW/g

RET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.89 V/m; Power Drift = -0.173 dB
Peak SAR (extrapolated) = 0.379 W/kg

SAR(1 g) = 0.203 mW/g; SAR(10 g) = 0.109 mW/g
Maximum value of SAR (measured) = 0.220 mW/g



0 dB = 0.220mW/g

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LE Tilt_WLAN802.11 b_CH6

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.89 \text{ mho/m}$; $\epsilon_r = 39.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

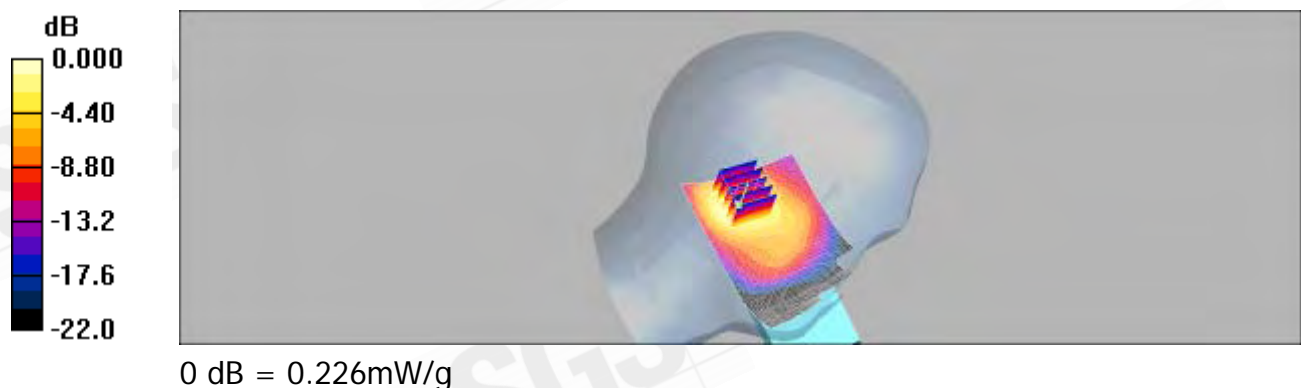
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.232 mW/g

LET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.69 V/m; Power Drift = -0.023 dB
Peak SAR (extrapolated) = 0.396 W/kg

SAR(1 g) = 0.208 mW/g; SAR(10 g) = 0.111 mW/g
Maximum value of SAR (measured) = 0.226 mW/g



LE Tilt_WLAN802.11 b_CH11

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.90 \text{ mho/m}$; $\epsilon_r = 39$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

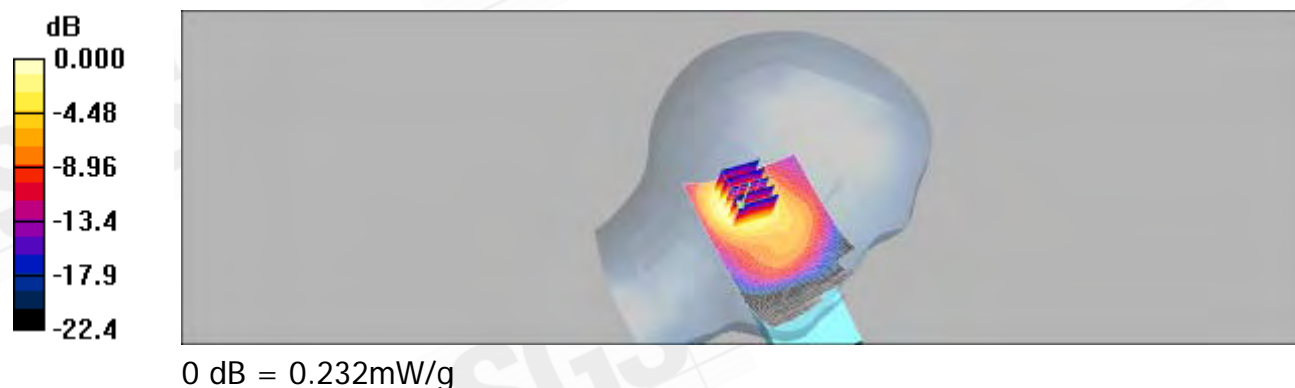
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.243 mW/g

LET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.86 V/m ; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 0.408 W/kg

SAR(1 g) = 0.214 mW/g ; SAR(10 g) = 0.113 mW/g
Maximum value of SAR (measured) = 0.232 mW/g



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RE Cheek_WLAN802.11 b_CH1_repeated with Memory card(micro SD)

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: HEAD 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.87 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RE_Cheek/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.278 mW/g

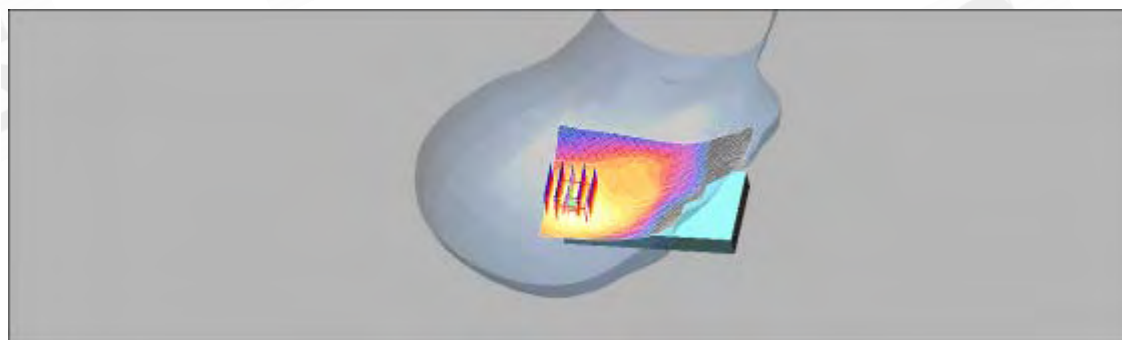
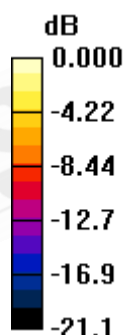
RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.53 V/m; Power Drift = 0.079 dB

Peak SAR (extrapolated) = 0.472 W/kg

SAR(1 g) = 0.248 mW/g; SAR(10 g) = 0.133 mW/g

Maximum value of SAR (measured) = 0.263 mW/g



0 dB = 0.263mW/g

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BODY_WLAN802.11 b_CH1

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.95 \text{ mho/m}$; $\epsilon_r = 52$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.114 mW/g

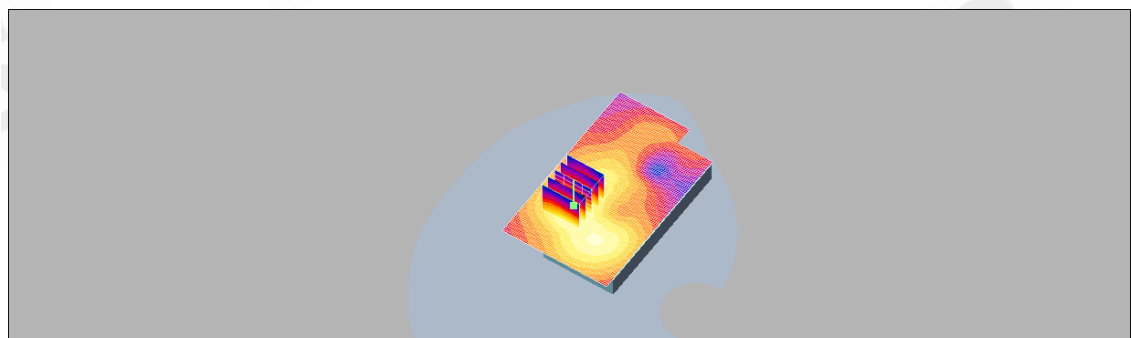
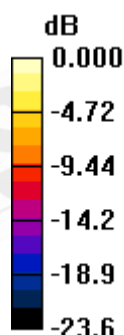
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.72 V/m; Power Drift = 0.099 dB

Peak SAR (extrapolated) = 0.207 W/kg

SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.055 mW/g

Maximum value of SAR (measured) = 0.113 mW/g



0 dB = 0.113mW/g

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BODY_WLAN802.11 b_CH_6

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.99 \text{ mho/m}$; $\epsilon_r = 52$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.064 mW/g

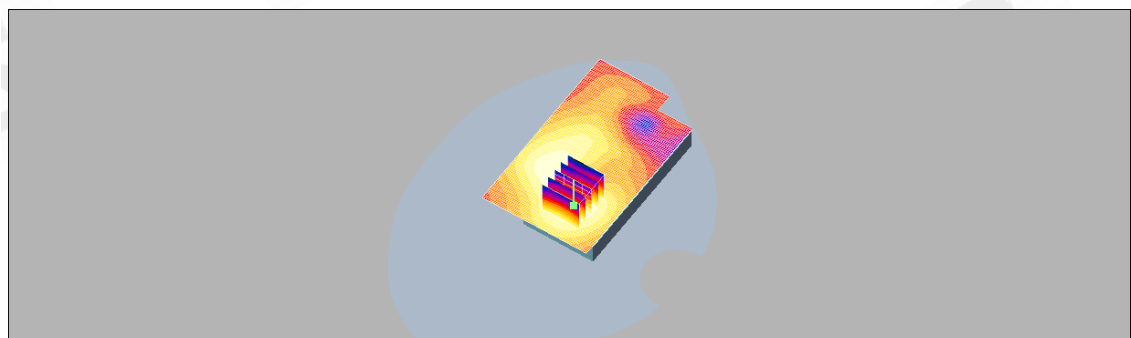
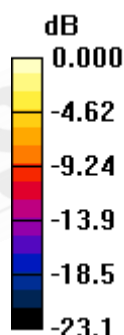
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.07 V/m; Power Drift = 0.032 dB

Peak SAR (extrapolated) = 0.100 W/kg

SAR(1 g) = 0.057 mW/g; SAR(10 g) = 0.032 mW/g

Maximum value of SAR (measured) = 0.061 mW/g



0 dB = 0.061mW/g

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BODY_WLAN802.11 b_CH_11**DUT: SQ-3000;**

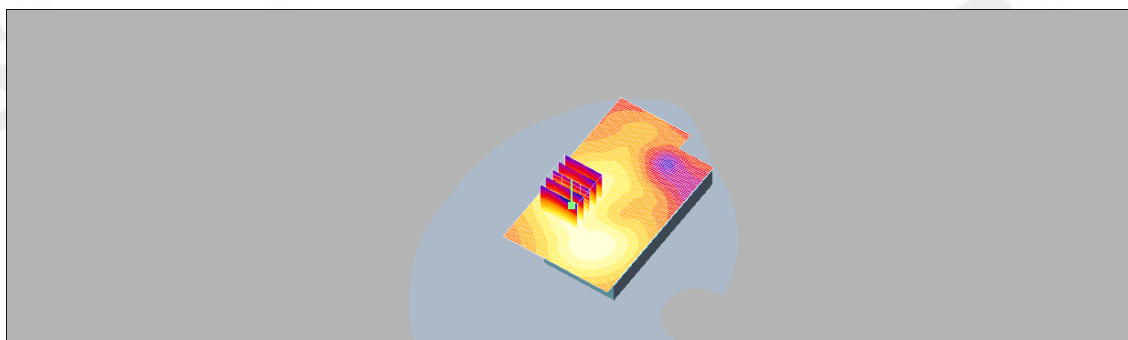
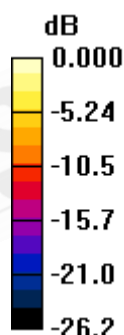
Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2.04 \text{ mho/m}$; $\epsilon_r = 52.1$;
 $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (interpolated) = 0.053 mW/g **BODY/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$ Reference Value = 4.69 V/m ; Power Drift = 0.111 dB Peak SAR (extrapolated) = 0.096 W/kg **SAR(1 g) = 0.052 mW/g ; SAR(10 g) = 0.028 mW/g** Maximum value of SAR (measured) = 0.054 mW/g 0 dB = 0.054 mW/g

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RE Cheek_WLAN802.11 g_CH1

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.87 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

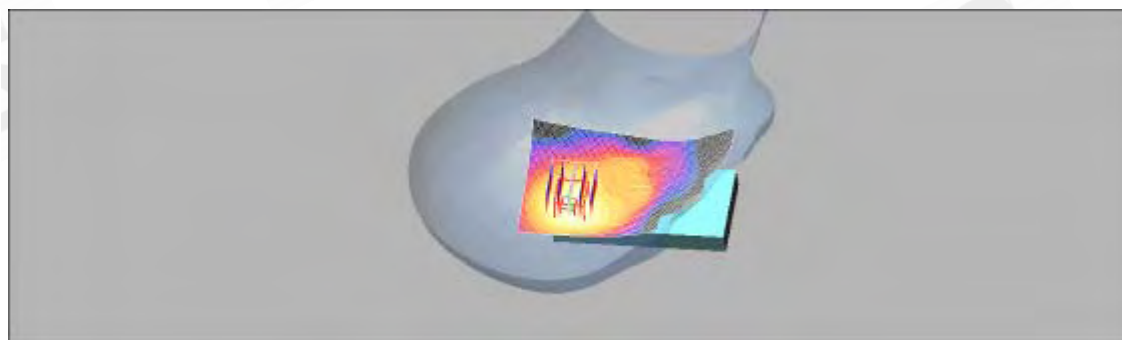
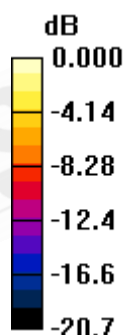
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

REC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.227 mW/g

REC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 8.70 V/m ; Power Drift = 0.109 dB
Peak SAR (extrapolated) = 0.396 W/kg

SAR(1 g) = 0.210 mW/g ; SAR(10 g) = 0.113 mW/g
Maximum value of SAR (measured) = 0.221 mW/g



0 dB = 0.221 mW/g

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RE Cheek_WLAN802.11 g_CH6

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.89 \text{ mho/m}$; $\epsilon_r = 39.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

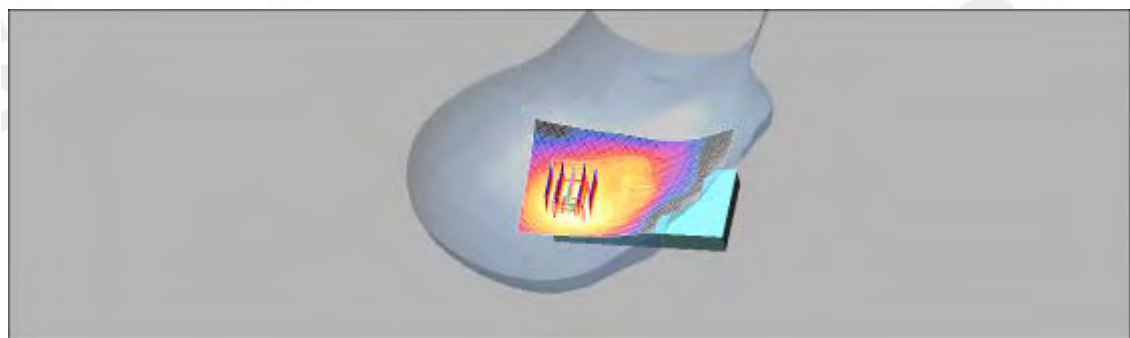
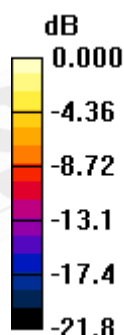
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

REC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.224 mW/g

REC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 8.65 V/m ; Power Drift = 0.008 dB
Peak SAR (extrapolated) = 0.384 W/kg

SAR(1 g) = 0.205 mW/g ; SAR(10 g) = 0.110 mW/g
Maximum value of SAR (measured) = 0.216 mW/g



0 dB = 0.216 mW/g

RE Cheek_WLAN802.11 g_CH11

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.90 \text{ mho/m}$; $\epsilon_r = 39$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

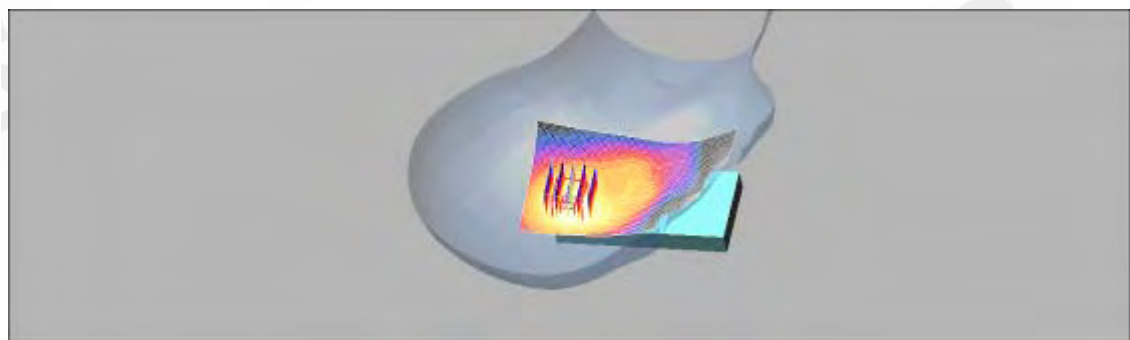
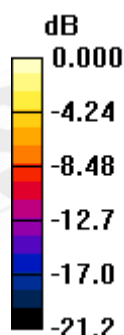
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

REC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.200 mW/g

REC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$
Reference Value = 8.30 V/m ; Power Drift = 0.093 dB
Peak SAR (extrapolated) = 0.354 W/kg

SAR(1 g) = 0.186 mW/g ; SAR(10 g) = 0.100 mW/g
Maximum value of SAR (measured) = 0.193 mW/g



0 dB = 0.193 mW/g

LE Cheek_WLAN802.11 g_CH1

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.87 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

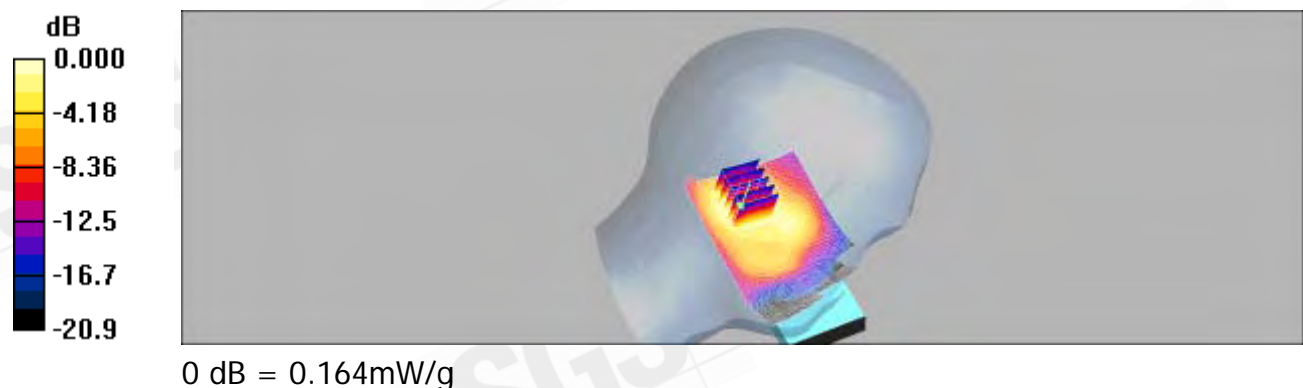
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LEC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.167 mW/g

LEC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 8.11 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 0.283 W/kg

SAR(1 g) = 0.153 mW/g; SAR(10 g) = 0.083 mW/g
Maximum value of SAR (measured) = 0.164 mW/g



LE Cheek_WLAN802.11 g_CH6

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.89 \text{ mho/m}$; $\epsilon_r = 39.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

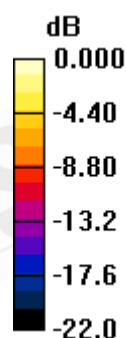
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LEC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.185 mW/g

LEC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 8.30 V/m; Power Drift = -0.086 dB
Peak SAR (extrapolated) = 0.304 W/kg

SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.087 mW/g
Maximum value of SAR (measured) = 0.173 mW/g



0 dB = 0.173mW/g

LE Cheek_WLAN802.11 g_CH11

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.90 \text{ mho/m}$; $\epsilon_r = 39$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

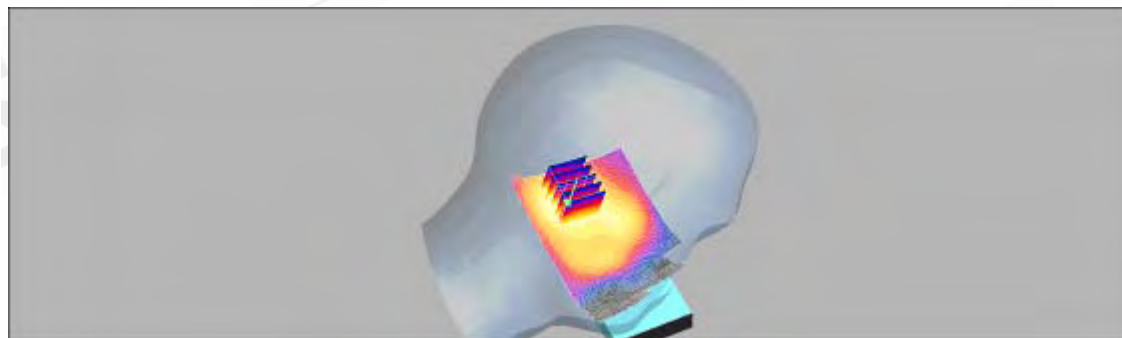
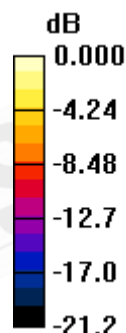
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LEC/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.169 mW/g

LEC/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 8.09 V/m; Power Drift = 0.094 dB
Peak SAR (extrapolated) = 0.289 W/kg

SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.083 mW/g
Maximum value of SAR (measured) = 0.164 mW/g



0 dB = 0.164mW/g

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RE Tilt_WLAN802.11 g_CH1

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.87 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

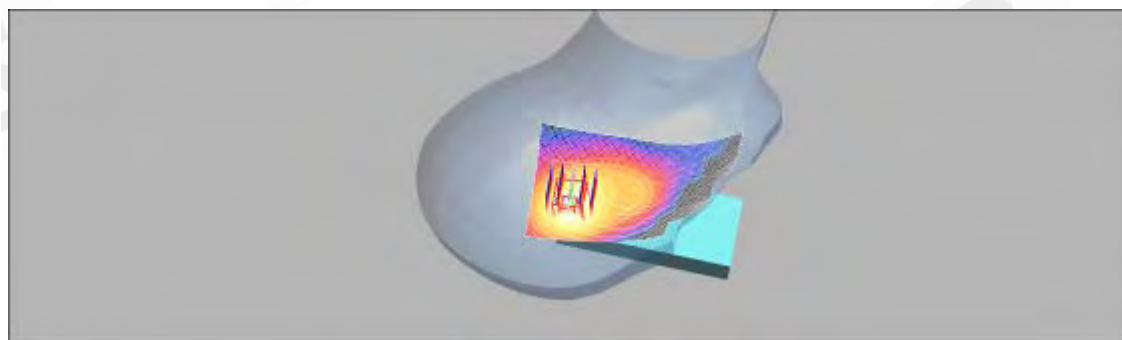
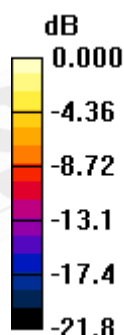
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.219 mW/g

RET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.22 V/m; Power Drift = 0.125 dB
Peak SAR (extrapolated) = 0.389 W/kg

SAR(1 g) = 0.202 mW/g; SAR(10 g) = 0.105 mW/g
Maximum value of SAR (measured) = 0.214 mW/g



0 dB = 0.214mW/g

RE Tilt_WLAN802.11 g_CH6

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.89 \text{ mho/m}$; $\epsilon_r = 39.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

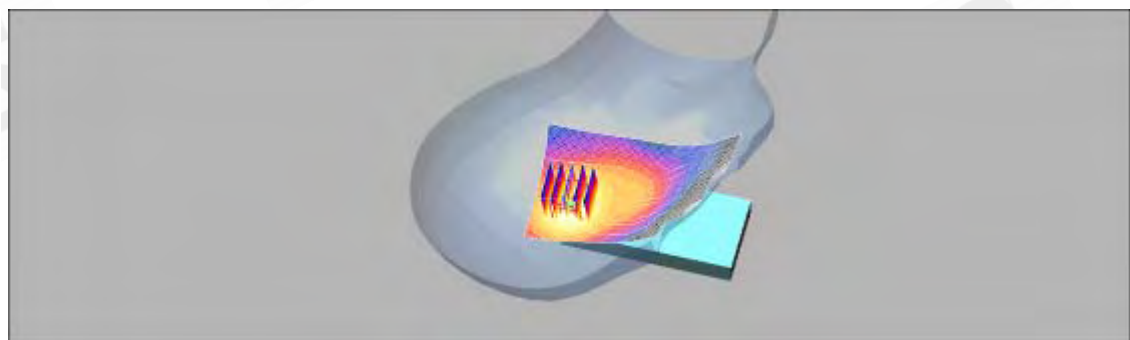
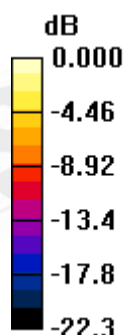
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.225 mW/g

RET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.46 V/m ; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 0.398 W/kg

SAR(1 g) = 0.206 mW/g ; SAR(10 g) = 0.106 mW/g
Maximum value of SAR (measured) = 0.219 mW/g



0 dB = 0.219 mW/g

RE Tilt_WLAN802.11 g_CH11

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.90 \text{ mho/m}$; $\epsilon_r = 39$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

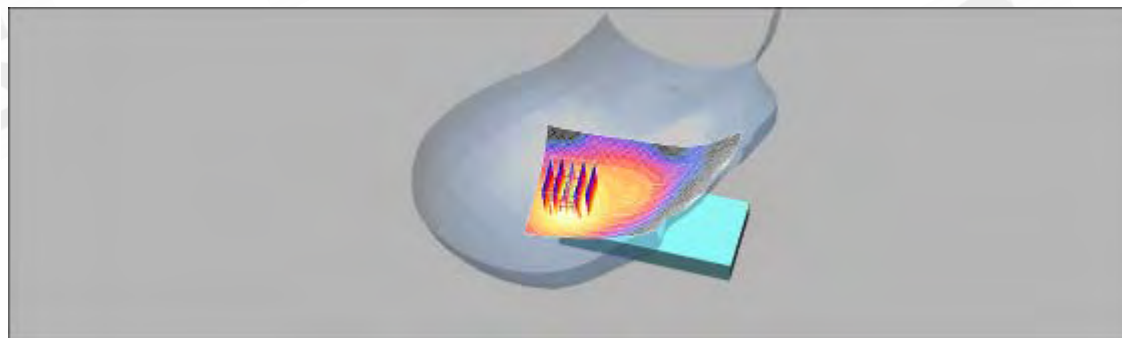
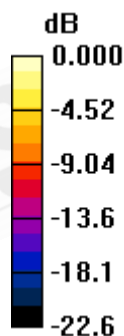
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

RET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.207 mW/g

RET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$
Reference Value = 8.79 V/m ; Power Drift = 0.163 dB
Peak SAR (extrapolated) = 0.380 W/kg

SAR(1 g) = 0.196 mW/g ; SAR(10 g) = 0.101 mW/g
Maximum value of SAR (measured) = 0.208 mW/g



0 dB = 0.208 mW/g

LE Tilt_WLAN802.11 g_CH1

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.87 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

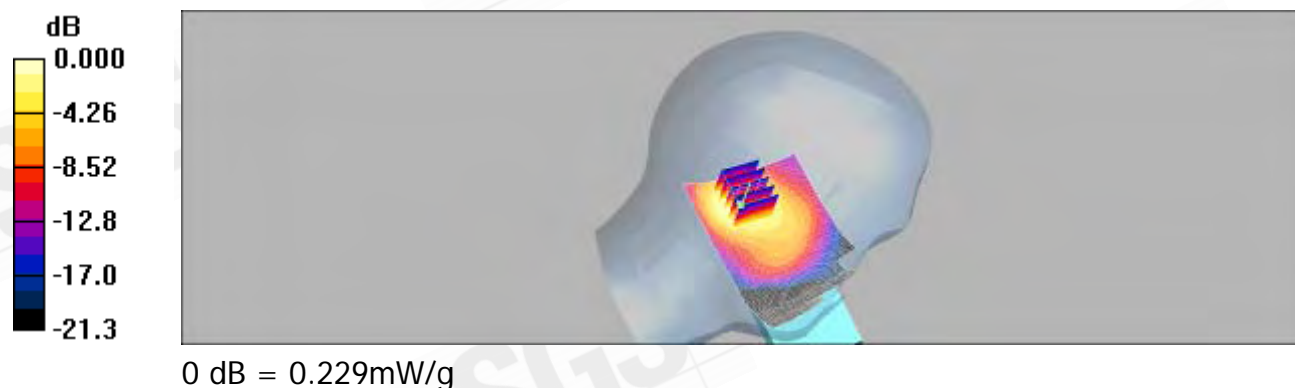
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.243 mW/g

LET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.86 V/m; Power Drift = -0.115 dB
Peak SAR (extrapolated) = 0.390 W/kg

SAR(1 g) = 0.208 mW/g; SAR(10 g) = 0.112 mW/g
Maximum value of SAR (measured) = 0.229 mW/g



LE Tilt_WLAN802.11 g_CH6

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.89 \text{ mho/m}$; $\epsilon_r = 39.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

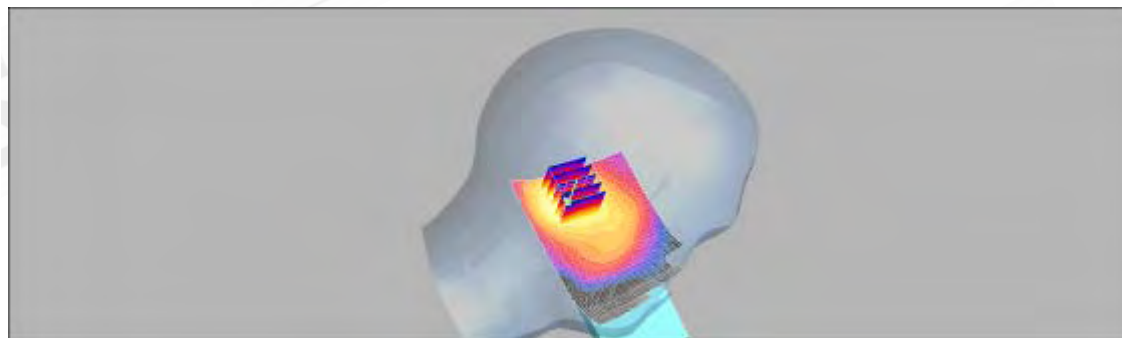
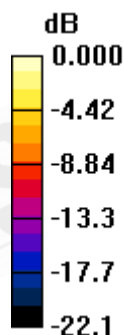
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.229 mW/g

LET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.66 V/m; Power Drift = 0.074 dB
Peak SAR (extrapolated) = 0.406 W/kg

SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.110 mW/g
Maximum value of SAR (measured) = 0.224 mW/g



0 dB = 0.224mW/g

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LE Tilt_WLAN802.11 g_CH11

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: HEAD 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.90 \text{ mho/m}$; $\epsilon_r = 39$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

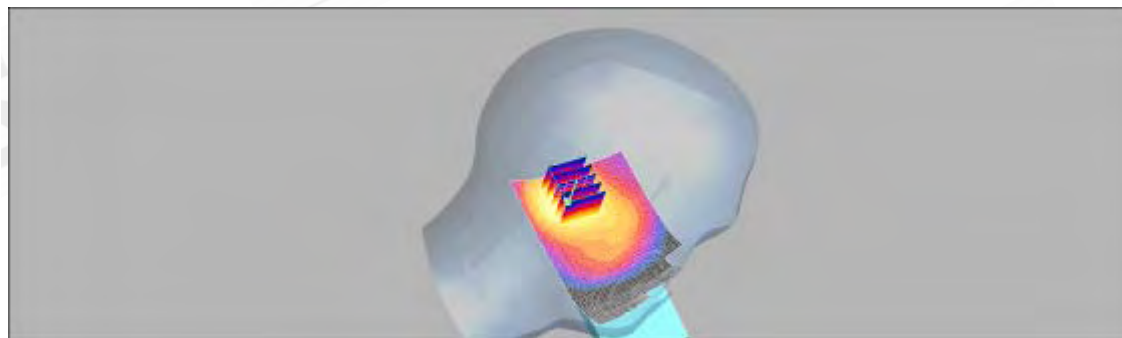
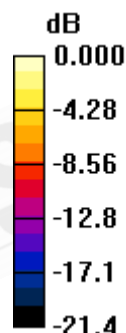
DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

LET/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.196 mW/g

LET/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 8.85 V/m; Power Drift = -0.032 dB
Peak SAR (extrapolated) = 0.334 W/kg

SAR(1 g) = 0.175 mW/g; SAR(10 g) = 0.092 mW/g
Maximum value of SAR (measured) = 0.190 mW/g



0 dB = 0.190mW/g

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BODY_WLAN802.11 g_CH1

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.95 \text{ mho/m}$; $\epsilon_r = 52$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.052 mW/g

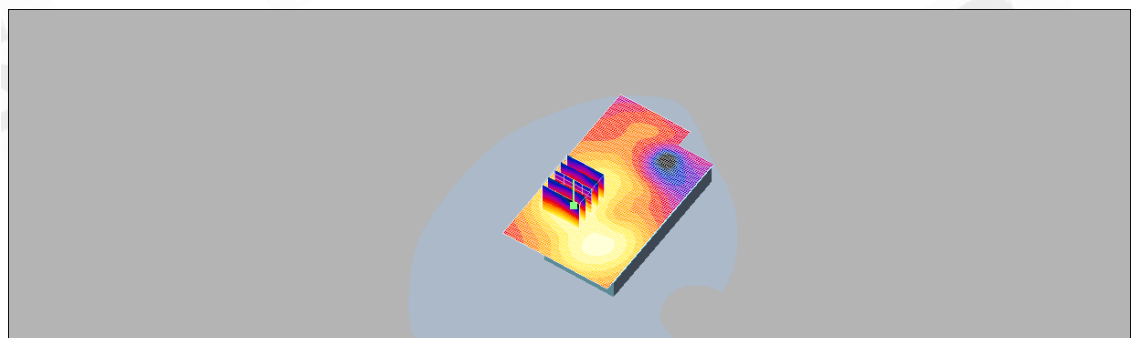
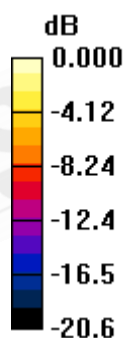
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.29 V/m ; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.087 W/kg

SAR(1 g) = 0.047 mW/g ; SAR(10 g) = 0.026 mW/g

Maximum value of SAR (measured) = 0.051 mW/g



0 dB = 0.051 mW/g

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BODY_WLAN802.11 g_CH6**DUT: SQ-3000;**

Communication System: Wireless LAN; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.99 \text{ mho/m}$; $\epsilon_r = 52$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.054 mW/g

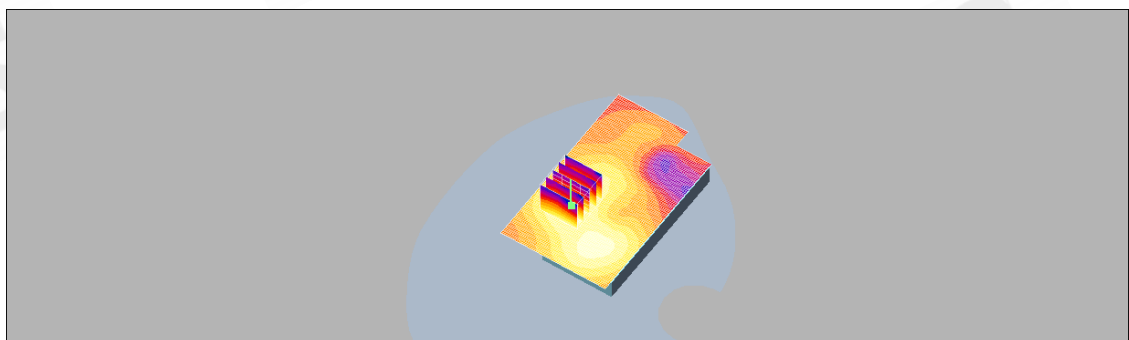
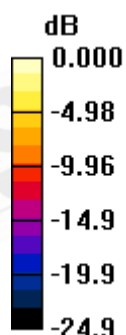
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.32 V/m; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 0.089 W/kg

SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.027 mW/g

Maximum value of SAR (measured) = 0.053 mW/g



0 dB = 0.053mW/g

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BODY_WLAN802.11 g_CH11

DUT: SQ-3000;

Communication System: Wireless LAN; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2.04 \text{ mho/m}$; $\epsilon_r = 52.1$;
 $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.084 mW/g

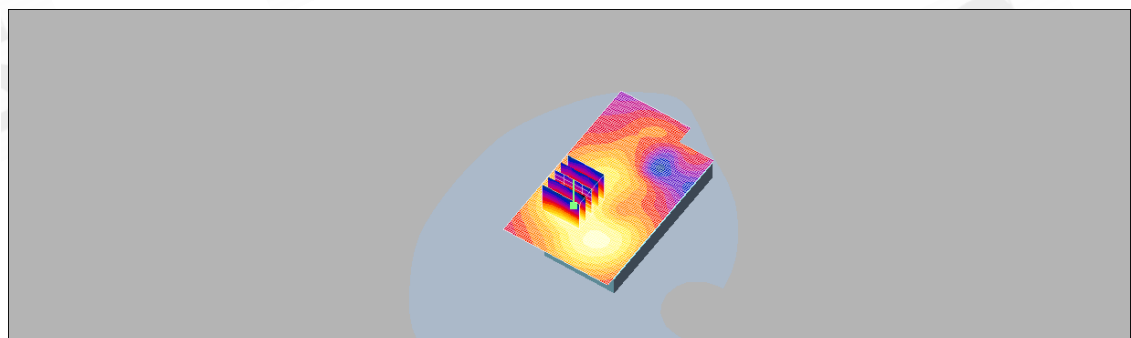
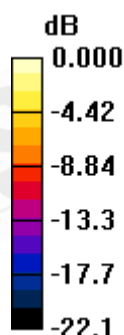
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 5.18 V/m ; Power Drift = 0.031 dB

Peak SAR (extrapolated) = 0.145 W/kg

SAR(1 g) = 0.076 mW/g ; SAR(10 g) = 0.040 mW/g

Maximum value of SAR (measured) = 0.083 mW/g



0 dB = 0.083 mW/g

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5. System Verification

Date/Time: 2009/8/1 00:13:16

DUT: Dipole 2450 MHz;

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: Head 2450 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.9 \text{ mho/m}$; $\epsilon_r = 39.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.33, 4.33, 4.33); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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 (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 16.1 mW/g

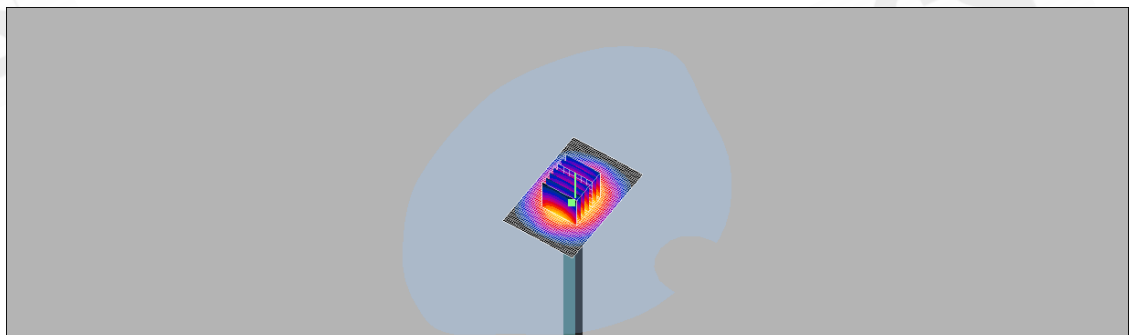
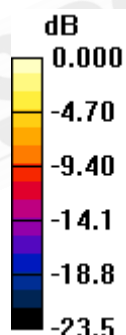
Pin=250mW /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$,
 $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 91.4 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 30.1 W/kg

SAR(1 g) = 14 mW/g; SAR(10 g) = 6.41 mW/g

Maximum value of SAR (measured) = 15.8 mW/g



0 dB = 15.8mW/g

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Date/Time: 2009/7/31 01:31:13

DUT: Dipole 5200 MHz;

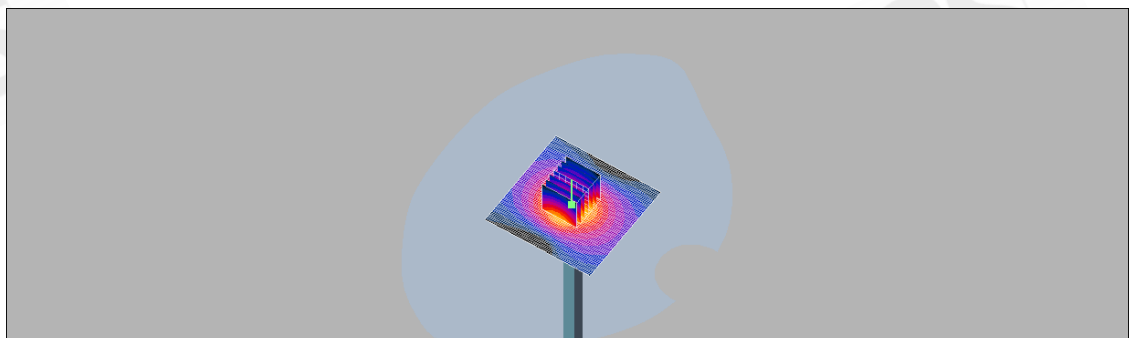
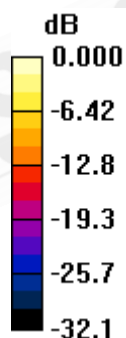
Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Head5200 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 4.66 \text{ mho/m}$; $\epsilon_r = 34.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(5.68, 5.68, 5.68); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=100mW /Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 9.59 mW/g **Pin=100mW /Zoom Scan (7x7x7)/Cube 0:** Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 46.0 V/m ; Power Drift = 0.073 dB Peak SAR (extrapolated) = 21.8 W/kg **SAR(1 g) = 7.99 mW/g ; SAR(10 g) = 2.31 mW/g** Maximum value of SAR (measured) = 9.87 mW/g 0 dB = 9.87 mW/g

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DUT: Dipole 5200 MHz;

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Head5200 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 4.63 \text{ mho/m}$; $\epsilon_r = 34.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(4.07, 4.07, 4.07); Calibrated: 2009/6/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=100mW/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 9.12 mW/g

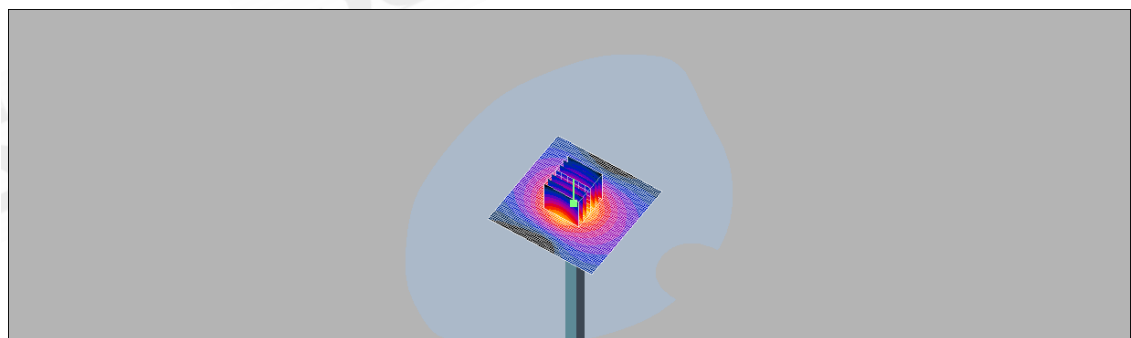
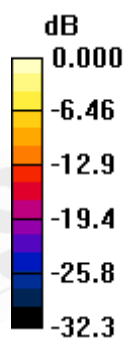
Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 44.8 V/m; Power Drift = 0.029 dB

Peak SAR (extrapolated) = 20.6 W/kg

SAR(1 g) = 7.51 mW/g; SAR(10 g) = 2.26 mW/g

Maximum value of SAR (measured) = 9.33 mW/g



0 dB = 9.33mW/g

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DUT: Dipole 5800 MHz;

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: Head5800 Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 5.3 \text{ mho/m}$; $\epsilon_r = 35.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.9, 4.9, 4.9); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=100mW /Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 9.70 mW/g

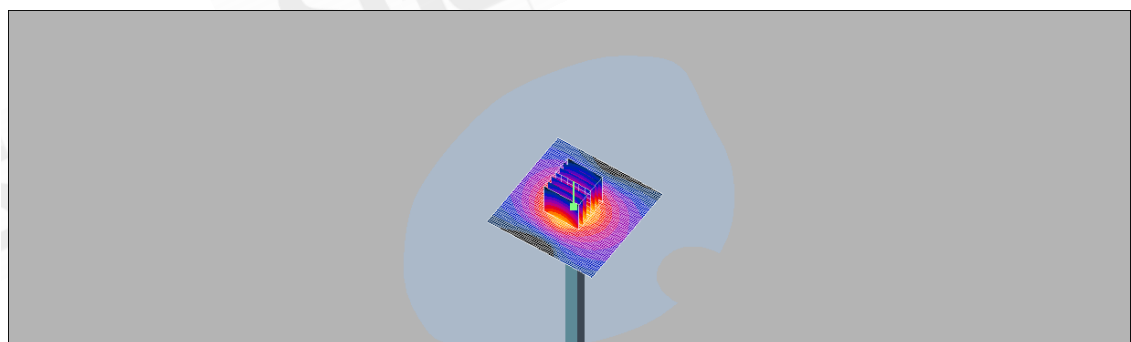
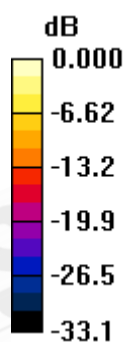
Pin=100mW /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 43.3 V/m; Power Drift = 0.067 dB

Peak SAR (extrapolated) = 22.3 W/kg

SAR(1 g) = 8.07 mW/g; SAR(10 g) = 2.34 mW/g

Maximum value of SAR (measured) = 10.0 mW/g



0 dB = 10.0mW/g

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DUT: Dipole 2450 MHz;

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: M 2450 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 2.02 \text{ mho/m}$; $\epsilon_r = 52.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3172; ConvF(4.02, 4.02, 4.02); Calibrated: 2009/5/27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- 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: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 16.9 mW/g

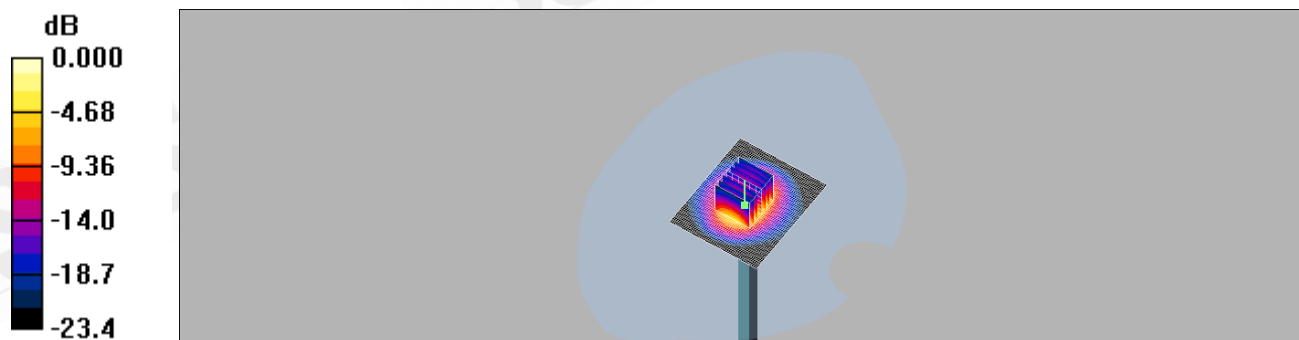
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 86.9 V/m; Power Drift = 0.026 dB

Peak SAR (extrapolated) = 29.1 W/kg

SAR(1 g) = 13.3 mW/g; SAR(10 g) = 5.97 mW/g

Maximum value of SAR (measured) = 14.9 mW/g



0 dB = 14.9mW/g

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DUT: Dipole 5200 MHz;

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Muscle5200 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 5.34 \text{ mho/m}$; $\epsilon_r = 49.7$;
 $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.89, 4.89, 4.89); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=100mW /Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 8.99 mW/g

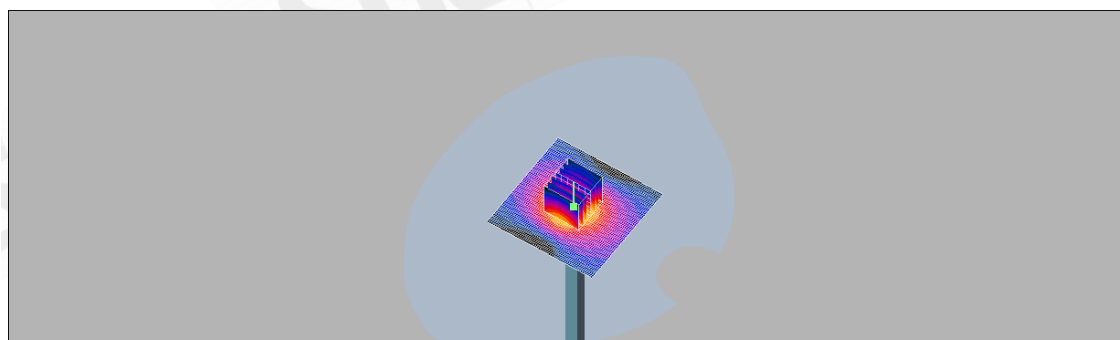
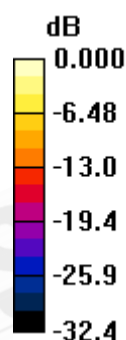
Pin=100mW /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$,
 $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 41.1 V/m; Power Drift = 0.082 dB

Peak SAR (extrapolated) = 20.4 W/kg

SAR(1 g) = 7.5 mW/g; SAR(10 g) = 2.25 mW/g

Maximum value of SAR (measured) = 9.24 mW/g



0 dB = 9.24mW/g

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DUT: Dipole 5200 MHz;

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Head5200 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 4.63 \text{ mho/m}$; $\epsilon_r = 34.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(4.07, 4.07, 4.07); Calibrated: 2009/6/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=100mW/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 9.12 mW/g

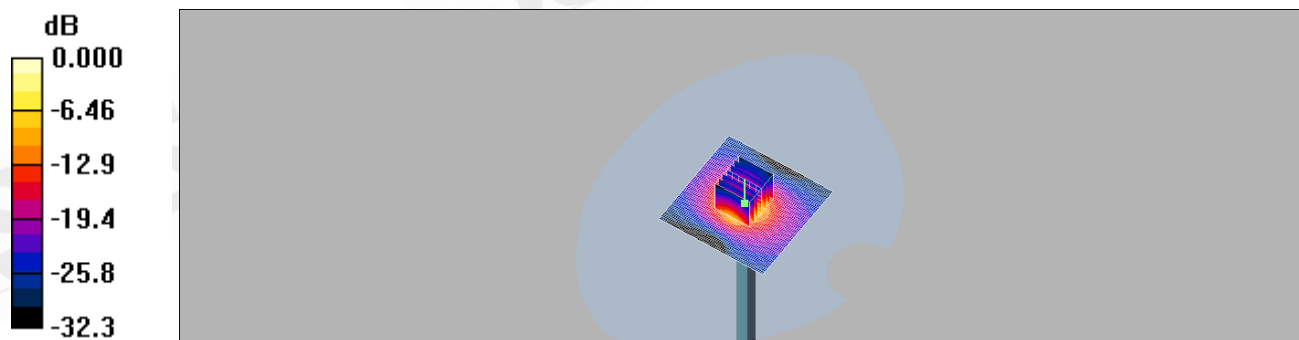
Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 44.8 V/m; Power Drift = 0.029 dB

Peak SAR (extrapolated) = 20.6 W/kg

SAR(1 g) = 7.51 mW/g; SAR(10 g) = 2.26 mW/g

Maximum value of SAR (measured) = 9.33 mW/g



0 dB = 9.33mW/g

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Date/Time: 2009/8/25 16:07:19

DUT: Dipole 5200 MHz;

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Muscle5200 Medium parameters used: $f = 5200$ MHz; $\sigma = 5.32$ mho/m; $\epsilon_r = 49.5$;
 $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(3.7, 3.7, 3.7); Calibrated: 2009/6/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

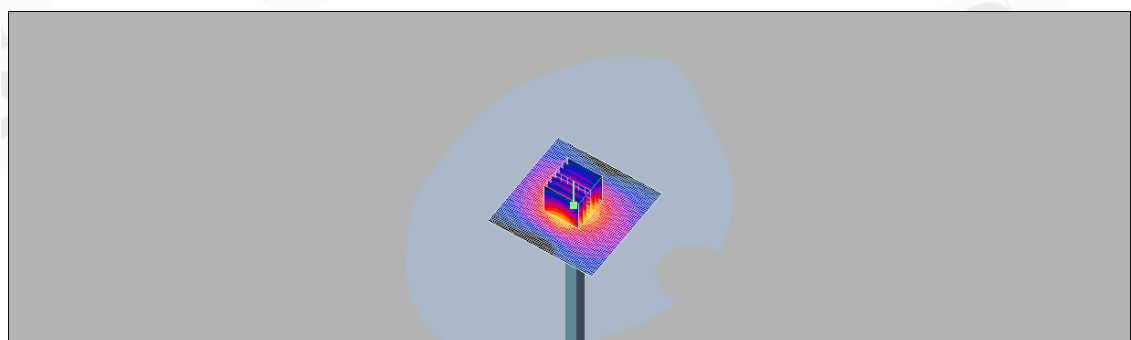
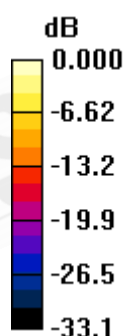
Pin=100mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 8.54 mW/g**Pin=100mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 40.2 V/m; Power Drift = 0.093 dB

Peak SAR (extrapolated) = 19.3 W/kg

SAR(1 g) = 7.04 mW/g; SAR(10 g) = 2.1 mW/g

Maximum value of SAR (measured) = 8.78 mW/g



0 dB = 8.78mW/g

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DUT: Dipole 5800 MHz;

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: Muscle 5800 Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 6.28 \text{ mho/m}$; $\epsilon_r = 47$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(4.44, 4.44, 4.44); Calibrated: 2008/8/26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2009/1/20
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=100mW /Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 8.56 mW/g

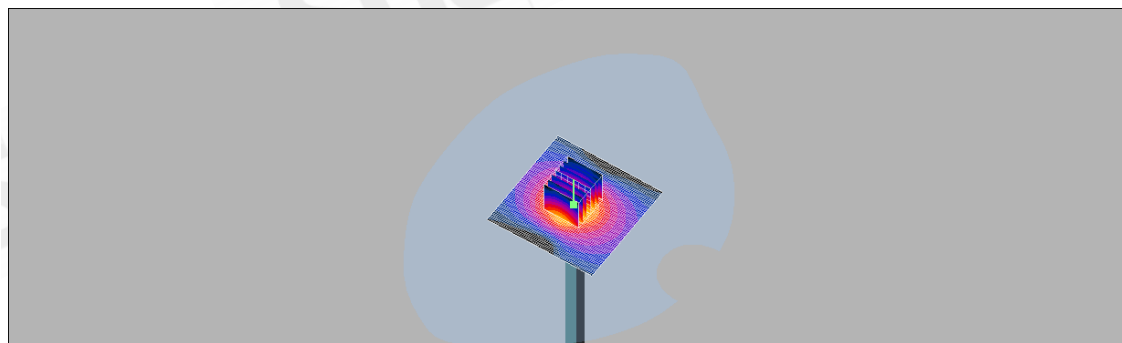
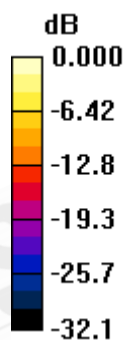
Pin=100mW /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 37.3 V/m; Power Drift = 0.078 dB

Peak SAR (extrapolated) = 19.2 W/kg

SAR(1 g) = 7.09 mW/g; SAR(10 g) = 2.05 mW/g

Maximum value of SAR (measured) = 8.76 mW/g



0 dB = 8.76mW/g

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6. DAE & Probe Calibration certificate

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



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S Swiss Calibration Service

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

Accreditation No.: SCS 108

Client **SGS (Auden)**

Certificate No: DAE4-547_Jan09

CALIBRATION CERTIFICATE

Object **DAE4 - SD 000 D04 BJ - SN: 547**

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

Calibration date: **January 19, 2009**

Condition of the calibrated item **In Tolerance**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Fluke Process Calibrator Type 702	SN: 6295803	30-Sep-08 (No: 7673)	Sep-09
Keithley Multimeter Type 2001	SN: 0810278	30-Sep-08 (No: 7670)	Sep-09
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Calibrator Box V1.1	SE UMS 006 AB 1004	06-Jun-08 (in house check)	In house check: Jun-09

Calibrated by:

Name	Function	Signature
Daniel Hess	Technician	

Approved by:

Fin Bornholt	R&D Director	
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Issued: January 20, 2009

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

Certificate No: DAE4-547_Jan09

Page 1 of 5

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **SGS (Auden)**

Certificate No: **EX3-3526_Aug08**

CALIBRATION CERTIFICATE

Object **EX3DV3 - SN:3526**

Calibration procedure(s) **QA CAL-01.v6, QA CAL-14.v3 and QA CAL-23.v3
Calibration procedure for dosimetric E-field probes**

Calibration date: **August 26, 2008**

Condition of the calibrated item **In Tolerance**

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

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

Calibration Equipment used (M&TE critical for calibration)

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

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

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

Issued: August 26, 2008

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Certificate No: EX3-3526_Aug08

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Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

EX3DV3 SN:3526

August 26, 2008

Probe EX3DV3

SN:3526

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

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

Certificate No: EX3-3526_Aug08

Page 3 of 9

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EX3DV3 SN:3526

August 26, 2008

DASY - Parameters of Probe: EX3DV3 SN:3526**Sensitivity in Free Space^A****Diode Compression^B**

NormX	$0.99 \pm 10.1\%$	$\mu V/(V/m)^2$	DCP X	93 mV
NormY	$0.81 \pm 10.1\%$	$\mu V/(V/m)^2$	DCP Y	94 mV
NormZ	$0.89 \pm 10.1\%$	$\mu V/(V/m)^2$	DCP Z	94 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL	900 MHz	Typical SAR gradient: 5 % per mm		
	Sensor Center to Phantom Surface Distance		2.0 mm	3.0 mm
	SAR _{be} [%] Without Correction Algorithm		8.9	5.3
	SAR _{be} [%] With Correction Algorithm		0.8	0.4

TSL	1810 MHz	Typical SAR gradient: 10 % per mm		
	Sensor Center to Phantom Surface Distance		2.0 mm	3.0 mm
	SAR _{be} [%] Without Correction Algorithm		6.8	3.6
	SAR _{be} [%] With Correction Algorithm		0.5	0.2

Sensor Offset

Probe Tip to Sensor Center	1.0 mm
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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%.

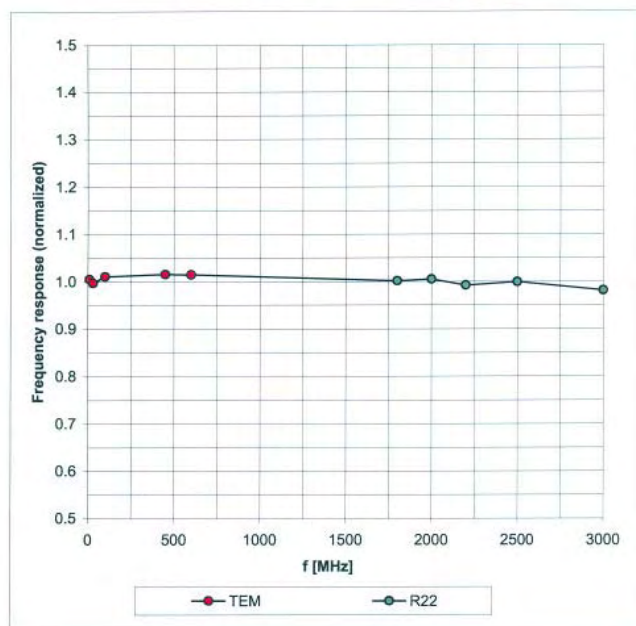
^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Page 8).^B Numerical linearization parameter: uncertainty not required.

EX3DV3 SN:3526

August 26, 2008

Frequency Response of E-Field

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

Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

Certificate No: EX3-3526_Aug08

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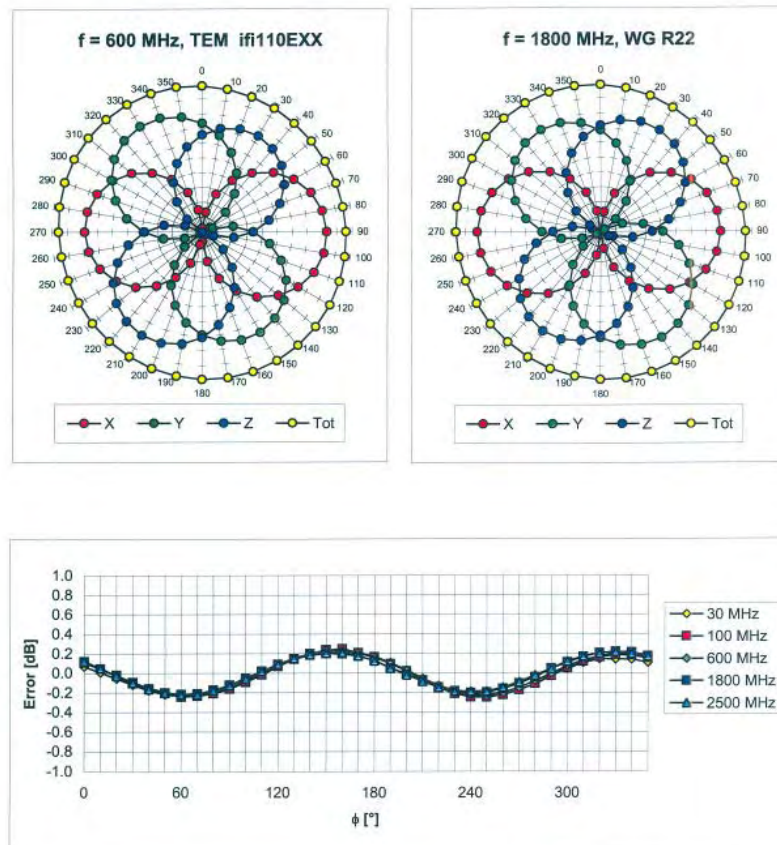
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EX3DV3 SN:3526

August 26, 2008

Receiving Pattern (ϕ), $\theta = 0^\circ$



Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Certificate No: EX3-3526_Aug08

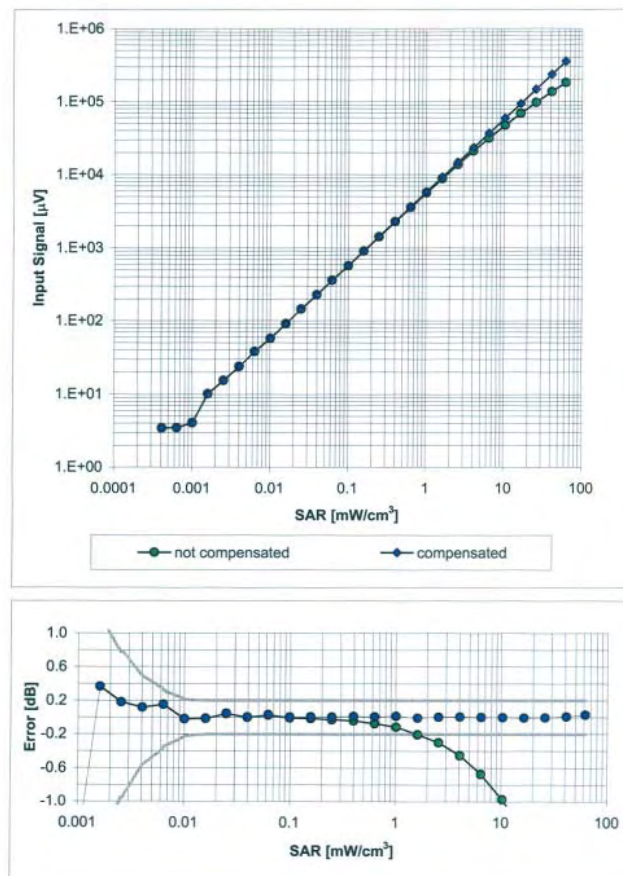
Page 6 of 9

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EX3DV3 SN:3526

August 26, 2008

Dynamic Range $f(\text{SAR}_{\text{head}})$ (Waveguide R22, $f = 1800 \text{ MHz}$)



Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Certificate No: EX3-3526_Aug08

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EX3DV3 SN:3526

August 26, 2008

Conversion Factor Assessment

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

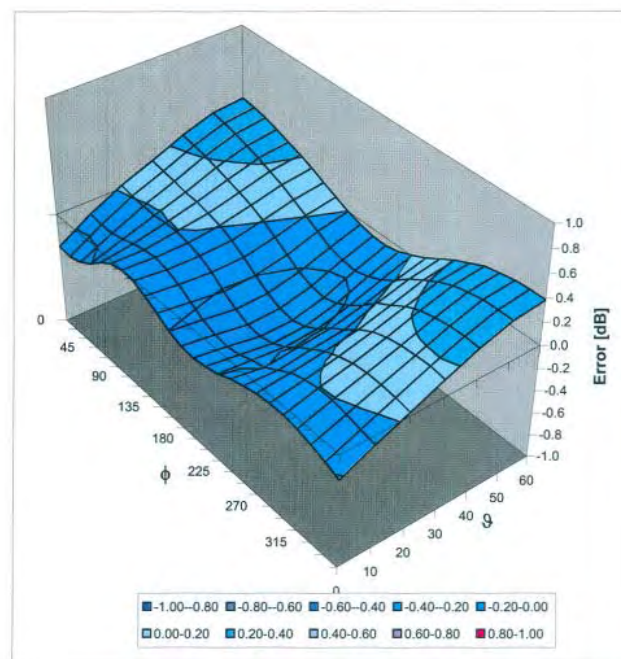
^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

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EX3DV3 SN:3526

August 26, 2008

Deviation from Isotropy in HSL
Error (ϕ , θ), $f = 900$ MHzUncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

Certificate No: EX3-3526_Aug08

Page 9 of 9

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



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

Accreditation No.: **SCS 108**

Client **SGS (Auden)**

Certificate No: **ES3-3172_May09**

CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3172**

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

Calibration date: **May 27, 2009**

Condition of the calibrated item **In Tolerance**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41495277	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41498087	1-Apr-09 (No. 217-01030)	Apr-10
Reference 3 dB Attenuator	SN: S5054 (3c)	31-Mar-09 (No. 217-01026)	Mar-10
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-09 (No. 217-01028)	Mar-10
Reference 30 dB Attenuator	SN: S5129 (30b)	31-Mar-09 (No. 217-01027)	Mar-10
Reference Probe ES3DV2	SN: 3013	2-Jan-09 (No. ES3-3013_Jan09)	Jan-10
DAE4	SN: 660	9-Sep-08 (No. DAE4-660_Sep08)	Sep-09

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

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

Issued: May 27, 2009

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

Certificate No: ES3-3172_May09

Page 1 of 9

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Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

ES3DV3 SN:3172

May 27, 2009

Probe ES3DV3

SN:3172

Manufactured:	January 23, 2008
Last calibrated:	June 23, 2008
Recalibrated:	May 27, 2009

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

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ES3DV3 SN:3172

May 27, 2009

DASY - Parameters of Probe: ES3DV3 SN:3172**Sensitivity in Free Space^A****Diode Compression^B**

NormX	1.41 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	94 mV
NormY	1.17 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	93 mV
NormZ	0.96 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	94 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

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

Sensor Center to Phantom Surface Distance		3.0 mm	4.0 mm
SAR _{be} [%]	Without Correction Algorithm	9.6	5.4
SAR _{be} [%]	With Correction Algorithm	0.9	0.7

TSL 1810 MHz Typical SAR gradient: 10 % per mm

Sensor Center to Phantom Surface Distance		3.0 mm	4.0 mm
SAR _{be} [%]	Without Correction Algorithm	9.2	5.4
SAR _{be} [%]	With Correction Algorithm	0.7	0.4

Sensor Offset

Probe Tip to Sensor Center 2.0 mm

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

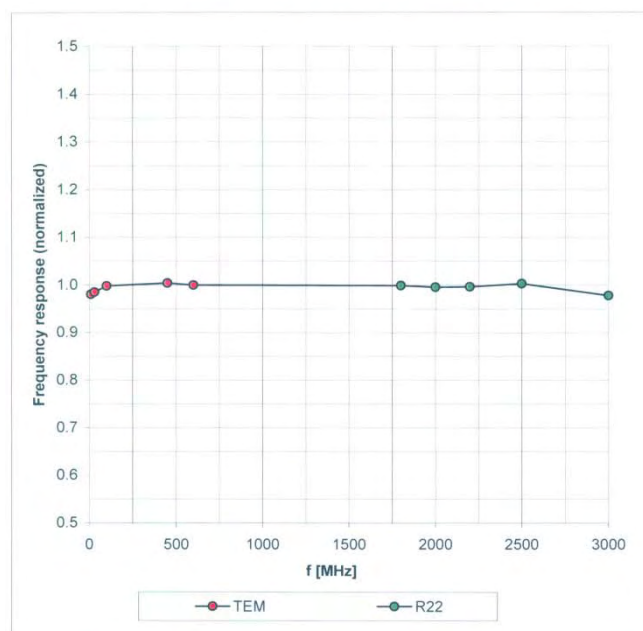
^A The uncertainties of NormX,Y,Z do not affect the E^2 -field uncertainty inside TSL (see Page 8).^B Numerical linearization parameter: uncertainty not required.

ES3DV3 SN:3172

May 27, 2009

Frequency Response of E-Field

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

Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

Certificate No: ES3-3172_May09

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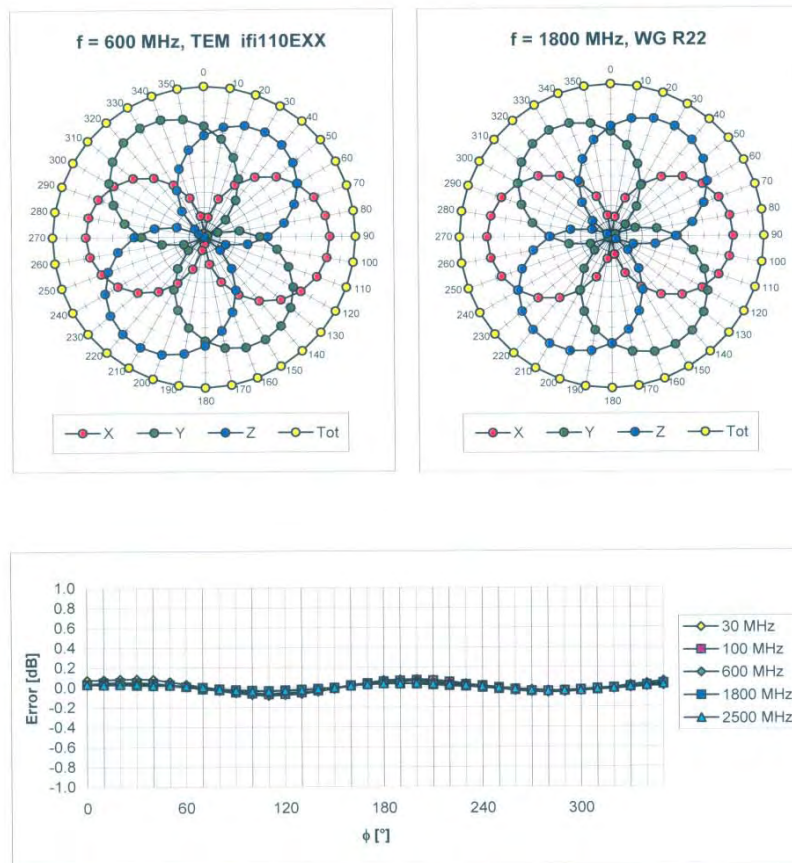
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ES3DV3 SN:3172

May 27, 2009

Receiving Pattern (ϕ), $\theta = 0^\circ$



Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Certificate No: ES3-3172_May09

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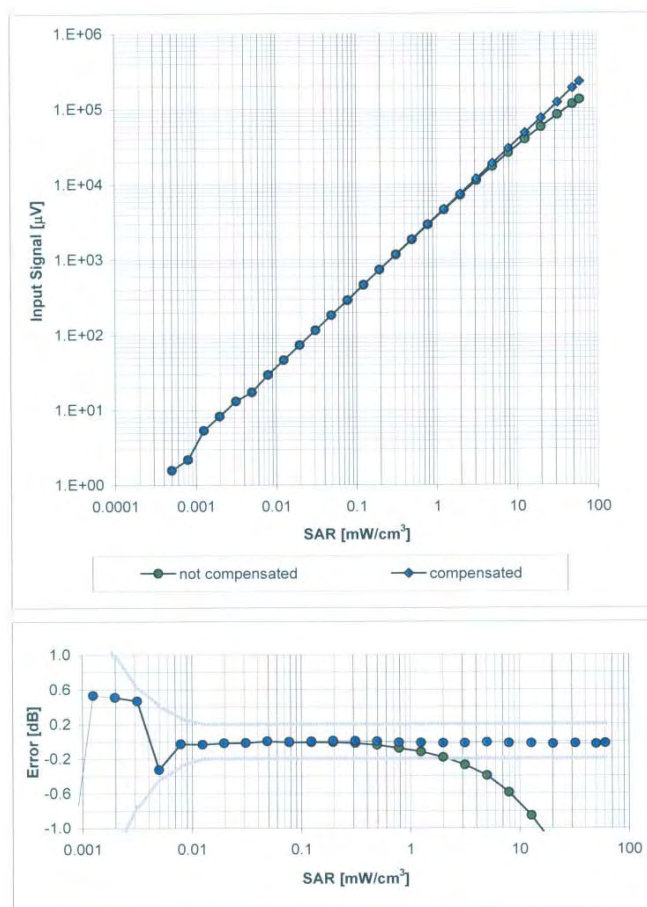
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ES3DV3 SN:3172

May 27, 2009

Dynamic Range f(SAR_{head}) (Waveguide R22, f = 1800 MHz)

Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

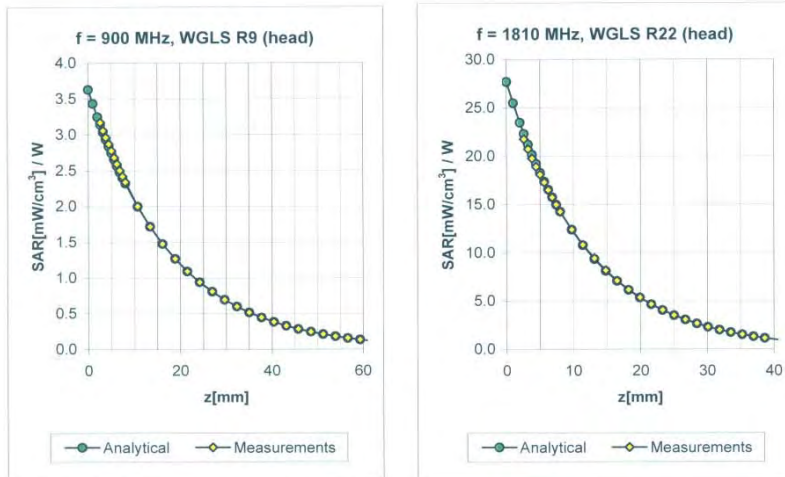
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ES3DV3 SN:3172

May 27, 2009

Conversion Factor Assessment



f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.86	1.08	5.83 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.87	1.08	5.65 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.35	1.81	4.99 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.38	1.73	4.86 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.48	1.51	4.71 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.41	1.78	4.33 ± 11.0% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.78	1.15	5.81 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.78	1.15	5.67 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.45	1.75	4.69 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.33	2.23	4.54 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.27	2.99	4.53 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.40	1.40	4.02 ± 11.0% (k=2)

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

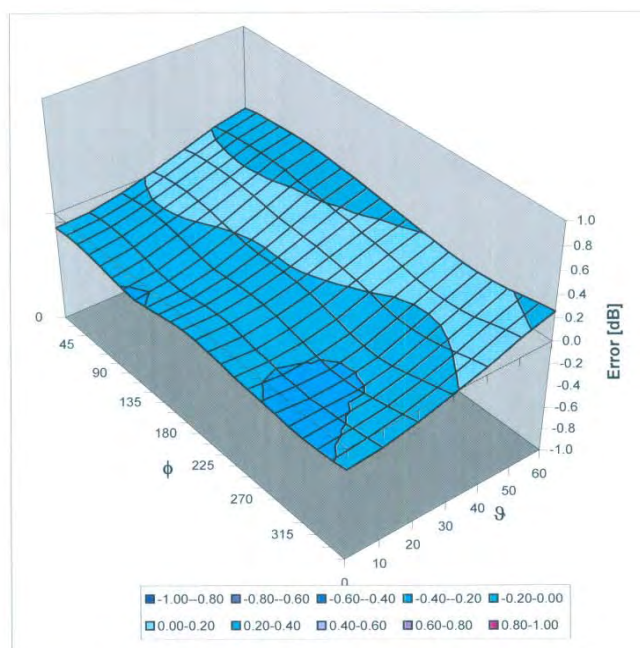
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ES3DV3 SN:3172

May 27, 2009

Deviation from Isotropy in HSL

Error (ϕ , θ), $f = 900$ MHzUncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

Certificate No: ES3-3172_May09

Page 9 of 9

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Accreditation No.: **SCS 108**

Client: **Auden**

Certificate No: **EX3-3578_Jun09**

CALIBRATION CERTIFICATE

Object:	EX3DV4 - SN:3578		
Calibration procedure(s):	QA CAL-01.v6, QA CAL-14.v3 and QA CAL-23.v3 Calibration procedure for dosimetric E-field probes		
Calibration date:	June 26, 2009		
Condition of the calibrated item:	In Tolerance		
This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.			
All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3°C and humidity < 70%).			
Calibration Equipment used (M&TE critical for calibration)			
Primary Standards	ID #	Cal. Date (Certificate No.)	Scheduled Calibration
Power meter E44193	G641293874	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41495277	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41498067	1-Apr-09 (No. 217-01030)	Apr-10
Reference 3 dB Attenuator	SN: 55254 (3c)	31-Mar-09 (No. 217-01029)	Mar-10
Reference 20 dB Attenuator	SN: 55205 (20b)	31-Mar-09 (No. 217-01028)	Mar-10
Reference 30 dB Attenuator	SN: 55125 (30b)	31-Mar-09 (No. 217-01027)	Mar-10
Reference Probe ES3DV2	SN: 3913	2-Jan-09 (No. ES3-3913_Jan09)	Jan-10
DAE4	SN: 960	9-Sep-08 (No. DAE4-660_Sep08)	Sep-09
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8548C	US2642/U01700	4-Aug-08 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-08)	In house check: Oct-09
Calibrated by:	Name Katja Polovic	Function Technical Manager	Signature
Approved by:	Name Niels Kuster	Function Quality Manager	Signature
			Issued: June 26, 2009

Certificate No: EX3-3578_Jun09

Page 1 of 9

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Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Certificate No. EX3-3578_Jun09

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EX3DV4 SN:3578

June 26, 2009

Probe EX3DV4

SN:3578

Manufactured: November 4, 2005
Last calibrated: May 20, 2008
Recalibrated: June 26, 2009

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

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EX3DV4 SN:3578

June 26, 2009

DASY - Parameters of Probe: EX3DV4 SN:3578

Sensitivity in Free Space^A

NormX	0.55 ± 10.1%	$\mu V/(V/m)^2$	DCP X	90 mV
NormY	0.50 ± 10.1%	$\mu V/(V/m)^2$	DCP Y	91 mV
NormZ	0.55 ± 10.1%	$\mu V/(V/m)^2$	DCP Z	97 mV

Diode Compression^B

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL 900 MHz Typical SAR gradient: 5 % per mm

Sensor Center to Phantom Surface Distance	2.0 mm	3.0 mm
SAR _{te} [%] Without Correction Algorithm	10.2	5.8
SAR _{te} [%] With Correction Algorithm	0.6	0.3

TSL 1810 MHz Typical SAR gradient: 10 % per mm

Sensor Center to Phantom Surface Distance	2.0 mm	3.0 mm
SAR _{te} [%] Without Correction Algorithm	11.2	5.9
SAR _{te} [%] With Correction Algorithm	0.8	0.6

Sensor Offset

Probe Tip to Sensor Center 1.0 mm

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

^A The uncertainties of NormX, Y, Z do not affect the E²-field uncertainty inside TSL (see Page 8).

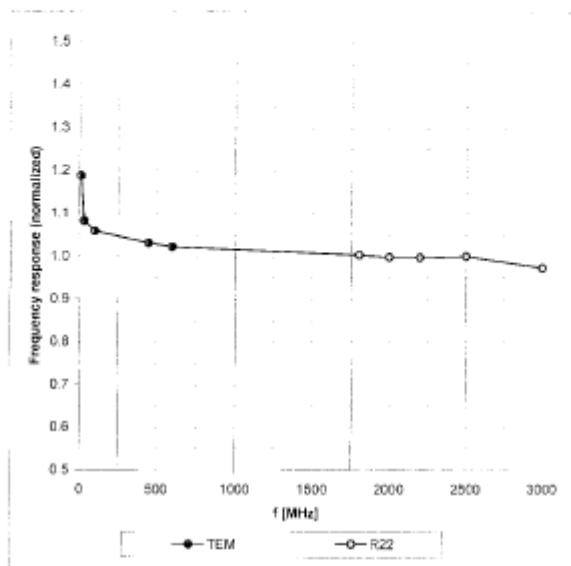
^B Numerical linearization parameter, uncertainty not required.

EX3DV4 SN:3578

June 26, 2009

Frequency Response of E-Field

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

Uncertainty of Frequency Response of E-field: $\pm 5.3\%$ ($k=2$)

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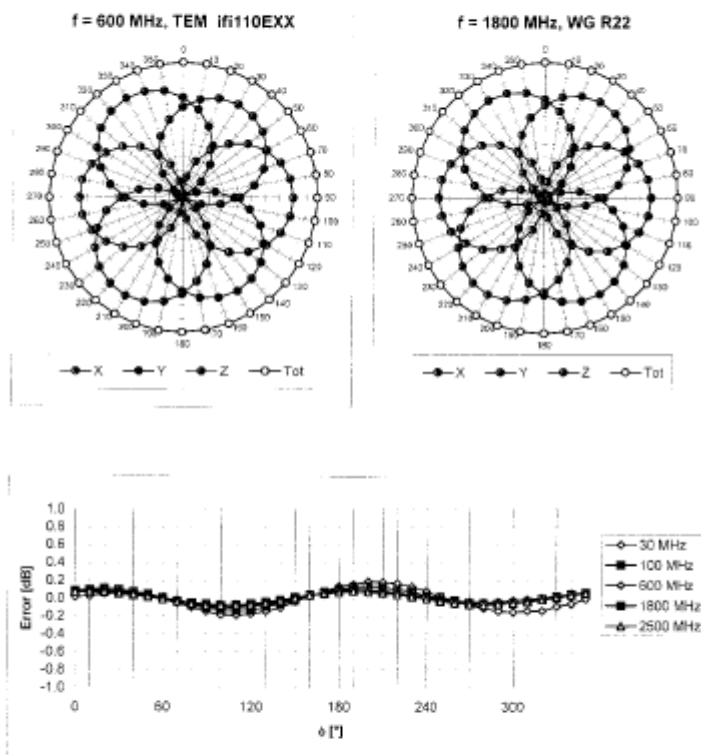
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EX3DV4 SN:3578

June 26, 2009

Receiving Pattern (ϕ), $\theta = 0^\circ$



Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

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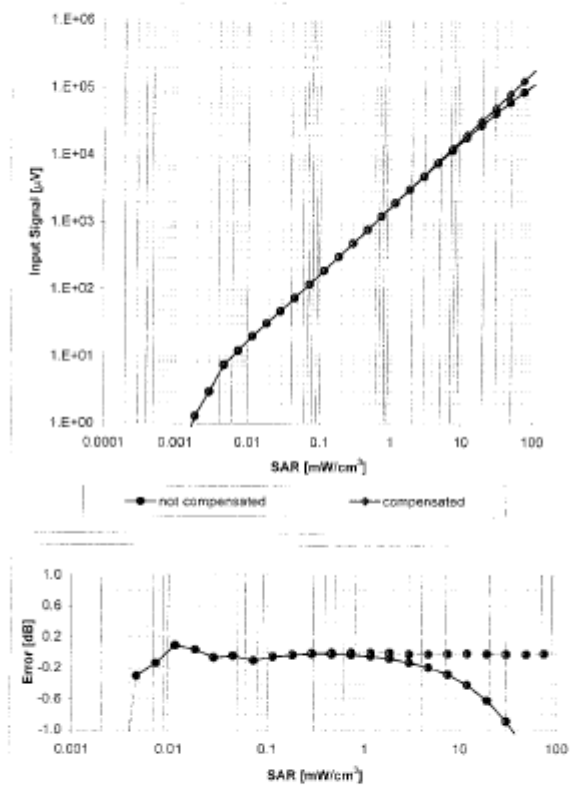
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EX3DV4 SN:3578

June 26, 2009

Dynamic Range f(SAR_{head}) (Waveguide R22, f = 1800 MHz)



Uncertainty of Linearity Assessment: $\pm 0.6\%$ (k=2)

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June 26, 2009

Conversion Factor Assessment

f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.80 ± 5%	0.95	0.58	8.27 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.87 ± 5%	0.83	0.62	7.97 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.88	0.62	6.99 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.93	0.60	6.96 ± 11.0% (k=2)
2300	± 50 / ± 100	Head	39.5 ± 5%	1.67 ± 5%	0.79	0.63	6.71 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.71	0.61	6.39 ± 11.0% (k=2)
2600	± 50 / ± 100	Head	39.0 ± 5%	1.96 ± 5%	0.56	0.68	6.38 ± 11.0% (k=2)
3500	± 50 / ± 100	Head	37.9 ± 5%	2.91 ± 5%	0.45	0.96	6.16 ± 13.1% (k=2)
5200	± 50 / ± 100	Head	36.0 ± 5%	4.66 ± 5%	0.50	1.80	4.07 ± 13.1% (k=2)
5300	± 50 / ± 100	Head	35.9 ± 5%	4.76 ± 5%	0.50	1.80	3.85 ± 13.1% (k=2)
5500	± 50 / ± 100	Head	35.8 ± 5%	4.96 ± 5%	0.50	1.80	3.80 ± 13.1% (k=2)
5600	± 50 / ± 100	Head	35.5 ± 5%	5.07 ± 5%	0.50	1.80	3.80 ± 13.1% (k=2)
5800	± 50 / ± 100	Head	35.3 ± 5%	5.27 ± 5%	0.50	1.80	3.70 ± 13.1% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.82	0.64	8.26 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.78	0.65	8.04 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.74	0.67	6.95 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.75	0.68	6.76 ± 11.0% (k=2)
2300	± 50 / ± 100	Body	52.8 ± 5%	1.85 ± 5%	0.65	0.69	6.80 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.75	0.62	6.62 ± 11.0% (k=2)
2600	± 50 / ± 100	Body	52.5 ± 5%	2.16 ± 5%	0.51	0.81	6.47 ± 11.0% (k=2)
3500	± 50 / ± 100	Body	51.3 ± 5%	3.31 ± 5%	0.27	1.51	5.68 ± 13.1% (k=2)
5200	± 50 / ± 100	Body	49.0 ± 5%	5.30 ± 5%	0.60	1.90	3.70 ± 13.1% (k=2)
5300	± 50 / ± 100	Body	48.5 ± 5%	5.42 ± 5%	0.60	1.90	3.55 ± 13.1% (k=2)
5500	± 50 / ± 100	Body	48.6 ± 5%	5.65 ± 5%	0.55	1.90	3.42 ± 13.1% (k=2)
5600	± 50 / ± 100	Body	48.5 ± 5%	5.77 ± 5%	0.55	1.90	3.40 ± 13.1% (k=2)
5800	± 50 / ± 100	Body	48.2 ± 5%	6.00 ± 5%	0.60	1.90	3.40 ± 13.1% (k=2)

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

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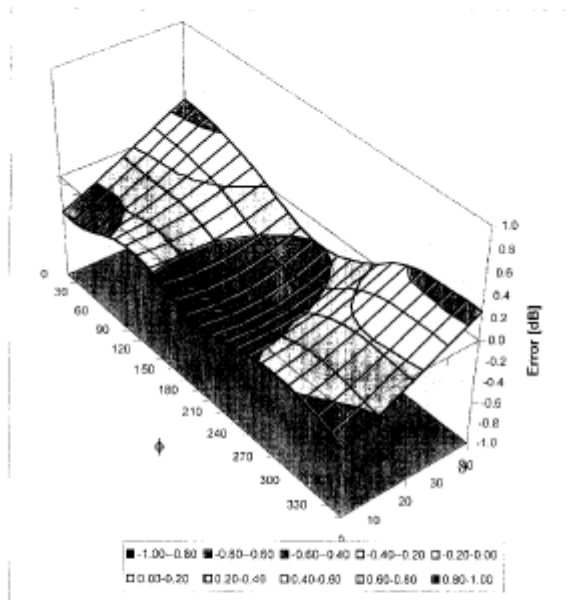
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EX3DV4 SN:3578

June 26, 2009

Deviation from Isotropy in HSL

Error (ϕ , θ), $f = 900$ MHz



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

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7. Uncertainty Analysis

DASY4 Uncertainty Budget According to IEEE P1528 [1]

Error Description	Uncertainty value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±4.8 %	N	1	1	1	±4.8 %	±4.8 %	∞
Axial Isotropy	±4.7 %	R	$\sqrt{3}$	0.7	0.7	±1.9 %	±1.9 %	∞
Hemispherical Isotropy	±9.6 %	R	$\sqrt{3}$	0.7	0.7	±3.9 %	±3.9 %	∞
Boundary Effects	±1.0 %	R	$\sqrt{3}$	1	1	±0.6 %	±0.6 %	∞
Linearity	±4.7 %	R	$\sqrt{3}$	1	1	±2.7 %	±2.7 %	∞
System Detection Limits	±1.0 %	R	$\sqrt{3}$	1	1	±0.6 %	±0.6 %	∞
Readout Electronics	±1.0 %	N	1	1	1	±1.0 %	±1.0 %	∞
Response Time	±0.8 %	R	$\sqrt{3}$	1	1	±0.5 %	±0.5 %	∞
Integration Time	±2.6 %	R	$\sqrt{3}$	1	1	±1.5 %	±1.5 %	∞
RF Ambient Conditions	±3.0 %	R	$\sqrt{3}$	1	1	±1.7 %	±1.7 %	∞
Probe Positioner	±0.4 %	R	$\sqrt{3}$	1	1	±0.2 %	±0.2 %	∞
Probe Positioning	±2.9 %	R	$\sqrt{3}$	1	1	±1.7 %	±1.7 %	∞
Max. SAR Eval.	±1.0 %	R	$\sqrt{3}$	1	1	±0.6 %	±0.6 %	∞
Test Sample Related								
Device Positioning	±2.9 %	N	1	1	1	±2.9 %	±2.9 %	875
Device Holder	±3.6 %	N	1	1	1	±3.6 %	±3.6 %	5
Power Drift	±5.0 %	R	$\sqrt{3}$	1	1	±2.9 %	±2.9 %	∞
Phantom and Setup								
Phantom Uncertainty	±4.0 %	R	$\sqrt{3}$	1	1	±2.3 %	±2.3 %	∞
Liquid Conductivity (target)	±5.0 %	R	$\sqrt{3}$	0.64	0.43	±1.8 %	±1.2 %	∞
Liquid Conductivity (meas.)	±2.5 %	N	1	0.64	0.43	±1.6 %	±1.1 %	∞
Liquid Permittivity (target)	±5.0 %	R	$\sqrt{3}$	0.6	0.49	±1.7 %	±1.4 %	∞
Liquid Permittivity (meas.)	±2.5 %	N	1	0.6	0.49	±1.5 %	±1.2 %	∞
Combined Std. Uncertainty						±10.3 %	±10.0 %	331
Expanded STD Uncertainty						±20.6 %	±20.1 %	

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8. Phantom description

Schmid & Partner Engineering AG

s p e a g

Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

Certificate of Conformity / First Article Inspection

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

Tests

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

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

Standards

- [1] CENELEC EN 50361
- [2] IEEE Std 1528-2003
- [3] IEC 62209 Part I
- [4] FCC OET Bulletin 65, Supplement C, Edition 01-01

(*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of the other documents.

Conformity

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

Date 07.07.2005

s p e a g

Signature / Stamp

Schmid & Partner Engineering AG
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info@speag.com, http://www.speag.com

Doc No 881 – QD 000 P40 C – F

Page 1 (1)

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9. System Validation from Original equipment supplier

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



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

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

Accreditation No.: SCS 108

Client **SGS (Auden)**

Certificate No: **D2450V2-727_Apr09**

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 727		
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits		
Calibration date:	April 27, 2009		
Condition of the calibrated item	In Tolerance		
This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.			
All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.			
Calibration Equipment used (M&TE critical for calibration)			
Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09
Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature
Issued: April 28, 2009			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

Certificate No: D2450V2-727_Apr09

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DASY5 Validation Report for Head TSL

Date/Time: 27.04.2009 13:40:04

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN727

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL U10 BB

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.4, 4.4, 4.4); Calibrated: 28.04.2008
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

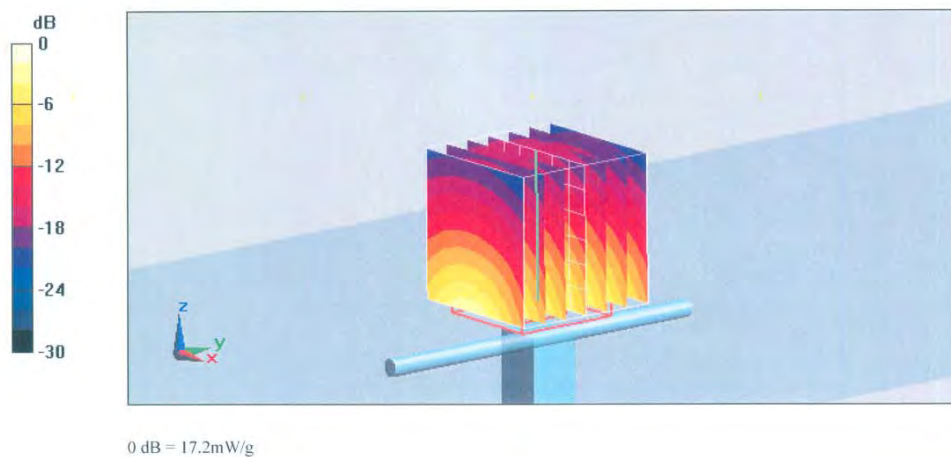
Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 100.3 V/m; Power Drift = 0.036 dB

Peak SAR (extrapolated) = 28.3 W/kg

SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.28 mW/g

Maximum value of SAR (measured) = 17.2 mW/g



DASY5 Validation Report for Body TSL

Date/Time: 22.04.2009 13:12:14

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: MSL U10 BB

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.98$ mho/m; $\epsilon_r = 54.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.07, 4.07, 4.07); Calibrated: 28.04.2008
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

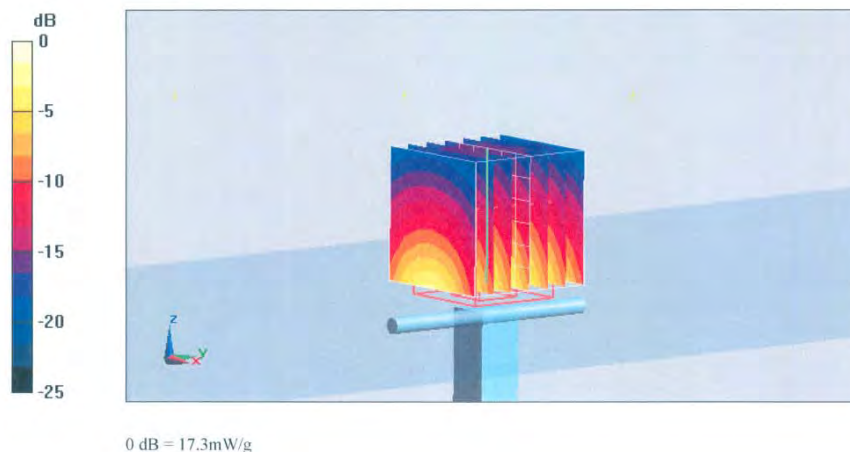
Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.9 V/m; Power Drift = 0.031 dB

Peak SAR (extrapolated) = 26.5 W/kg

SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.18 mW/g

Maximum value of SAR (measured) = 17.3 mW/g



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



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **SGS (Auden)**

Certificate No: **D5GHzV2-1023_Mar09**

CALIBRATION CERTIFICATE

Object **D5GHzV2 - SN: 1023**

Calibration procedure(s) **QA CAL-22.v1**
Calibration procedure for dipole validation kits between 3-6 GHz

Calibration date: **March 13, 2009**

Condition of the calibrated item **In Tolerance**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	01-Jul-08 (No. 217-00864)	Jul-09
Type-N mismatch combination	SN: 5047.2 / 06327	01-Jul-08 (No. 217-00867)	Jul-09
Reference Probe EX3DV4	SN: 3503	11-Mar-09 (No. EX3-3503_Mar09)	Mar-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

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

Issued: March 17, 2009

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Certificate No: D5GHzV2-1023_Mar09

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Area Scan resolution	dx, dy = 10 mm	
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 2.5 mm	
Frequency	5200 MHz \pm 1 MHz 5500 MHz \pm 1 MHz 5800 MHz \pm 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	35.4 \pm 6 %	4.53 mho/m \pm 6 %
Head TSL temperature during test	(22.0 \pm 0.2) °C	----	----

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	condition	
SAR measured	100 mW input power	7.70 mW / g
SAR normalized	normalized to 1W	77.0 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	76.7 mW / g \pm 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.17 mW / g
SAR normalized	normalized to 1W	21.7 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	21.6 mW / g \pm 19.5 % (k=2)

¹ Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Head TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.9 ± 6 %	4.80 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	condition	
SAR measured	100 mW input power	8.17 mW / g
SAR normalized	normalized to 1W	81.7 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	81.3 mW / g ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.29 mW / g
SAR normalized	normalized to 1W	22.9 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	22.8 mW / g ± 19.5 % (k=2)

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.3 ± 6 %	5.08 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm ³ (1 g) of Head TSL	condition	
SAR measured	100 mW input power	7.81 mW / g
SAR normalized	normalized to 1W	78.1 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	77.6 mW / g ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.19 mW / g
SAR normalized	normalized to 1W	21.9 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	21.7 mW / g ± 19.5 % (k=2)

¹ Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.7 ± 6 %	5.30 mho/m ± 6 %
Body TSL temperature during test	(21.2 ± 0.2) °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	7.40 mW / g
SAR normalized	normalized to 1W	74.0 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	73.6 mW / g ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.06 mW / g
SAR normalized	normalized to 1W	20.6 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	20.5 mW / g ± 19.5 % (k=2)

Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.0 ± 6 %	5.68 mho/m ± 6 %
Body TSL temperature during test	(21.0 ± 0.2) °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	7.85 mW / g
SAR normalized	normalized to 1W	78.5 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	78.0 mW / g ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.17 mW / g
SAR normalized	normalized to 1W	21.7 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	21.5 mW / g ± 19.5 % (k=2)

¹ Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.3 ± 6 %	6.05 mho/m ± 6 %
Body TSL temperature during test	(21.0 ± 0.2) °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm ³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	7.09 mW / g
SAR normalized	normalized to 1W	70.9 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	70.4 mW / g ± 19.9 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	1.95 mW / g
SAR normalized	normalized to 1W	19.5 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	19.3 mW / g ± 19.5 % (k=2)

¹ Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	49.4 Ω - 6.9 j Ω
Return Loss	-23.2 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	51.3 Ω - 2.3 j Ω
Return Loss	-31.6 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	57.2 Ω - 1.0 j Ω
Return Loss	-23.4 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	50.6 Ω - 6.0 j Ω
Return Loss	-24.4 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	51.7 Ω - 1.2 j Ω
Return Loss	-33.8 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	56.9 Ω + 0.3 j Ω
Return Loss	-23.8 dB

DASY5 Validation Report for Head TSL

Date/Time: 12.03.2009 13:05:20

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1023

Communication System: CW-5GHz; Frequency: 5200 MHzFrequency: 5500 MHzFrequency: 5800 MHz; Duty Cycle: 1:1

Medium: HSL 5800 MHz

Medium parameters used: $f = 5200$ MHz; $\sigma = 4.5$ mho/m; $\epsilon_r = 35.2$; $\rho = 1000$ kg/m³ Medium parameters used: $f = 5500$ MHz; $\sigma = 4.78$ mho/m; $\epsilon_r = 34.6$; $\rho = 1000$ kg/m³ Medium parameters used: $f = 5800$ MHz; $\sigma = 5.06$ mho/m; $\epsilon_r = 34.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.36, 5.36, 5.36)ConvF(4.85, 4.85, 4.85)ConvF(4.74, 4.74, 4.74); Calibrated: 11.03.2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.2 Build 87

d=10mm, Pin=100mW, f=5200 MHz/Area Scan (61x61x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 15.9 mW/g

d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 53.6 V/m; Power Drift = 0.017 dB

Peak SAR (extrapolated) = 29.6 W/kg

SAR(1 g) = 7.7 mW/g; SAR(10 g) = 2.17 mW/g

Maximum value of SAR (measured) = 16.1 mW/g

d=10mm, Pin=100mW, f=5500 MHz 2/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 53 V/m; Power Drift = 0.076 dB

Peak SAR (extrapolated) = 33.1 W/kg

SAR(1 g) = 8.17 mW/g; SAR(10 g) = 2.29 mW/g

Maximum value of SAR (measured) = 17.2 mW/g

d=10mm, Pin=100mW, f=5800 MHz 2/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 50.3 V/m; Power Drift = 0.102 dB

Peak SAR (extrapolated) = 33.1 W/kg

SAR(1 g) = 7.81 mW/g; SAR(10 g) = 2.19 mW/g

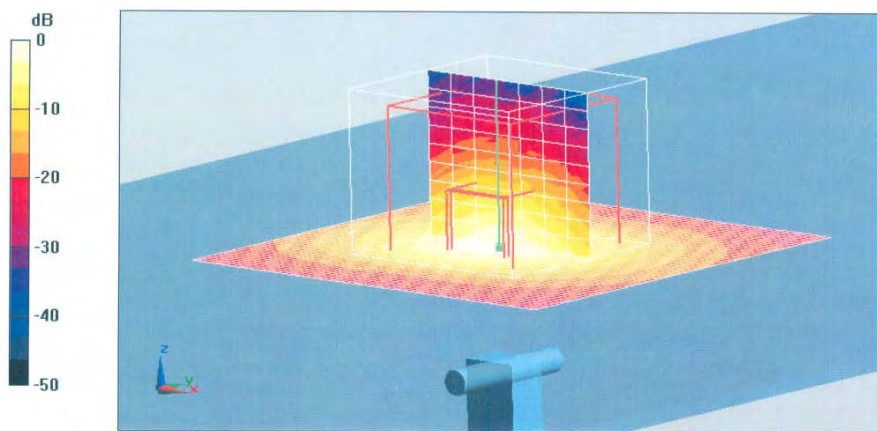
Maximum value of SAR (measured) = 16.7 mW/g

Certificate No: D5GHzV2-1023_Mar09

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0 dB = 16.7mW/g

DASY5 Validation Report for Body TSL

Date/Time: 13.03.2009 12:53:56

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1023

Communication System: CW-5GHz; Frequency: 5200 MHzFrequency: 5500 MHzFrequency: 5800 MHz;Duty Cycle: 1:1

Medium: MSL 5800 MHz

Medium parameters used: $f = 5200$ MHz; $\sigma = 5.3$ mho/m; $\epsilon_r = 47.7$; $\rho = 1000$ kg/m³ Medium parameters used: $f = 5500$ MHz; $\sigma = 5.68$ mho/m; $\epsilon_r = 47$; $\rho = 1000$ kg/m³ Medium parameters used: $f = 5800$ MHz; $\sigma = 6.05$ mho/m; $\epsilon_r = 46.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.88, 4.88, 4.88)ConvF(4.37, 4.37, 4.37)ConvF(4.57, 4.57, 4.57); Calibrated: 11.03.2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.2 Build 87

d=10mm, Pin=100mW, f=5200 MHz/Area Scan (61x61x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 15.7 mW/g

d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 49.5 V/m; Power Drift = -0.00808 dB

Peak SAR (extrapolated) = 27.9 W/kg

SAR(1 g) = 7.4 mW/g; SAR(10 g) = 2.06 mW/g

Maximum value of SAR (measured) = 15.2 mW/g

d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 49.1 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 31.6 W/kg

SAR(1 g) = 7.85 mW/g; SAR(10 g) = 2.17 mW/g

Maximum value of SAR (measured) = 16.5 mW/g

d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 44.9 V/m; Power Drift = 0.033 dB

Peak SAR (extrapolated) = 30.3 W/kg

SAR(1 g) = 7.09 mW/g; SAR(10 g) = 1.95 mW/g

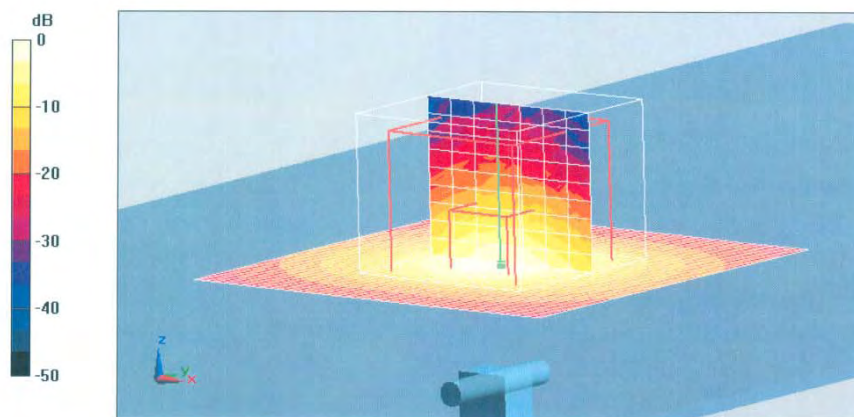
Maximum value of SAR (measured) = 15 mW/g

Certificate No: D5GHzV2-1023_Mar09

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0 dB = 15mW/g

End of 1st part of report