

SAR TEST REPORT

Equipment Under Test	EDA (Enterprise Digital Assistant)
Model Name	SP500
Company Name	Wistron Corporation
Company Address	21F,88,Sec.1,Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221,Taiwan R.O.C
Date of Receipt	2008.05.23
Date of Test(s)	2008.06.17-2008.06.18
Date of Issue	2008.06.23

Standards:

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

Test result:

Test result is passed the above standards.

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
Sr. Engineer

Date : 2008.06.23

Approved by : Robert Chang
Tech Manager

Date : 2008.06.23

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1. General Information

1.1 Testing Laboratory

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1.2 Details of Applicant

Company Name	Wistron Corporation
Company Address	21F,88,Sec.1,Hsin Tai Wu Rd., Hsichih, Taipei Hsien 221,Taiwan R.O.C
Telephone	02-8691-1206
Fax	02-8691-2080
Contact Person	Roy Cheng
E-mail	Roy_cheng@wistron.com

1.3 Description of EUT

EUT Name	EDA (Enterprise Digital Assistant)
FCC ID	PU5-SP500
Model Name	SP500
IMEI Code	011441000010000
Mode of Operation	GSM /GPRS/EDGE band
Definition	Production unit
Modulation Mode	GSM/GMSK/QPSK/8PSK

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Duty Cycle	GSM	GPRS/EDGE
	1/8	1/2
Maximum RF Conducted Power (Average)	GSM 850	PCS 1900
	31.38dbm	29.95dbm
TX Frequency Range (MHz)	GSM 850	PCS 1900
	824.2-848.8	1850-1910
Channel Number (ARFCN)	GSM 850	PCS 1900
	128-251	512-810
Battery Type	3.7 V Lithium-Ion	
Antenna Type	Internal Antenna	
Max. SAR Measured (1 g)	Head	Body
	0.610 W/kg (At PCS1900 Left Head(Cheek Position)_ 512 Channel)	1.37 W/kg (At PCS 1900_ 810 Channel)

Note:

1. EGPRS mode was not measured because maximum averaged output power is 3 dB lower than in GPRS mode.
2. The distance between BT antenna and WLAN antenna is 7.8 cm, and the distance between BT antenna and GSM antenna is 7.2 cm.

1.4 Test Environment

Ambient Temperature: 22.2° C

Tissue Simulating Liquid: 21.7° C

Relative Humidity: 62 %

1.5 Operation description

General:

1. The EUT is controlled by using a Radio Communication Tester (R&S CMU200), and the communication between the EUT and the tester is established by air link. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s). The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.

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2. During the SAR testing, the DASY4 system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.
3. The WLAN signal generating was applied per “8686.exe” software, and this software was provided by customer and it can control specific frequency and data rate.
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.

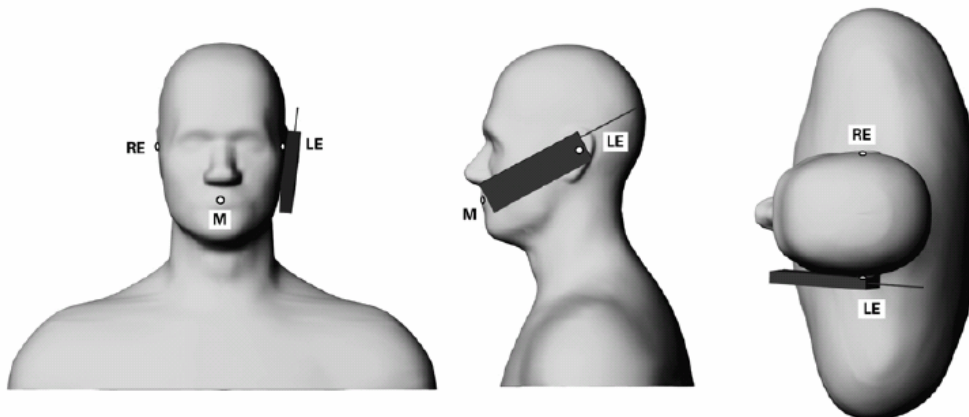
Worst case-Head:

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

Worst case-Body:

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

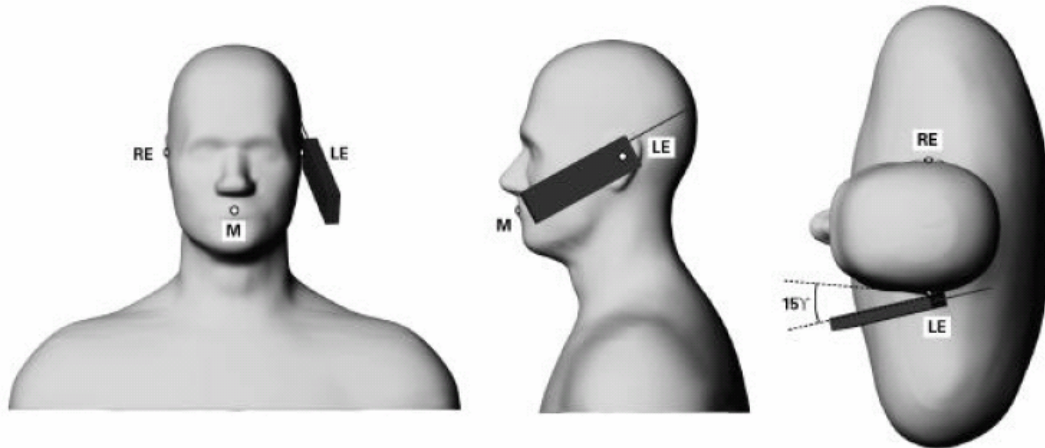
1.6 Positioning Procedure



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

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

Cheek/Touch Position:

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

Ear/Tilt Position:

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

1.7 EVALUATION PROCEDURES

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

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

The probe is calibrated at the center of the dipole sensors that is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface,

depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away

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the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated. The angle between the probe axis and the surface normal line is less than 30 degree.

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

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7x7x7 scans.

The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 30x30x30mm contains about 30g of tissue. The first procedure is an extrapolation (incl. Boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume. In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is moved around until the highest averaged SAR is found. If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

1.8 The SAR Measurement System

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

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

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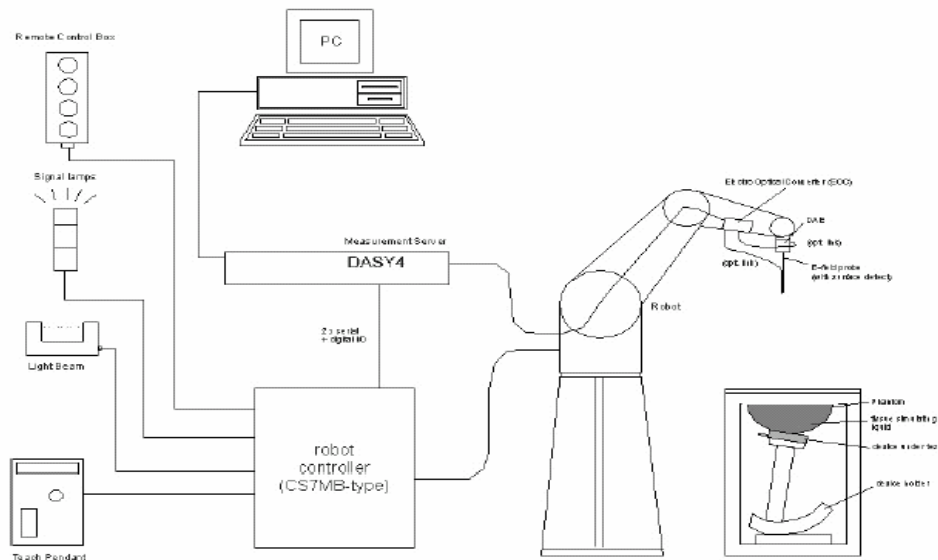


Fig.a The microwave circuit arrangement used for SAR system verification

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

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

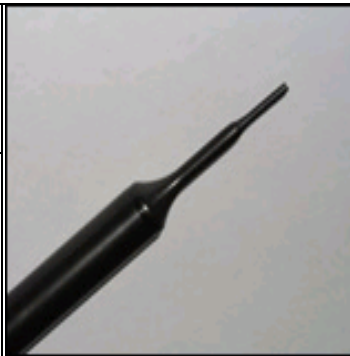
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- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
 - A computer operating Windows 2000 or Windows XP.
 - DASY4 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
 - The SAM twin phantom enabling testing left-hand and right-hand usage.
 - The device holder for handheld mobile phones.
 - Tissue simulating liquid mixed according to the given recipes.
 - Validation dipole kits allowing to validate the proper functioning of the system.

1.9 System Components


EX3DV3 E-Field Probe

Construction:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Calibration:	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL850/1900/2450 Additional CF for other liquids and frequencies upon request	
Frequency:	10 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 6 GHz)	
Directivity:	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range:	10 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%.	


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SAM PHANTOM V4.0C

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

DEVICE HOLDER

Construction	<p>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>	 <p>Device Holder</p>
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1.10 SAR System Verification

The circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 5% from the target SAR values. These tests were done at 900/1900/2450MHz. 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

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

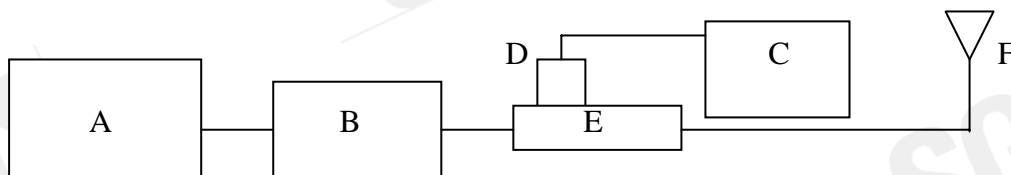
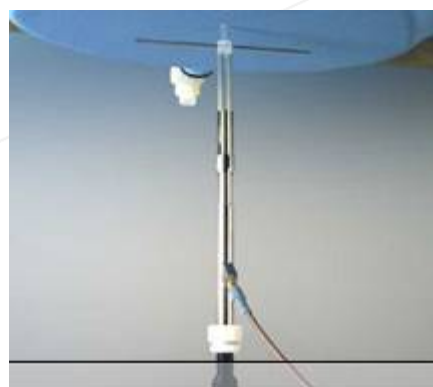


Fig.b The microwave circuit arrangement used for SAR system verification

- A. Agilent Model 8648D Signal Generator
- B. Mini circuits Model ZHL-42 Amplifier
- C. Agilent Model E4416A Power Meter
- D. Agilent Model 8481H Power Sensor
- E. Agilent Model 778D & 777D Dual directional coupling
- F. Reference dipole antenna



Photograph of the dipole Antenna

Validation Kit	Frequency (MHz)	Target SAR (1g) (Pin=250mW)	Measured SAR (1g)	Variation	Measured Date
D900V2 S/N: 178	900 MHz (Head)	2.67 m W/g	2.57m W/g	3.7%	2008/6/17
D900V2 S/N: 178	900 MHz (Body)	2.84 m W/g	2.75m W/g	3.16%	2008/6/17
D1900V2 S/N: 5d027	1900 MHz (Head)	10.3 m W/g	10.9m W/g	4.8%	2008/6/18
D1900V2 S/N: 5d027	1900 MHz (Body)	9.64 m W/g	9.8m W/g	1.6%	2008/6/18
D2450V2 S/N: 727	2450 MHz (Body)	13.2 m W/g	13.5m W/g	2.2%	2008/6/17

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 HP 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)
900	Head	Measured, 2008.06.17	39.7	0.921	21.7
		Recommended Limits	39.4-43.6	0.86-1.03	20-24
900	Body	Measured, 2008.06.17	54.3	1.07	21.7
		Recommended Limits	52.3-57.8	0.92-1.1	20-24
1900	Head	Measured, 2008.06.18	41	1.46	21.7
		Recommended Limits	38-42	1.29-1.47	20-24
1900	Body	Measured, 2008.06.18	55	1.58	21.7
		Recommended Limits	50.6-56	1.38-1.6	20-24
2450	Body	Measured, 2008.06.17	52.7	1.94	21.7
		Recommended Limits	50.1-55.3	1.85-2.12	20-24

Table 3. Dielectric Parameters of Tissue Simulant Fluid

Band 850 Frequency (MHz)	Channel	Target	Permittivity Measurement Data	Variation	Target	Conductivity Measurement Data	Variation
For Head Part (GSM850)							
Low(824.2)	128	41	39.9	2.6%	0.89	0.897	0.7%
Mid(836.6)	190		39.7	3.1%		0.924	3.8%
High(848.8)	251		39.6	3.4%		0.93	4.4%
For Body Part(GSM850)							
Low(824.2)	128	55.2	55.1	0.1%	0.97	0.994	2.4%
Mid(836.6)	190		55	0.36%		0.996	2.6%
High(848.8)	251		54.9	0.54%		0.999	2.9%

Table 4. Dielectric Parameters of Tissue Simulant Fluid (follow P1528 target value)

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The composition of the brain tissue simulating liquid for 900 & 1900 & 2450 band:

Ingredient	900MHz (Head)	900MHz (Body)	1900MHz (Head)	1900MHz (Body)	2450Mhz (Body)
DGMBE	X	X	444.52 g	300.67g	301.7 ml
Water	532.98 g	631.68 g	552.42 g	716.56 g	698.3 ml
Salt	18.3 g	11.72 g	3.06 g	4.0 g	X
Preventol D-7	2.4 g	1.2 g	X	X	X
Cellulose	3.2 g	X	X	X	X
Sugar	766.0 g	600 g	X	X	X
Total amount	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)

Table 5. Recipes for tissue simulating liquid

1.12 Test Standards and Limits

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

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

(2) Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.(Table .6)

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

Table .6 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

GSM 850 MHZ

Right Head (Cheek Position)

Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	128	824.2	31.33dbm	0.274	22.1	21.7
	190	836.6	31.38dbm	0.298	22.1	21.7
	251	848.8	31.3dbm	0.326	22.1	21.7

Left Head (Cheek Position)

Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	128	824.2	31.33dbm	0.262	22.1	21.7
	190	836.6	31.38dbm	0.281	22.1	21.7
	251	848.8	31.3dbm	0.301	22.1	21.7

Right Head (15° Tilt Position)

Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	128	824.2	31.33dbm	0.198	22.1	21.7
	190	836.6	31.38dbm	0.214	22.1	21.7
	251	848.8	31.3dbm	0.228	22.1	21.7

Left Head (15° Tilt Position)

Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	128	824.2	31.33dbm	0.194	22.1	21.7
	190	836.6	31.38dbm	0.211	22.1	21.7
	251	848.8	31.3dbm	0.227	22.1	21.7

Body worn (testing in GPRS mode)

Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
850 MHz	128	824.2	31.33dbm	1.2	22.1	21.7
	190	836.6	31.38dbm	1.2	22.1	21.7
	251	848.8	31.3dbm	1.25	22.1	21.7

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PCS 1900 MHZ

Right Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	512	1850.2	29.61dbm	0.588	22.1	21.7
	661	1880	29.45dbm	0.573	22.1	21.7
	810	1909.8	29.95dbm	0.537	22.1	21.7
Left Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	512	1850.2	29.61dbm	0.610	22.1	21.7
	661	1880	29.45dbm	0.568	22.1	21.7
	810	1909.8	29.95dbm	0.510	22.1	21.7
Right Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	512	1850.2	29.61dbm	0.214	22.1	21.7
	661	1880	29.45dbm	0.205	22.1	21.7
	810	1909.8	29.95dbm	0.173	22.1	21.7
Left Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	512	1850.2	29.61dbm	0.255	22.1	21.7
	661	1880	29.45dbm	0.254	22.1	21.7
	810	1909.8	29.95dbm	0.186	22.1	21.7
Left Head (Cheek Position)_repeated with Memory card						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	512	1850.2	29.61dbm	0.547	22.1	21.7
Left Head (Cheek Position)_repeated with Bluetooth activew						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	512	1850.2	29.61dbm	0.567	22.1	21.7

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Body worn (testing in GPRS mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	512	1850.2	29.61dbm	1.27	22.1	21.7
	661	1880	29.45dbm	1.32	22.1	21.7
	810	1909.8	29.95dbm	1.37	22.1	21.7
Body worn (testing in GPRS mode)_repeated for EUT front to phantom						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	810	1909.8		0.509	22.1	21.7
Body worn (testing in GPRS mode)_repeated with Memory card						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	810	1909.8	29.95dbm	1.33	22.1	21.7
Body worn (testing in GPRS mode)_repeated with Bluetooth active						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
1900 MHz	810	1909.8	29.95dbm	1.29	22.1	21.7

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WLAN802.11 b

Body worn						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 b	1	2412	15.11dbm	0.0025	22.1	21.7
	6	2437	15.35dbm	0.00329	22.1	21.7
	11	2462	15.41dbm	0.00404	22.1	21.7
Body worn- repeated for EUT front to phantom						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 b	11	2462	15.41dbm	0.00179	22.1	21.7
Body worn-repeated with Memory card						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 b	11	2462	15.41dbm	0.00513	22.1	21.7
Body worn-repeated with Bluetooth active						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 b	11	2462	15.41dbm	0.00542	22.1	21.7

WLAN 802.11 g

Body worn						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[°C]	Liquid Temp[°C]
WLAN 802.11 g	1	2412	12.32dbm	0.00136	22.1	21.7
	6	2437	12.37dbm	0.00137	22.1	21.7
	11	2462	12.92dbm	0.00277	22.1	21.7

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

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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.29.2007
Schmid & Partner Engineering AG	900/1900/2450MHz System Validation Dipole	D900V2 D1900V2 D2450V2	178 5d027 727	Apr.16.2008 Apr.15.2008 Apr.11.2008
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	547	Jan.24.2008
Schmid & Partner Engineering AG	Software	DASY 4 V4.7 Build 55	N/A	Calibration isn't necessary
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration isn't necessary
Agilent	Network Analyzer	8753D	3410A05547	Nov.14.2007
Agilent	Dielectric Probe Kit	85070D	US01440168	Calibration isn't necessary
Agilent	Dual-directional coupler	778D	50313	Aug.21.2007
		777D	50114	Aug.21.2007
Agilent	RF Signal Generator	E4438c	MY45093613	May.21.2008
Agilent	Power Sensor	8481H	MY41091361	May.20.2008
R&S	Radio Communication Test	CMU200	113508	Aug.24.2007

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4. Measurements

RE Cheek_CH128

Date/Time: 2008/6/17 01:28:19

DUT: SP500; IMEI:011441000010000

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

Medium: Head 850 MHz Medium parameters used (interpolated): $f = 824.2 \text{ MHz}$; $\sigma = 0.897 \text{ mho/m}$; $\epsilon_r = 39.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

RE_Cheek/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.287 mW/g

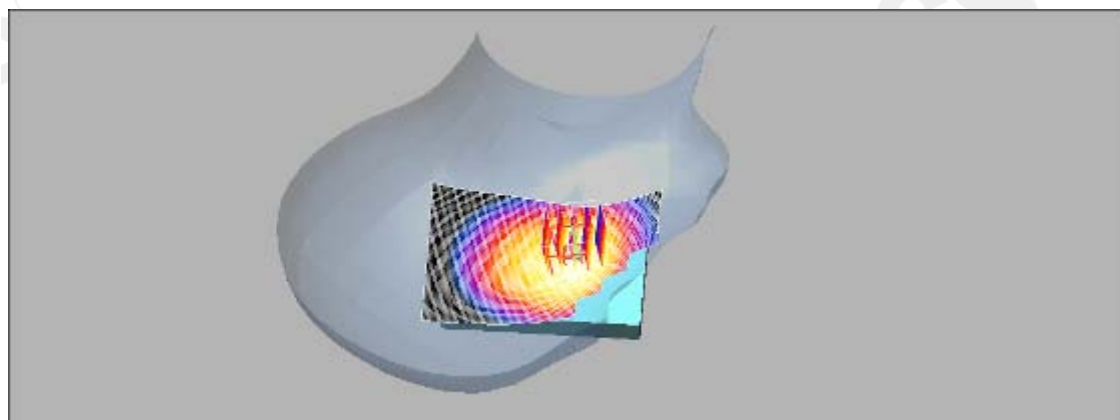
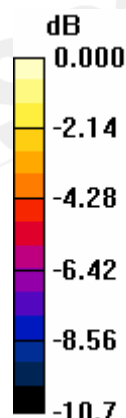
RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.21 V/m ; Power Drift = -0.129 dB

Peak SAR (extrapolated) = 0.351 W/kg

SAR(1 g) = 0.274 mW/g ; SAR(10 g) = 0.204 mW/g

Maximum value of SAR (measured) = 0.287 mW/g



0 dB = 0.287 mW/g

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Date/Time: 2008/6/17 01:50:17

RE Cheek_CH190

DUT: SP500; IMEI:011441000010000

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

Medium: Head 850 MHz Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 0.924 \text{ mho/m}$; $\epsilon_r = 39.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

RE_Cheek/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.311 mW/g

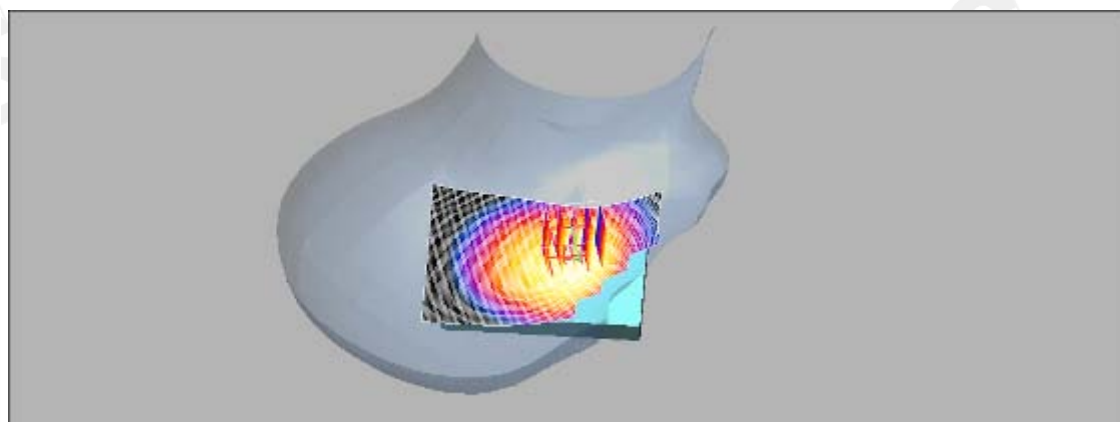
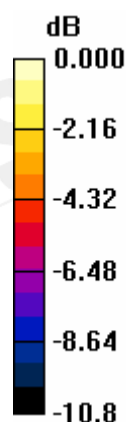
RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.26 V/m; Power Drift = 0.003 dB

Peak SAR (extrapolated) = 0.384 W/kg

SAR(1 g) = 0.298 mW/g; SAR(10 g) = 0.220 mW/g

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



0 dB = 0.312mW/g

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Date/Time: 2008/6/17 02:19:11

RE Cheek_CH251

DUT: SP500; IMEI:011441000010000

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

Medium: Head 850 MHz Medium parameters used: $f = 849 \text{ MHz}$; $\sigma = 0.93 \text{ mho/m}$; $\epsilon_r = 39.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

RE_Cheek/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.339 mW/g

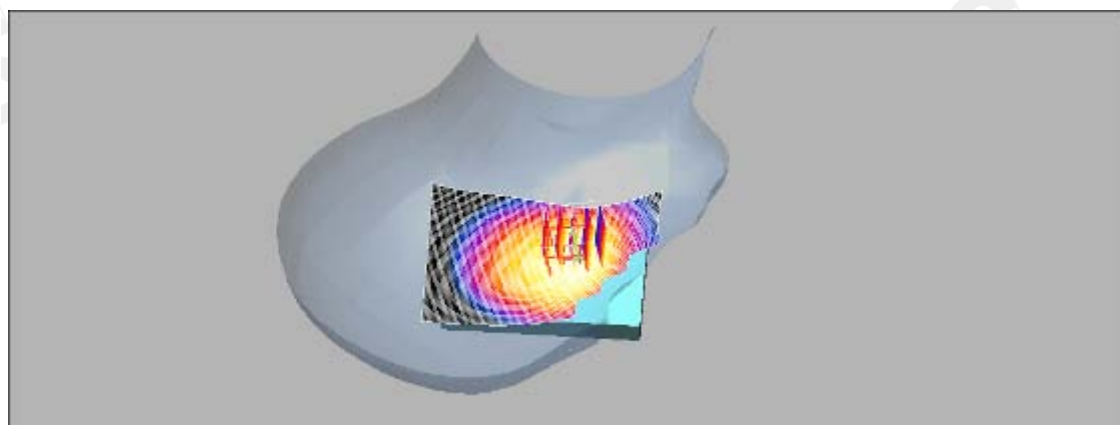
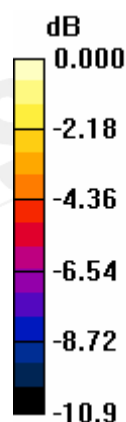
RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.49 V/m; Power Drift = 0.084 dB

Peak SAR (extrapolated) = 0.419 W/kg

SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.241 mW/g

Maximum value of SAR (measured) = 0.338 mW/g



0 dB = 0.338mW/g

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Date/Time: 2008/6/17 04:06:19

LE Cheek_CH128

DUT: SP500; IMEI:011441000010000

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

Medium: Head 850 MHz Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.897$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Cheek/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.275 mW/g

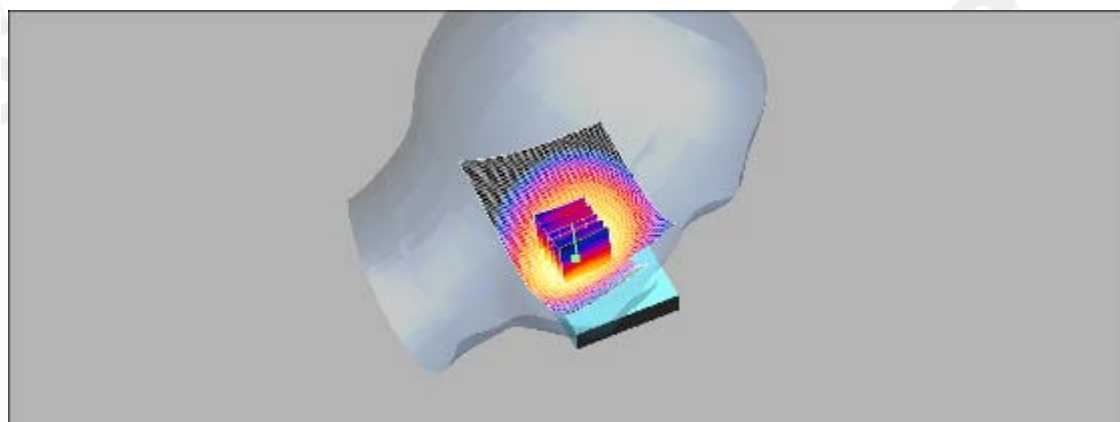
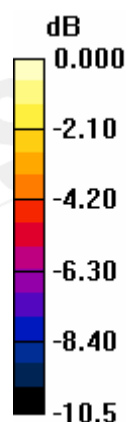
LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.51 V/m; Power Drift = -0.192 dB

Peak SAR (extrapolated) = 0.354 W/kg

SAR(1 g) = 0.262 mW/g; SAR(10 g) = 0.189 mW/g

Maximum value of SAR (measured) = 0.279 mW/g



0 dB = 0.279mW/g

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Date/Time: 2008/6/17 04:49:20

LE Cheek_CH190

DUT: SP500; IMEI:011441000010000

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

Medium: Head 850 MHz Medium parameters used: $f = 837$ MHz; $\sigma = 0.924$ mho/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Cheek/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.291 mW/g

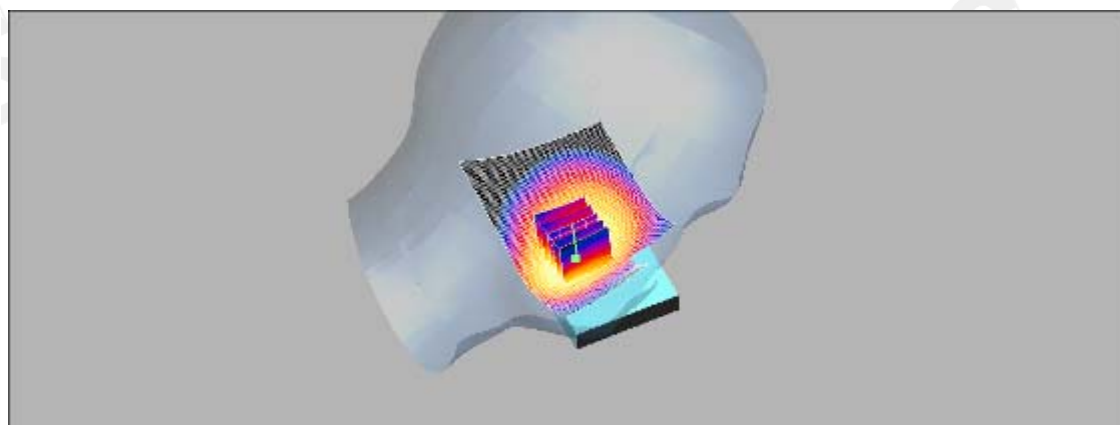
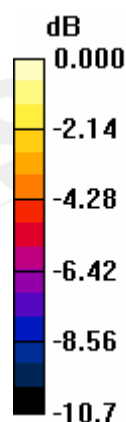
LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.85 V/m; Power Drift = 0.072 dB

Peak SAR (extrapolated) = 0.382 W/kg

SAR(1 g) = 0.281 mW/g; SAR(10 g) = 0.204 mW/g

Maximum value of SAR (measured) = 0.300 mW/g



0 dB = 0.300mW/g

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Date/Time: 2008/6/17 05:18:14

LE Cheek_CH251

DUT: SP500; IMEI:011441000010000

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

Medium: Head 850 MHz Medium parameters used: $f = 849 \text{ MHz}$; $\sigma = 0.93 \text{ mho/m}$; $\epsilon_r = 39.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Cheek/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.315 mW/g

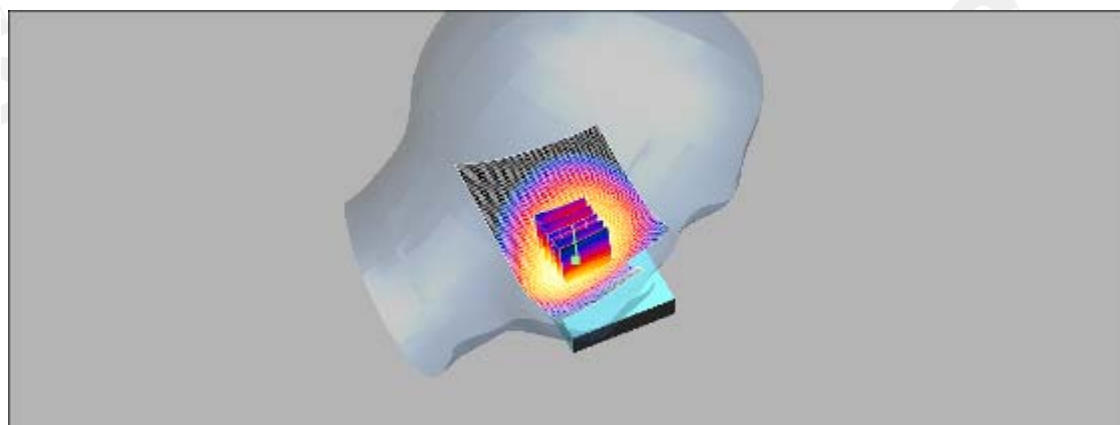
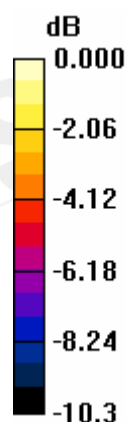
LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.23 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 0.409 W/kg

SAR(1 g) = 0.301 mW/g; SAR(10 g) = 0.219 mW/g

Maximum value of SAR (measured) = 0.321 mW/g



0 dB = 0.321mW/g

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Date/Time: 2008/6/17 02:41:18

RE Tilt_CH128

DUT: SP500; IMEI:011441000010000

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

Medium: Head 850 MHz Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.897$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

RE_Tilt/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.207 mW/g

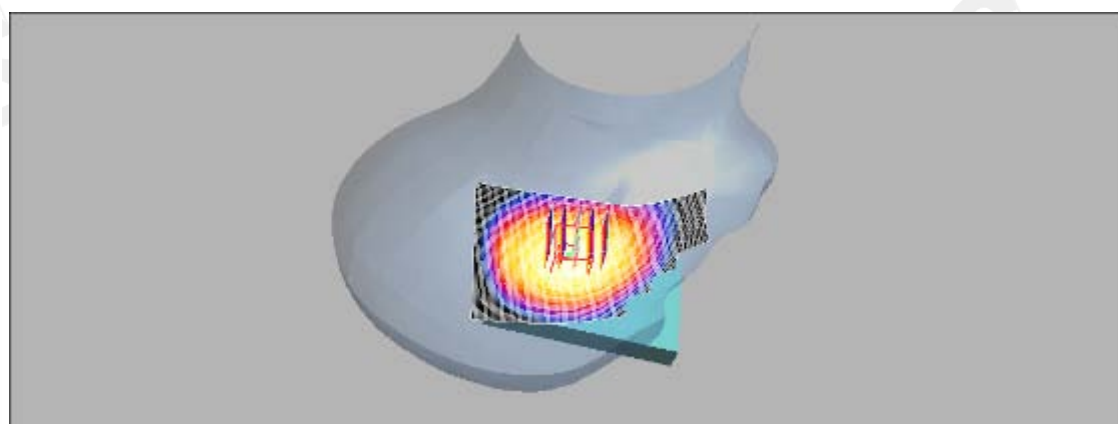
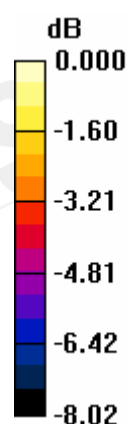
RE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.3 V/m; Power Drift = 0.082 dB

Peak SAR (extrapolated) = 0.241 W/kg

SAR(1 g) = 0.198 mW/g; SAR(10 g) = 0.153 mW/g

Maximum value of SAR (measured) = 0.208 mW/g



0 dB = 0.208mW/g

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Date/Time: 2008/6/17 03:02:35

RE Tilt_CH190

DUT: SP500; IMEI:011441000010000

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

Medium: Head 850 MHz Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 0.924 \text{ mho/m}$; $\epsilon_r = 39.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

RE_Tilt/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.222 mW/g

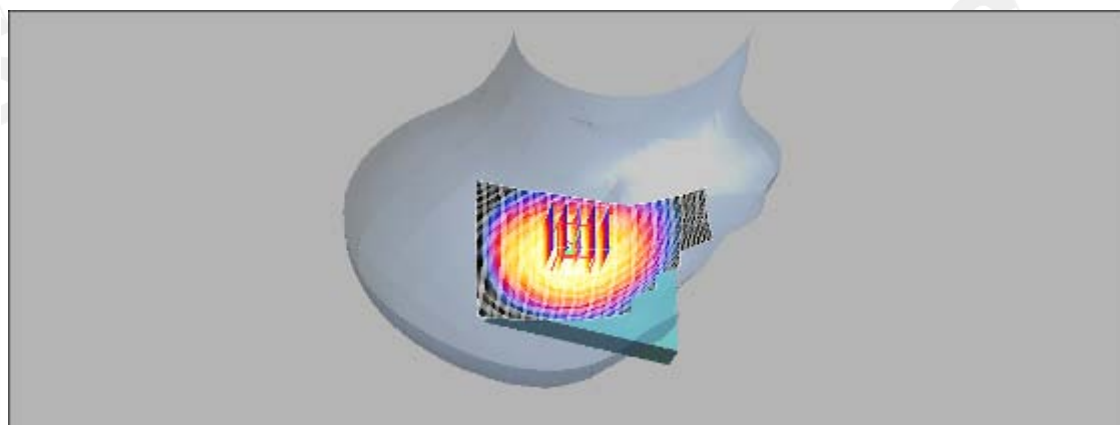
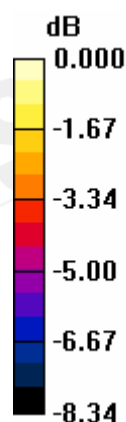
RE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.6 V/m; Power Drift = -0.007 dB

Peak SAR (extrapolated) = 0.267 W/kg

SAR(1 g) = 0.214 mW/g; SAR(10 g) = 0.164 mW/g

Maximum value of SAR (measured) = 0.224 mW/g



0 dB = 0.224mW/g

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Date/Time: 2008/6/17 03:31:39

RE Tilt_CH251

DUT: SP500; IMEI:011441000010000

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

Medium: Head 850 MHz Medium parameters used: $f = 849 \text{ MHz}$; $\sigma = 0.93 \text{ mho/m}$; $\epsilon_r = 39.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

RE_Tilt/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

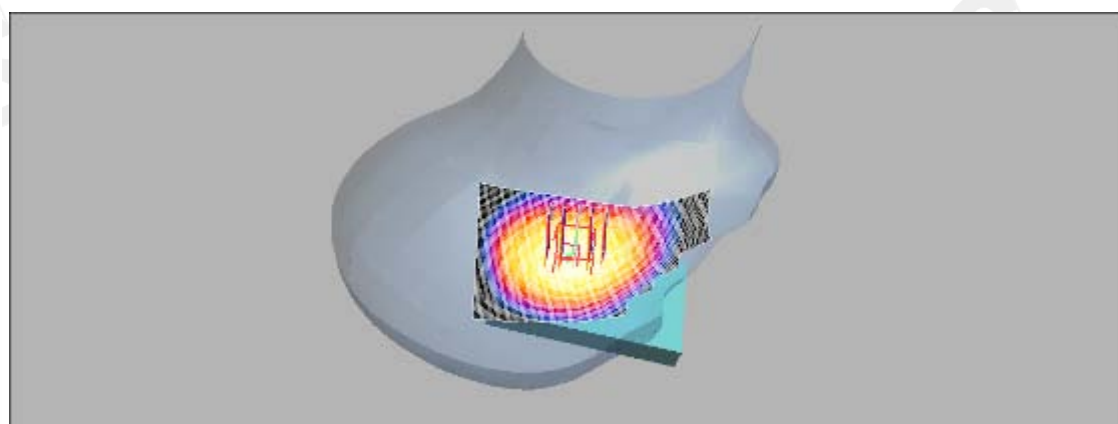
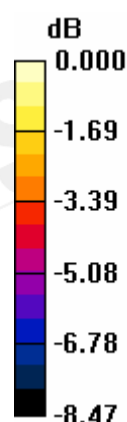
RE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.8 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 0.287 W/kg

SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.175 mW/g

Maximum value of SAR (measured) = 0.239 mW/g



0 dB = 0.239mW/g

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Date/Time: 2008/6/17 05:49:21

LE Tilt_CH128

DUT: SP500; IMEI:011441000010000

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

Medium: Head 850 MHz Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.897$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Tilt/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.203 mW/g

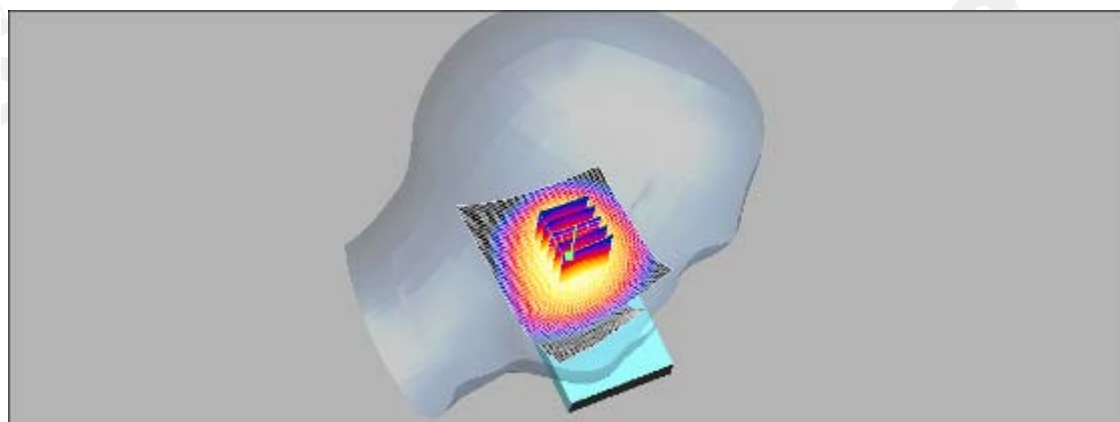
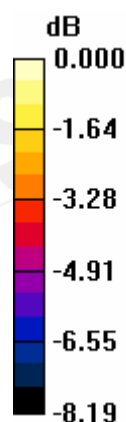
LE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.1 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 0.238 W/kg

SAR(1 g) = 0.194 mW/g; SAR(10 g) = 0.150 mW/g

Maximum value of SAR (measured) = 0.203 mW/g



0 dB = 0.203mW/g

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Date/Time: 2008/6/17 06:21:50

LE Tilt_CH190

DUT: SP500; IMEI:011441000010000

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

Medium: Head 850 MHz Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 0.924 \text{ mho/m}$; $\epsilon_r = 39.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Tilt/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.221 mW/g

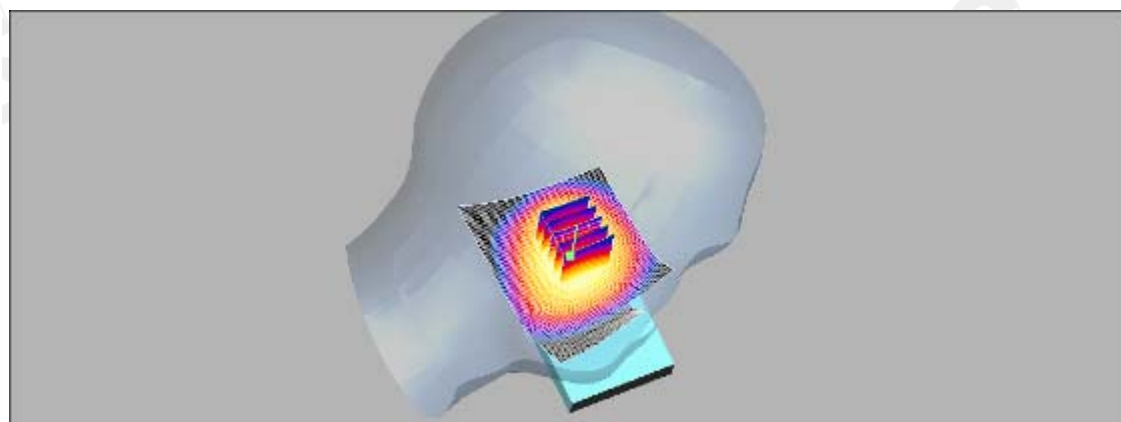
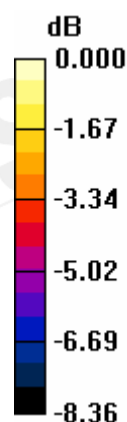
LE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.4 V/m; Power Drift = -0.003 dB

Peak SAR (extrapolated) = 0.260 W/kg

SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.221 mW/g



0 dB = 0.221mW/g

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Date/Time: 2008/6/17 06:49:53

LE Tilt_CH251

DUT: SP500; IMEI:011441000010000

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

Medium: Head 850 MHz Medium parameters used: $f = 849 \text{ MHz}$; $\sigma = 0.93 \text{ mho/m}$; $\epsilon_r = 39.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Tilt/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.238 mW/g

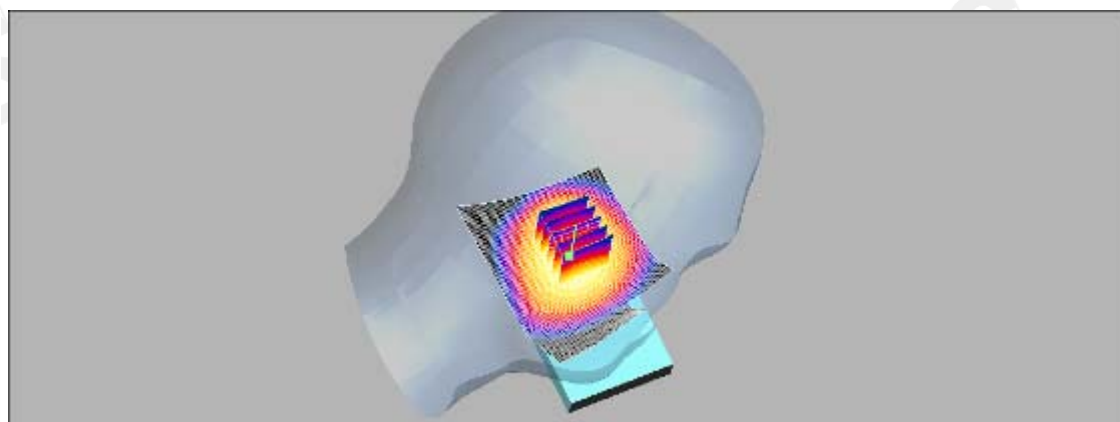
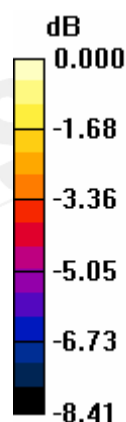
LE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.7 V/m; Power Drift = 0.049 dB

Peak SAR (extrapolated) = 0.279 W/kg

SAR(1 g) = 0.227 mW/g; SAR(10 g) = 0.174 mW/g

Maximum value of SAR (measured) = 0.238 mW/g



0 dB = 0.238mW/g

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Date/Time: 2008/6/17 09:13:39

BODY_CH128

DUT: SP500; IMEI:011441000010000

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:2

Medium: Muscle 900 MHz Medium parameters used (interpolated): $f = 824.2 \text{ MHz}$; $\sigma = 0.994 \text{ mho/m}$;
 $\epsilon_r = 55.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.28 mW/g

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

Reference Value = 11.2 V/m; Power Drift = -0.100 dB

Peak SAR (extrapolated) = 1.62 W/kg

SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.873 mW/g

Maximum value of SAR (measured) = 1.27 mW/g

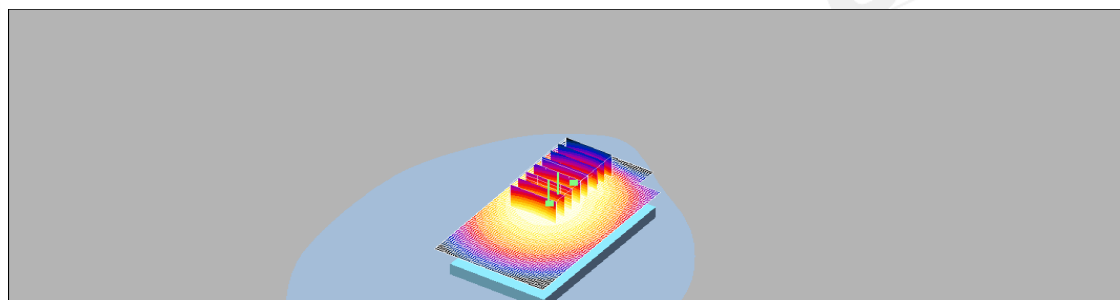
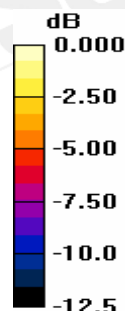
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.2 V/m; Power Drift = -0.100 dB

Peak SAR (extrapolated) = 1.50 W/kg

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.725 mW/g

Maximum value of SAR (measured) = 1.18 mW/g



0 dB = 1.18mW/g

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Date/Time: 2008/6/17 09:49:03

BODY_CH190

DUT: SP500; IMEI:011441000010000

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:2

Medium: Muscle 900 MHz Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 0.996 \text{ mho/m}$; $\epsilon_r = 55$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.25 mW/g

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

Reference Value = 11.0 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 1.62 W/kg

SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.870 mW/g

Maximum value of SAR (measured) = 1.27 mW/g

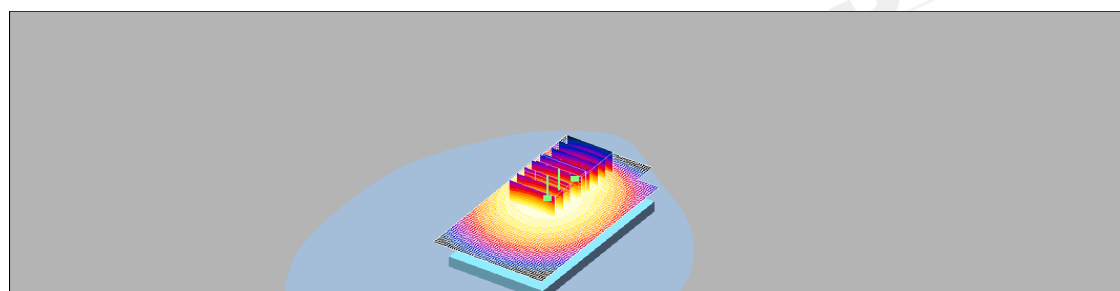
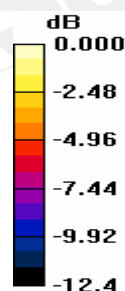
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.0 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 1.53 W/kg

SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.720 mW/g

Maximum value of SAR (measured) = 1.18 mW/g



0 dB = 1.18mW/g

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Date/Time: 2008/6/17 10:26:36

BODY_CH251

DUT: SP500; IMEI:011441000010000

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2

Medium: Muscle 900 MHz Medium parameters used: $f = 849$ MHz; $\sigma = 0.999$ mho/m; $\epsilon_r = 54.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.32 mW/g

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

Reference Value = 11.2 V/m; Power Drift = -0.001 dB

Peak SAR (extrapolated) = 1.69 W/kg

SAR(1 g) = 1.25 mW/g; SAR(10 g) = 0.904 mW/g

Maximum value of SAR (measured) = 1.33 mW/g

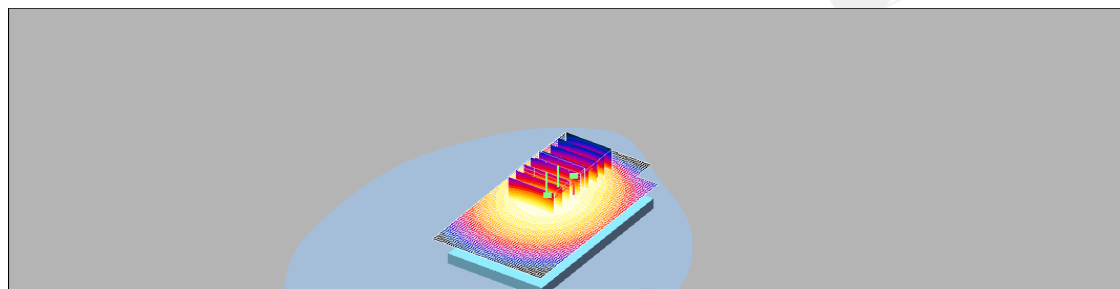
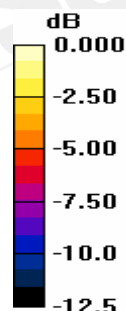
BODY/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.2 V/m; Power Drift = -0.001 dB

Peak SAR (extrapolated) = 1.55 W/kg

SAR(1 g) = 1.05 mW/g; SAR(10 g) = 0.740 mW/g

Maximum value of SAR (measured) = 1.22 mW/g



0 dB = 1.22mW/g

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Date/Time: 2008/6/18 02:38:16

RE Cheek_CH512

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 41.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

RE_Cheek/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.654 mW/g

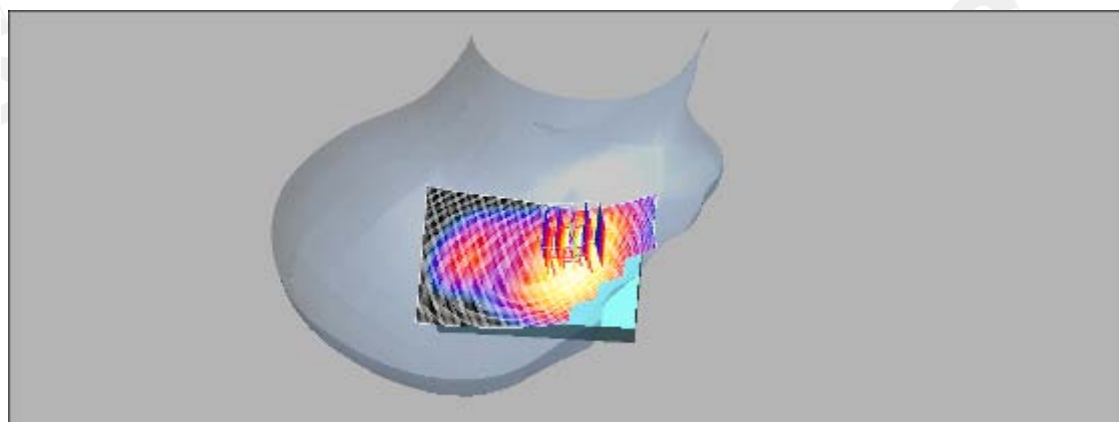
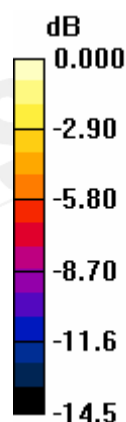
RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.89 V/m; Power Drift = -0.112 dB

Peak SAR (extrapolated) = 0.831 W/kg

SAR(1 g) = 0.588 mW/g; SAR(10 g) = 0.373 mW/g

Maximum value of SAR (measured) = 0.618 mW/g



0 dB = 0.618mW/g

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Date/Time: 2008/6/18 03:10:55

RE Cheek_CH661

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.44 \text{ mho/m}$; $\epsilon_r = 41$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

RE_Cheek/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.635 mW/g

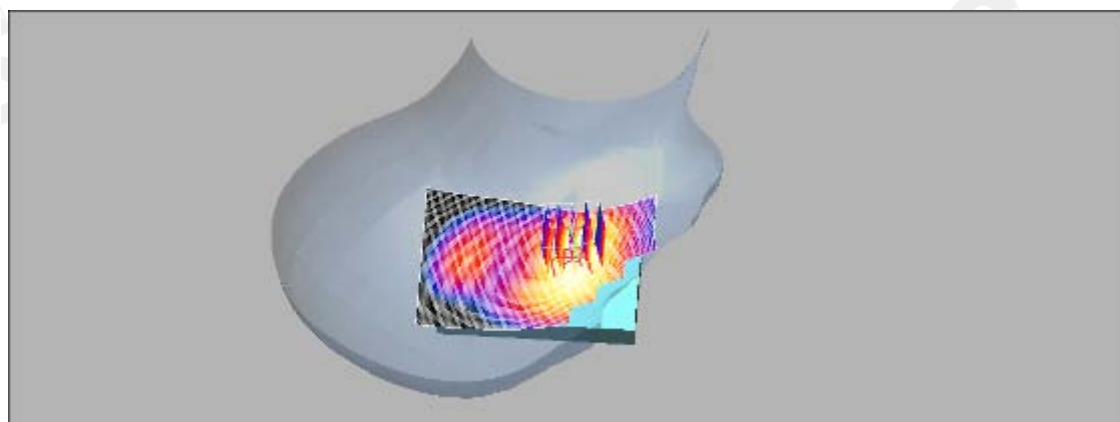
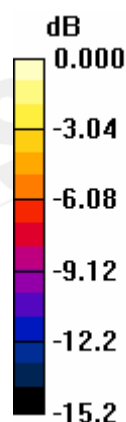
RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.90 V/m; Power Drift = 0.000 dB

Peak SAR (extrapolated) = 0.820 W/kg

SAR(1 g) = 0.573 mW/g; SAR(10 g) = 0.358 mW/g

Maximum value of SAR (measured) = 0.602 mW/g



0 dB = 0.602mW/g

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Date/Time: 2008/6/18 03:39:55

RE Cheek_CH810

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used: $f = 1910$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

RE_Cheek/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.592 mW/g

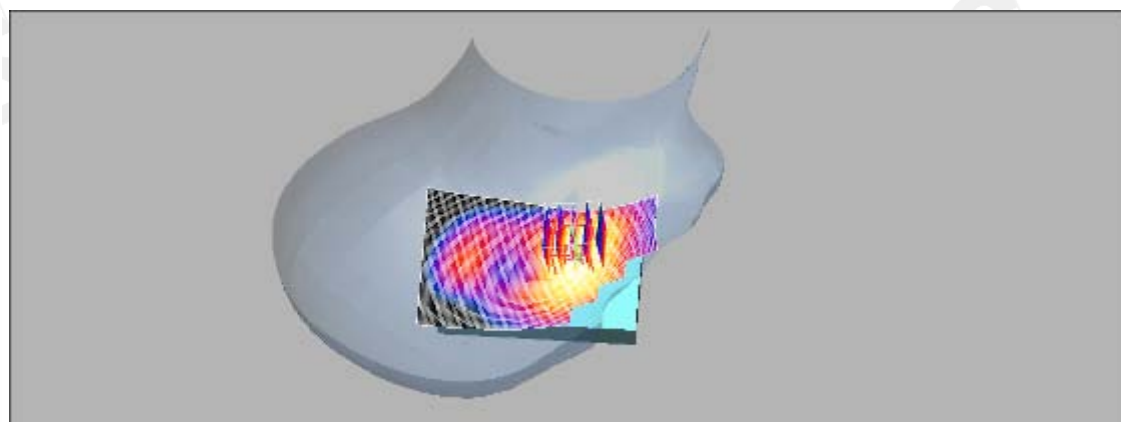
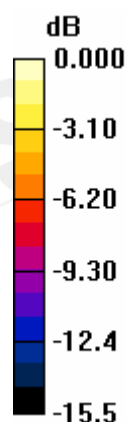
RE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.92 V/m; Power Drift = 0.029 dB

Peak SAR (extrapolated) = 0.776 W/kg

SAR(1 g) = 0.537 mW/g; SAR(10 g) = 0.328 mW/g

Maximum value of SAR (measured) = 0.566 mW/g



0 dB = 0.566mW/g

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Date/Time: 2008/6/18 05:59:55

LE Cheek_CH512

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Cheek/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.675 mW/g

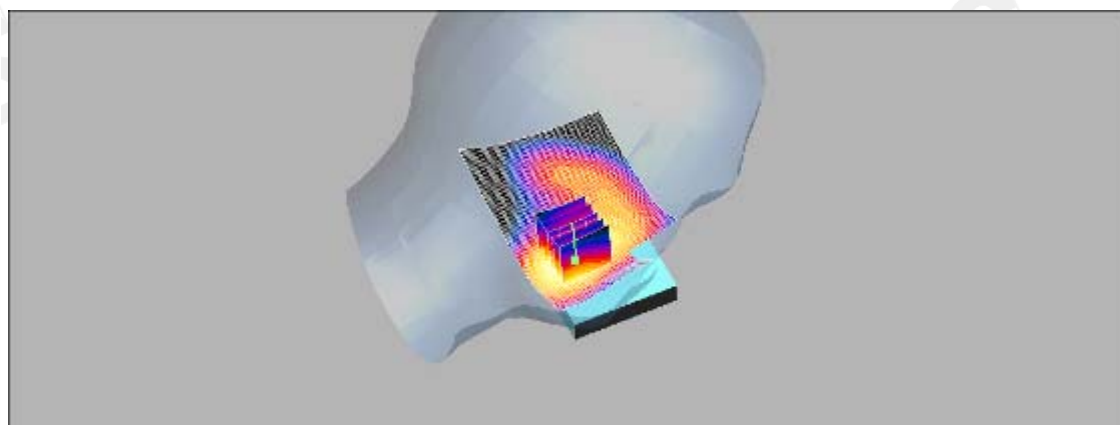
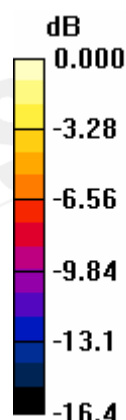
LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.34 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 0.955 W/kg

SAR(1 g) = 0.610 mW/g; SAR(10 g) = 0.368 mW/g

Maximum value of SAR (measured) = 0.661 mW/g



0 dB = 0.661mW/g

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Date/Time: 2008/6/18 06:41:03

LE Cheek_CH661

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.44 \text{ mho/m}$; $\epsilon_r = 41$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Cheek/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.622 mW/g

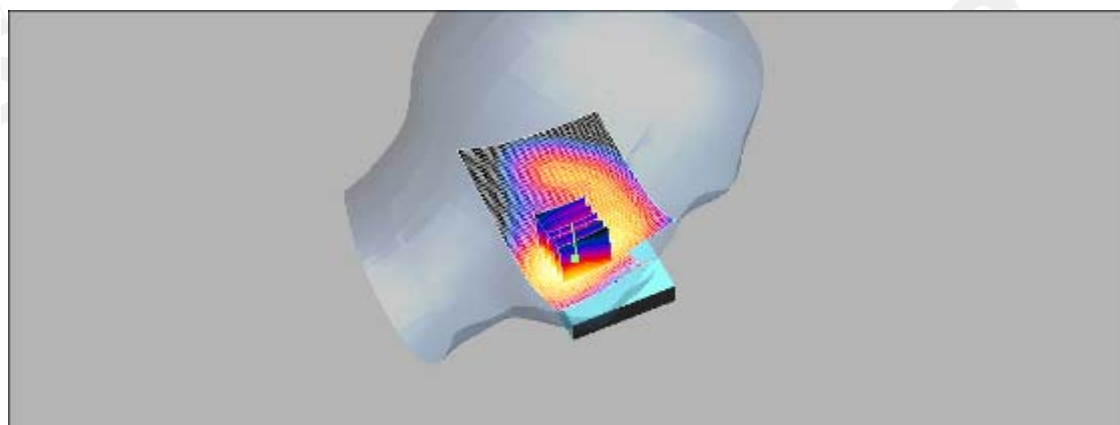
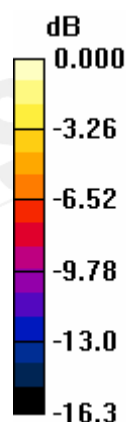
LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.77 V/m; Power Drift = 0.081 dB

Peak SAR (extrapolated) = 0.900 W/kg

SAR(1 g) = 0.568 mW/g; SAR(10 g) = 0.339 mW/g

Maximum value of SAR (measured) = 0.612 mW/g



0 dB = 0.612mW/g

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Date/Time: 2008/6/18 07:09:02

LE Cheek_CH810

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used: $f = 1910$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Cheek/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.577 mW/g

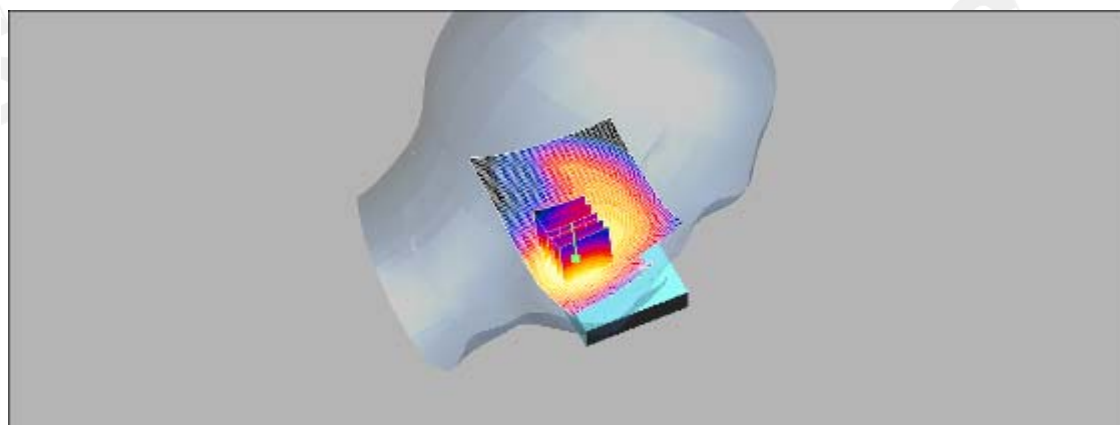
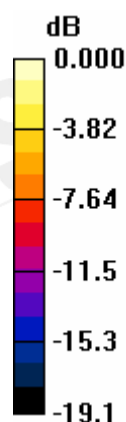
LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.94 V/m; Power Drift = -0.121 dB

Peak SAR (extrapolated) = 0.838 W/kg

SAR(1 g) = 0.510 mW/g; SAR(10 g) = 0.304 mW/g

Maximum value of SAR (measured) = 0.553 mW/g



0 dB = 0.553mW/g

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Date/Time: 2008/6/18 04:08:08

RE Tilt_CH512

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 41.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

RE_Tilt/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.242 mW/g

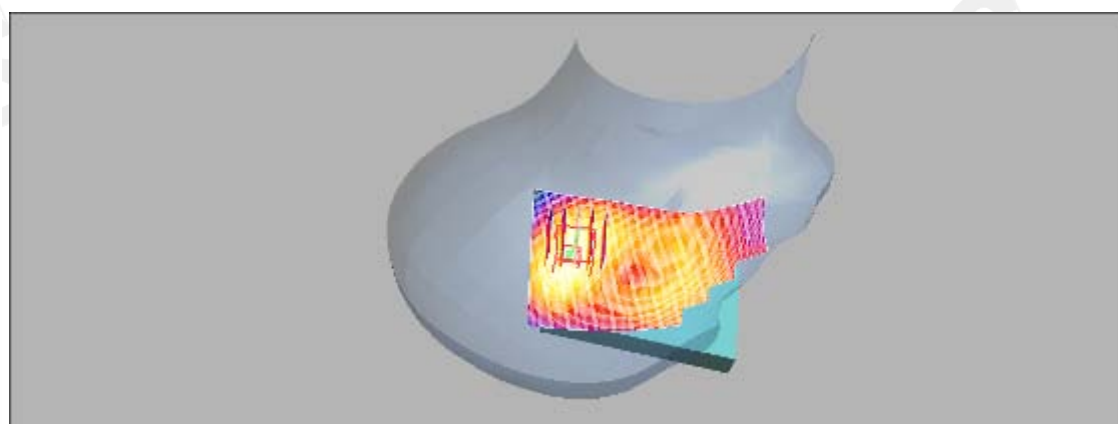
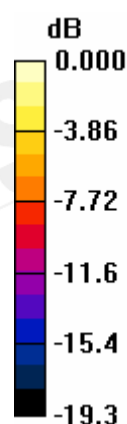
RE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.0 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.332 W/kg

SAR(1 g) = 0.214 mW/g; SAR(10 g) = 0.128 mW/g

Maximum value of SAR (measured) = 0.230 mW/g



0 dB = 0.230mW/g

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Date/Time: 2008/6/18 04:39:28

RE Tilt_CH661

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.44 \text{ mho/m}$; $\epsilon_r = 41$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

RE_Tilt/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

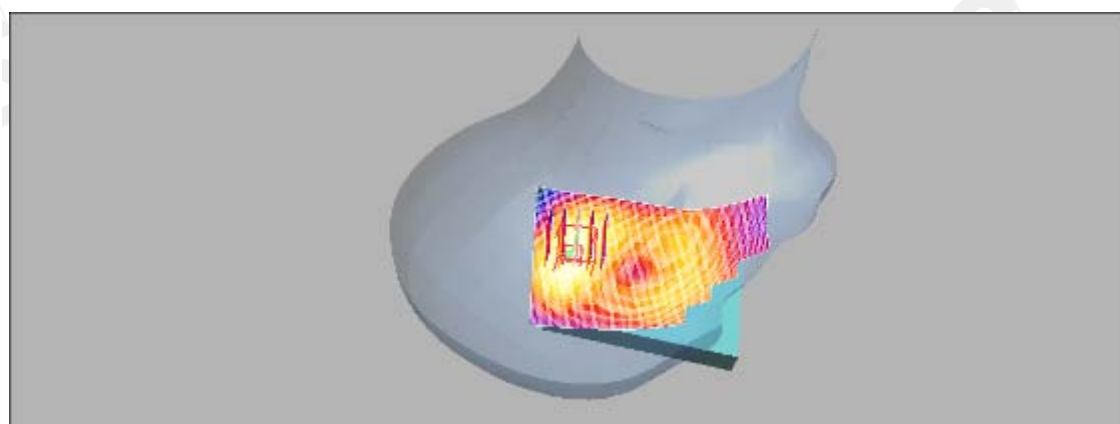
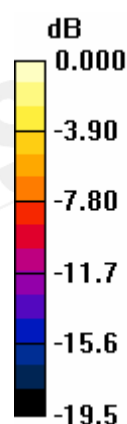
RE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.5 V/m; Power Drift = -0.060 dB

Peak SAR (extrapolated) = 0.319 W/kg

SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.120 mW/g

Maximum value of SAR (measured) = 0.222 mW/g



0 dB = 0.222mW/g

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Date/Time: 2008/6/18 05:12:28

RE Tilt_CH810

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used: $f = 1910$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

RE_Tilt/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.200 mW/g

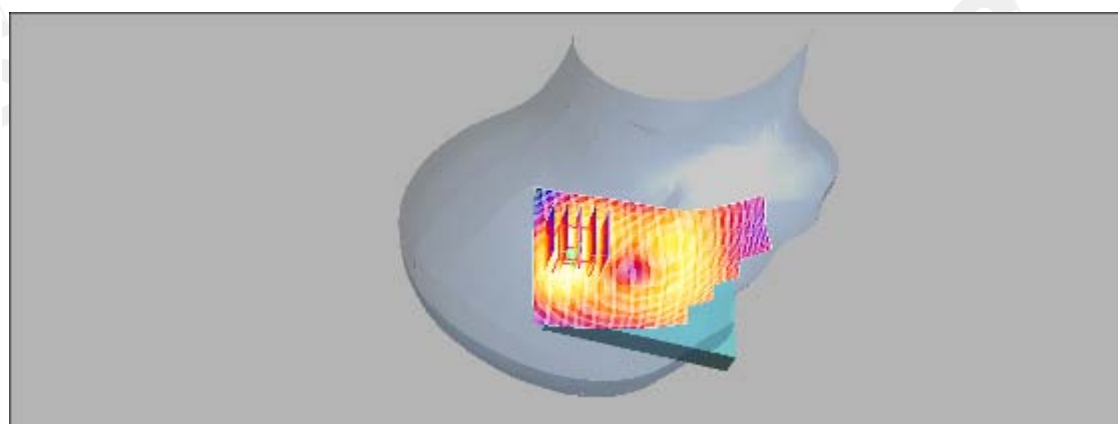
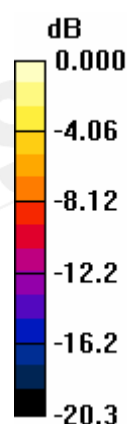
RE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.5 V/m; Power Drift = 0.002 dB

Peak SAR (extrapolated) = 0.277 W/kg

SAR(1 g) = 0.173 mW/g; SAR(10 g) = 0.100 mW/g

Maximum value of SAR (measured) = 0.187 mW/g



0 dB = 0.187mW/g

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Date/Time: 2008/6/18 07:43:13

LE Tilt_CH512

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 41.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Tilt/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.293 mW/g

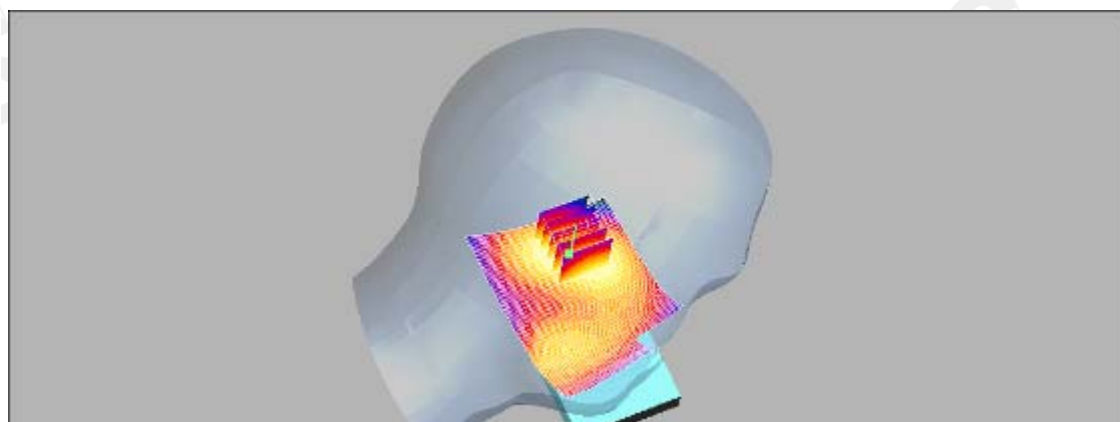
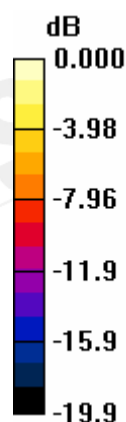
LE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.4 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 0.404 W/kg

SAR(1 g) = 0.255 mW/g; SAR(10 g) = 0.154 mW/g

Maximum value of SAR (measured) = 0.276 mW/g



0 dB = 0.276mW/g

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Date/Time: 2008/6/18 08:13:22

LE Tilt_CH661

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.44 \text{ mho/m}$; $\epsilon_r = 41$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Tilt/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.295 mW/g

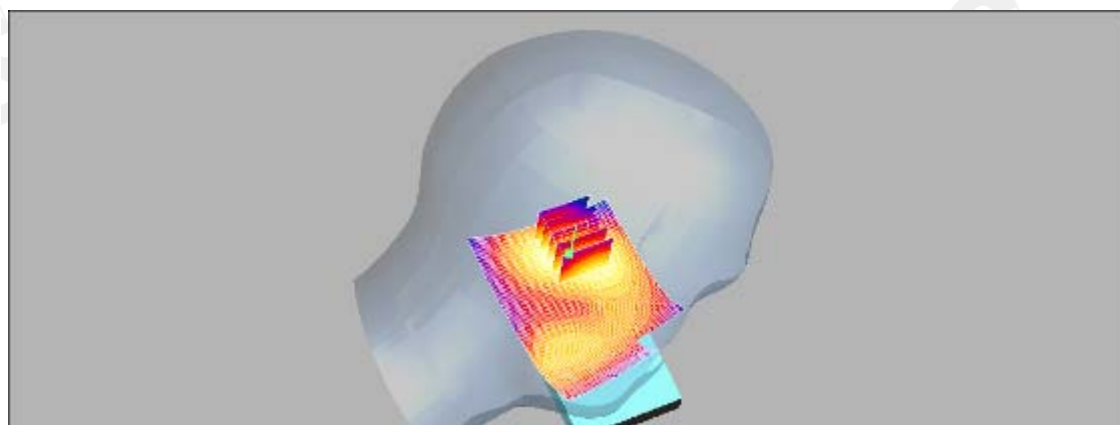
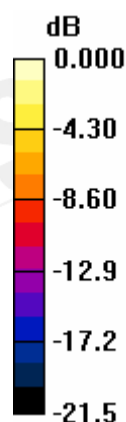
LE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.2 V/m; Power Drift = -0.036 dB

Peak SAR (extrapolated) = 0.412 W/kg

SAR(1 g) = 0.254 mW/g; SAR(10 g) = 0.150 mW/g

Maximum value of SAR (measured) = 0.275 mW/g



0 dB = 0.275mW/g

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Date/Time: 2008/6/18 08:46:15

LE Tilt_CH810

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used: $f = 1910$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Tilt/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.225 mW/g

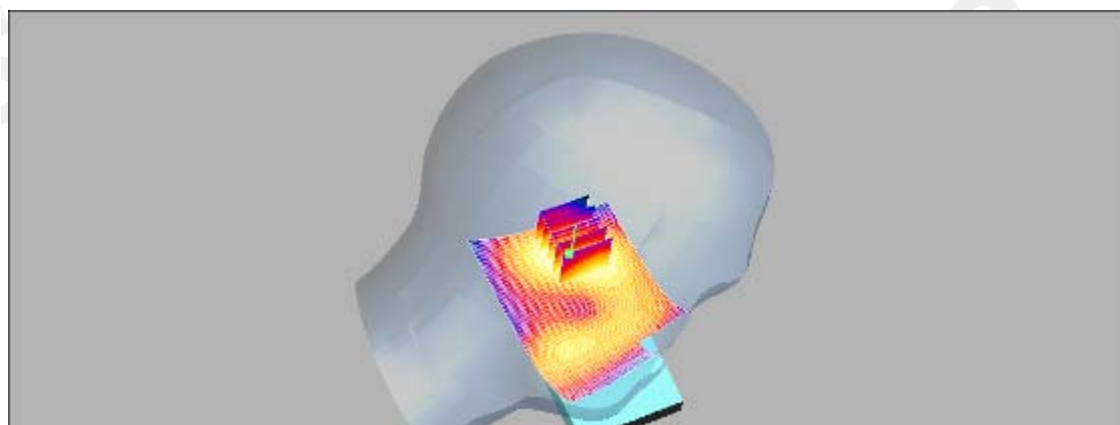
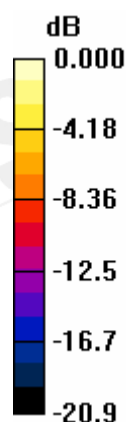
LE_Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.3 V/m; Power Drift = 0.009 dB

Peak SAR (extrapolated) = 0.301 W/kg

SAR(1 g) = 0.186 mW/g; SAR(10 g) = 0.108 mW/g

Maximum value of SAR (measured) = 0.200 mW/g



0 dB = 0.200mW/g

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Date/Time: 2008/6/18 09:26:22

LE Cheek_CH512_repeated with Memory card

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Cheek/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.607 mW/g

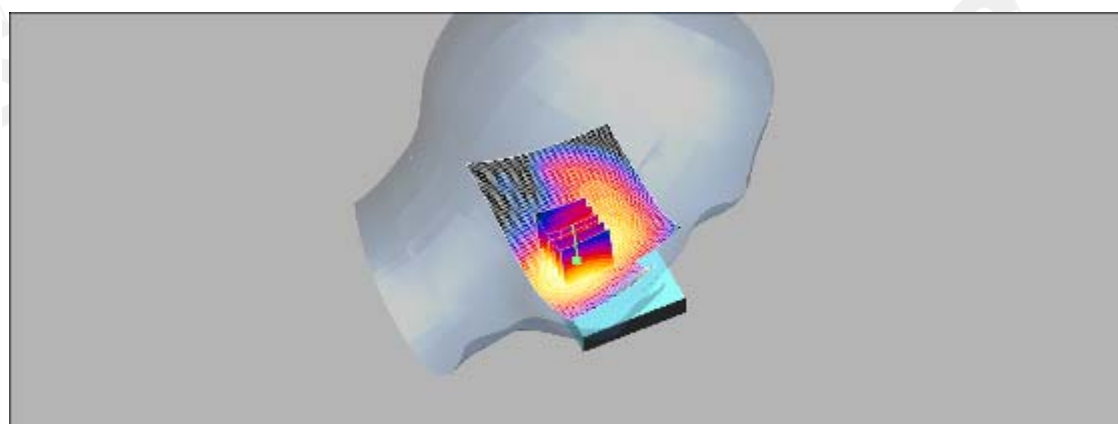
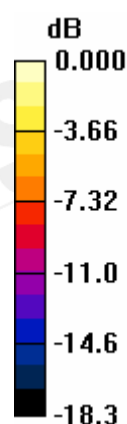
LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.08 V/m; Power Drift = -0.173 dB

Peak SAR (extrapolated) = 0.857 W/kg

SAR(1 g) = 0.547 mW/g; SAR(10 g) = 0.337 mW/g

Maximum value of SAR (measured) = 0.588 mW/g



0 dB = 0.588mW/g

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Date/Time: 2008/6/18 10:12:02

LE Cheek_CH512_repeated with Bluetooth active

DUT: SP500; IMEI:011441000010000

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

Medium: Head 1900 MHz Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

LE_Cheek/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.630 mW/g

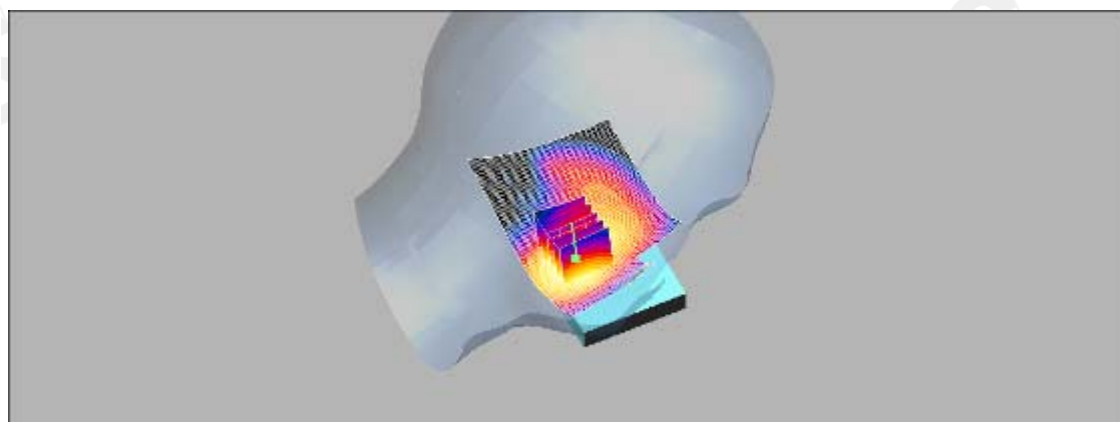
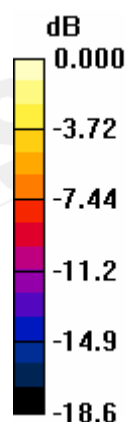
LE_Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.11 V/m; Power Drift = -0.143 dB

Peak SAR (extrapolated) = 0.921 W/kg

SAR(1 g) = 0.567 mW/g; SAR(10 g) = 0.341 mW/g

Maximum value of SAR (measured) = 0.614 mW/g



0 dB = 0.614mW/g

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Date/Time: 2008/6/18 16:01:32

BODY_CH512

DUT: SP500; IMEI:011441000010000

Communication System: GSM1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2

Medium: M1800 & 1900 Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $\sigma = 1.53 \text{ mho/m}$; $\epsilon_r = 55$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.43 mW/g

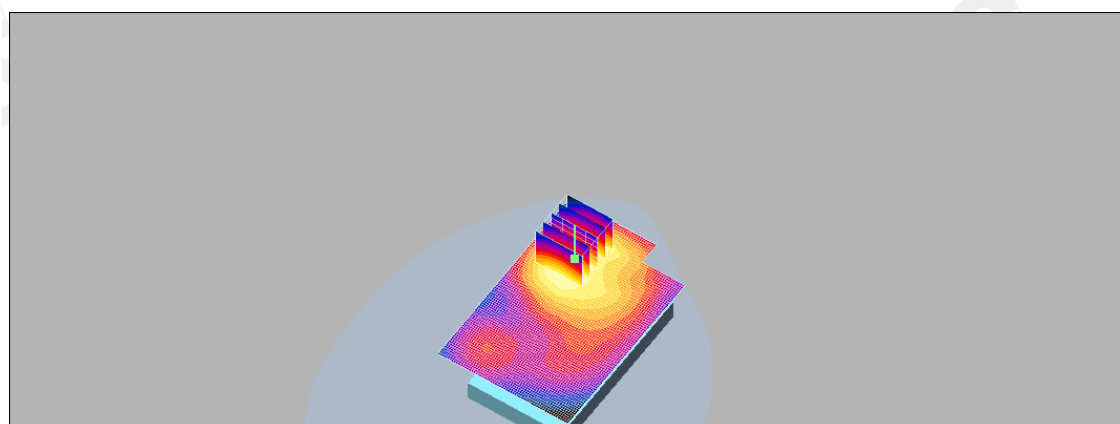
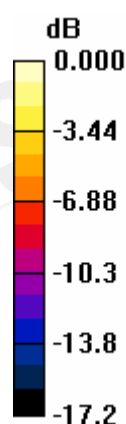
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.41 V/m; Power Drift = 0.155 dB

Peak SAR (extrapolated) = 2.11 W/kg

SAR(1 g) = 1.27 mW/g; SAR(10 g) = 0.741 mW/g

Maximum value of SAR (measured) = 1.40 mW/g



0 dB = 1.40mW/g

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Date/Time: 2008/6/18 16:49:18

BODY_CH661

DUT: SP500; IMEI:011441000010000

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium: M1800 & 1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 55$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.44 mW/g

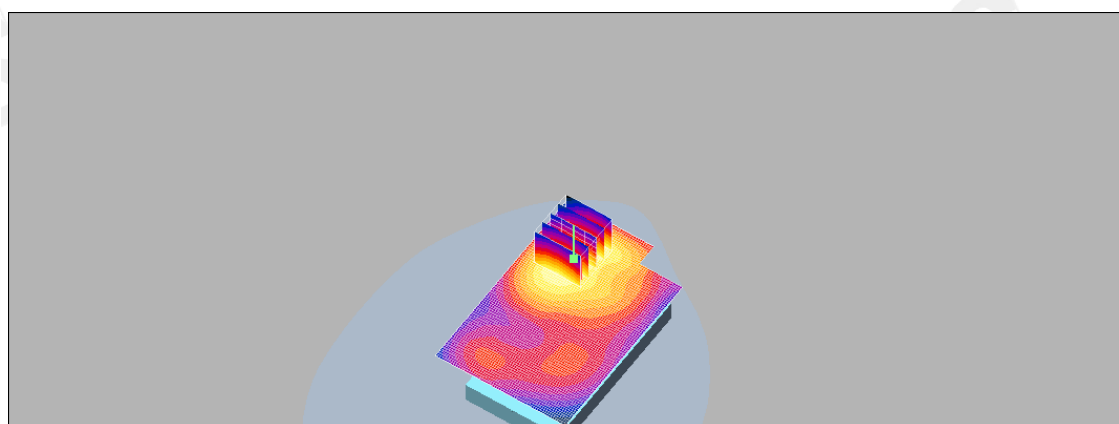
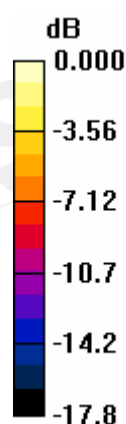
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.92 V/m; Power Drift = 0.032 dB

Peak SAR (extrapolated) = 2.20 W/kg

SAR(1 g) = 1.32 mW/g; SAR(10 g) = 0.757 mW/g

Maximum value of SAR (measured) = 1.45 mW/g



0 dB = 1.45mW/g

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Date/Time: 2008/6/18 17:33:00

BODY_CH810

DUT: SP500; IMEI:011441000010000

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2

Medium: M1800 & 1900 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.6$ mho/m; $\epsilon_r = 55$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.45 mW/g

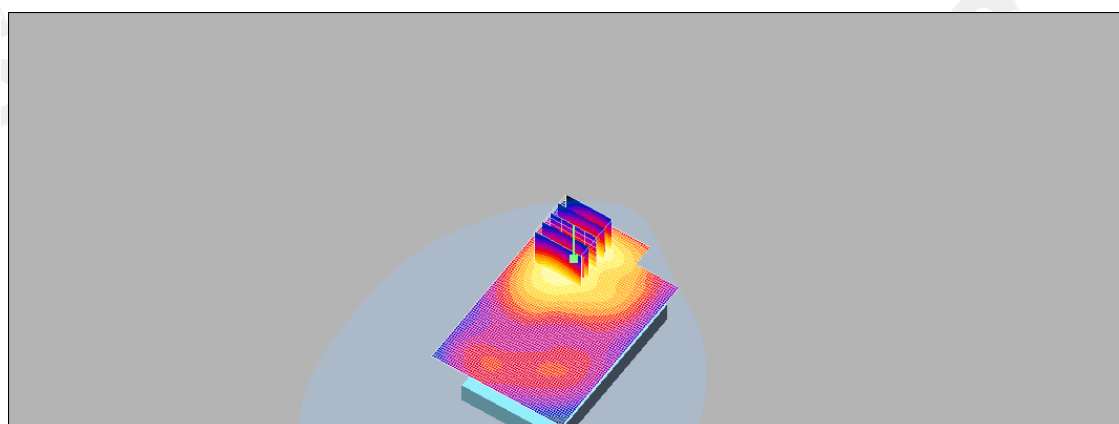
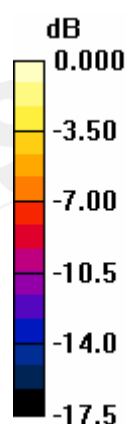
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.74 V/m; Power Drift = 0.003 dB

Peak SAR (extrapolated) = 2.30 W/kg

SAR(1 g) = 1.37 mW/g; SAR(10 g) = 0.780 mW/g

Maximum value of SAR (measured) = 1.48 mW/g



0 dB = 1.48mW/g

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Date/Time: 2008/6/18 18:16:43

BODY_CH810_ repeated for EUT front to phantom

DUT: SP500; IMEI:011441000010000

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2

Medium: M1800 & 1900 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.6$ mho/m; $\epsilon_r = 55$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

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

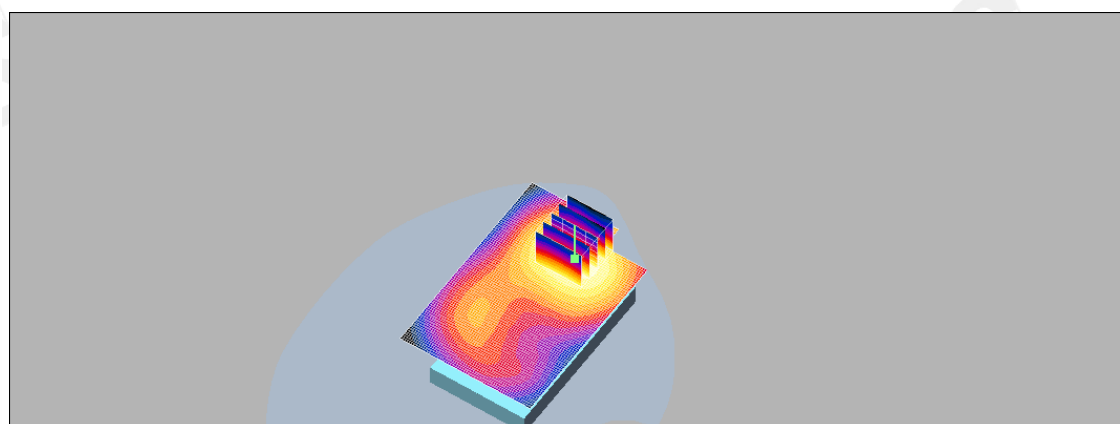
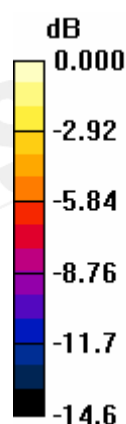
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.64 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 0.812 W/kg

SAR(1 g) = 0.509 mW/g; SAR(10 g) = 0.317 mW/g

Maximum value of SAR (measured) = 0.549 mW/g



0 dB = 0.549mW/g

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Date/Time: 2008/6/18 18:55:33

BODY_CH810_repeated with Memory card

DUT: SP500; IMEI:011441000010000

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2

Medium: M1800 & 1900 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.6$ mho/m; $\epsilon_r = 55$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.53 mW/g

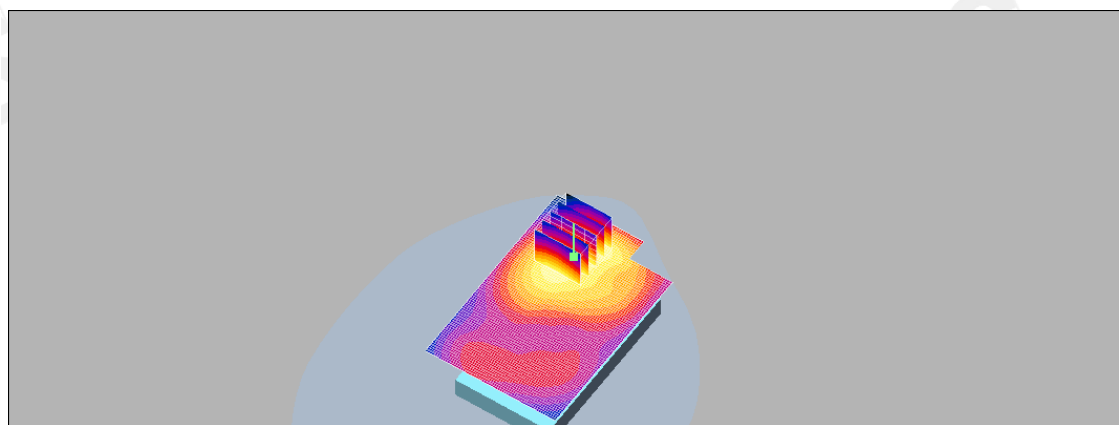
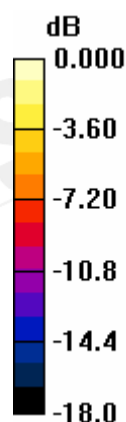
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.89 V/m; Power Drift = -0.014 dB

Peak SAR (extrapolated) = 2.21 W/kg

SAR(1 g) = 1.33 mW/g; SAR(10 g) = 0.755 mW/g

Maximum value of SAR (measured) = 1.45 mW/g



0 dB = 1.45mW/g

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Date/Time: 2008/6/18 19:36:25

BODY_CH810_repeated with Bluetooth active

DUT: SP500; IMEI:011441000010000

Communication System: GSM1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2

Medium: M1800 & 1900 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.6$ mho/m; $\epsilon_r = 55$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.51 mW/g

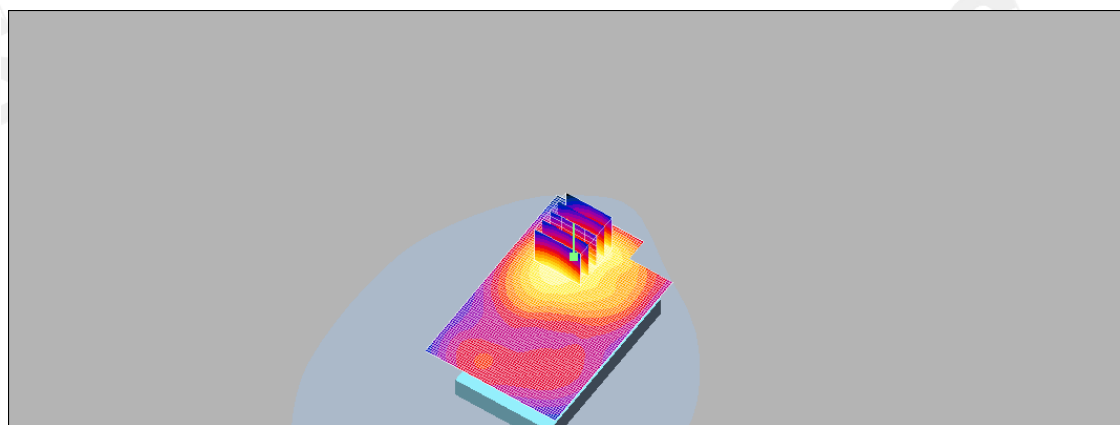
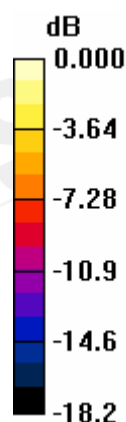
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.1 V/m; Power Drift = -0.174 dB

Peak SAR (extrapolated) = 2.15 W/kg

SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.736 mW/g

Maximum value of SAR (measured) = 1.41 mW/g



0 dB = 1.41mW/g

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Date/Time: 2008/6/17 13:49:33

BODY_CH1_WLAN802.11b

DUT: SP500; IMEI:011441000010000

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

Medium: Muscle 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.9 \text{ mho/m}$; $\epsilon_r = 52.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(8.08, 8.08, 8.08); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.005 mW/g

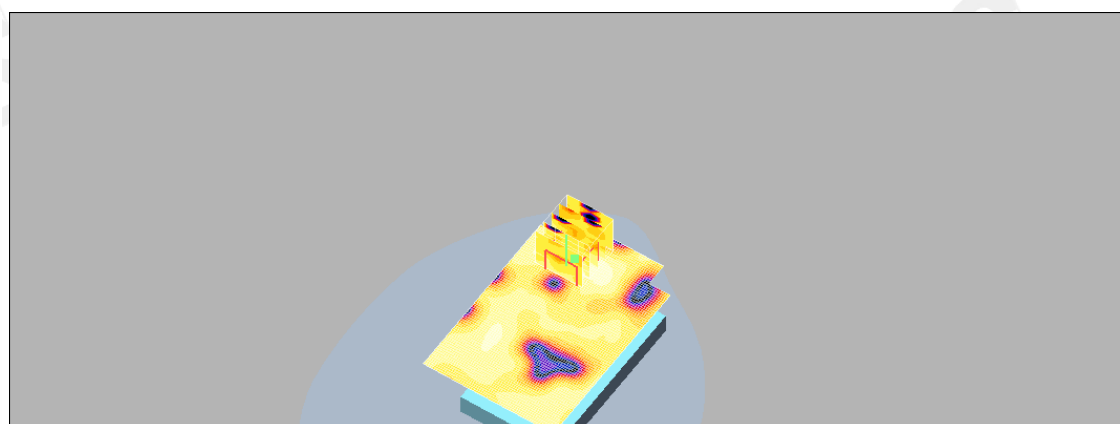
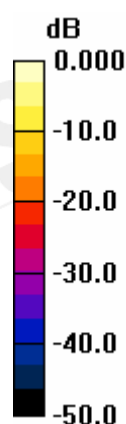
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.528 V/m; Power Drift = -0.180 dB

Peak SAR (extrapolated) = 0.009 W/kg

SAR(1 g) = 0.0025 mW/g; SAR(10 g) = 0.00112 mW/g

Maximum value of SAR (measured) = 0.003 mW/g



0 dB = 0.003mW/g

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Date/Time: 2008/6/17 14:26:07

BODY_CH6_WLAN802.11b

DUT: SP500; IMEI:011441000010000

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

Medium: Muscle 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.93 \text{ mho/m}$; $\epsilon_r = 52.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(8.08, 8.08, 8.08); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.004 mW/g

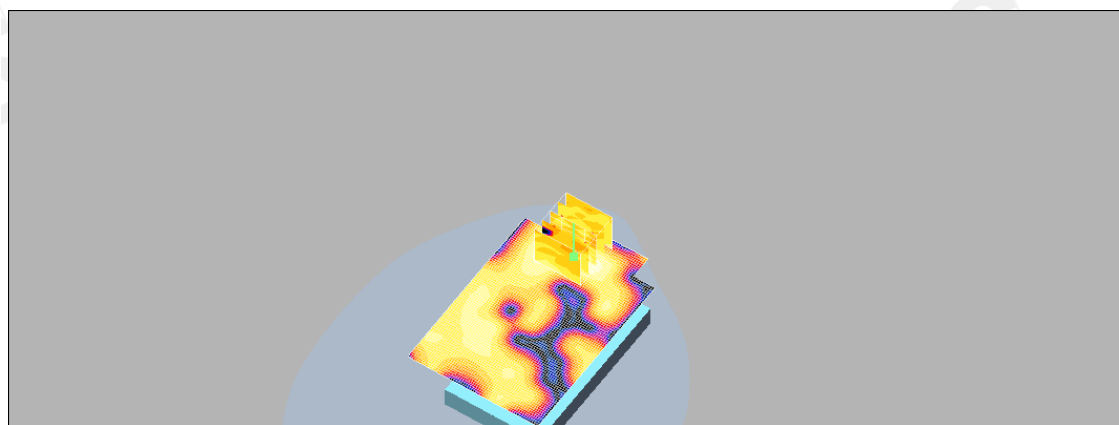
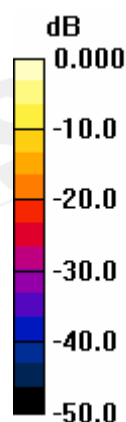
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.593 V/m; Power Drift = -0.164 dB

Peak SAR (extrapolated) = 0.006 W/kg

SAR(1 g) = 0.00329 mW/g; SAR(10 g) = 0.00141 mW/g

Maximum value of SAR (measured) = 0.004 mW/g



0 dB = 0.004mW/g

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Date/Time: 2008/6/17 15:06:29

BODY_CH11_WLAN802.11b

DUT: SP500; IMEI:011441000010000

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

Medium: Muscle 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.96 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(8.08, 8.08, 8.08); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.005 mW/g

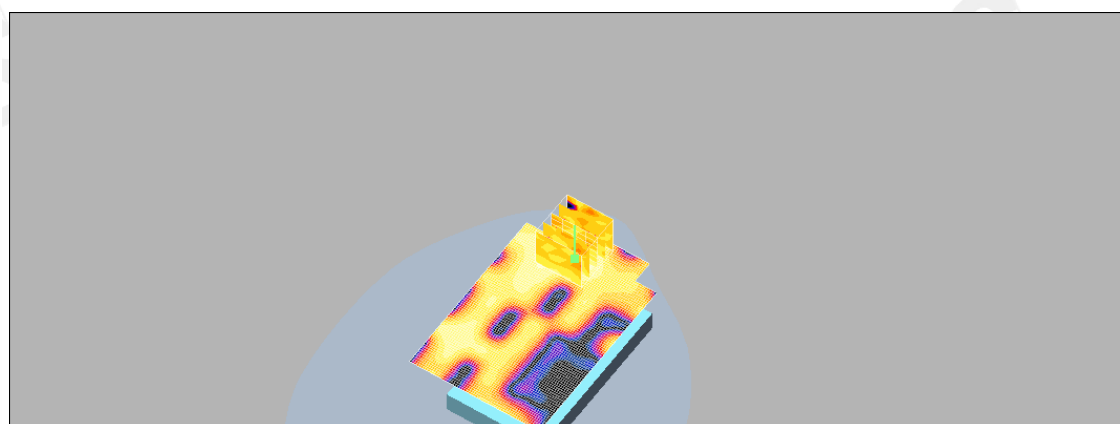
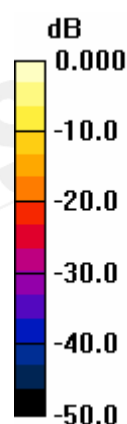
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.450 V/m; Power Drift = 0.135 dB

Peak SAR (extrapolated) = 0.009 W/kg

SAR(1 g) = 0.00404 mW/g; SAR(10 g) = 0.00145 mW/g

Maximum value of SAR (measured) = 0.005 mW/g



0 dB = 0.005mW/g

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Date/Time: 2008/6/17 15:42:42

BODY_CH11_WLAN802.11b_ repeated for EUT front to phantom

DUT: SP500; IMEI:011441000010000

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

Medium: Muscle 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.96 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(8.08, 8.08, 8.08); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.003 mW/g

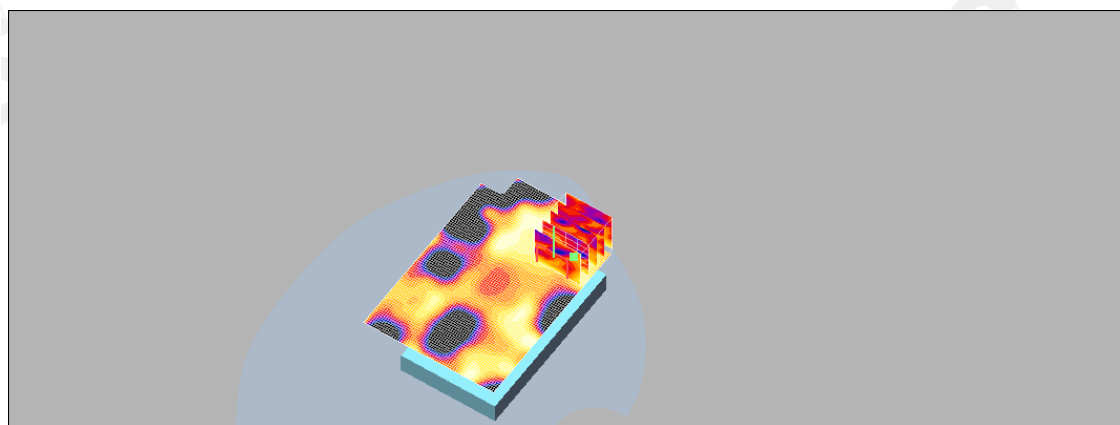
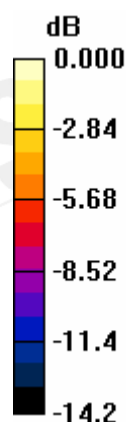
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.527 V/m; Power Drift = 0.177 dB

Peak SAR (extrapolated) = 0.004 W/kg

SAR(1 g) = 0.00179 mW/g; SAR(10 g) = 0.000924 mW/g

Maximum value of SAR (measured) = 0.002 mW/g



0 dB = 0.002mW/g

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Date/Time: 2008/6/17 16:26:05

BODY_CH11_WLAN802.11b_repeated with Memory card

DUT: SP500; IMEI:011441000010000

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

Medium: Muscle 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.96 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(8.08, 8.08, 8.08); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.006 mW/g

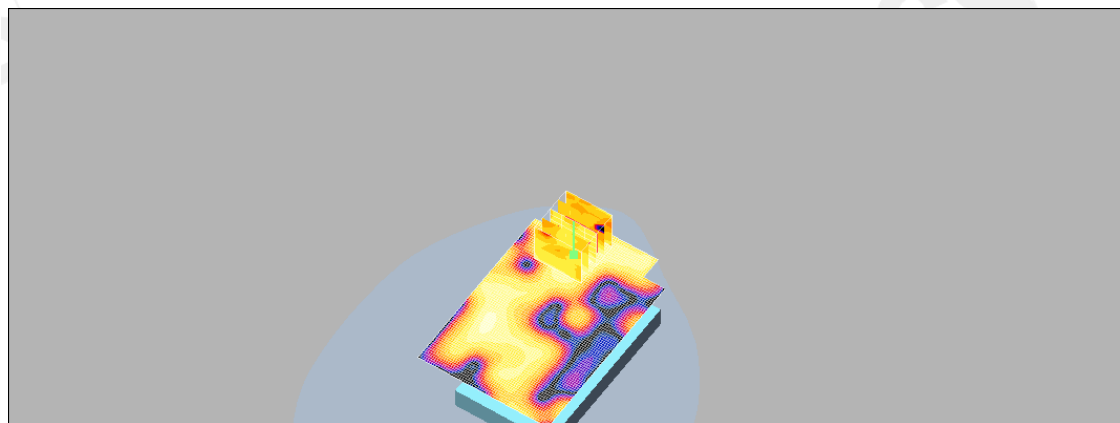
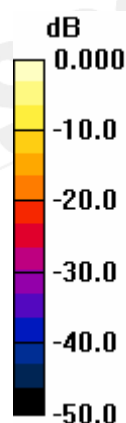
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.480 V/m; Power Drift = 0.121 dB

Peak SAR (extrapolated) = 0.014 W/kg

SAR(1 g) = 0.00513 mW/g; SAR(10 g) = 0.00222 mW/g

Maximum value of SAR (measured) = 0.006 mW/g



0 dB = 0.006mW/g

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Date/Time: 2008/6/17 16:59:41

BODY_CH11_WLAN802.11b_repeated with Bluetooth active

DUT: SP500; IMEI:011441000010000

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

Medium: Muscle 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.96 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(8.08, 8.08, 8.08); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.008 mW/g

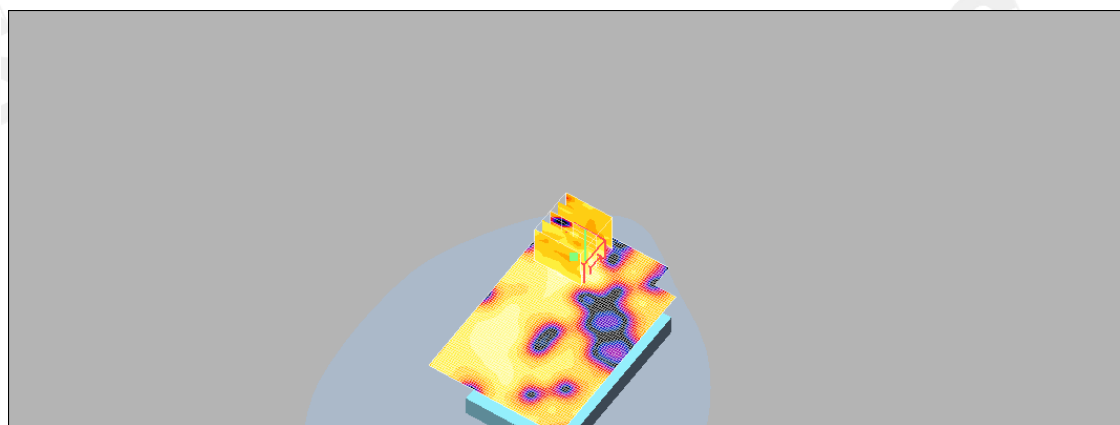
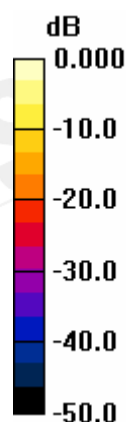
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.602 V/m; Power Drift = -0.156 dB

Peak SAR (extrapolated) = 0.010 W/kg

SAR(1 g) = 0.00542 mW/g; SAR(10 g) = 0.00228 mW/g

Maximum value of SAR (measured) = 0.007 mW/g



0 dB = 0.007mW/g

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Date/Time: 2008/6/17 17:36:06

BODY_CH1_WLAN802.11g

DUT: SP500; IMEI:011441000010000

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

Medium: Muscle 2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.9 \text{ mho/m}$; $\epsilon_r = 52.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(8.08, 8.08, 8.08); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.003 mW/g

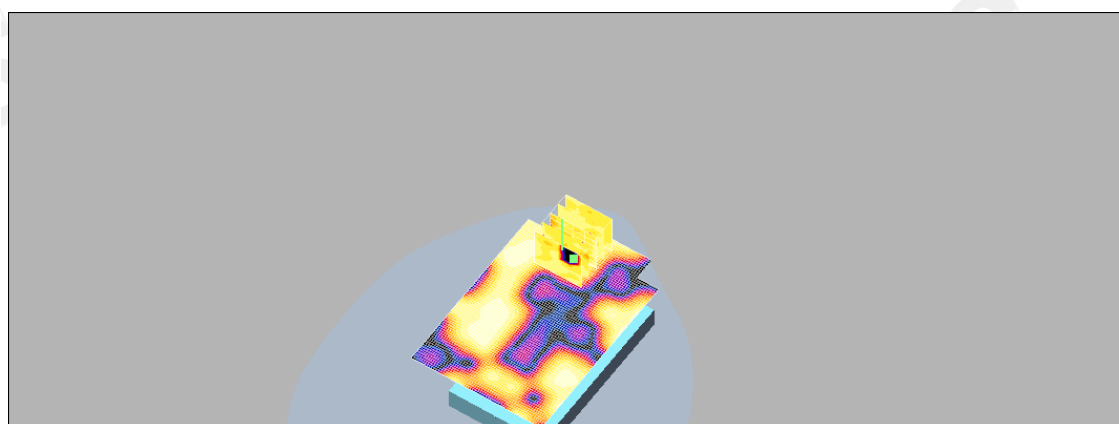
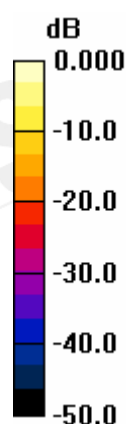
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.462 V/m; Power Drift = 0.137 dB

Peak SAR (extrapolated) = 0.004 W/kg

SAR(1 g) = 0.00136 mW/g; SAR(10 g) = 0.000548 mW/g

Maximum value of SAR (measured) = 0.002 mW/g



0 dB = 0.002mW/g

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Date/Time: 2008/6/17 18:02:20

BODY_CH6_WLAN802.11g

DUT: SP500; IMEI:011441000010000

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

Medium: Muscle 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.93 \text{ mho/m}$; $\epsilon_r = 52.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(8.08, 8.08, 8.08); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.004 mW/g

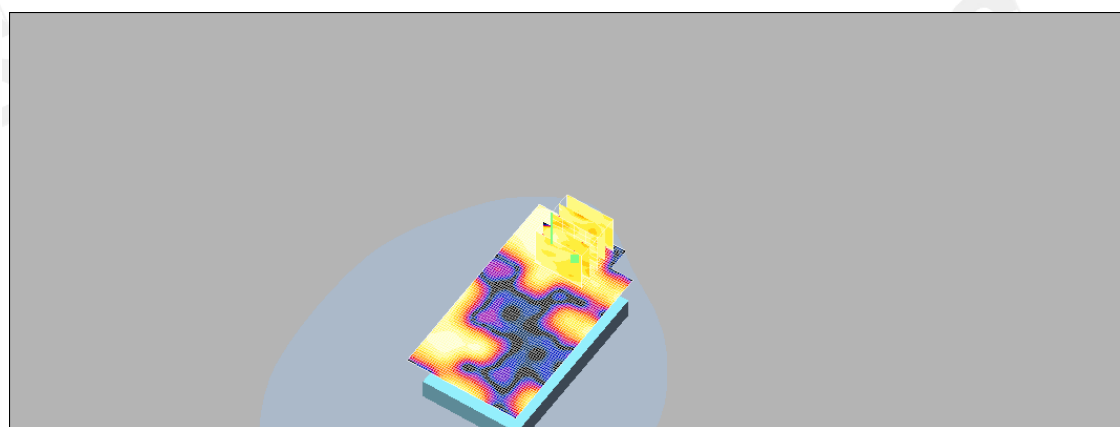
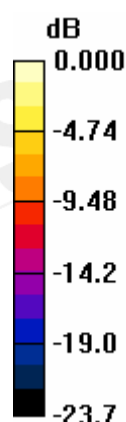
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.477 V/m; Power Drift = 0.156 dB

Peak SAR (extrapolated) = 0.006 W/kg

SAR(1 g) = 0.00137 mW/g; SAR(10 g) = 0.00063 mW/g

Maximum value of SAR (measured) = 0.003 mW/g



0 dB = 0.003mW/g

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ate/Time: 2008/6/17 18:56:40

BODY_CH11_WLAN802.11g

DUT: SP500; IMEI:011441000010000

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

Medium: Muscle 2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.96 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(8.08, 8.08, 8.08); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

BODY/Area Scan (61x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.007 mW/g

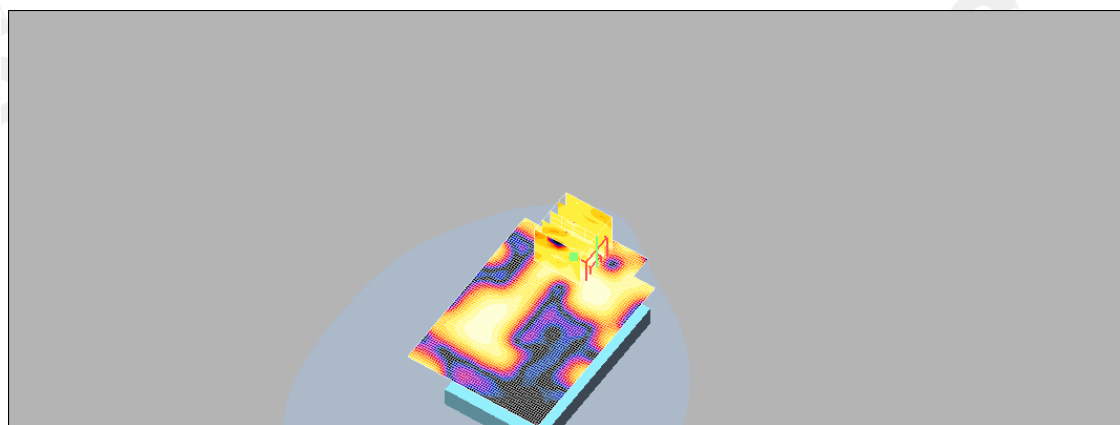
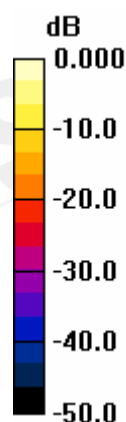
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.622 V/m; Power Drift = -0.125 dB

Peak SAR (extrapolated) = 0.005 W/kg

SAR(1 g) = 0.00277 mW/g; SAR(10 g) = 0.00129 mW/g

Maximum value of SAR (measured) = 0.003 mW/g



0 dB = 0.003mW/g

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5. System Verification

Date/Time: 2008/6/17 00:36:13

DUT: Dipole 900 MHz; Type: D900V2; Serial: SN:178

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

Medium: Head 850 MHz Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.921 \text{ mho/m}$; $\epsilon_r = 39.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(11.48, 11.48, 11.48); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.65 mW/g

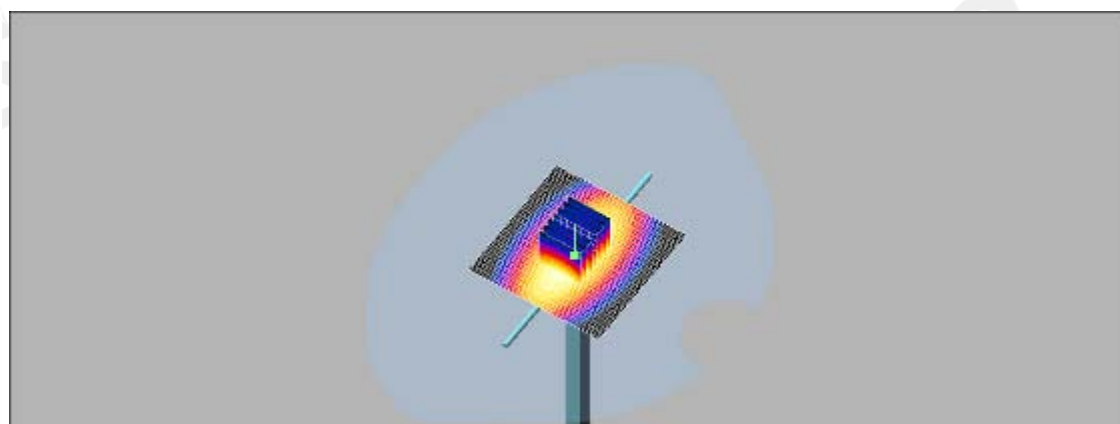
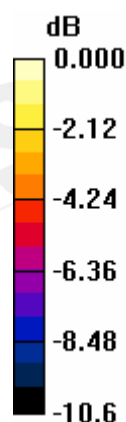
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.7 V/m; Power Drift = 0.000 dB

Peak SAR (extrapolated) = 3.71 W/kg

SAR(1 g) = 2.57 mW/g; SAR(10 g) = 1.69 mW/g

Maximum value of SAR (measured) = 2.66 mW/g



0 dB = 2.66mW/g

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Date/Time: 2008/6/18 01:16:12

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

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

Medium: Head 1900MHz Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.46 \text{ mho/m}$; $\epsilon_r = 41$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.3, 9.3, 9.3); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Pin=250mw/Area Scan (51x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 13.8 mW/g

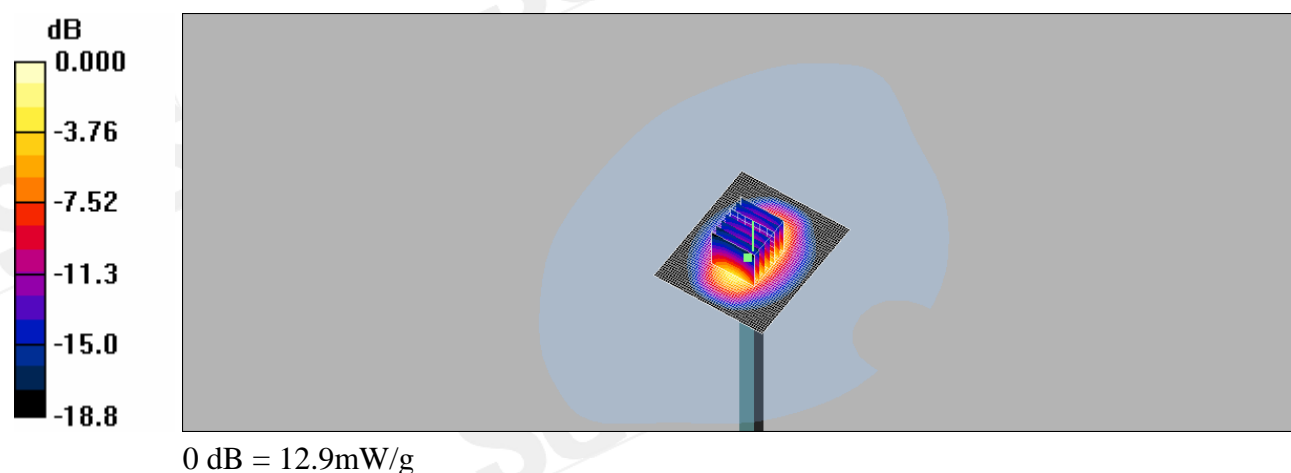
Pin=250mw/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 91.4 V/m; Power Drift = 0.110 dB

Peak SAR (extrapolated) = 21.8 W/kg

SAR(1 g) = 10.9 mW/g; SAR(10 g) = 5.65 mW/g

Maximum value of SAR (measured) = 12.9 mW/g



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Date/Time: 2008/6/17 08:02:15

DUT: Dipole 900 MHz; Type: D900V2; Serial: SN:178

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1

Medium: Muscle 900 MHz Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 1.07 \text{ mho/m}$; $\epsilon_r = 54.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(10.93, 10.93, 10.93); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.84 mW/g

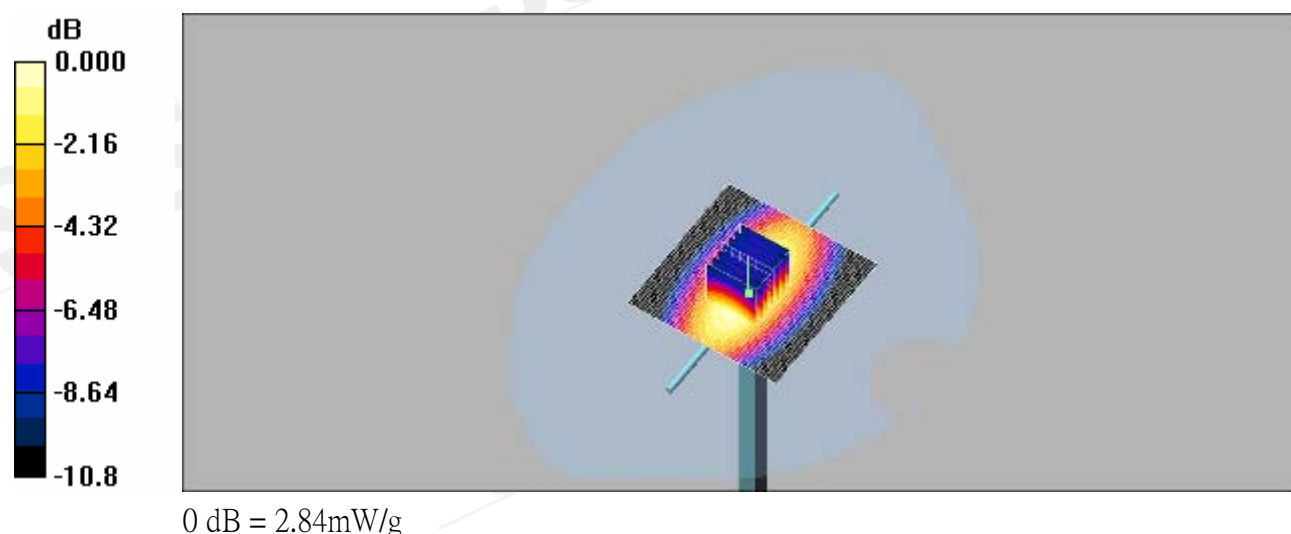
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 51.9 V/m; Power Drift = -0.073 dB

Peak SAR (extrapolated) = 3.94 W/kg

SAR(1 g) = 2.75 mW/g; SAR(10 g) = 1.83 mW/g

Maximum value of SAR (measured) = 2.84 mW/g



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Date/Time: 2008/6/18 14:33:56

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

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

Medium: M1800 & 1900 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.58$ mho/m; $\epsilon_r = 55$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(9.04, 9.04, 9.04); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Pin=250mW/Area Scan (51x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 12.7 mW/g

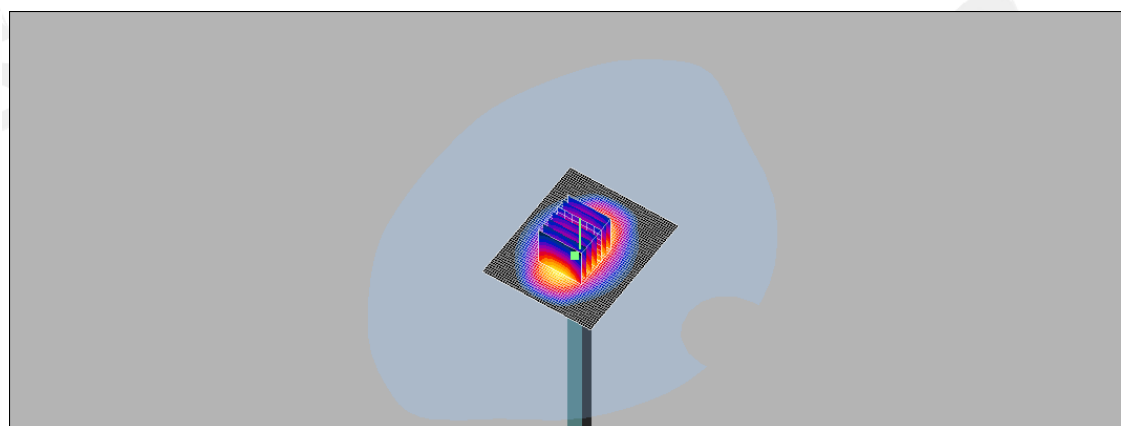
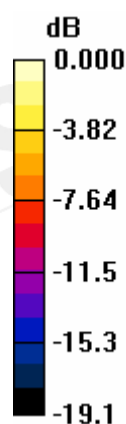
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 85.1 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 18.3 W/kg

SAR(1 g) = 9.8 mW/g; SAR(10 g) = 5.09 mW/g

Maximum value of SAR (measured) = 11.3 mW/g



0 dB = 11.3mW/g

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Date/Time: 2008/6/17 12:38:08

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

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

Medium: M 2450 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.94$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3526; ConvF(8.08, 8.08, 8.08); Calibrated: 2007/8/29
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2008/1/24
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Pin=250mW/Area Scan (51x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 17.9 mW/g

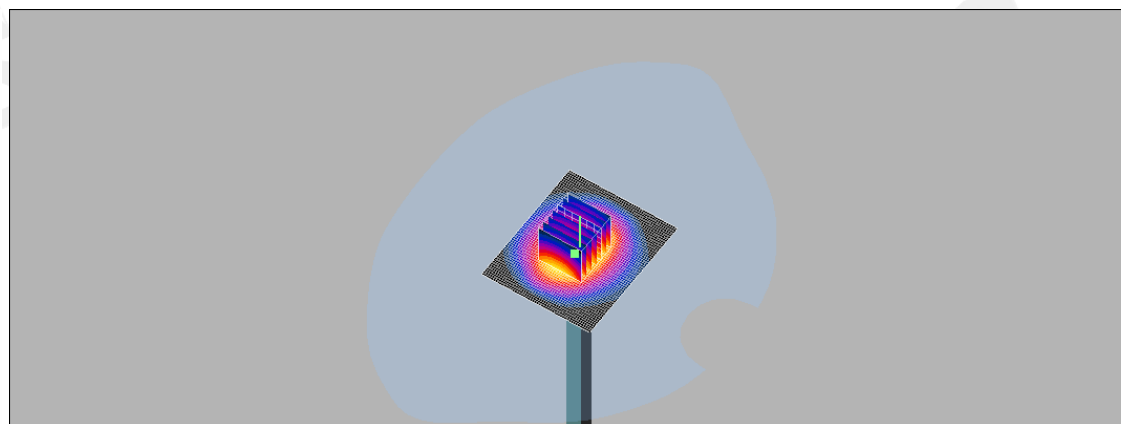
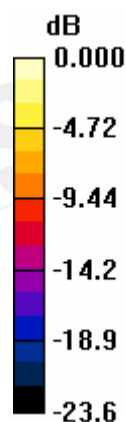
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 88.0 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 28.7 W/kg

SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.13 mW/g

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



0 dB = 15.2mW/g

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6. APPENDIX

6.1 DAE & Probe Calibration certificate

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: **DAE4-547_Jan08**

CALIBRATION CERTIFICATE

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

Calibration procedure(s): **QA CAL-08.v12
Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **January 24, 2008**

Condition of the calibrated item: **In Tolerance**

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

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

Calibration Equipment used (M&TE critical for calibration)

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

Calibrated by: **Name: Daniel Hess, Function: Technician, Signature: D. Hess**

Approved by: **Name: Fin Bornholt, Function: R&D Director, Signature: F. Bornholt**

Issued: January 24, 2008

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

Certificate No: DAE4-547_Jan08

Page 1 of 5

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C Service suisse d'étalonnage
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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: **EX3-3526_Aug07**

CALIBRATION CERTIFICATE

Object: **EX3DV3 - SN:3526**

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

Calibration date: **August 29, 2007**

Condition of the calibrated item: **In Tolerance**

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

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

Calibration Equipment used (M&PE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: 55054 (3c)	8-Aug-07 (METAS, No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5085 (20c)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30c)	8-Aug-07 (METAS, No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8848C	US3842U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

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

Issued: August 29, 2007

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Certificate No: EX3-3526_Aug07

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., $\theta = 0$ 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.
- 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.

Certificate No: EX3-3526_Aug07

Page 2 of 9

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EX3DV3 SN:3526

August 29, 2007

Probe EX3DV3

SN:3526

Manufactured:	March 19, 2004
Last calibrated:	August 25, 2006
Recalibrated:	August 29, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

Certificate No: EX3-3526_Aug07

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EX3DV3 SN:3526

August 29, 2007

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

NormX	0.991 ± 10.1%	$\mu V/(V/m)^2$	DCP X	97 mV
NormY	0.807 ± 10.1%	$\mu V/(V/m)^2$	DCP Y	96 mV
NormZ	0.876 ± 10.1%	$\mu V/(V/m)^2$	DCP Z	97 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	1.5	0.5
SAR _{be} [%] With Correction Algorithm	0.3	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	3.0	1.5
SAR _{be} [%] With Correction Algorithm	0.2	0.1

Sensor OffsetProbe 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.

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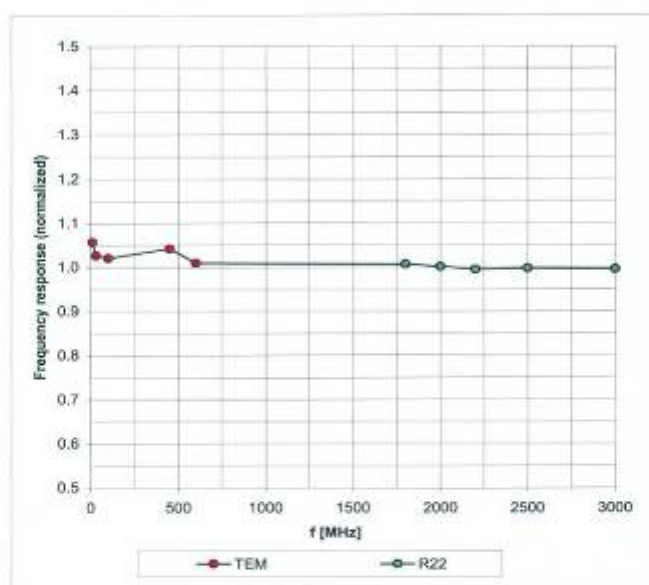
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EX3DV3 SN:3526

August 29, 2007

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_Aug07

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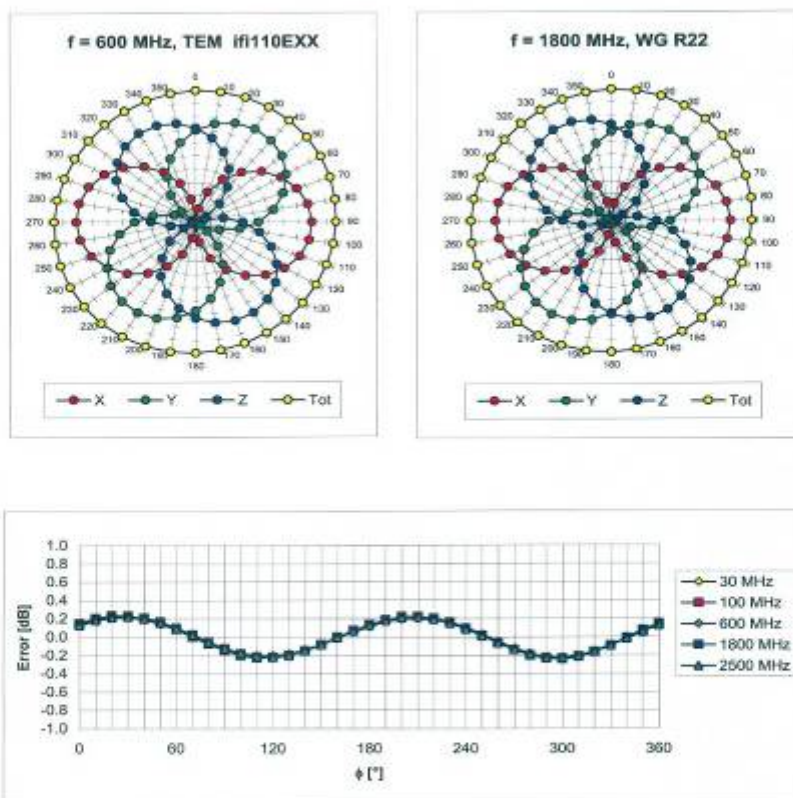
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EX3DV3 SN:3526

August 29, 2007

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



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

Certificate No: EX3-3526_Aug07

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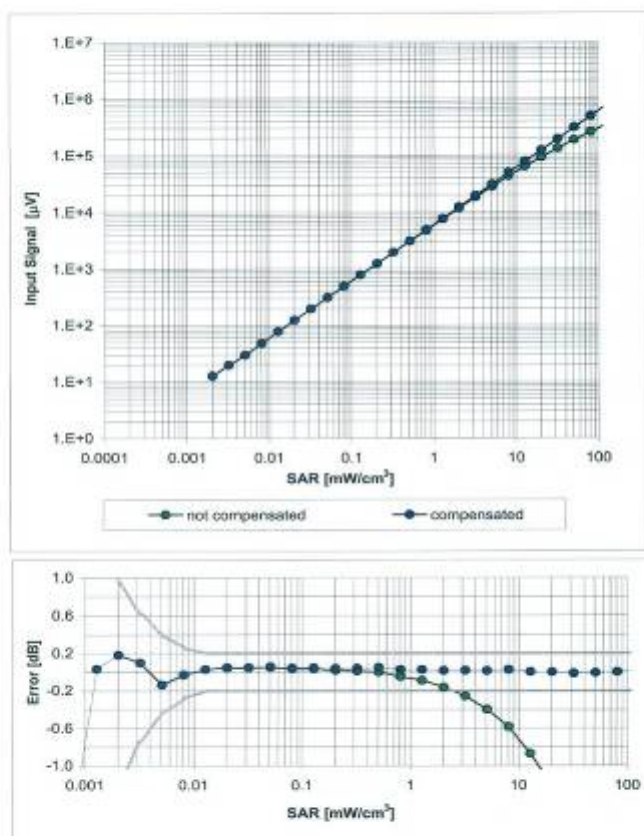
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EX3DV3 SN:3526

August 29, 2007

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



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

Certificate No: EX3-3526_Aug07

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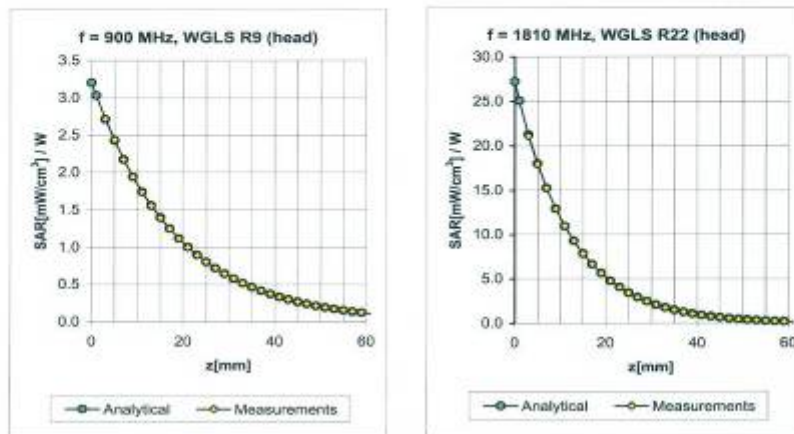
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EX3DV3 SN:3526

August 29, 2007

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%	0.50	0.80	11.48 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.15	1.32	9.30 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.22	1.01	8.91 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.34	1.00	8.42 ± 11.8% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.50	0.80	10.93 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.16	1.28	9.04 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.15	1.43	8.67 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.38	1.00	8.08 ± 11.8% (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.

Certificate No: EX3-3526_Aug07

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

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6.3 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
Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

Doc No 881 – QD 000 P40 C – F

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6.4 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: D900V2-178_Apr08

CALIBRATION CERTIFICATE

Object	D900V2 - SN: 178		
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits		
Calibration date:	April 16, 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 EPM-442A	G837480704	04-Oct-07 (No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (No. 217-00718)	Aug-08
Type-N mismatch combination	SN: 5047.2 / 06327	08-Aug-07 (No. 217-00721)	Aug-08
Reference Probe ES3DV2	SN: 3025	01-Mar-08 (No. ES3-3025_Mar08)	Mar-09
DAE4	SN 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-08
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-07)	In house check: Oct-08
Calibrated by:	Name Claudie Leubler	Function Laboratory Technician	Signature
Approved by:	Name Katja Polovic	Technical Manager	
			Issued: April 17, 2008
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

Certificate No: D900V2-178_Apr08

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DASY4 Validation Report for Head TSL

Date/Time: 07.04.2008 14:33:43

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:178

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1

Medium: HSL U10 BB;

Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.959 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(5.94, 5.94, 5.94); Calibrated: 01.03.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0:

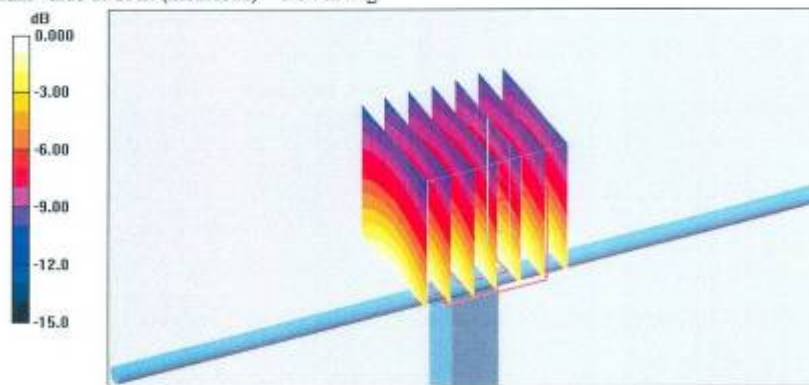
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.5 V/m; Power Drift = 0.019 dB

Peak SAR (extrapolated) = 3.92 W/kg

SAR(1 g) = 2.67 mW/g; SAR(10 g) = 1.73 mW/g

Maximum value of SAR (measured) = 3.04 mW/g



DASY4 Validation Report for Body TSL

Date/Time: 16.04.2008 11:52:15

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:178

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1

Medium: MSL U10;

Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 1.07 \text{ mho/m}$; $\epsilon_r = 53.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(5.74, 5.74, 5.74); Calibrated: 01.03.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin=250mW, d = 15mm/Zoom Scan (7x7x7)/Cube 0:

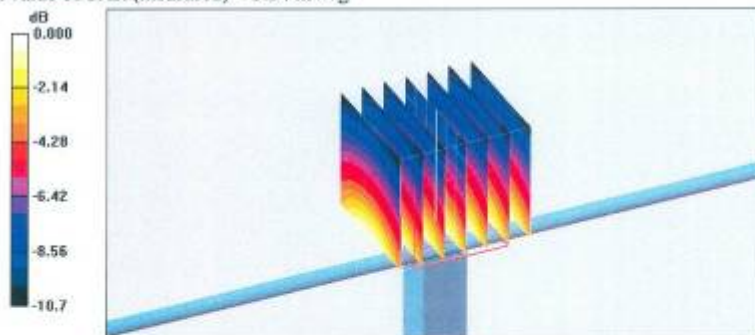
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 56.5 V/m; Power Drift = 0.003 dB

Peak SAR (extrapolated) = 4.17 W/kg

SAR(1 g) = 2.84 mW/g; SAR(10 g) = 1.84 mW/g

Maximum value of SAR (measured) = 3.24 mW/g



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Zeughausstrasse 43, 8004 Zurich, Switzerland



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **SGS (Auden)**

Certificate No: **D1900V2-5d027_Apr08**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d027**

Calibration procedure(s) **QA CAL-05.v7
Calibration procedure for dipole validation kits**

Calibration date: **April 15, 2008**

Condition of the calibrated item **In Tolerance**

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

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

Calibration Equipment used (M&E critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	04-Oct-07 (No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (No. 217-00718)	Aug-08
Type-N mismatch combination	SN: 5047.2 / 06327	08-Aug-07 (No. 217-00721)	Aug-08
Reference Probe ES3DV2	SN: 3025	01-Mar-08 (No. ES3-3025_Mar08)	Mar-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41082317	18-Oct-02 (in house check Oct-07)	In house check: Oct-08
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

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

Issued: April 17, 2008

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Certificate No: D1900V2-5d027_Apr08

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DASY4 Validation Report for Head TSL

Date/Time: 08.04.2008 13:49:58

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: HSL U10 BB;

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.47 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

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

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

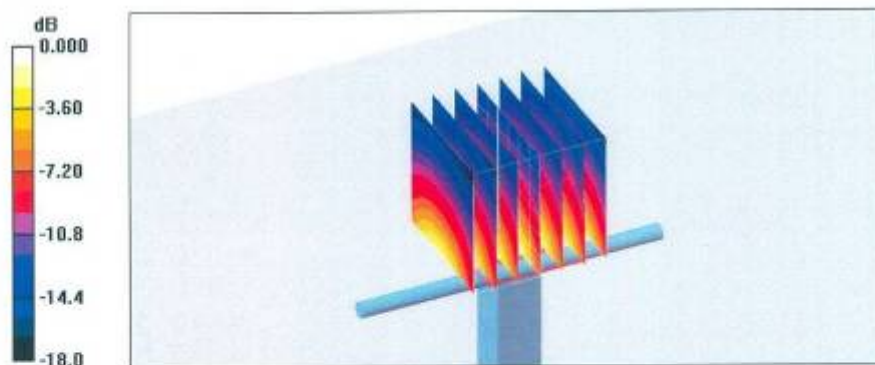
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 92.2 V/m; Power Drift = 0.033 dB

Peak SAR (extrapolated) = 19.1 W/kg

SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.3 mW/g

Maximum value of SAR (measured) = 11.9 mW/g



DASY4 Validation Report for Body TSL

Date/Time: 15.04.2008 13:51:25

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: MSL U10 BB;

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 51.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.5, 4.5, 4.5); Calibrated: 01.03.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn801; Calibrated: 14.03.2008
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

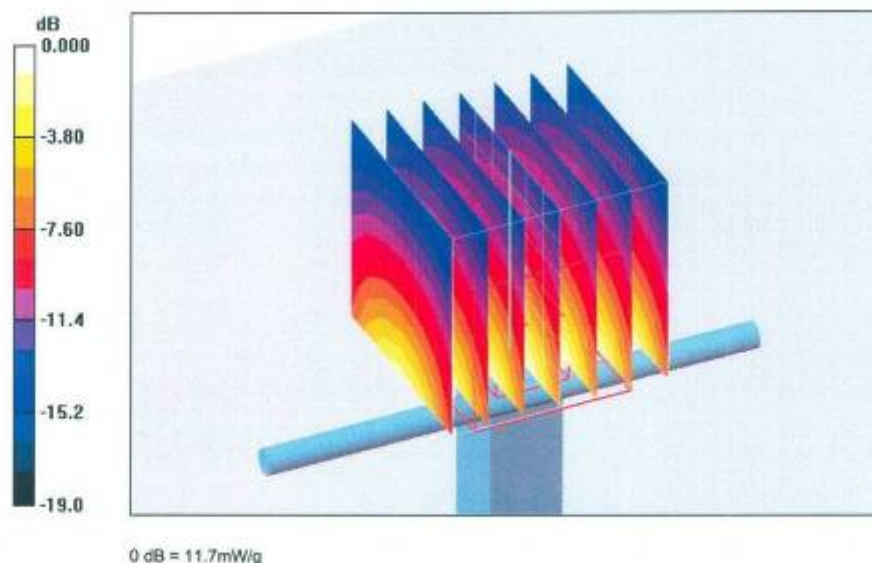
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 89.3 V/m; Power Drift = -0.022 dB

Peak SAR (extrapolated) = 17.4 W/kg

SAR(1 g) = 9.64 mW/g; SAR(10 g) = 5.07 mW/g

Maximum value of SAR (measured) = 11.7 mW/g



Certificate No: D1900V2-5d027_Apr08

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Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

Client **SGS (Auden)**

Certificate No: **D2450V2-727_Apr08**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 727**

Calibration procedure(s) **QA CAL-05.v7
Calibration procedure for dipole validation kits**

Calibration date: **April 11, 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 EPM-442A	QB37480704	04-Oct-07 (No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (No. 217-00718)	Aug-08
Reference Probe ES3DV2	SN: 3025	01-Mar-08 (No. ES3-3025_Mar08)	Mar-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-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-07)	In house check: Oct-08

Calibrated by:	Name Mike Meili	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Technical Manager	

Issued: April 14, 2008

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

Certificate No: D2450V2-727_Apr08

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DASY4 Validation Report for Body TSL

Date/Time: 11.04.2008 15:23:03

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: MSL U10;

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.99$ mho/m; $\epsilon_r = 51$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.07, 4.07, 4.07); Calibrated: 01.03.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50/AA
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

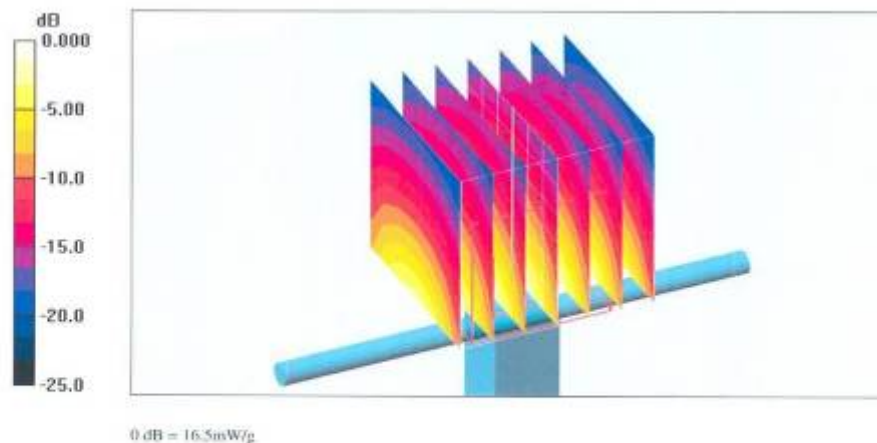
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.5 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 26.5 W/kg

SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.15 mW/g

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



Certificate No: D2450V2-727_Apr08

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6.5 Photographs of Test Setup

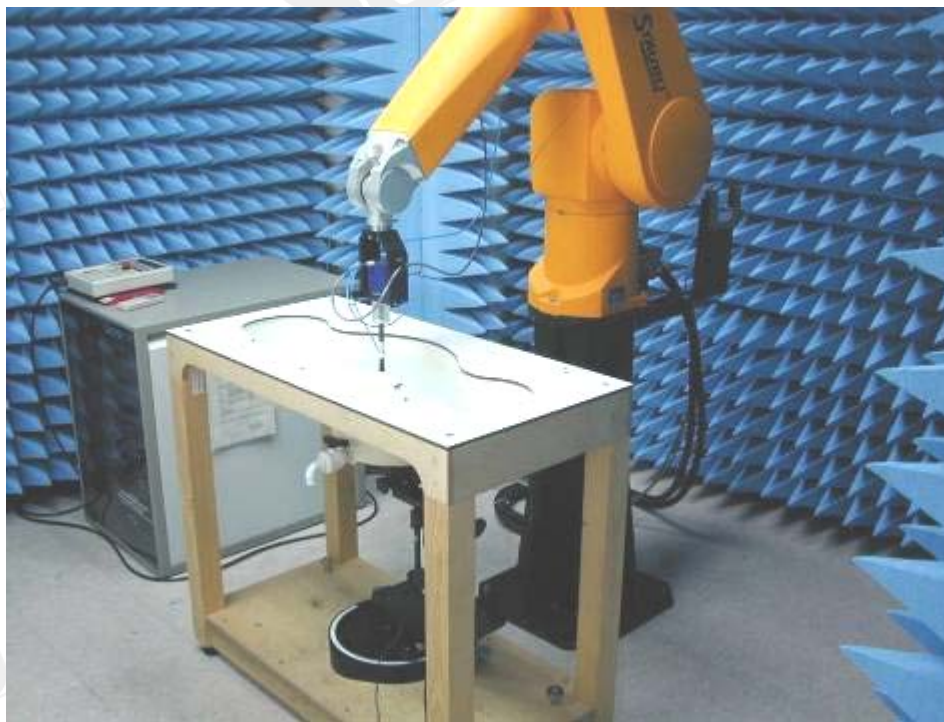


Fig.1 Photograph of the SAR measurement System

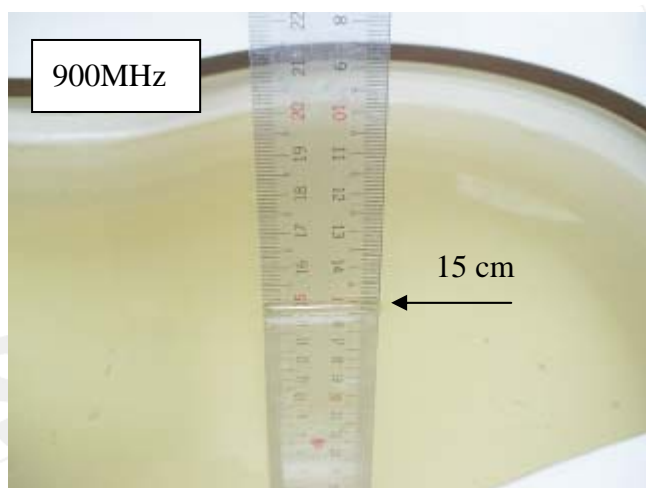


Fig.2.1 Photograph of the Tissue Simulant Fluid liquid depth 15cm for Left-head Side

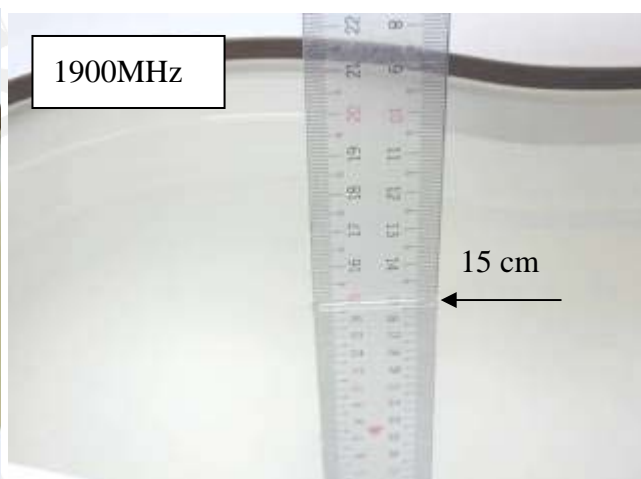


Fig.2.2 Photograph of the Tissue Simulant Fluid liquid depth 15cm for Right-head Side

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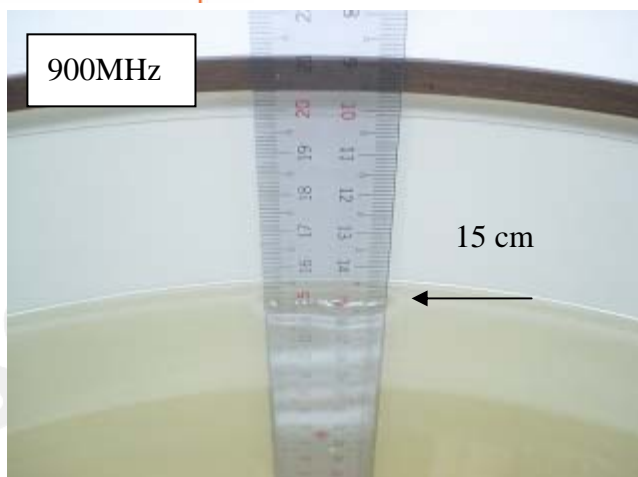


Fig.2.3 Photograph of the Tissue Simulant Fluid liquid depth 15cm for Flat (Body)

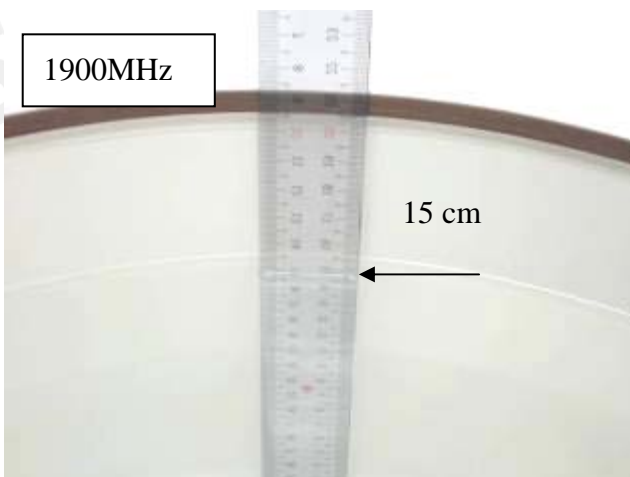


Fig.2.4 Photograph of the Tissue Simulant Fluid liquid depth 15cm for Flat (Body)

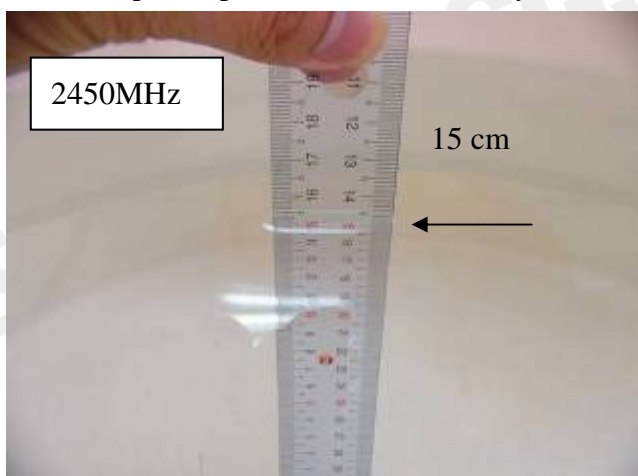


Fig.2.5 Photograph of the Tissue Simulant Fluid liquid depth 15cm for Flat (Body)

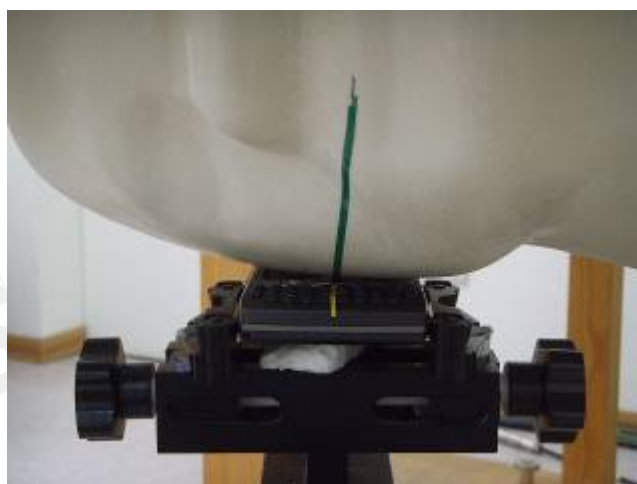
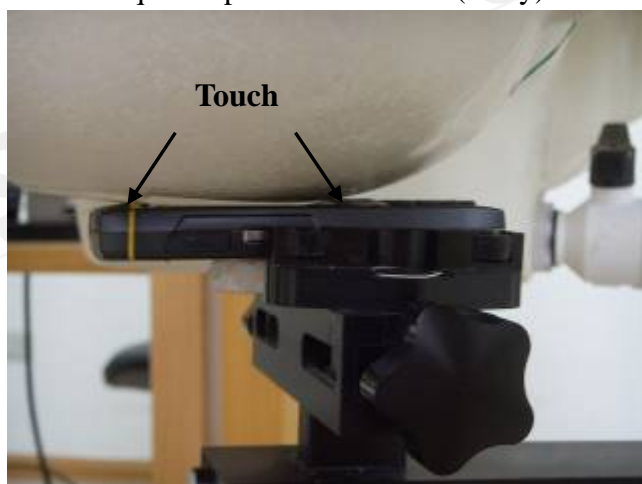


Fig.3 Right Head Section / Cheek-Touch Position

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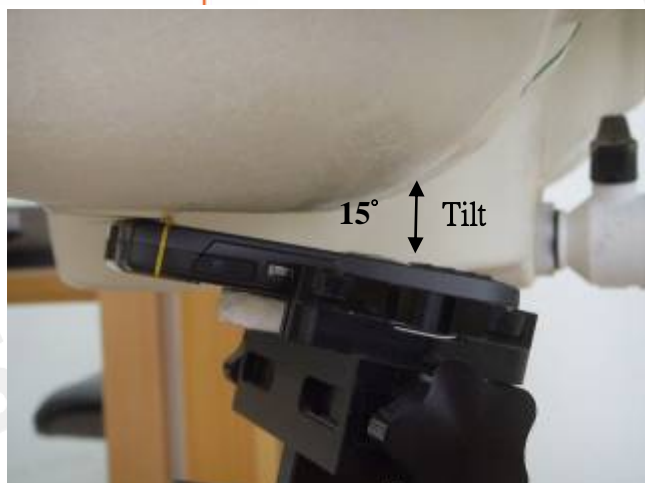


Fig.4 Right Head Section / Ear-Tilt Position(15°)

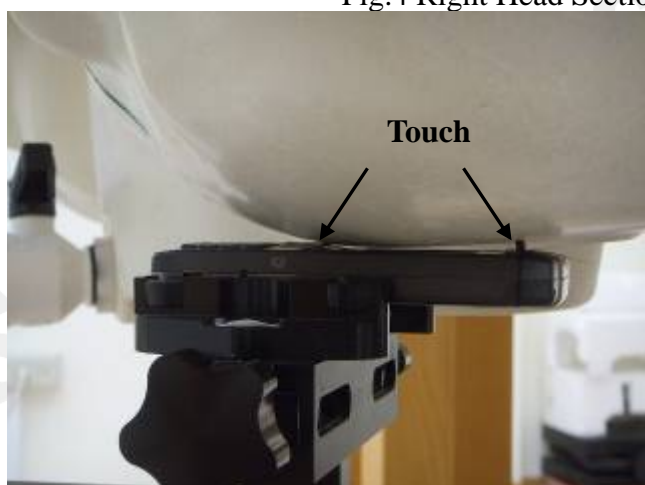


Fig.5 Left Head Section / Cheek-Touch Position

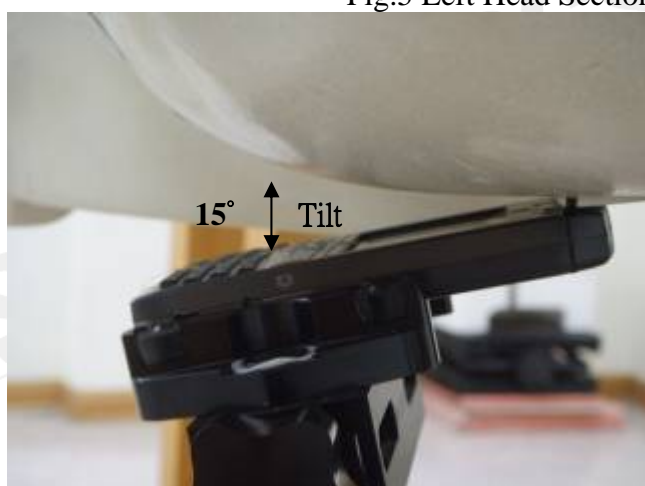


Fig.6 Left Head Section / Ear-Tilt Position(15°)



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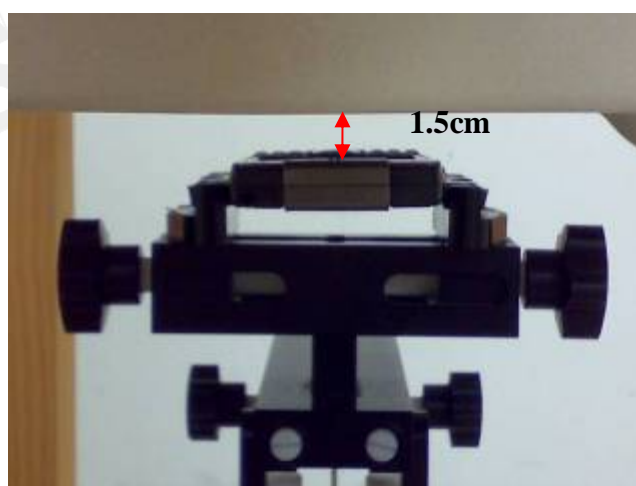


Fig.7 Body worn- EUT front to flat phantom and distance between flat phantom and mobile phone is 1.5 cm

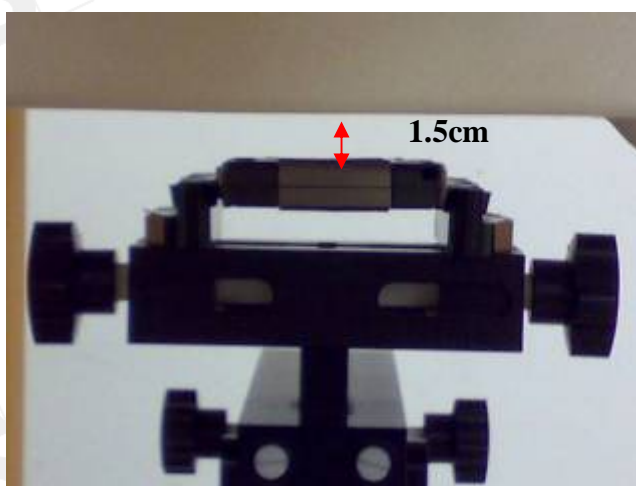
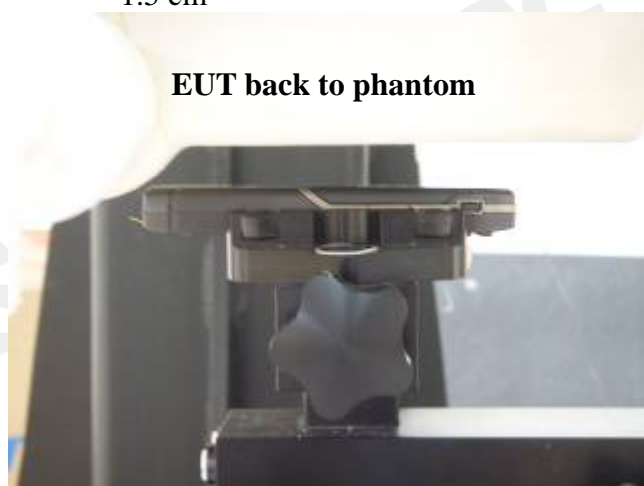


Fig.8 Body worn- EUT back to flat phantom and distance between flat phantom and mobile phone is 1.5 cm

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6.6 Photographs of the EUT



Fig.9 Front view of device



Fig.10 Back view of device

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Fig.11 Right side view of device



Fig.12 Left side view of device

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Fig.13 Mobile with AC Charger

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6.7 Photographs of the Battery



Fig.14 Front view of Battery



Fig.15 Back view of Battery

End of Report

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