

SAR TEST REPORT

Equipment Under Test	Edison
Model Name	MB865
Company Name	Motorola Mobility, Inc.
Company Address	600 North U.S. Highway 45, Libertyville, IL 60048-5343
Date of Receipt	2011.11.03
Date of Test(s)	2011.11.04
Date of Issue	2011.11.24

Standards:

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

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

Remarks:

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

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Tested by : Ricky Huang Date : 2011.11.24
Asst. Supervisor

Approved by : Nick Hsu Date : 2011.11.24
Supervisor

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Version

Report Number	Revision	Date	Memo
ES/2011/50006-01	00	2011/11/08	Initial creation of test report.
ES/2011/50006-01	01	2011/11/24	1 st modification.

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

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1. General Information

1.1 Testing Laboratory

SGS Taiwan Ltd. Electronics & Communication Laboratory	
134, Wu Kung Road, Wuku industrial zone	
Taipei county, Taiwan, R.O.C.	
Telephone	+886-2-2299-3279
Fax	+886-2-2298-0488
Internet	http://www.tw.sgs.com/

1.2 Details of Applicant

Company Name	Motorola Mobility, Inc.
Company Address	600 North U.S. Highway 45, Libertyville, IL 60048-5343
Contact Person	Doug Hammers
TEL	+1-847-523-1644
Fax	+1-847-523-4538
E-mail	doug.hammers@motorola.com

1.3 Description of EUT

EUT Name	Edison
Model Name	MB865
IMEI Code	356378040035586
FCC ID	IHDT56MV1
Mode of Operation	GSM/GPRS/EDGE/WCDMA/HSDPA/ HSUPA/WLAN802.11 b/g/n(H20) band

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Definition	Production unit				
	GSM	GPRS/ EDGE	WCDMA	WLAN 802.11 b/g/n(H20)	
Duty Cycle	1/8.3	1/2;1/4.1; 1/2.76;1/8.3	1	1	
		MS Class B			
TX Frequency Range (MHz)	GSM850	GSM1900	WCDMA Band II	WCDMA Band V	WLAN 802.11 b/g/n (H20)
	824.2- 848.8	1850.2- 1909.8	1852.4- 1907.6	826.4- 846.6	2412- 2462
Channel Number (ARFCN)	GSM850	GSM1900	WCDMA Band II	WCDMA Band V	WLAN 802.11 b/g/n (H20)
	128- 251	512- 810	9262- 9538	4132- 4233	1-11
VOIP Function	Yes				

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Max. SAR Measured (1 g)	GSM850
	Body_Lapdock mode
	1.10mW/g
	GSM1900
	Body_Lapdock mode
	0.172 mW/g
	WCDMA Band II
	Body_Lapdock mode
	0.395mW/g
	WCDMA Band V
	Body_Lapdock mode
	0.64mW/g
	WLAN802.11 b
	Body_Lapdock mode
0.209mW/g	

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#. GSM/GPRS/EDGE conducted power table:

GSM850	Burst average power	Source-based time- averaged
CH 128	33.30	24.27
CH 190	33.30	24.27
CH 251	33.20	24.17

Burst average power				
GPRS850	1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
CH 128	33.20	31.00	29.00	27.00
CH 190	33.30	31.00	29.00	27.10
CH 251	33.20	31.00	29.00	27.00
Source-based time- averaged				
GPRS850	1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
CH 128	24.17	24.98	24.74	23.99
CH 190	24.27	24.98	24.98	24.09
CH 251	24.17	24.98	24.98	23.99

Burst average power				
EDGE850	1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
CH 128	27.80	25.80	23.70	21.70
CH 190	27.80	25.90	23.70	21.70
CH 251	27.80	25.80	23.70	21.70
Source-based time- averaged				
EDGE850	1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
CH 128	18.77	19.78	19.44	18.69
CH 190	18.77	19.88	19.44	18.69
CH 251	18.77	19.78	19.44	18.69

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#. GSM/GPRS/EGPRS conducted power table:

GSM1900	Burst average power	Source-based time-averaged
CH 512	30.70	21.67
CH 661	30.70	21.67
CH 810	30.90	21.87

Burst average power				
GPRS1900	1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
CH 512	30.70	28.80	26.70	24.70
CH 661	30.70	28.70	26.70	24.70
CH 810	30.90	28.90	26.80	24.90
Source-based time- averaged				
GPRS1900	1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
CH 512	21.67	22.26	22.44	21.69
CH 661	21.67	22.68	22.44	21.69
CH 810	21.87	22.80	22.54	21.89

Burst average power				
EDGE1900	1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
CH 512	26.90	25.00	22.90	20.90
CH 661	26.90	25.00	23.00	21.00
CH 810	27.10	25.10	23.10	21.20
Source-based time- averaged				
EDGE1900	1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
CH 512	17.87	18.89	18.64	17.89
CH 661	17.87	18.89	18.74	17.99
CH 810	18.07	19.08	18.84	18.19

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#. WCDMA Band II & V HSDPA/HSUPA conducted power table:

Mode	Subtest	WCDMA Band II Channel			WCDMA Band V Channel		
		9262	9400	9538	4132	4183	4233
Rel99	R99	23.83	23.73	23.63	23.78	23.91	23.72
HSDPA	1	24	23.62	23.49	23.57	23.77	23.84
	2	23.71	23.59	23.48	23.71	23.8	23.59
	3	23.52	23.17	22.96	23.11	23.29	23.35
	4	23.59	23.18	23.08	23.16	23.33	23.41
HSUPA	1	23.75	23.71	23.57	23.74	23.84	23.64
	2	21.8	21.78	21.61	21.8	21.92	21.68
	3	22.81	22.73	22.65	22.78	22.9	22.72
	4	21.93	21.83	21.65	21.85	21.98	21.76
	5	23.64	23.57	23.48	23.6	23.67	23.53

#. WLAN802.11 b/g/n(H20) conducted power table:

WLAN802.11 b	2412	2437	2462
Peak power	18.17	18.32	18.74
Avg power	15.74	15.77	16.22
WLAN802.11 g	2412	2437	2462
Peak power	18.88	18.35	18.32
Avg power	15.5	14.73	14.84
WLAN802.11 n (20M)	2412	2437	2462
Peak power	18.8	18.12	18.23
Avg power	15.34	14.49	14.68

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1.4 Test Environment

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

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

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.
2. 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.
3. During the SAR testing, the DASY4 system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.
4. We will test it by dividing into 1 configurations:
Configuration 1:Lapdock mode.

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SAR evaluation considerations for handsets with multiple transmitters:

5. When the maximum transmitter and antenna output power are $\leq 60/f(\text{GHz})$ (mW) SAR evaluation is typically not required for FCC or TCB approval (BT power= 11.73dBm)
6. According to KDB248227-SAR is not required for 802.11 g/HT20/HT40 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.
7. According to section 6.3.1 and 6.3.1.2 of KDB941225 D03 to exclude SAR test requirements for EDGE modes due to the source-based time-averaged output power (page 7's conducted power table) for edge mode is lower than that in the GPRS mode.
8. According to KDB941225 D01 to exclude SAR test requirements for HSPA modes due to the maximum average output power of HSPA active is less than 1/4 dB higher than that measured without HSPA using 12.2kbps RMC.

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9. The highest 1-g SAR for WLAN is 0.209 W/kg(Lapdock mode) and the highest 1-g SAR for WWAN is 1.10W/kg(Lapdock mode). The sum of 1-g for simultaneous transmitting WLAN and WWAN antenna pair is $0.209+1.10 = 1.309\text{W/kg} < 1.6 \text{ W/kg}$. Simultaneous SAR evaluation is not required.

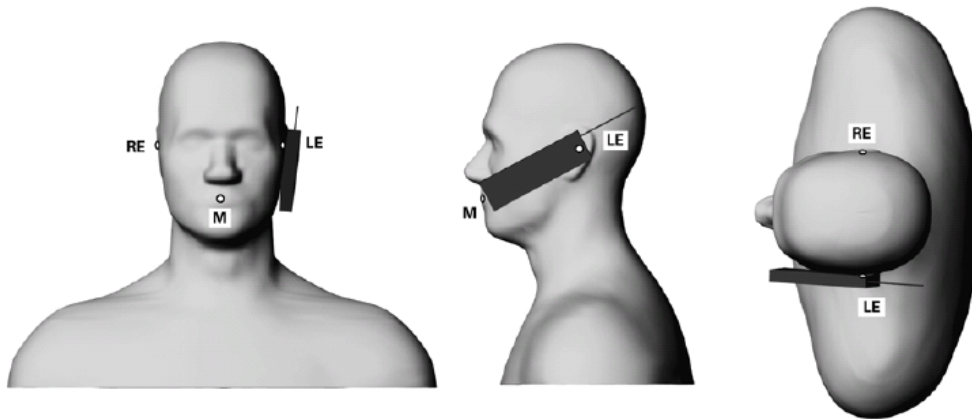
• **Simultaneous Operation Modes Summary Table:**

Description of Simultaneous Transmission Capabilities Supported				
Configuration	Head Adjacent	Body Worn	Mobile Hotspot	Configuration
GSM + Wi-Fi	N	N	N	GSM + Wi-Fi
GSM + BT	N	N	N	GSM + BT
GPRS + Wi-Fi	N	Y	Y	GPRS + Wi-Fi
GPRS + BT	N	N	N	GPRS + BT
EDGE + Wi-Fi	N	N	N	EDGE + Wi-Fi
EDGE + BT	N	N	N	EDGE + BT
WCDMA + Wi-Fi	N	Y	Y	WCDMA + Wi-Fi
WCDMA + BT	N	N	N	WCDMA + BT
HSPA + Wi-Fi	N	N	N	HSPA + Wi-Fi
HSPA + BT	N	N	N	HSPA + BT

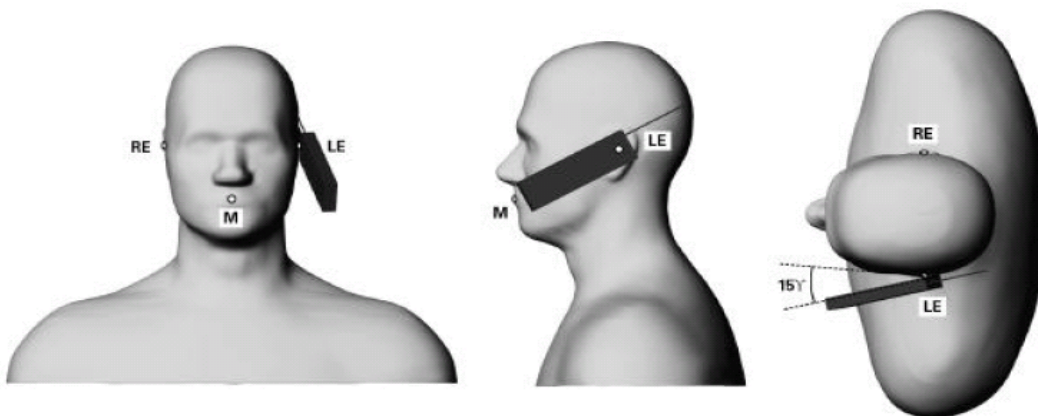
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1.6 Positioning Procedure



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



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

Cheek/Touch Position:

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

Ear/Tilt Position:

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

1.7 EVALUATION PROCEDURES

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

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

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

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extreme of the SAR distribution. The uncertainty on the locations of the extreme is less than 1/20 of the grid size. Only local maximum within -2 dB of the global maximum are searched and passed for the Cube Scan measurement. In the Cube Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest

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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.

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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 EX3DV4 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.

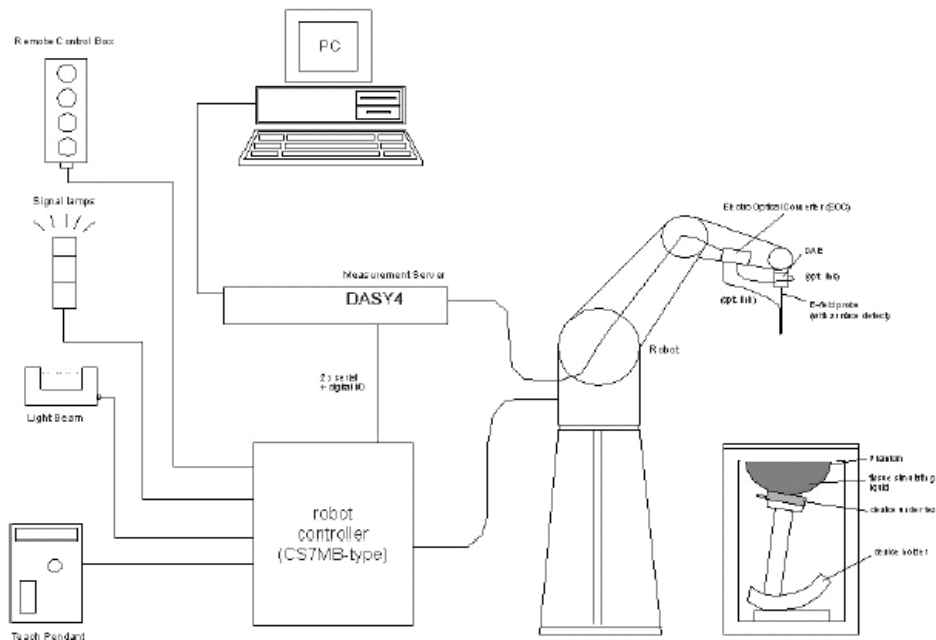


Fig.a The block diagram of SAR system

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

- A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.

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- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
 - A computer operating Windows 2000 or Windows XP.
 - DASY4 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
 - The SAM twin phantom enabling testing left-hand and right-hand usage.
 - The device holder for handheld mobile phones.
 - Tissue simulating liquid mixed according to the given recipes.
 - Validation dipole kits allowing to validate the proper functioning of the system.

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1.9 System Components


EX3DV4E-Field Probe

Construction:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	 <p>E-Field Probe</p>
Calibration:	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL835/1900/2450MHz 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:	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, CENELEC 50361 and IEC 62209. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.	
Shell Thickness:	2 ± 0.2 mm	
Filling Volume:	Approx. 25 liters	
Dimensions:	Height: 251 mm; Length: 1000 mm; Width: 500 mm	

DEVICE HOLDER

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

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1.10 SAR System Verification

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

These tests were done at 835/1900/2450 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1. During the tests, the ambient temperature of the laboratory was in the range 22.1°C, the relative humidity was in the range 62% and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

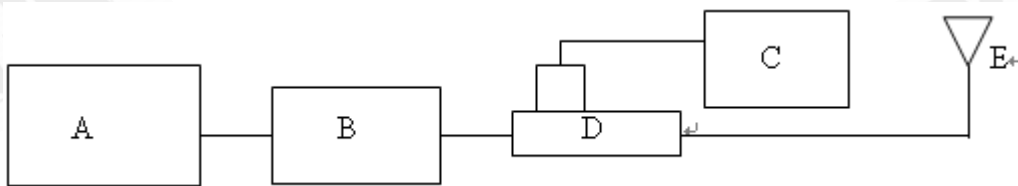
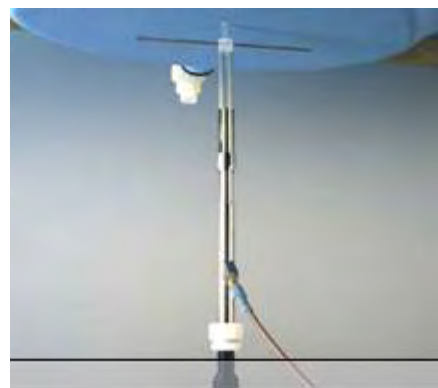


Fig.b The block diagram of system verification

- A. Agilent Model 8648D Signal Generator
- B. Mini circuits Model ZHL-42 Amplifier
- C. Agilent Model U2001B Power Sensor
- D. Agilent Model 778D/777D Dual directional coupling
- E. Reference dipole antenna



Photograph of the dipole Antenna

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Validation Kit	Frequency (MHz)	Target SAR (1g) (Pin=250mW)	Measured SAR (1g)	Measured Date
D835V2 S/N: 4d063	835 MHz (Body)	2.43 mW/g	2.36mW/g	2011-11-04
D1900V2 S/N: 5d027	1900 MHz (Body)	9.93 mW/g	9.9mW/g	2011-11-04
D2450V2 S/N: 727	2450 MHz (Body)	12.7 mW/g	12.3mW/g	2011-11-04

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).

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

Frequency (MHz)	Tissue type	Measurement date/ Limits	Dielectric Parameters		
			ϵ_r	σ (S/m)	Simulated Tissue Temperature($^{\circ}$ C)
835	Body	Measured, 2011-11-04	54.3	0.998	21.7
		Recommended Limits	51.21-56.60	0.95-1.05	20-24
1900	Body	Measured, 2011-11-04	51.4	1.57	21.7
		Recommended Limits	48.55-53.66	1.44-1.60	20-24
2450	Body	Measured, 2011-11-04	51.1	1.97	21.7
		Recommended Limits	48.07-53.13	1.81-2.01	20-24

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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The composition of the brain tissue simulating liquid:

Ingredient	850MHz (Body)	1900MHz (Body)	2450MHz (Body)
DGMBE	X	300.67g	301.7ml
Water	631.68 g	716.56 g	698.3ml
Salt	11.72 g	4.0 g	X
Preventol D-7	1.2 g	X	X
Cellulose	X	X	X
Sugar	600 g	X	X
Total amount	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)

Table 3. Recipes for tissue simulating liquid

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1.12 Test Standards and Limits

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

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

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

(1) Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube).

Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or

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by specific training or education through appropriate means, such as an RF safety program in a work environment.

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

Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube).

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

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

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

Table 4. RF exposure limits

Notes:

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

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2. Summary of Results

GSM 850 MHz

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 128	CH 190	CH 251	
				824.20 MHz	836.60 MHz	848.80 MHz	
GPRS 850	(Multi-class 10) Body Worn		Lapdock	0.785	0.914	1.10	1.6

GSM 1900 MHz

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 512	CH 661	CH 810	
				1850.20 MHz	1880.00 MHz	1909.80 MHz	
GPRS 1900	(Multi-class 10) Body Worn		Lapdock	—	0.172	—	1.6

WCDMA Band II

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 9262	CH 9400	CH 9538	
				1852.4 MHz	1880.00 MHz	1907.60 MHz	
WCDMA BAND II	(R99 mode) Body Worn		Lapdock	—	0.395	—	1.6

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WCDMA Band V

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 4132	CH 4183	CH 4233	
				826.40 MHz	836.60 MHz	846.60 MHz	
WCDMA BAND V	(R99 mode) Body Worn		Lapdock	—	0.64	—	1.6

WLAN802.11 b

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 1	CH 6	CH 11	
				2412 MHz	2437 MHz	2462 MHz	
WLAN 802.11 b	Body Worn		Lapdock	—	0.209	—	1.6

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3. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration
Schmid & Partner Engineering AG	Dosimetric E-Field Probe	EX3DV4	3703	Aug.25.2011
Schmid & Partner Engineering AG	835 /1900 /2450 MHz System Validation Dipole	D835V2	4d063	May.25.2011
		D1900V2	5d027	Apr.19.2011
		D2450V2	727	Apr.19.2011
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	547	Aug.29.2011
Schmid & Partner Engineering AG	Software	DASY 4 V4.7 Build 80	N/A	Calibration not required
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration not required
HP	Network Analyzer	8753D	3410A05547	Mar.16.2011
HP	Dielectric Probe Kit	85070D	US01440168	Calibration not required
Agilent	Dual-directional coupler	778D	50313	Aug.19.2011
		777D	50114	Aug.18.2011
Agilent	RF Signal Generator	8648D	3847M00432	Jun.01.2011
Agilent	Power Sensor	U2001B	MY48100169	Apr.30.2011
R&S	Radio Communication Test	CMU200	113505	May.31.2011

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4. Measurements

Date: 2011/11/4

Lapdock_CH128

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:4.1
 Medium: Muscle 900 MHz Medium parameters used (interpolated): $f = 824.2 \text{ MHz}$; $\sigma = 0.986 \text{ mho/m}$; $\epsilon_r = 54.4$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.975 mW/g

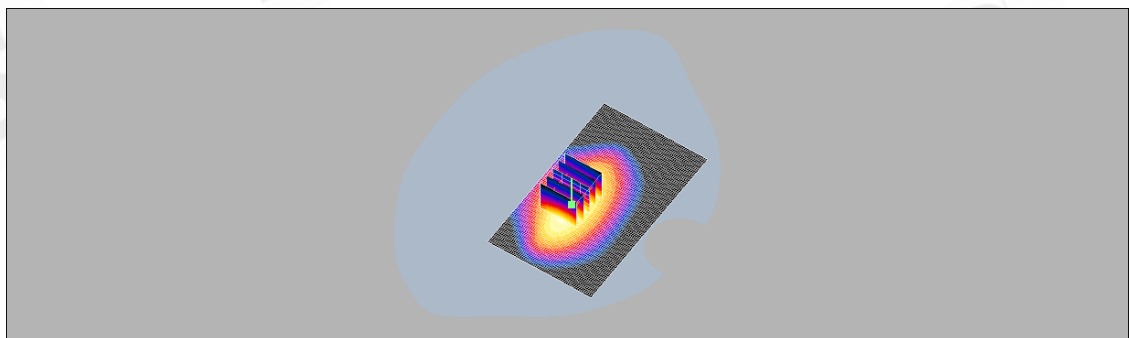
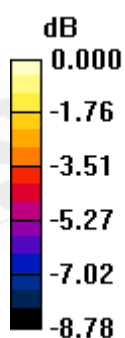
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 23.5 V/m; Power Drift = -0.030 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.785 mW/g; SAR(10 g) = 0.547 mW/g

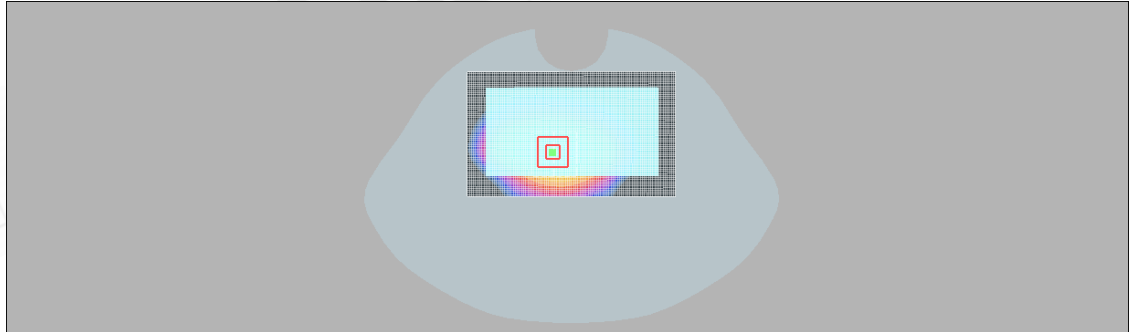
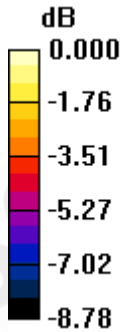
Maximum value of SAR (measured) = 0.965 mW/g



0 dB = 0.965mW/g

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0 dB = 0.965mW/g

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Lapdock_CH190

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:4.1

Medium: Muscle 900 MHz Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.3$;
 $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.14 mW/g

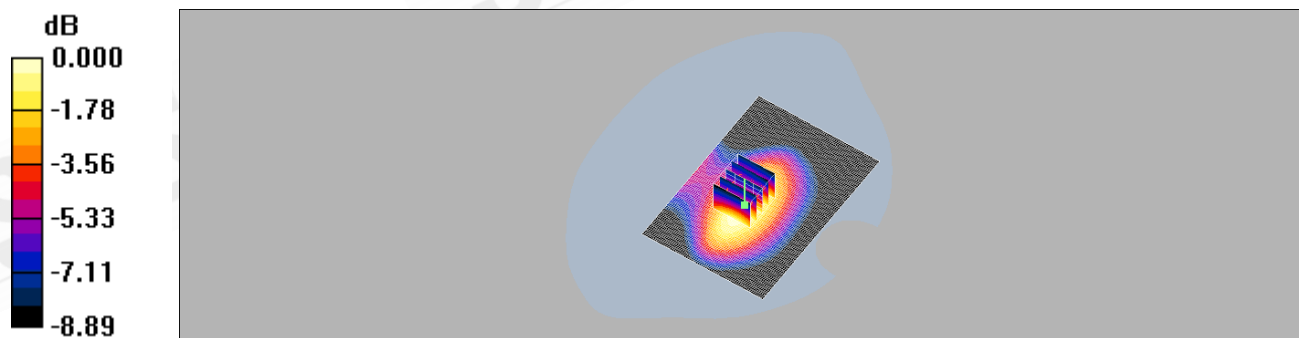
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 25.1 V/m; Power Drift = -0.135 dB

Peak SAR (extrapolated) = 1.31 W/kg

SAR(1 g) = 0.914 mW/g; SAR(10 g) = 0.634 mW/g

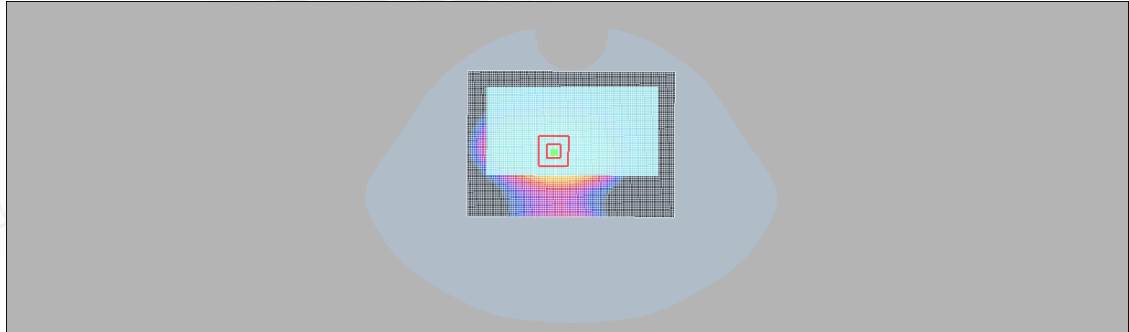
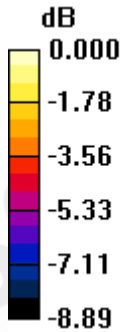
Maximum value of SAR (measured) = 1.12 mW/g



0 dB = 1.12mW/g

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0 dB = 1.12mW/g

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Lapdock_CH251

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:4.1

Medium: Muscle 900 MHz Medium parameters used: $f = 849 \text{ MHz}$; $\sigma = 1.01 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 1.37 mW/g

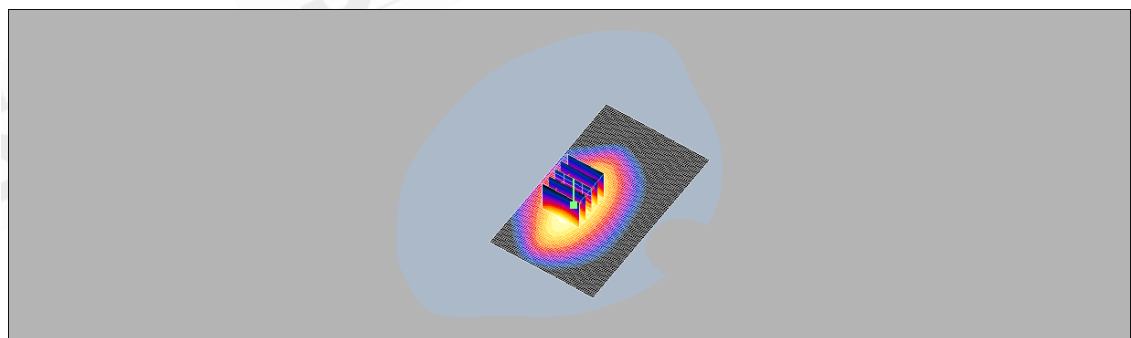
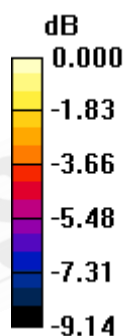
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 26.6 V/m; Power Drift = 0.052 dB

Peak SAR (extrapolated) = 1.58 W/kg

SAR(1 g) = 1.10 mW/g; SAR(10 g) = 0.757 mW/g

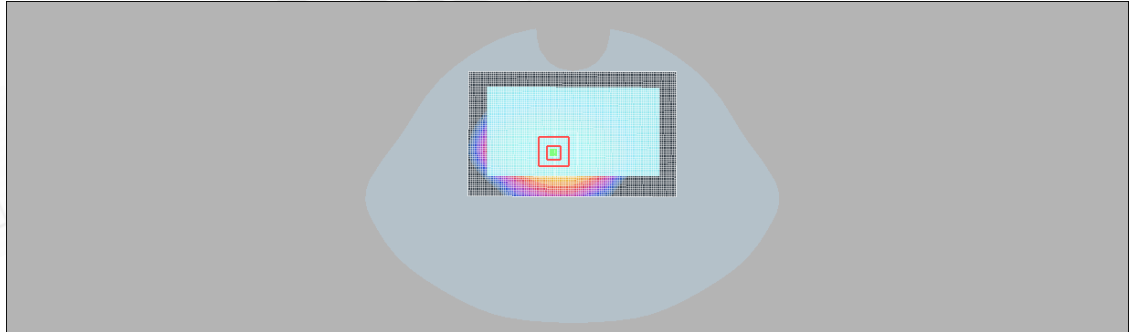
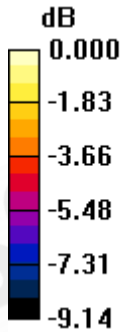
Maximum value of SAR (measured) = 1.36 mW/g



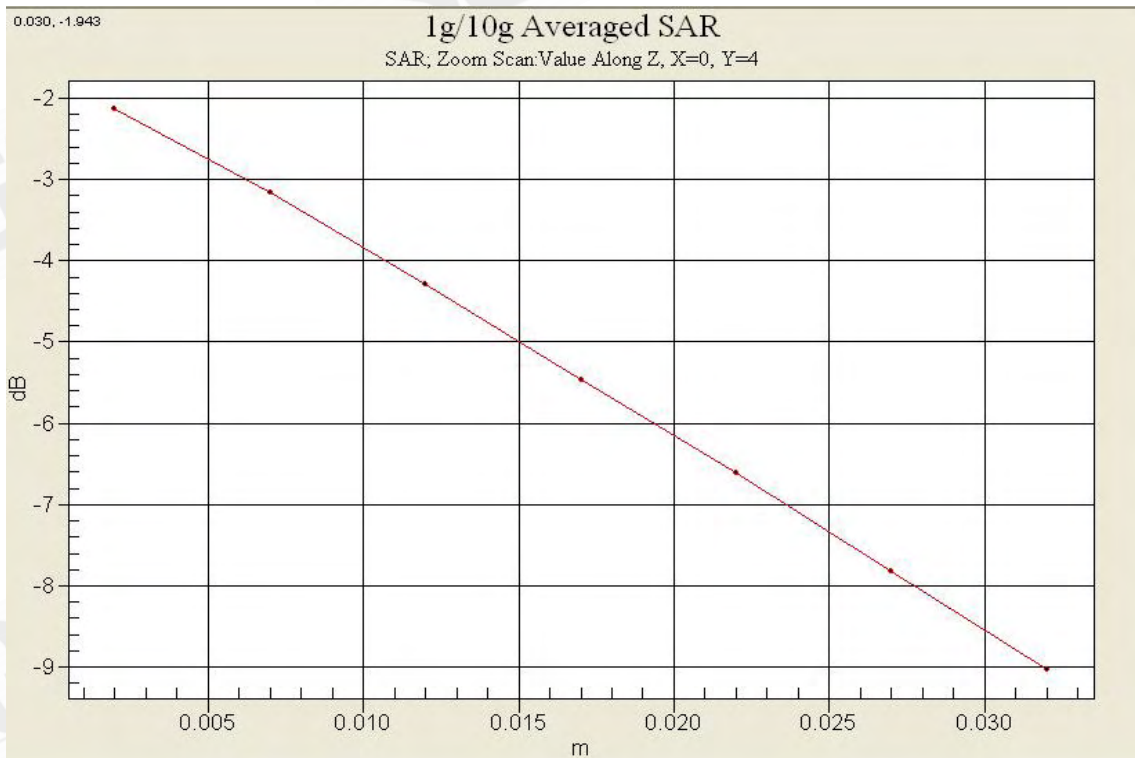
0 dB = 1.36mW/g

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0 dB = 1.36mW/g



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Lapdock_CH661

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:4.1
 Medium: M1800 & 1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.55 \text{ mho/m}$; $\epsilon_r = 51.6$;
 $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.294 mW/g

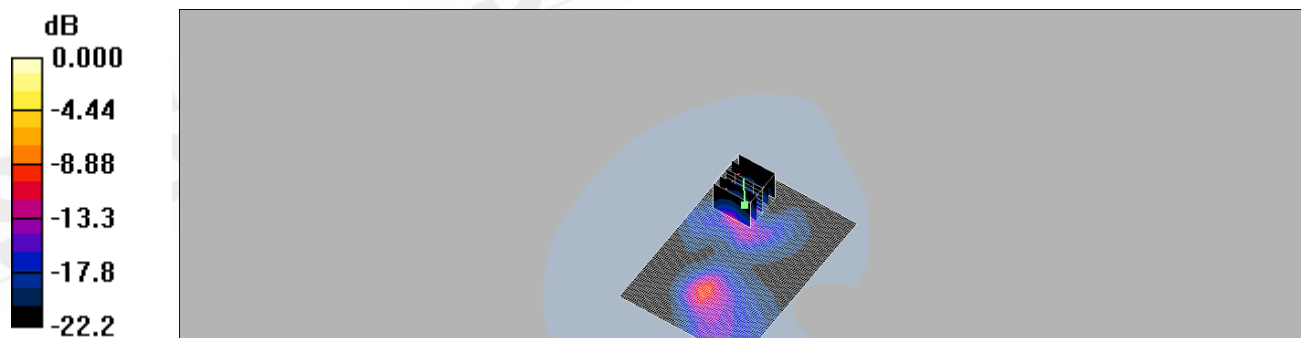
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 3.42 V/m; Power Drift = -0.161 dB

Peak SAR (extrapolated) = 0.327 W/kg

SAR(1 g) = 0.172 mW/g; SAR(10 g) = 0.082 mW/g

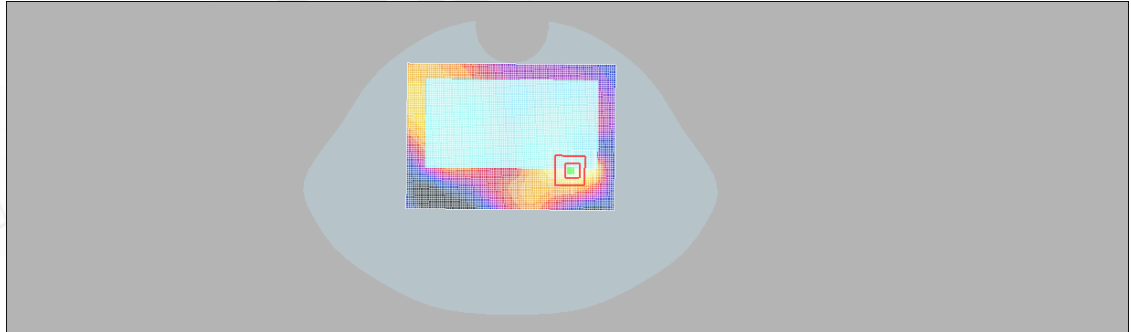
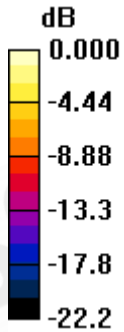
Maximum value of SAR (measured) = 0.254 mW/g



0 dB = 0.254mW/g

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0 dB = 0.254mW/g

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Lapdock_CH9400

Communication System: WCDMA BAND2; Frequency: 1880 MHz; Duty Cycle: 1:1
 Medium: M1800 & 1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.55 \text{ mho/m}$; $\epsilon_r = 51.6$;
 $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (71x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.575 mW/g

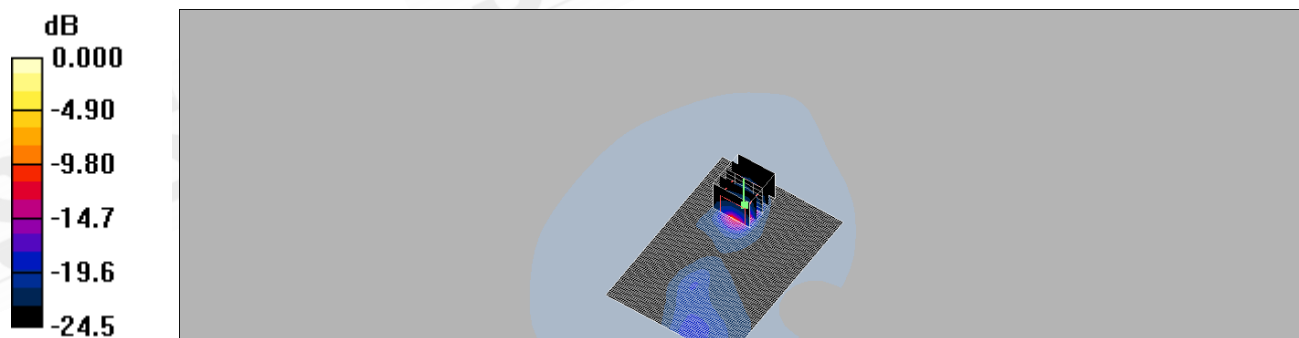
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 4.14 V/m; Power Drift = -0.183 dB

Peak SAR (extrapolated) = 0.788 W/kg

SAR(1 g) = 0.395 mW/g; SAR(10 g) = 0.186 mW/g

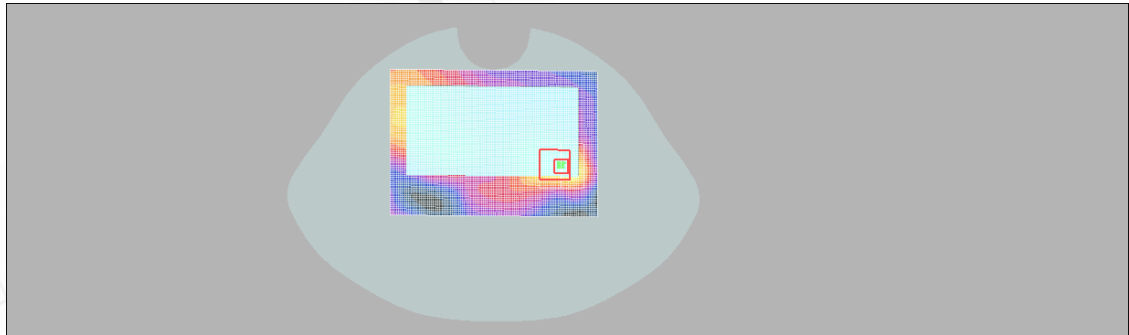
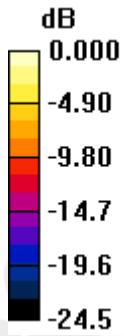
Maximum value of SAR (measured) = 0.641 mW/g



0 dB = 0.641mW/g

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0 dB = 0.641mW/g

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Lapdock_CH4183

Communication System: WCDMA BAND5; Frequency: 836.6 MHz; Duty Cycle: 1:1
 Medium: Muscle 900 MHz Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.3$;
 $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.797 mW/g

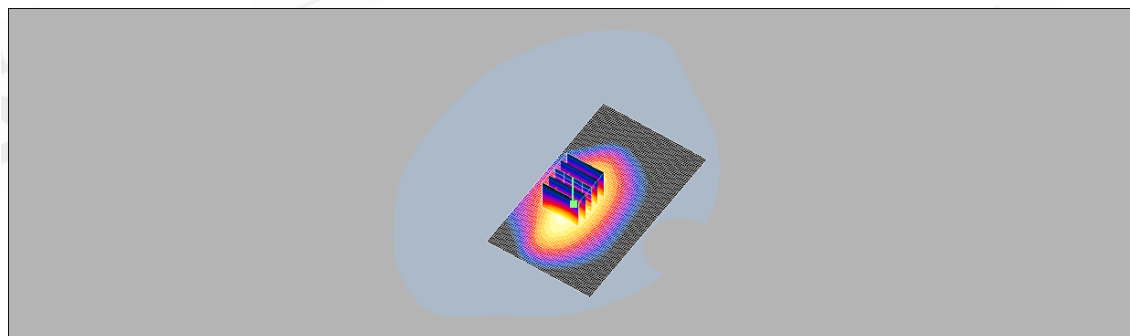
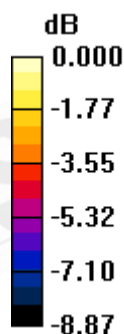
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 20.8 V/m; Power Drift = -0.120 dB

Peak SAR (extrapolated) = 0.920 W/kg

SAR(1 g) = 0.640 mW/g; SAR(10 g) = 0.444 mW/g

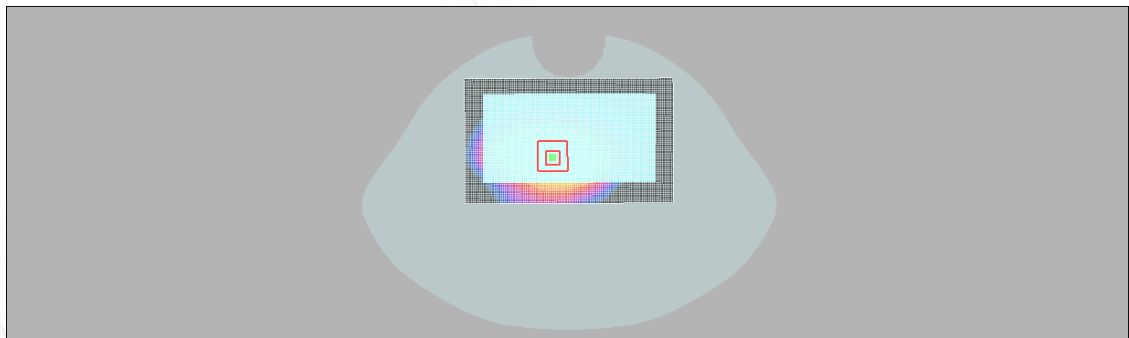
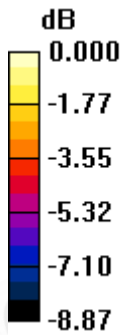
Maximum value of SAR (measured) = 0.790 mW/g



0 dB = 0.790mW/g

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0 dB = 0.790mW/g

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Date: 2011/11/4

Lapdock_WLAN802.11b_CH6

Communication System: WiFi b_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1
 Medium: Muscle 2450 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.94 \text{ mho/m}$; $\epsilon_r = 51.3$;
 $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.62, 6.62, 6.62); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.342 mW/g

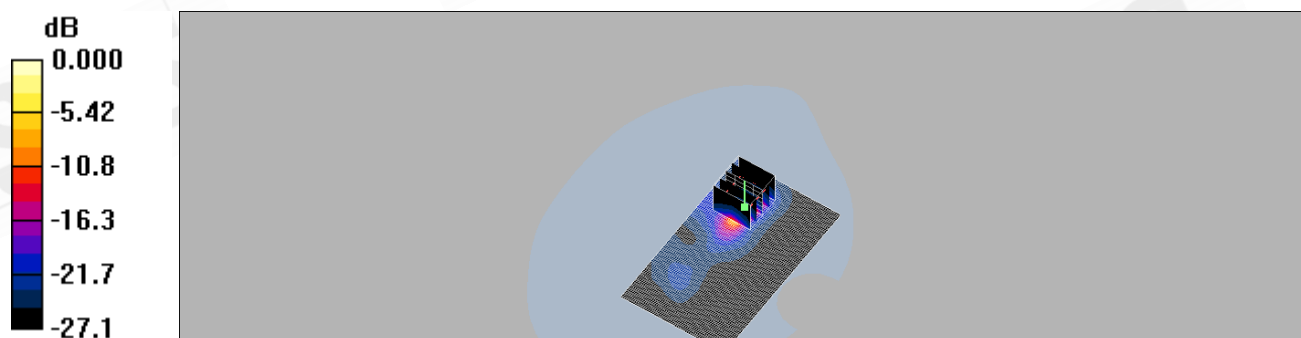
BODY/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 3.29 V/m; Power Drift = -0.116 dB

Peak SAR (extrapolated) = 0.429 W/kg

SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.096 mW/g

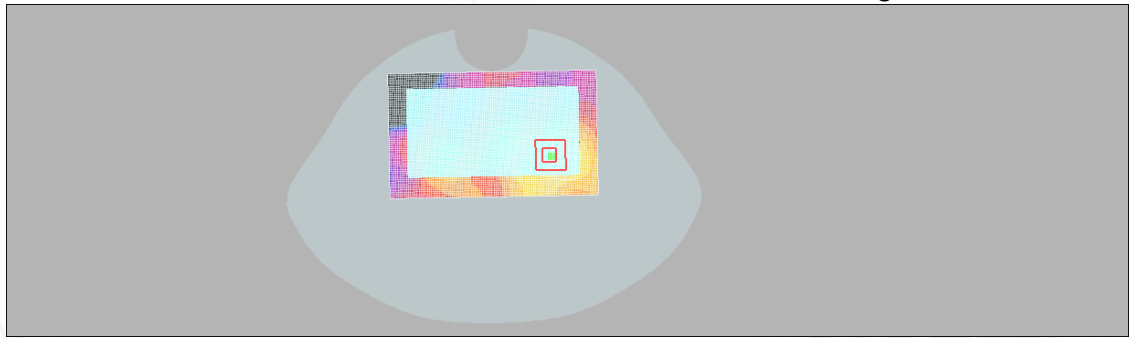
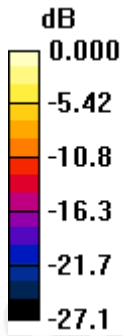
Maximum value of SAR (measured) = 0.311 mW/g



0 dB = 0.311mW/g

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0 dB = 0.311mW/g

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5. System Verification

Date: 2011/11/4

DUT: Dipole 835 MHz;

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

Medium: Muscle 900 MHz Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.998 \text{ mho/m}$; $\epsilon_r = 54.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(8.87, 8.87, 8.87); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 2.55 mW/g

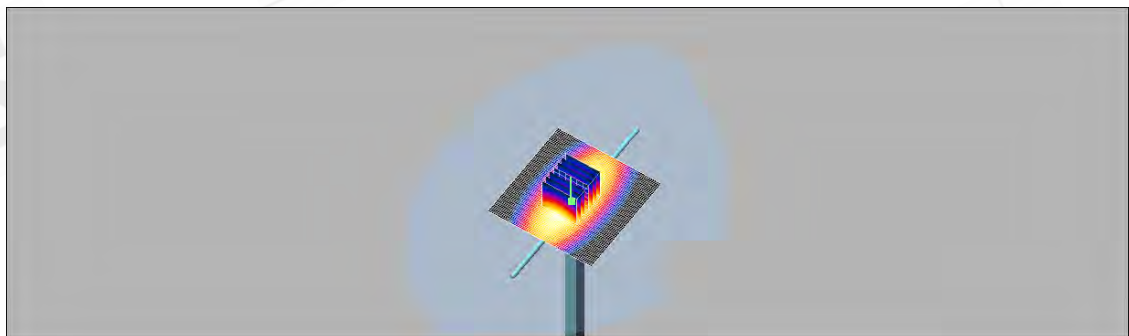
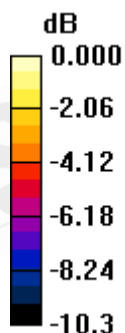
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 50.5 V/m; Power Drift = -0.009 dB

Peak SAR (extrapolated) = 3.54 W/kg

SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.59 mW/g

Maximum value of SAR (measured) = 2.55 mW/g



0 dB = 2.55mW/g

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DUT: Dipole 1900 MHz;

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

Medium: M1800 & 1900 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.57 \text{ mho/m}$; $\epsilon_r = 51.4$;
 $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.97, 6.97, 6.97); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (51x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 12.6 mW/g

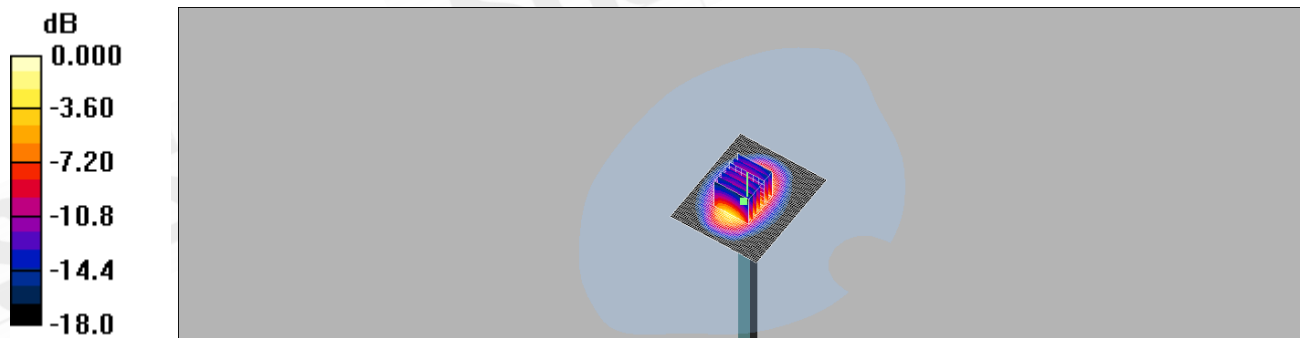
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$,
 $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 83.7 V/m; Power Drift = 0.029 dB

Peak SAR (extrapolated) = 18.5 W/kg

SAR(1 g) = 9.9 mW/g; SAR(10 g) = 5.2 mW/g

Maximum value of SAR (measured) = 11.1 mW/g



0 dB = 11.1mW/g

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DUT: Dipole 2450 MHz;

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

Medium: Muscle 2450 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.97 \text{ mho/m}$; $\epsilon_r = 51.1$;
 $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.62, 6.62, 6.62); Calibrated: 2011/8/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2011/8/29
- Phantom: SAM1; Type: SAM 4.0; Serial: TP:1419
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (51x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 16.2 mW/g

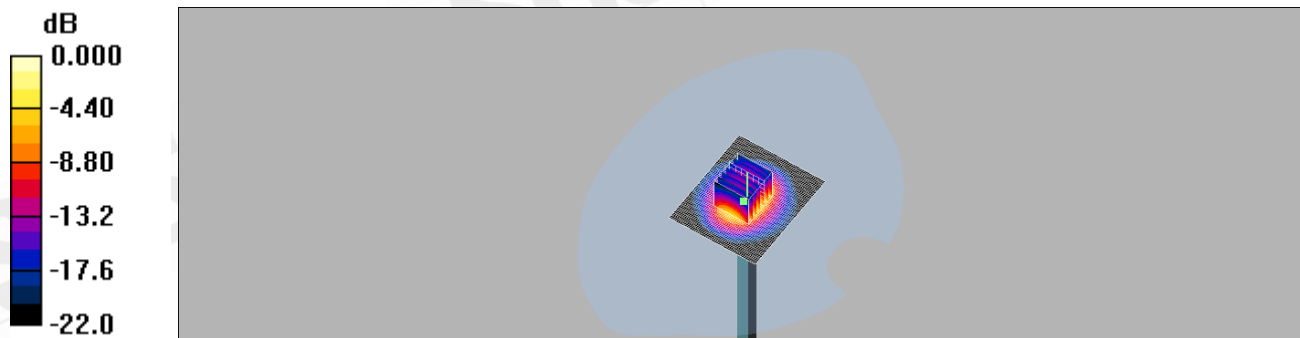
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$,
 $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 85.2 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 25.6 W/kg

SAR(1 g) = 12.3 mW/g; SAR(10 g) = 5.69 mW/g

Maximum value of SAR (measured) = 14.2 mW/g



0 dB = 14.2mW/g

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6. DAE & Probe Calibration certificate

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



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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-TW**

Certificate No.: DAE4-547_Aug11

CALIBRATION CERTIFICATE

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

Calibration procedure(s): QA CAL-06.v23
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: August 29, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

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

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Technician	
Approved by:	Fin Bornholt	R&D Director	

Issued: August 29, 2011

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

Certificate No: DAE4-547_Aug11

Page 1 of 5

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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-TW (Auden)**

Certificate No: **EX3-3703_Aug11**

CALIBRATION CERTIFICATE

Object: **EX3DV4 - SN:3703**

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

Calibration date: **August 25, 2011**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: August 25, 2011

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S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

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

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
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- **NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect 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 with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- **PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- **A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,y,z}**: A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- **ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ 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.

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EX3DV4 – SN:3703

August 25, 2011

Probe EX3DV4

SN:3703

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

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

Certificate No: EX3-3703_Aug11

Page 3 of 11

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EX3DV4- SN:3703

August 25, 2011

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

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

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^C (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	108.6	$\pm 1.9\%$
			Y	0.00	0.00	1.00	112.0	
			Z	0.00	0.00	1.00	115.8	

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

^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^C Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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EX3DV4- SN:3703

August 25, 2011

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3703
Calibration Parameter Determined in Head Tissue Simulating Media

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

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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EX3DV4-SN:3703

August 25, 2011

DASY/EASY - Parameters of Probe: EX3DV4- SN:3703
Calibration Parameter Determined in Body Tissue Simulating Media

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

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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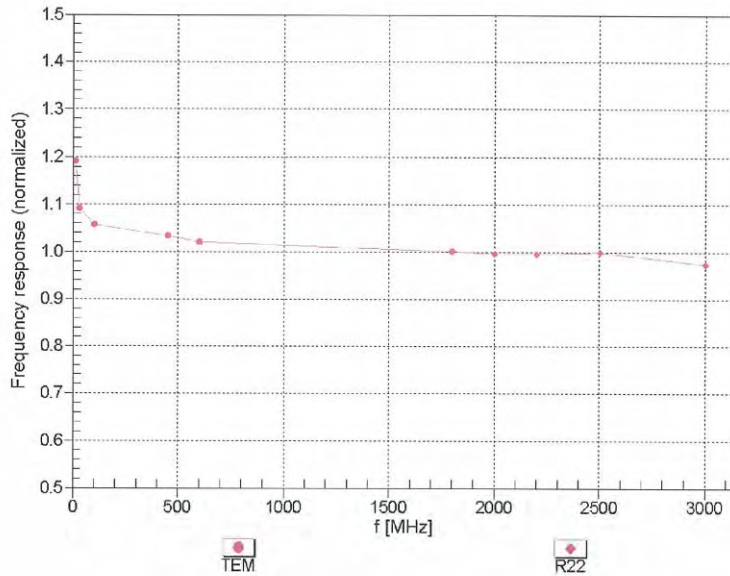
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EX3DV4-SN:3703

August 25, 2011

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



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

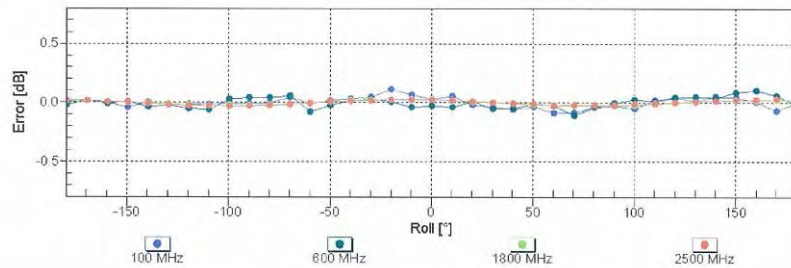
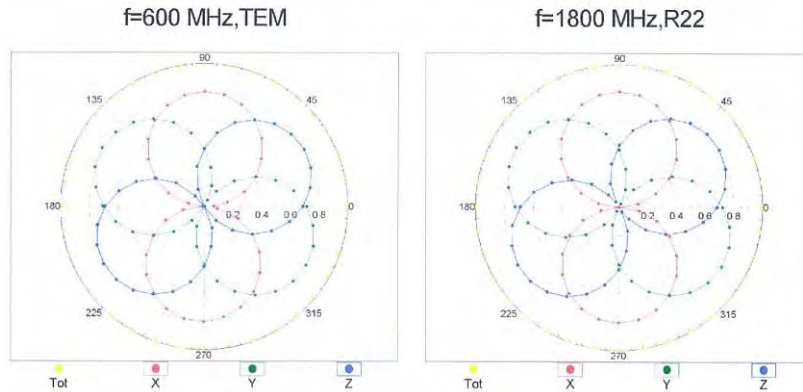
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EX3DV4- SN:3703

August 25, 2011

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



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

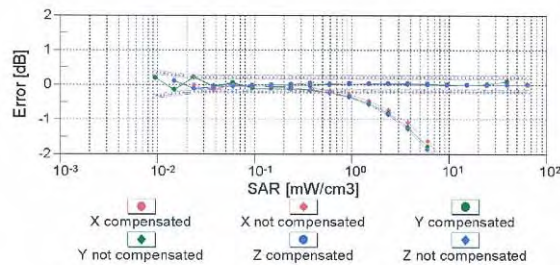
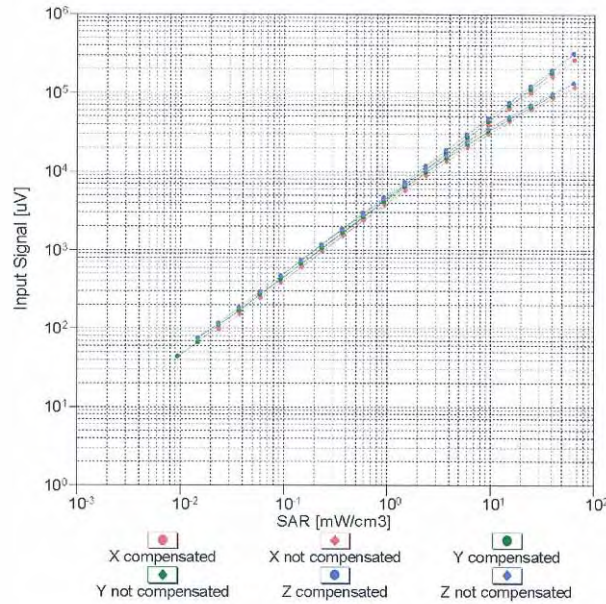
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August 25, 2011

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



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

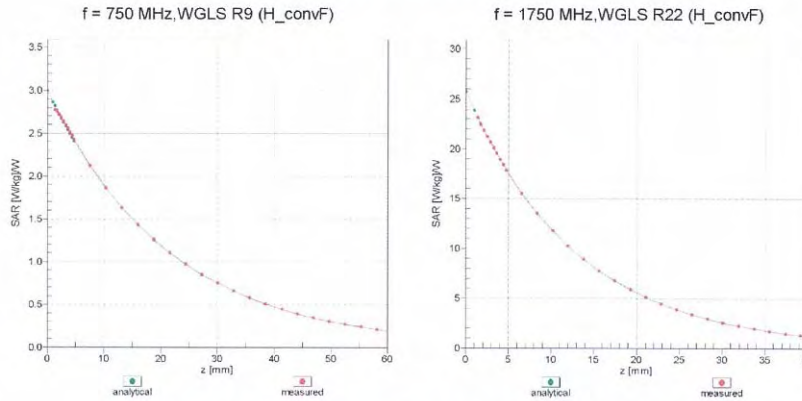
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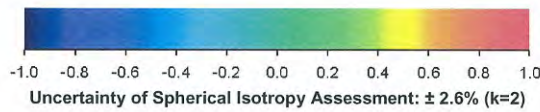
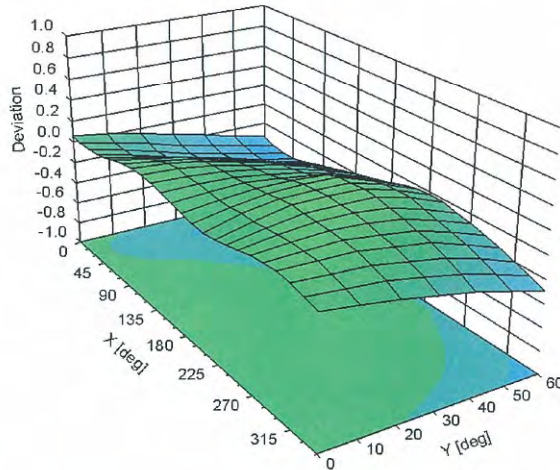
August 25, 2011

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), $f = 900$ MHz



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EX3DV4- SN:3703

August 25, 2011

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

Other Probe Parameters

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

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7. Uncertainty Budget

DASY4 Uncertainty Budget According to IEEE P1528 [1]								
Error Description	Uncertainty value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±4.8%	N	1	1	1	±4.8%	±4.8%	∞
Axial Isotropy	±4.7%	R	√3	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	√3	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Readout Electronics	±1.0%	N	1	1	1	±1.0%	±1.0%	∞
Response Time	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	√3	1	1	±1.5%	±1.5%	∞
RF Ambient Conditions	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	√3	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	√3	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	875
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	√3	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	√3	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	√3	0.64	0.43	±1.8%	±1.2%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid Permittivity (target)	±5.0%	R	√3	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined Std. Uncertainty						±10.3%	±10.0%	331
Expanded STD Uncertainty						±20.6%	±20.1%	

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8. Phantom description

Schmid & Partner Engineering AG

s p e a g

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

Certificate of Conformity / First Article Inspection

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

Tests

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

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

Standards

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

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

Conformity

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

Date 07.07.2005

s p e a g

Signature / Stamp

 Schmid & Partner Engineering AG
 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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9. System Validation from Original equipment supplier

**Calibration Laboratory of
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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-TW (Auden)**

Certificate No: **D835V2-4d063_May11**

CALIBRATION CERTIFICATE

Object: **D835V2 - SN: 4d063**

Calibration procedure(s): **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **May 25, 2011**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by:	Name Claudio Leubler	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature

Issued: May 25, 2011

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

Certificate No: D835V2-4d063_May11

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DASY5 Validation Report for Body TSL

Date: 25.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: MSL900

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 53.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Cube 0:

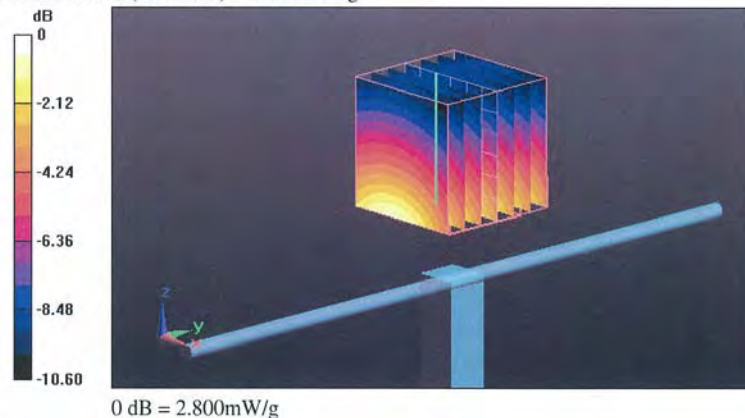
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 54.297 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 3.530 W/kg

SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.6 mW/g

Maximum value of SAR (measured) = 2.804 mW/g



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **SGS TW (Auden)**

Certificate No: **D1900V2-5d027_Apr11**

CALIBRATION CERTIFICATE

Object: **D1900V2 - SN: 5d027**

Calibration procedure(s): **QA CAL-05.v8
Calibration procedure for dipole validation kits**

Calibration date: **April 19, 2011**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by: **Name: Claudio Leubler, Function: Laboratory Technician, Signature: [Signature]**

Approved by: **Name: Katja Pokovic, Function: Technical Manager, Signature: [Signature]**

Issued: April 19, 2011

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Certificate No: D1900V2-5d027_Apr11

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DASY5 Validation Report for Body TSL

Date/Time: 19.04.2011 12:53:51

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 U12 BB

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.52 \text{ mho/m}$; $\epsilon_r = 51.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.59, 4.59, 4.59); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2829)

Pin=250 mW, Cube 0:

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

Reference Value = 96.170 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 17.156 W/kg

SAR(1 g) = 9.93 mW/g; SAR(10 g) = 5.18 mW/g

Maximum value of SAR (measured) = 12.615 mW/g



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **SGS TW (Auden)**

Certificate No: **D2450V2- 727_Apr11**

CALIBRATION CERTIFICATE

Object: **D2450V2 - SN: 727**

Calibration procedure(s): **QA CAL-05.v8
Calibration procedure for dipole validation kits**

Calibration date: **April 19, 2011**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by:	Name	Function	Signature
	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 19, 2011

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Certificate No: D2450V2-727_Apr11

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DASY5 Validation Report for Body TSL

Date/Time: 19.04.2011 14:37:11

Test Laboratory: SPEAG, Zurich, Switzerland

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

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

Medium: MSL U12 BB

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.91 \text{ mho/m}$; $\epsilon_r = 50.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.31, 4.31, 4.31); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2829)

Pin=250 mW, Cube 0:

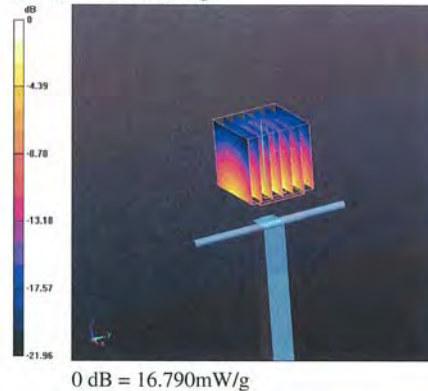
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 96.949 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 26.888 W/kg

SAR(1 g) = 12.7 mW/g; SAR(10 g) = 5.84 mW/g

Maximum value of SAR (measured) = 16.794 mW/g



End of 1st part of report

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