Full SAR Test Report

Applicant Name: Shanghai Longcheer3g Technology Co.,Ltd
Applicant Address: No.1,Building 5, 299 Bisheng Rd, Zhangjiang Hi-Tech Park, Pudong, Shanghai, P.R. China

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

Sample Description	Mobile phone
SGS Ref	GSM10170698S01
Model Number	W660
FCC ID	WLPW660
Final Software Version Tested	LQARZ01_240005_0.0.4
Final Hardware Version Tested	W660_344
Date Initial Sample Received	03-07,2010
Testing Start Date	03-08,2010
Testing End Date	03-17,2010

According to:

FCC 47CFR § 2.1093, IEEE Std C95.1-2005

IEEE1528-2003, OET Bulletin 65 Supplement C

Comments/ Conclusion:
The configuration tested complied to the certification requirements specified in this report.
Signed for on behalf of SGS

Ken Wang — Project Manager

Peter Xue — Technical Manager

Table of Contents

SGS-CSTC Standards Technical Services(Shanghai) Co, Ltd..
Testing Center-GSM Laboratory
3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

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Testing Center-GSM Laboratory
3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

Change History

Version	Change Contents	Author	Date
V1.0	First edition	Ken Wang	03-22,2010

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Testing Center-GSM Laboratory
3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

1. Report Overview

This report details the results of testing carried out on the samples listed in section 17, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
This report may only be reproduced and distributed in full. If the product in this test report is used in any configuration other than that detailed in the test report, the manufacturer must ensure the new configuration complies with all relevant standards and certification requirements. Any mention of SGS Shanghai Wireless Telecommunications lab or testing done by SGS Shanghai Wireless Telecommunications lab made in connection with the distribution or use of the tested product must be approved in writing by SGS Shanghai Wireless Telecommunications lab.

2. Test Lab Declaration or Comments

None

3. Applicant Declaration or Comments

None

4. Full Test Report

A full test report contains, within the results section, all the applicable test cases from the certification requirements of the permanent reference documents of the listed certification bodies.

5. Partial Test Report

A partial test report contains within the results section a sub-set of all the applicable test cases from the certification requirements of the permanent reference documents of the listed certification bodies.

6. Measurement Uncertainty

Measurements and results are all in compliance with the standards listed in section 12 of this report. All measurements and results are recorded and maintained at the laboratory performing the tests and measurement uncertainties are taken into account when comparing measurements to pass/ fail criteria.

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a	b1	c	d	e = f(d,k)	g	i = cxg/e	k
Uncertainty Component	Section in P1528	Tol (%)	Prob . Dist.	Div.	Ci (1g)	1g ui (%)	Vi (Veff)
Probe calibration	E.2.1	6.3	N	1	1	6.3	∞
Axial isotropy	E.2.2	0.5	R	$\sqrt{3}$	$(1-c_p)^{1/2}$	0.20	∞
hemispherical isotropy	E.2.2	2.6	R	$\sqrt{3}$	$\sqrt{c_p}$	1.06	∞
Boundary effect	E.2.3	0.8	R	$\sqrt{3}$	1	0.46	∞
Linearity	E.2.4	0.6	R	$\sqrt{3}$	1	0.35	∞
System detection limit	E.2.5	0.25	R	$\sqrt{3}$	1	0.15	∞
Readout electronics	E.2.6	0.3	N	1	1	0.3	∞
Response time	E.2.7	0	R	$\sqrt{3}$	1	0	∞
Integration time	E.2.8	2.6	R	$\sqrt{3}$	1	1.5	∞
RF ambient Condition -Noise	E.6.1	3	R	$\sqrt{3}$	1	1.73	∞
RF ambient Condition - reflections	E.6.1	3	R	$\sqrt{3}$	1	1.73	∞
Probe positioning- mechanical tolerance	E.6.2	1.5	R	$\sqrt{3}$	1	0.87	∞
Probe positioning- with respect to phantom	E.6.3	2.9	R	$\sqrt{3}$	1	1.67	∞
Max. SAR evaluation	E.5.2	1	R	$\sqrt{3}$	1	0.58	∞
Test sample positioning	E.4.2	4	N	1	1	3.7	9
Device holder uncertainty	E.4.1	3.6	N	1	1	3.6	∞
Output power variation -SAR drift measurement	6.62	5	R	$\sqrt{3}$	1	2.89	∞
Phantom uncertainty (shape and thickness tolerances)	E.3.1	4	R	$\sqrt{3}$	1	2.31	∞
Liquid conductivity - deviation from target values	E.3.2	5	R	$\sqrt{3}$	0.64	1.85	∞
Liquid conductivity - measurement uncertainty	E.3.2	4	N	1	0.64	2.56	5
Liquid permittivity - deviation from target values	E.3.3	5	R	$\sqrt{3}$	0.6	1.73	∞
Liquid permittivity - measurement uncertainty	E.3.3	4	N	1	0.6	2.40	5
Combined standard uncertainty				RSS		10.71	430
Expanded uncertainty (95% CONFIDENCE INTERVAL)				K=2		21.43	

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中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

7. Testing Environment

Normal Temperature	+20 to +24 °C
Relative Humidity	35 to 60 %

8. Primary Test Laboratory

Name:	Wireless Telecommunications Laboratory SGS-CSTC Standards Technical Services(Shanghai) Co., Ltd
Address:	9F, 3rd Building, No.889, Yishan Rd, Xuhui District, Shanghai, China 200233
Telephone:	+86 (0) 21 6140 2666
Fax:	+86 (0) 21 5450 0149
Internet:	http://www.cn.sgs.com
Contact:	Mr. Peter Xue
Email:	peter.xue@sgs.com

9. Details of Applicant

Name:	Shanghai Longcheer3g Technology Co.,Ltd
Address:	No.1,Building 5, 299 Bisheng Rd, Zhangjiang Hi-Tech Park, Pudong, Shanghai, P.R. China
Telephone:	+86-21-64088898
Fax	+86-21-54970816
Contact:	Zhengfang Hu
Email:	huzhengfang@longcheer.net

10. Details of Manufacturer

Name:	Shanghai Longcheer3g Technology Co.,Ltd
Address:	No.1,Building 5, 299 Bisheng Rd, Zhangjiang Hi-Tech Park, Pudong, Shanghai, P.R. China
Telephone:	+86-21-64088898
Fax	+86-21-54970816
Contact:	Zhengfang Hu
Email:	huzhengfang@longcheer.net

11. Other testing Locations

Name:	Not Required
Address:	--
Telephone:	--
Contact:	--
Email:	--

12. Referenced Documents

The Equipment under Test (EUT) has been tested at SGS's (own or subcontracted) laboratories according to

FCC 47CFR § 2.1093, IEEE Std C95.1-2005, IEEE1528-2003, OET Bulletin 65 Supplement C

The following table summarizes the specific reference documents such as harmonized standards or test specifications which were used for testing as SGS's (own or subcontracted) laboratories.

Identity	Document Title	Version
FCC 47CFR § 2.1093	Radiofrequency radiation exposure evaluation:portable devices	2001
IEEE Std C95.1-2005	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.	2005
IEEE1528-2003	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques	2003
OET Bulletin 65 Supplement C	Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions	2001
KDB 648474 D01	SAR Evaluation Considerations for Handsets with Multiple Transmitters andAntennas	-
KDB 941225 D01	SAR Measurement Procedures for 3G Devices	-
KDB 941225 D03	Recommended SAR Test Reduction Procedures for GSM/GPRS/EDGE	-

Human Exposure	Uncontrolled Environment General Population
Spatial Peak SAR	1.60 W/kg (averaged over a mass of 1g)

Table 11-1 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.

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13. Primary Laboratory Accreditation Details

China National Accreditation Service for Conformity Assessment

LABORATORY ACCREDITATION CERTIFICATE

(No. CNAS L0599)

China National Accreditation Service for Conformity Assessment has accredited

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Testing Center

1/4/6/7/8/9/10F., No.3 Building, Qilai Industry City,

No.889, Yishan Road, Shanghai, China

to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

The scope of accreditation is detailed in the attached schedule bearing the same accreditation number as above. The schedule forms an integral part of this certificate.

Date of Issue: 2009-08-31

Date of Expiry: 2011-07-29

Date of Initial Accreditation: 2003-08-01

Signed on behalf of China National Accreditation Service for Conformity Assessment

China National Accreditation Service for Conformity Assessment(CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation systems for conformity assessment. CNAS is the signatory to International Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (ILAC MRA), and the signatory to Asia Pacific Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (APLAC MRA).

14. SGS Shanghai Wireless Telecommunications lab, Personnel

SGS Wireless Shanghai Project Management Team and list of approved Testers for SGS Wireless Shanghai.

Surname	Forename	Initials
CAI	CAI	CAICAI
Xue	Peter	PETERXUE
Xu	Anya	ANYA
Ni	Lemon	LEMONNI
Tao	Kevin	KEVINTAO
Wang	Lawrence	LAWRENCE
Zhang	Sean	SEANZH
Liu	Felix	FILEX
Ruan	Roger	ROGER
Tan	Terry	TERRY
Zhang	Zenger	ZENGER
Wang	Ken	KENWANG
Gao	Keilefen	KEILEFENGAO
Tang	Eva	EVATANG
Ho	James	JAMESHO
Tang	Kenny	KENNY
Hailiang	Cai	HAILIANG
Kuang	Connie	CONNIE
Chan	Hik Kwong	HKC
Nie	Neo	Neo

Version 2010-02-04

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15. Test Equipment Information

15.1 SPEAG DASY4

Test Platform	SPEAG DASY4 Professional			
Location	SGS SH Lab #8			
Manufacture	SPEAG			
Description	SAR Test System (Frequency range 300MHz-3GHz) 835, 900, 1800, 1900, 2000, 2450 frequency band HAC Extension			
Software Reference	DASY4: V4.7 Build 80 SEMCAD: V1.8 Build 186			
Hardware Reference				
Equipment	Model	Serial Number	Calibration Date	Due date of calibration
Robot	RX90L	F03/5V32A1/A01	n/a	n/a
Phantom	SAM 12	TP-1283	n/a	n/a
DAE	DAE3	569	2009-11-18	2010-11-17
E-Field Probe	ES3DV3	3088	2009-11-19	2010-11-18
Validation Kits	D835V2	4d070	2008-12-15	2010-12-14
Validation Kits	D1800V2	2d070	2009-11-24	2010-11-23
Validation Kits	D1900V2	5d028	2009-11-24	2010-11-23
Agilent Network Analyzer	E5071B	MY42100549	2009-11-25	2010-11-24
RF Bi-Directional Coupler	ZABDC20-252H	n/a	2009-05-18	2010-05-17
Agilent Signal Generator	E4438C	14438CATO-19719	2009-11-30	2010-11-29
Mini-Circuits Preamplifier	ZHL-42	D041905	2009-11-30	2010-11-29
Agilent Power Meter	E4416A	GB41292095	2009-11-25	2010-11-24
Agilent Power Sensor	8481H	MY41091234	2009-11-25	2010-11-24
R&S Power Sensor	NRP-Z92	100025	2009-04-28	2010-04-27
R&S Universal Radio Communication Tester	CMU200	103633	2009-11-26	2010-11-25

15.2 The SAR Measurement System

A photograph of the SAR measurement System is given in Fig. 15-1.

This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (Speag Dasy 4 professional system). A Model ES3DV3 3088 E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|2)/ ρ where σ and ρ are the conductivity and mass density of the tissue-simulant.

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

A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software. An arm extension for accommodation 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 DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.

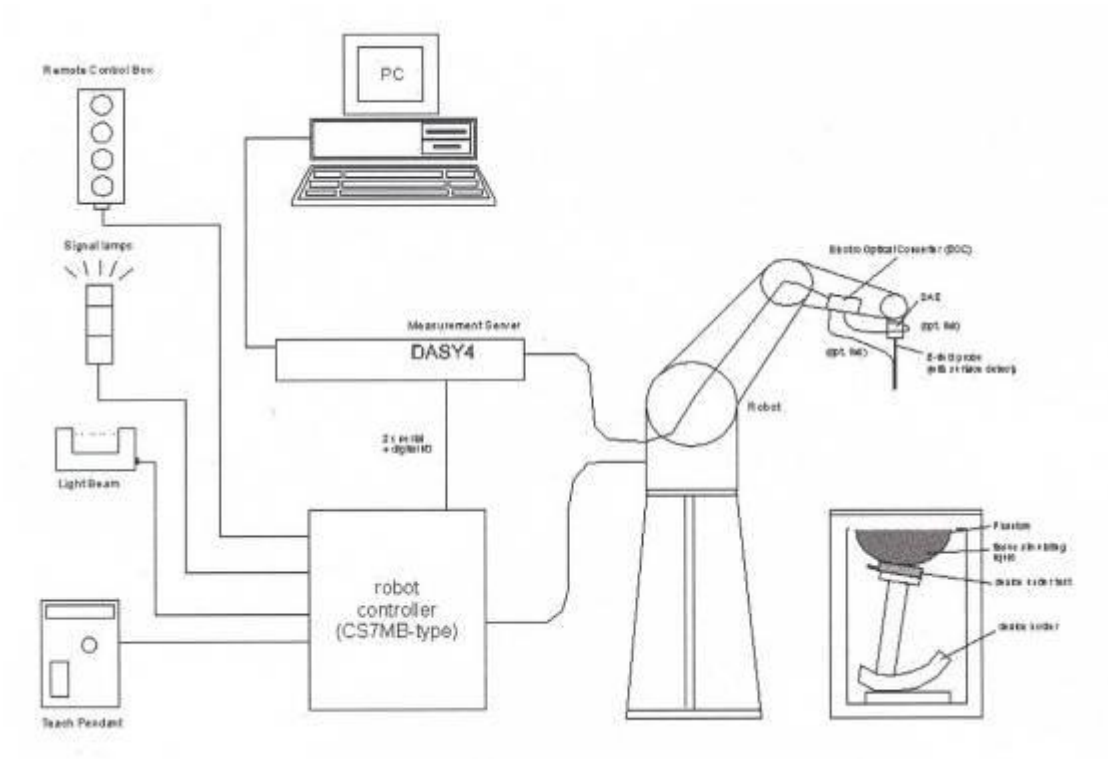

Fig. 15-1 SAR System Configuration

- 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.

- 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, right-hand and BodyWorn usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validating the proper functioning of the system

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中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

15.3 Isotropic E-field Probe ES3DV3

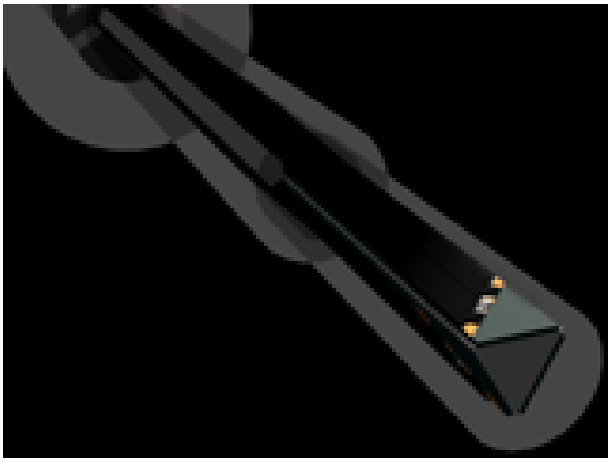

Fig. 15-2 E-field Probe

Construction	Symmetrical design with triangular core Interleaved sensors 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 HSL 900 and HSL 1810 Additional CF for other liquids and frequencies upon request
Frequency	10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)
Dynamic Range	5 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm
Application	General dosimetry up to 4 GHz Dosimetry in strong gradient fields Compliance tests of mobile phones

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15.4 SAM Twin Phantom

Fig. 15-3 SAM Twin Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas:

• Left hand

• Right hand

• Flat phantom

A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. Free space scans of devices on the cover are possible.

On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

Phantom specification:

Description	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-2003, 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 teaching three points with the robot.
Shell Thickness	2+0.2mm, Center ear point: 6+0.2mm
Filling Volume	Approx.25 liters
Dimensions	Length: 1000mm, Width: 500mm, Height: 850mm

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15.5 Device Holder for Transmitters

Fig. 15-4 Device Holder for Transmitters

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source in 5mm distance, a positioning uncertainty of ±0.5mm would produce a SAR uncertainty of ±20%. An accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions, in which the devices must be measured, are defined by the standards.

The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centers for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.

The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity "=3 and loss tangent _=0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

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16. Detailed Test Results

16.1 Summary of Results

16.1.1 Measurement of RF conducted Power

Mode		GPRS				EGPRS								GSM
Slot (Uplink)		1	2	3	4	1		2		3		4		-
Band	Channel	GMSK				GMSK	8PSK	GMSK	8PSK	GMSK	8PSK	GMSK	8PSK	-
850	128	31.2	29.1	27.7	25.7	31.2	26.9	29.1	25.3	27.7	23.8	25.7	22.8	31.2
	90	31.2	29.2	27.7	25.7	31.2	27.0	29.2	25.4	27.7	23.9	25.7	22.9	31.2
	251	31.4	29.4	27.9	25.9	31.4	27.1	29.4	25.5	27.9	24.0	25.9	23.0	31.4
1900	512	30.2	28.5	27.1	25.6	30.2	26.8	28.5	25.2	27.1	24.2	25.6	23.2	30.2
	661	30.0	28.5	27.1	25.5	30.0	26.8	28.5	25.1	27.1	24.1	25.5	23.2	30.0
	810	29.6	28.1	26.7	25.2	29.6	26.3	28.1	24.9	26.7	23.9	25.2	22.9	29.6

Calculation of time-averaged power for GSM850 and PCS1900

(10Log1/8.3=-9.0, 10log1/4=-6.0, 10log3/8=-4.2, 10log1/2=-3.0)

Mode		GPRS				EGPRS								GSM
Slot (Uplink)		1	2	3	4	1		2		3		4		-
Duty factor		1/8.3	1/4	3/8	1/2	1/8.3		1/4		3/8		1/2		
Band	Channel	GMSK				GMSK	8PSK	GMSK	8PSK	GMSK	8PSK	GMSK	8PSK	-
850	128	22.2	23.1	23.5	22.7	22.2	17.9	23.1	19.3	23.5	19.6	22.7	19.8	22.2
	90	22.2	23.2	23.5	22.7	22.2	18.0	23.2	19.4	23.5	19.7	22.7	19.9	22.2
	251	22.4	23.4	23.7	22.9	22.4	18.1	23.4	19.5	23.7	19.8	22.9	20.0	22.4
1900	512	21.2	22.5	22.9	22.6	21.2	17.8	22.5	19.2	22.9	20.0	22.6	20.2	21.2
	661	21.0	22.5	22.9	22.5	21.0	17.8	22.5	19.1	22.9	19.9	22.5	20.2	21.0
	810	20.6	22.1	22.5	22.2	20.6	17.3	22.1	18.9	22.5	19.7	22.2	19.9	20.6

Mode		WCDMA
Subtests		
Band	Channel	
IV	1312	21.2
	1412	21.4
	1513	21.4
V	4132	22.5
	4182	22.7
	4233	22.5
Loopback mode		Test mode 1

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3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

RMC	12.2kbps RMC
TPC	All bits up
Power control algorithm	Algorithm 2
Bc	Not applicable
Bd	Not applicable
Bec	Not applicable
Bc/ Bd	8/15
Bhs	Not applicable
Bed	Not applicable

Mode		HSDPA(Rel 5)			
Subtests		1	2	3	4
Band	Channel				
IV (Category 6)	1312	21.1	21.0	20.2	19.3
	1412	21.3	21.2	20.3	19.4
	1513	21.3	21.2	20.4	19.4
V (Category 6)	4132	22.4	22.3	21.3	20.4
	4182	22.5	22.4	21.4	20.5
	4233	22.3	22.3	21.3	20.3
Loopback mode		Test mode 1			
RMC		12.2kbps RMC			
TPC		All bits up			
HSDPA FRC		H-set 1 QPSK			
HSUPA test		Not applicable			
Power control algorithm		Algorithm 2			
Bc		2/15	12/15	15/15	15/15
Bd		15/15	15/15	8/15	4/15
Bec		-	-	-	-
Bc/ Bd		2/15	12/15	15/8	15/4
Bhs		4/15	24/15	30/15	30/15
Bed		-	-	-	-
CM (dB)		0.0	1.0	1.5	1.5
MPR (dB)		-	-	-	-
ΔACK,ΔNACK,ΔCQI		8			
ACK-NACK repetition factor		3			
CQI Feedback		4 ms			
CQI repetition factor		2			
Ahs= Bhs/ Bc		30/15			

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中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

16.1.2 Measurement of SAR average value

GSM 850

Band	EUT Position	Mode	Test Configuration	Averaged SAR over 1g (W/kg)			SAR limit (W/kg)	Verdict
				CH128	CH190	CH251		
				824.2MHz	836.6MHz	848.8 MHz		
GSM850	Left	GSM	Cheek	0.712	0.731	0.842	1.6	Passed
			Tilt	-	0.388	-	1.6	Passed
	Right	GSM	Cheek	0.667	0.668	0.763	1.6	Passed
			Tilt	-	0.408	-	1.6	Passed
	Body Worn	GPRS 3TS Uplink	Front of EUT facing phantom	-	0.651	-	1.6	Passed
			Rear of EUT facing phantom	0.762	0.833	0.948	1.6	Passed
			Worstcase with headset	-	-	0.759	1.6	Passed
		EGPRS 3TS Uplink	Rear of EUT facing phantom	-	-	0.835	1.6	Passed

PCS1900

Band	EUT Position	Mode	Test Configuration	Averaged SAR over 1g (W/kg)			SAR limit (W/kg)	Verdict
				CH512	CH661	CH810		
				1850.2MHz	1888MHz	1909.8MHz		
PCS1900	Left	GSM	Cheek	0.887	0.978	0.949	1.6	Passed
			Tilt	-	0.322	-	1.6	Passed
	Right	GSM	Cheek	0.892	1.04	1.04	1.6	Passed
			Tilt	-	0.439	-	1.6	Passed
	Body Worn	GPRS 3TS Uplink	Front of EUT facing phantom	-	0.552	-	1.6	Passed
			Rear of EUT facing phantom	0.561	0.636	0.599	1.6	Passed
			Worstcase with headset	-	0.564	-	1.6	Passed
		EGPRS 3TS Uplink	Rear of EUT facing phantom	-	0.579	-	1.6	Passed

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UMTS FDD IV

Band	EUT Position	Mode	Test Configuration	Averaged SAR over 1g (W/kg)			SAR limit (W/kg)	Verdict
				CH1312	CH1412	CH1513		
				1712.4MHz	1732.4MHz	1752.6MHz		
UMTS FDD IV	Left	WCDMA	Cheek	1.18	1.19	1.2	1.6	Passed
			Tilt	-	0.470	-	1.6	Passed
	Right	WCDMA	Cheek	1.17	1.23	1.28	1.6	Passed
			Tilt	-	0.672	-	1.6	Passed
	Body Worn	WCDMA	Front of EUT facing phantom	-	0.483	-	1.6	Passed
			Rear of EUT facing phantom	0.625	0.684	0.597	1.6	Passed
			Worstcase with headset	-	0.679	-	1.6	Passed
		HSDPA	Rear of EUT facing phantom	0.619	0.668	0.571	1.6	Passed

UMTS FDD V

Band	EUT Position	Mode	Test Configuration	Averaged SAR over 1g (W/kg)			SAR limit (W/kg)	Verdict
				CH4132	CH4182	CH4233		
				826.4MHz	836.4 MHz	846.6 MHz		
UMTS FDD V	Left	WCDMA	Cheek	0.889	0.894	0.951	1.6	Passed
			Tilt	-	0.435	-	1.6	Passed
	Right	WCDMA	Cheek	0.803	0.783	0.840	1.6	Passed
			Tilt	-	0.441	-	1.6	Passed
	Body Worn	WCDMA	Front of EUT facing phantom	-	0.650	-	1.6	Passed
			Rear of EUT facing phantom	0.787	0.817	0.832	1.6	Passed
			Worstcase with headset	-	-	0.668	1.6	Passed
		HSDPA	Rear of EUT facing phantom	0.786	0.785	0.817	1.6	Passed

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16.2 Maximum Results

The maximum measured SAR values for Head configuration and BodyWorn configuration are given in section 16.2.1 and 16.2.2 respectively.

16.2.1 Head Configuration

Frequency Band	EUT Position	Conducted Power (dBm)	SAR, Averaged over 1g (W/Kg)	Power Drift (dB)	SAR limit (W/kg)	Verdict
GSM850	Left,Cheek,GSM,High	31.4	0.842	-0.002	1.6	Passed
PCS1900	Right,Cheek,GSM,Middle	30.0	1.04	-0.076	1.6	Passed
UMTS FDD IV	Right,Cheek, WCDMA,High	21.4	1.28	-0.035	1.6	Passed
UMTS FDD V	Left,Cheek, WCDMA,High	22.5	0.951	0.038	1.6	Passed

16.2.2 BodyWorn Configuration

Frequency Band	EUT Position	Conducted Power (dBm)	SAR, Averaged over 1g (W/Kg)	Power Drift (dB)	SAR limit (W/kg)	Verdict
GSM850	Body Worn,Rear,GPRS/3TS,High	27.9	0.948	-0.258	1.6	Passed
PCS1900	Body Worn,Rear,GPRS/3TS,Middle	27.1	0.636	-0.102	1.6	Passed
UMTS FDD IV	Body Worn,Rear,WCDMA,Middle	21.4	0.684	0.071	1.6	Passed
UMTS FDD V	Body Worn,Rear,WCDMA,High	22.5	0.832	0.042	1.6	Passed

16.2.3 Maximum Drift

Maximum Drift during measurement	0.346 dB

16.2.4 Measurement Uncertainty

Extended Uncertainty (k=2) 95%	21.43%

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16.3 Operation Configurations

The EUT is controlled by using a radio communication tester (CMU200) with air link, and the EUT is set to maximum output power by CMU200 during all tests.

a. The tests in the band of GSM850, PCS1900 are performed in the GSM/GPRS/EGPRS mode.

1. Testing Head SAR at GSM mode for all bands with Left Cheek/Tilt and Right Cheek/Tilt conditions.

2. Testing Body SAR at GPRS/EGPRS for all bands by separating 1.5cm from the EUT (both front and rear) to flat phantom

3. Test reduction has been adopted according to conducted output power and produced SAR level:

Low and High channel SAR are optional if SAR value produced in the middle channel is 3dB lower than the applicaple SAR limit;

In GPRS/EGPRS mode, the multislot configuration which produces highest SAR value is regard as the worst case to be measured, other multislot configurations are selectively confirmed;

4.In EGPRS mode, the test is in the GMSK modulation according to the power between GMSK and 8PSK.

5.The (max.cube) labeling indicates that during the grid scanning an additional peak was found which within 2dB

of the highest peak

b. The tests in the band of UMTS FDDIV,UMTS FDD V are performed in the WCDMA/HSDPA mode.

1. Testing Head SAR at WCDMA/RMC 12.2kbps mode for all bands with Left Cheek/Tilt and Right Cheek/Tilt conditions

2. Testing Body SAR at WCDMA/RMC 12.2kbps and HSDPA/RMC 12.2kbps/subtest-1mode for all bands by separating 1.5cm from the EUT (both front and rear) to flat phantom

c. Bluetooth

The maximum output power is below 2 Pref(24mw),and the distance between GSM/WCDMA antenna and BT antenna is high than 5cm(as below)

according to the KDB 648474 D01 stand alone SAR evaluation for BT is not required.

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中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

d.Simultaneous transmission

stand alone SAR evaluation for BT is not required.so the simultaneous transmission is not required

16.4 Measurement procedure

Step 1: Power reference measurement

The SAR measurement was taken at a selected spatial reference point to monitor power variations during testing. This fixed location point was measured and used as a reference value.

Step 2: *Area scan*

The SAR distribution at the exposed side of the head was measured at a distance of 4mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15mm*15mm or 10mm*10mm.Based on the area scan data, the area of the maximum absorption was determined by spline interpolation.

Step 3: *Zoom scan*

Around this point, a volume of 30mm*30mm*30mm (fine resolution volume scan, zoom scan) was assessed by measuring 7*7*7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:The data at the surface was extrapolated, since the center of the dipoles is 2.0mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2mm. (This can be variable. Refer to the probe specification) The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluated the points between the surface and the probe tip. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The volume was integrated with the trapezoidal algorithm. One thousand points (10*10*10) were interpolated to calculate the average. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

Step 4: Power reference measurement (drift)

The SAR value at the same location as in step 1 was again measured. (If the value changed by more than 5%, the evaluation should be done repeatedly)

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16.5 Detailed Test Results

16.5.1 GSM850-LeftHandSide-Cheek-Middle

Date/Time: 2010-3-8 11:21:18

Test Laboratory: SGS-GSM

GSM850-LeftHandSide-Cheek-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GSM Mode; Frequency: 836.6 MHz;Duty Cycle: 1:8.3

Medium: HSL835_Head Medium parameters used: f = 836.6 MHz; σ = 0.895 mho/m; ε_r = 42.2; ρ = 1000 kg/m^3

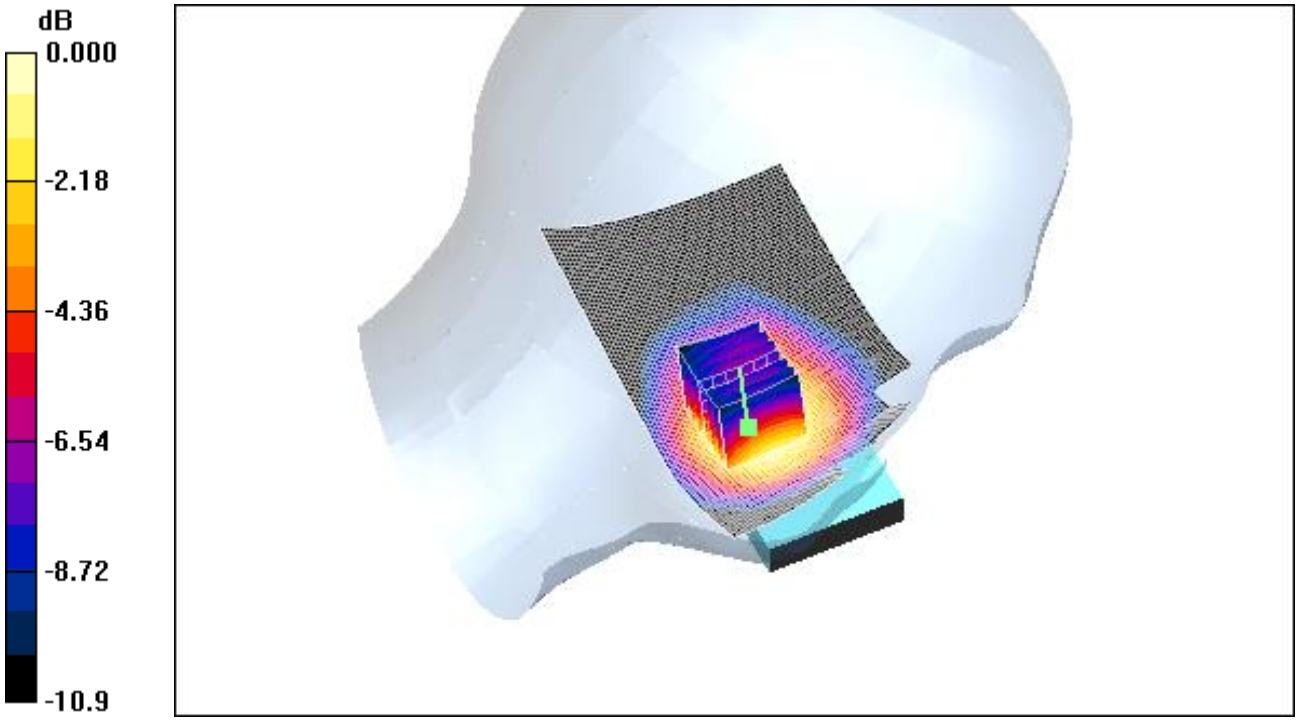
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Mid/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.840 mW/g

Cheek position - Mid/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 7.62 V/m; Power Drift = -0.215 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.731 mW/g; SAR(10 g) = 0.504 mW/g
Maximum value of SAR (measured) = 0.778 mW/g



0 dB = 0.778mW/g

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16.5.2 GSM850-LeftHandSide-Tilt-Middle

Date/Time: 2010-3-8 13:28:14

Test Laboratory: SGS-GSM

GSM850-LeftHandSide-Tilt-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GSM Mode; Frequency: 836.6 MHz;Duty Cycle: 1:8.3

Medium: HSL835_Head Medium parameters used: f = 836.6 MHz; σ = 0.895 mho/m; ε_r = 42.2; ρ = 1000 kg/m^3

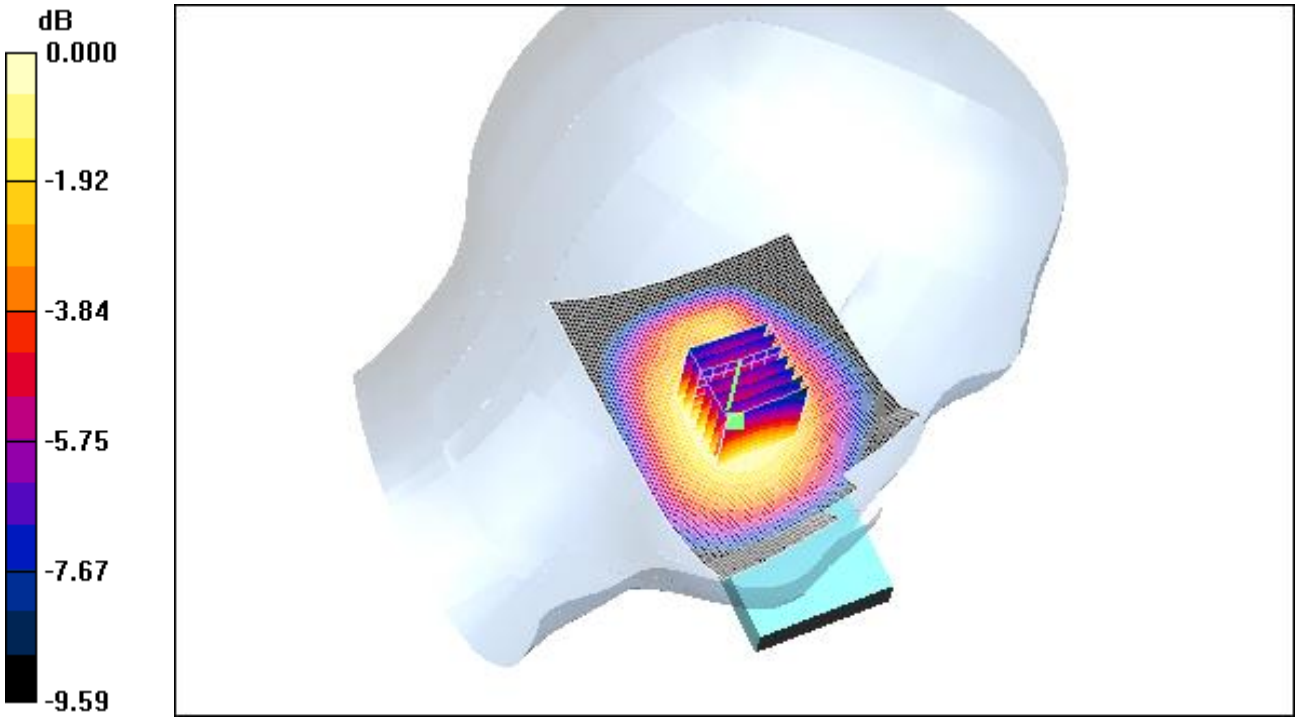
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Tilt position - Mid/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.405 mW/g

Tilt position - Mid/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 14.9 V/m; Power Drift = -0.024 dB
Peak SAR (extrapolated) = 0.505 W/kg
SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.284 mW/g
Maximum value of SAR (measured) = 0.409 mW/g



0 dB = 0.409mW/g

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16.5.3 GSM850-LeftHandSide-Worstcase-Low

Date/Time: 2010-3-8 11:46:51

Test Laboratory: SGS-GSM

GSM850-LeftHandSide-Cheek-Low

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GSM Mode; Frequency: 824.2 MHz;Duty Cycle: 1:8.3

Medium: HSL835_Head Medium parameters used: f = 824.2 MHz; σ = 0.884 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Low/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.814 mW/g

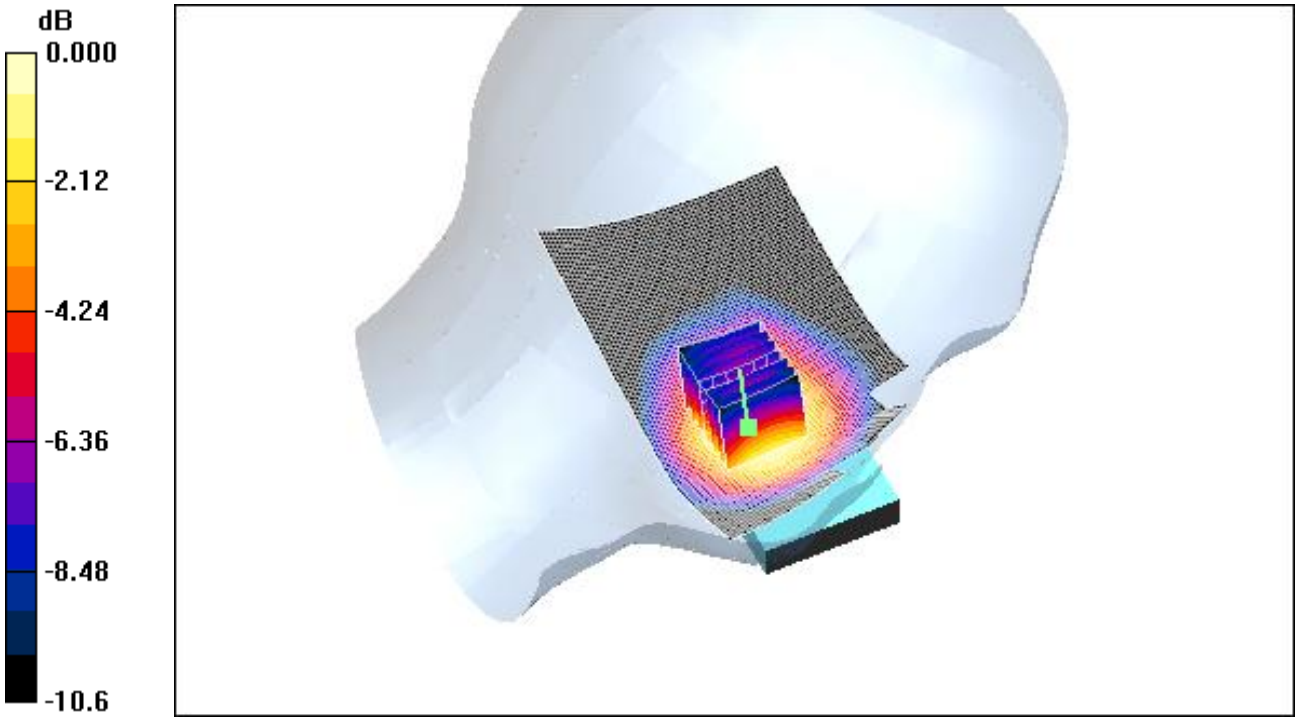
Cheek position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**

Reference Value = 7.41 V/m; Power Drift = -0.021 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.712 mW/g; SAR(10 g) = 0.493 mW/g

Maximum value of SAR (measured) = 0.754 mW/g



0 dB = 0.754mW/g

16.5.4 GSM850-LeftHandSide-Worstcase-High

Date/Time: 2010-3-8 13:00:57

Test Laboratory: SGS-GSM

GSM850-LeftHandSide-Cheek-High

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GSM Mode; Frequency: 848.8 MHz;Duty Cycle: 1:8.3

Medium: HSL835_Head Medium parameters used: f = 848.8 MHz; σ = 0.909 mho/m; ε_r = 42; ρ = 1000 kg/m^3

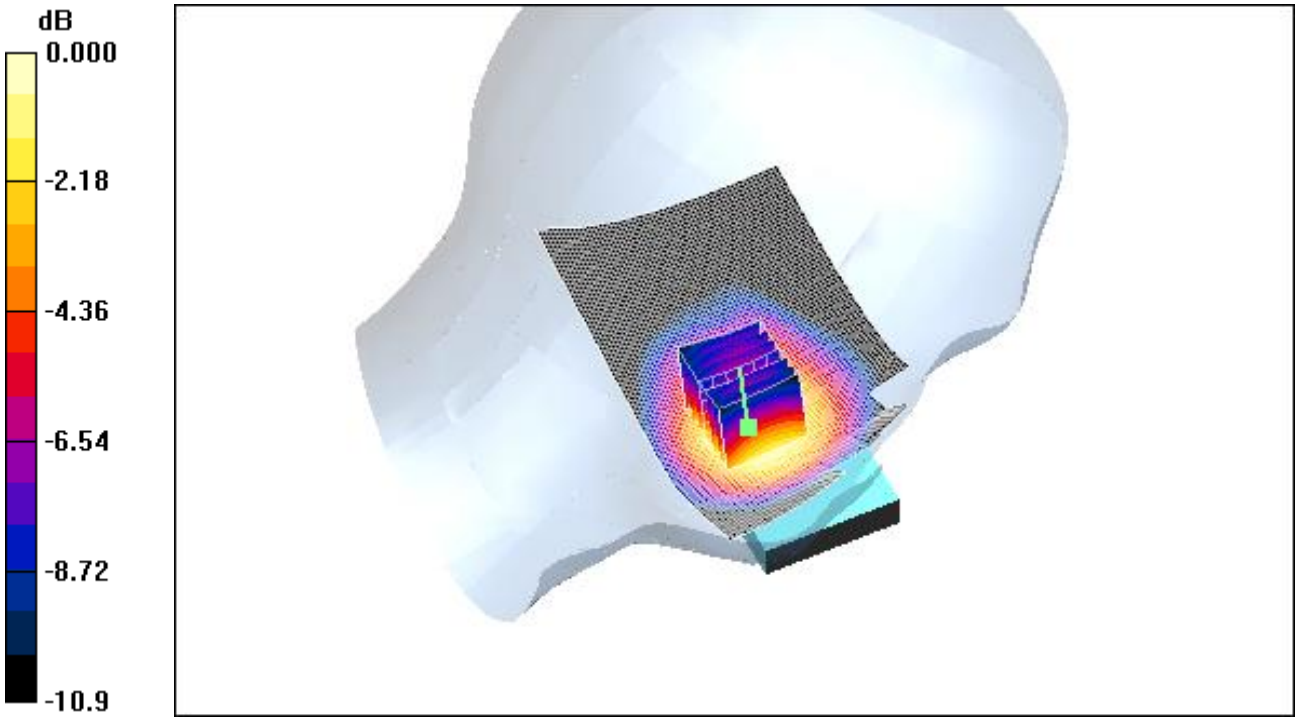
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position -High/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.961 mW/g

Cheek position -High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 7.90 V/m; Power Drift = -0.002 dB
Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.842 mW/g; SAR(10 g) = 0.577 mW/g
Maximum value of SAR (measured) = 0.892 mW/g



0 dB = 0.892mW/g

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16.5.5 GSM850-RightHandSide-Cheek-Middle

Date/Time: 2010-3-8 14:51:25

Test Laboratory: SGS-GSM

GSM850-RightHandSide-Cheek-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GSM Mode; Frequency: 836.6 MHz;Duty Cycle: 1:8.3

Medium: HSL835_Head Medium parameters used: f = 836.6 MHz; σ = 0.895 mho/m; ε_r = 42.2; ρ = 1000 kg/m^3

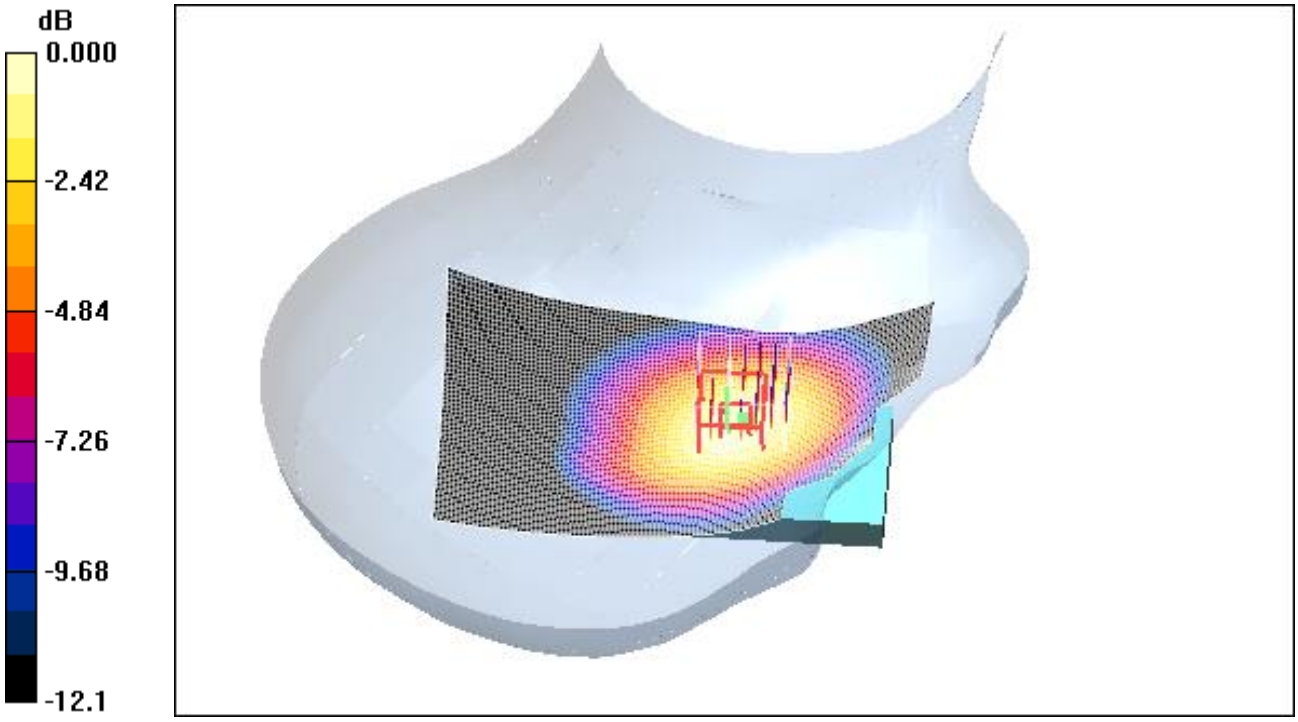
Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Middle/Area Scan (61x111x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.716 mW/g

Cheek position - Middle/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 9.39 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 0.922 W/kg
SAR(1 g) = 0.668 mW/g; SAR(10 g) = 0.459 mW/g
Maximum value of SAR (measured) = 0.711 mW/g



0 dB = 0.711mW/g

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16.5.6 GSM850-RightHandSide-Tilt-Middle

Date/Time: 2010-3-8 16:18:55

Test Laboratory: SGS-GSM

GSM850-RightHandSide-Tilt-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GSM Mode; Frequency: 836.6 MHz;Duty Cycle: 1:8.3

Medium: HSL835_Head Medium parameters used: f = 836.6 MHz; σ = 0.895 mho/m; ε_r = 42.2; ρ = 1000 kg/m^3

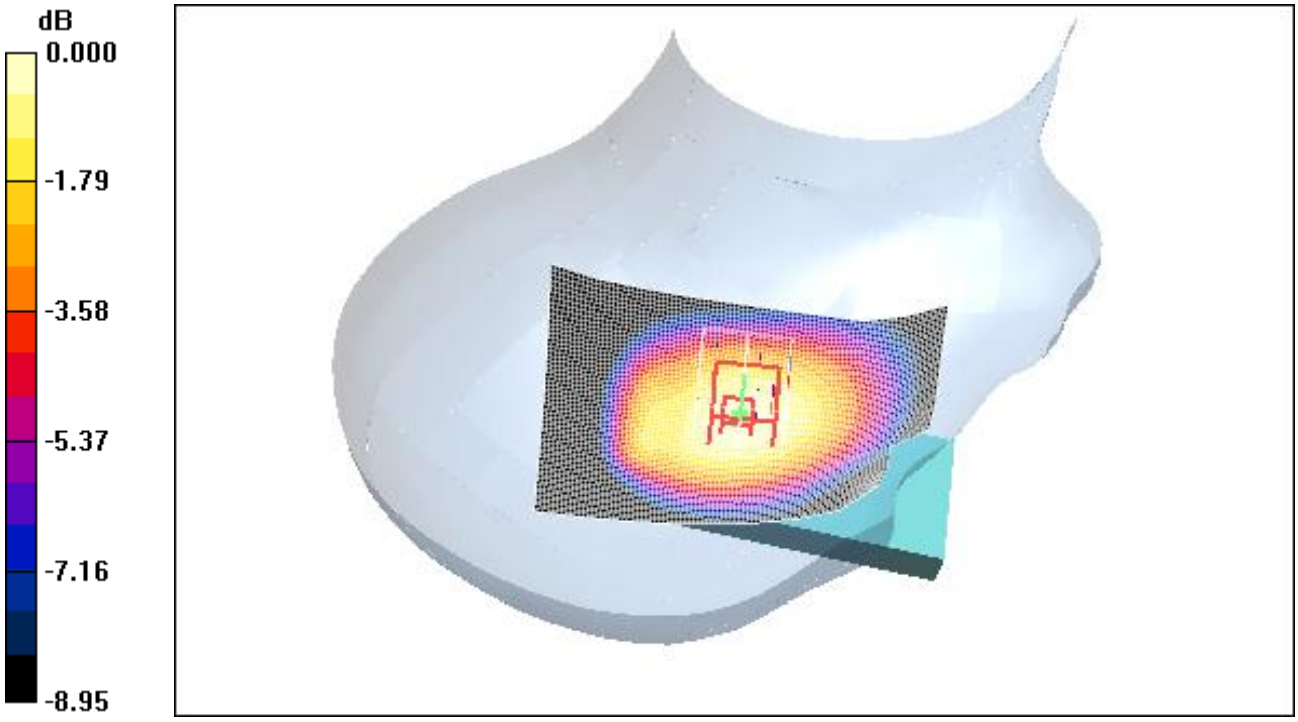
Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Tilt position - Middle 2/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.431 mW/g

Tilt position - Middle 2/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 16.4 V/m; Power Drift = 0.042 dB
Peak SAR (extrapolated) = 0.541 W/kg
SAR(1 g) = 0.408 mW/g; SAR(10 g) = 0.298 mW/g
Maximum value of SAR (measured) = 0.429 mW/g



0 dB = 0.429mW/g

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16.5.7 GSM850-RightHandSide-Worstcase-Low

Date/Time: 2010-3-8 15:17:16

Test Laboratory: SGS-GSM

GSM850-RightHandSide-Cheek-Low

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GSM Mode; Frequency: 824.2 MHz;Duty Cycle: 1:8.3

Medium: HSL835_Head Medium parameters used: f = 824.2 MHz; σ = 0.884 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3

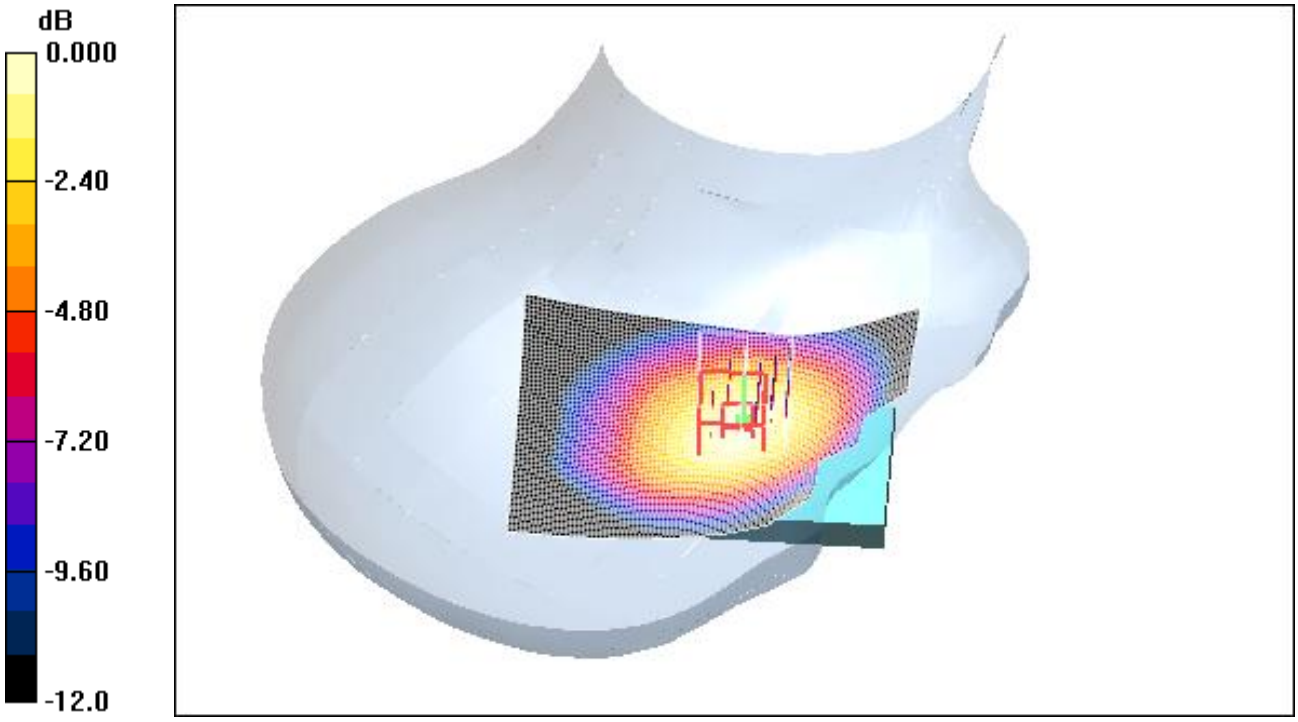
Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Low/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.713 mW/g

Cheek position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 9.61 V/m; Power Drift = 0.005 dB
Peak SAR (extrapolated) = 0.919 W/kg
SAR(1 g) = 0.667 mW/g; SAR(10 g) = 0.459 mW/g
Maximum value of SAR (measured) = 0.717 mW/g



0 dB = 0.717mW/g

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16.5.8 GSM850-RightHandSide-Worstcase-High

Date/Time: 2010-3-8 15:51:01

Test Laboratory: SGS-GSM

GSM850-RightHandSide-Cheek-High

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GSM Mode; Frequency: 848.8 MHz;Duty Cycle: 1:8.3

Medium: HSL835_Head Medium parameters used: f = 848.8 MHz; σ = 0.909 mho/m; ε_r = 42; ρ = 1000 kg/m^3

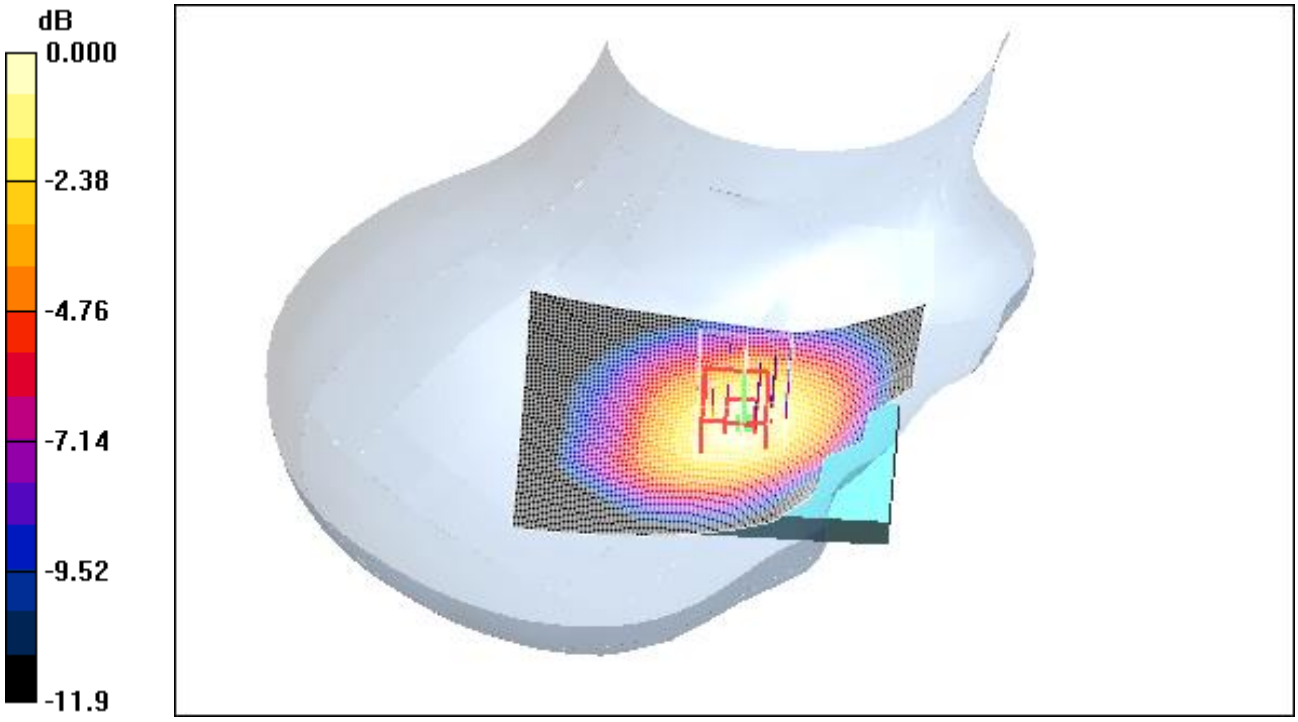
Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - High/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.816 mW/g

Cheek position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 9.91 V/m; Power Drift = 0.062 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.763 mW/g; SAR(10 g) = 0.521 mW/g
Maximum value of SAR (measured) = 0.829 mW/g



0 dB = 0.829mW/g

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16.5.9 GSM850-BodyWorn-GPRS-3TS-Middle-Front

Date/Time: 2010-3-17 17:42:26

Test Laboratory: SGS-GSM

GSM850-Body-Worn-GPRS-3TS-Middle-Front

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GPRS Mode; Frequency: 836.6 MHz;Duty Cycle: 1:2.7

Medium: HSL835 Body Medium parameters used: f = 836.6 MHz; σ = 0.974 mho/m; ε_r = 56.6; ρ = 1000 kg/m^3

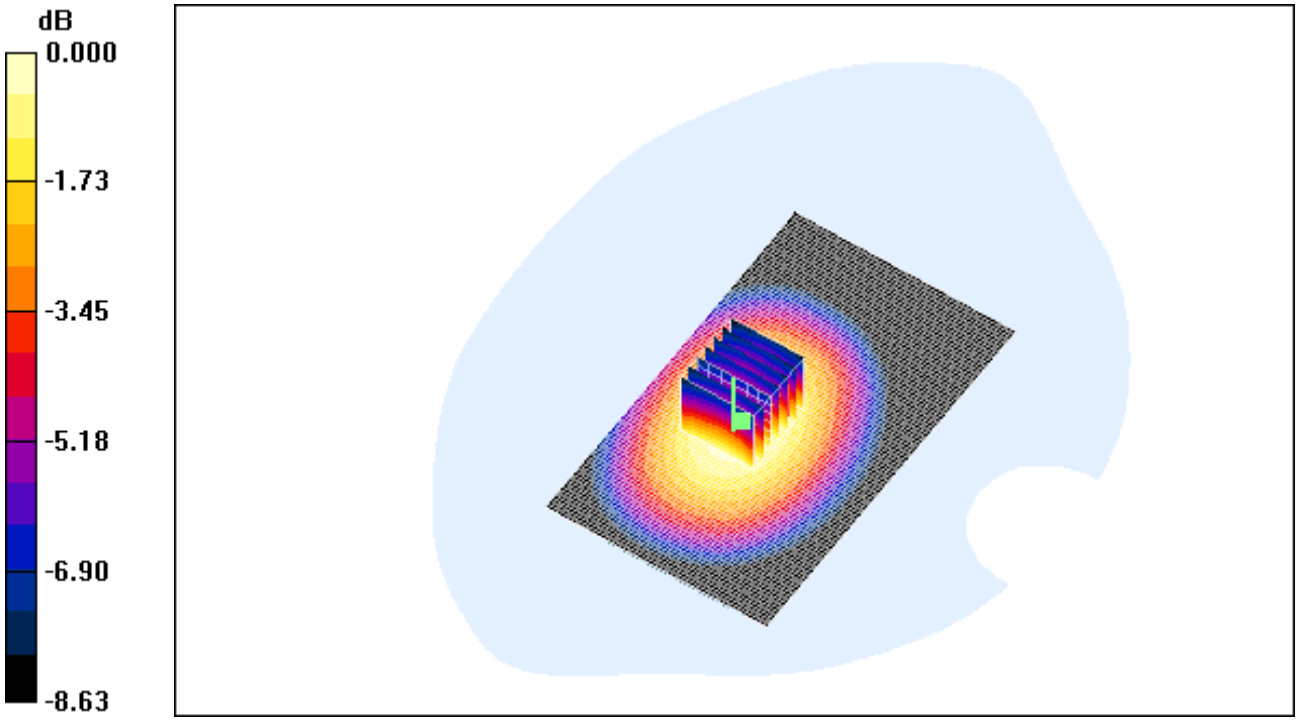
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle front/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.688 mW/g

Body Worn - Middle front/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 23.2 V/m; Power Drift = 0.057 dB
Peak SAR (extrapolated) = 0.849 W/kg
SAR(1 g) = 0.651 mW/g; SAR(10 g) = 0.479 mW/g
Maximum value of SAR (measured) = 0.690 mW/g



0 dB = 0.690mW/g

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16.5.10 GSM850-BodyWorn-GPRS-3TS-Middle-Rear

Date/Time: 2010-3-17 16:11:30

Test Laboratory: SGS-GSM

GSM850-Body-Worn-GPRS-3TS-Middle-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GPRS Mode; Frequency: 836.6 MHz;Duty Cycle: 1:2.7

Medium: HSL835 Body Medium parameters used: f = 836.6 MHz; σ = 0.974 mho/m; ε_r = 56.6; ρ = 1000 kg/m^3

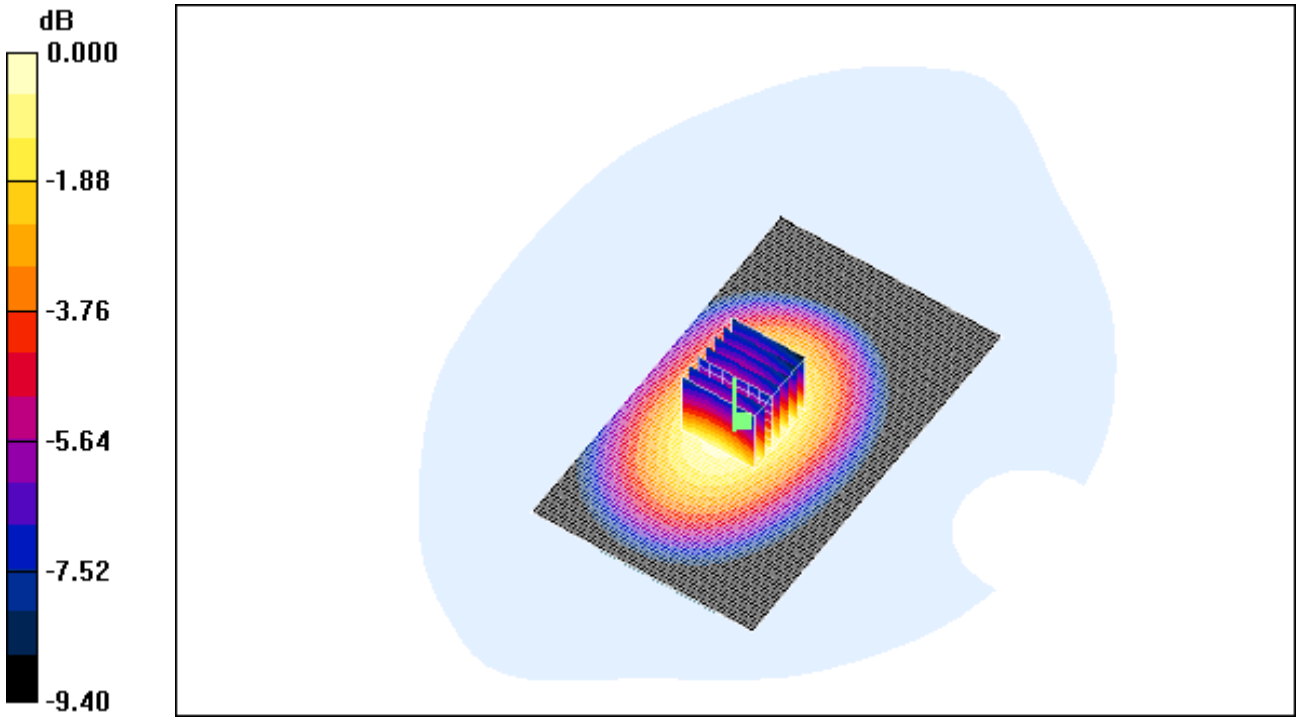
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle Rear/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.892 mW/g

Body Worn - Middle Rear/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 27.8 V/m; Power Drift = 0.040 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.833 mW/g; SAR(10 g) = 0.603 mW/g
Maximum value of SAR (measured) = 0.882 mW/g



0 dB = 0.882mW/g

16.5.11 GSM850-BodyWorn-GPRS-3TS-Low-Rear

Date/Time: 2010-3-17 16:54:15

Test Laboratory: SGS-GSM

GSM850-Body-Worn-GPRS-3TS-Low-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GPRS Mode; Frequency: 824.2 MHz;Duty Cycle: 1:2.7

Medium: HSL835 Body Medium parameters used: f = 824.2 MHz; σ = 0.96 mho/m; ε_r = 56.9; ρ = 1000 kg/m^3

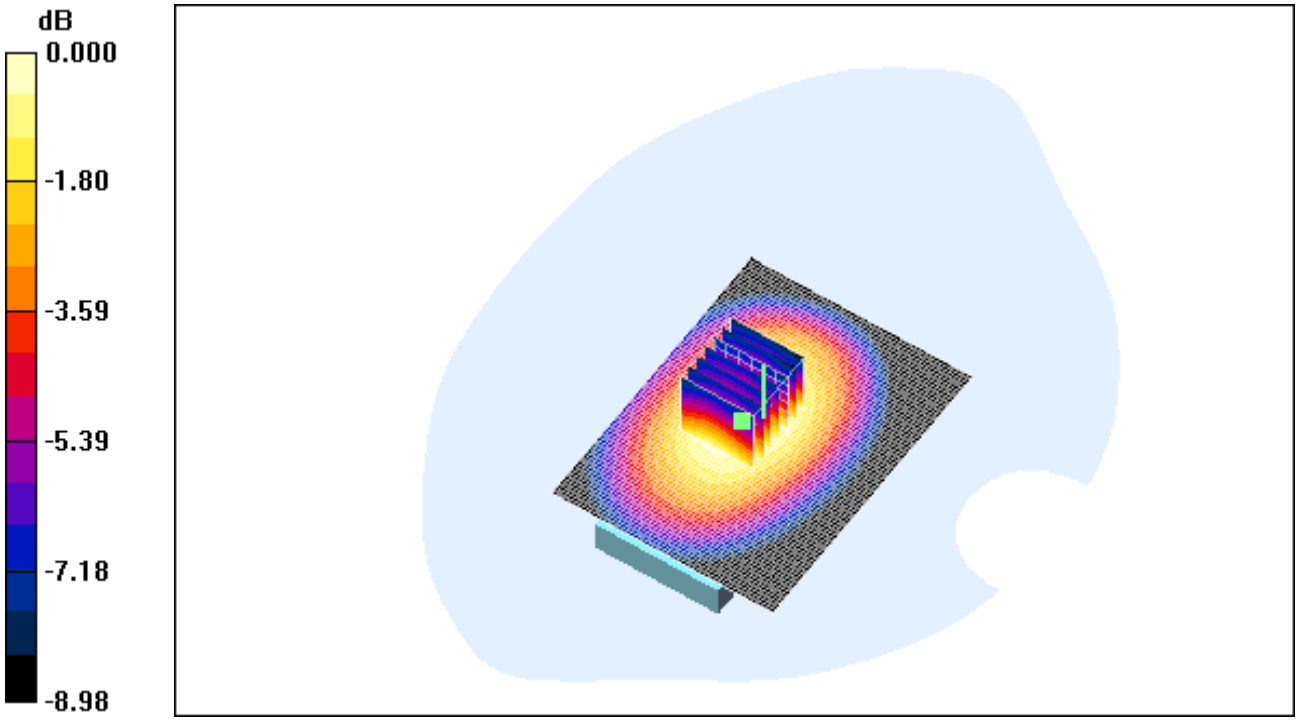
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Low/Area Scan (61x81x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.811 mW/g

Body Worn - Low/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 27.3 V/m; Power Drift = 0.015 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.762 mW/g; SAR(10 g) = 0.551 mW/g
Maximum value of SAR (measured) = 0.810 mW/g



0 dB = 0.810mW/g

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中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

16.5.12 GSM850-BodyWorn-GPRS-3TS-High-Rear

Date/Time: 2010-3-17 16:32:54

Test Laboratory: SGS-GSM

GSM850-Body-Worn-GPRS-3TS-High-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GPRS Mode; Frequency: 848.8 MHz;Duty Cycle: 1:2.7

Medium: HSL835 Body Medium parameters used: f = 848.8 MHz; σ = 0.988 mho/m; ε_r = 56.4; ρ = 1000 kg/m^3

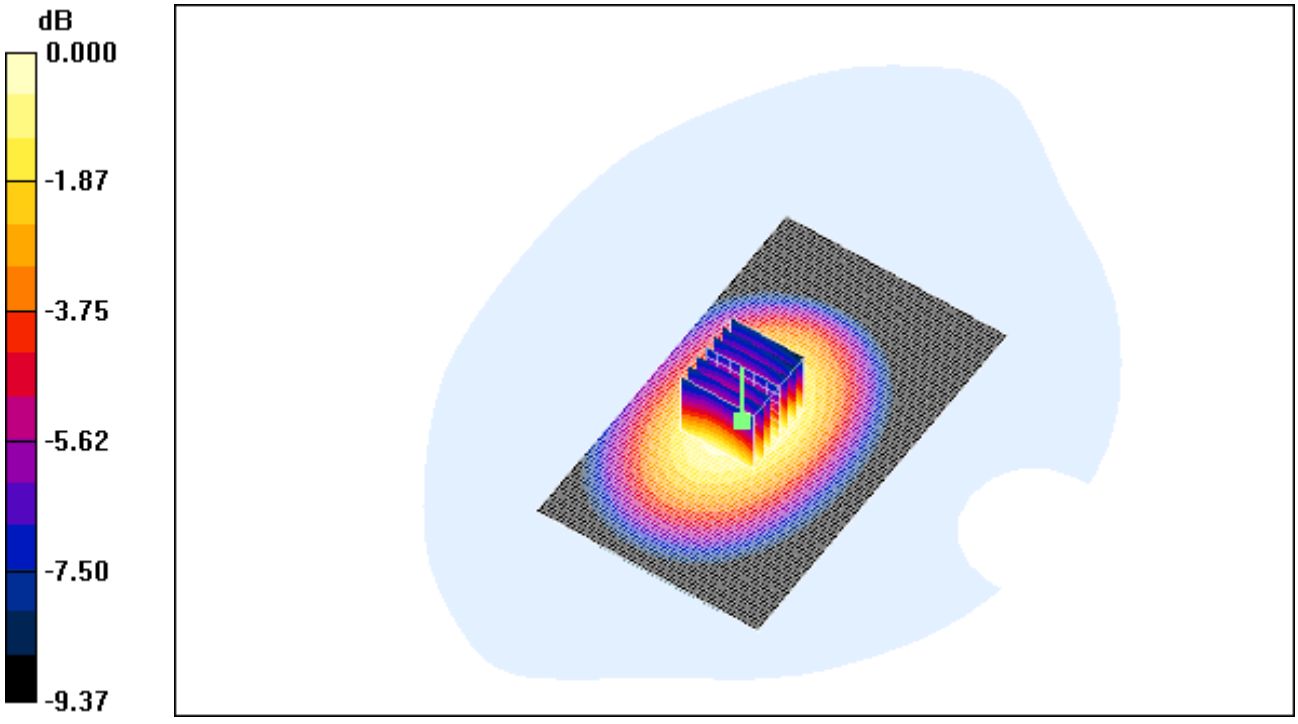
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - High/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.996 mW/g

Body Worn - High/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 29.3 V/m; Power Drift = -0.258 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.948 mW/g; SAR(10 g) = 0.683 mW/g
Maximum value of SAR (measured) = 0.997 mW/g



0 dB = 0.997mW/g

16.5.13 GSM850-BodyWorn-GPRS-3TS-Worstcase with headset

Date/Time: 2010-3-17 17:17:38

Test Laboratory: SGS-GSM

GSM850-Body-Worn-GPRS-3TS-Worstcase with headset

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-GPRS Mode; Frequency: 848.8 MHz;Duty Cycle: 1:2.7

Medium: HSL835 Body Medium parameters used: f = 848.8 MHz; σ = 0.988 mho/m; ε_r = 56.4; ρ = 1000 kg/m^3

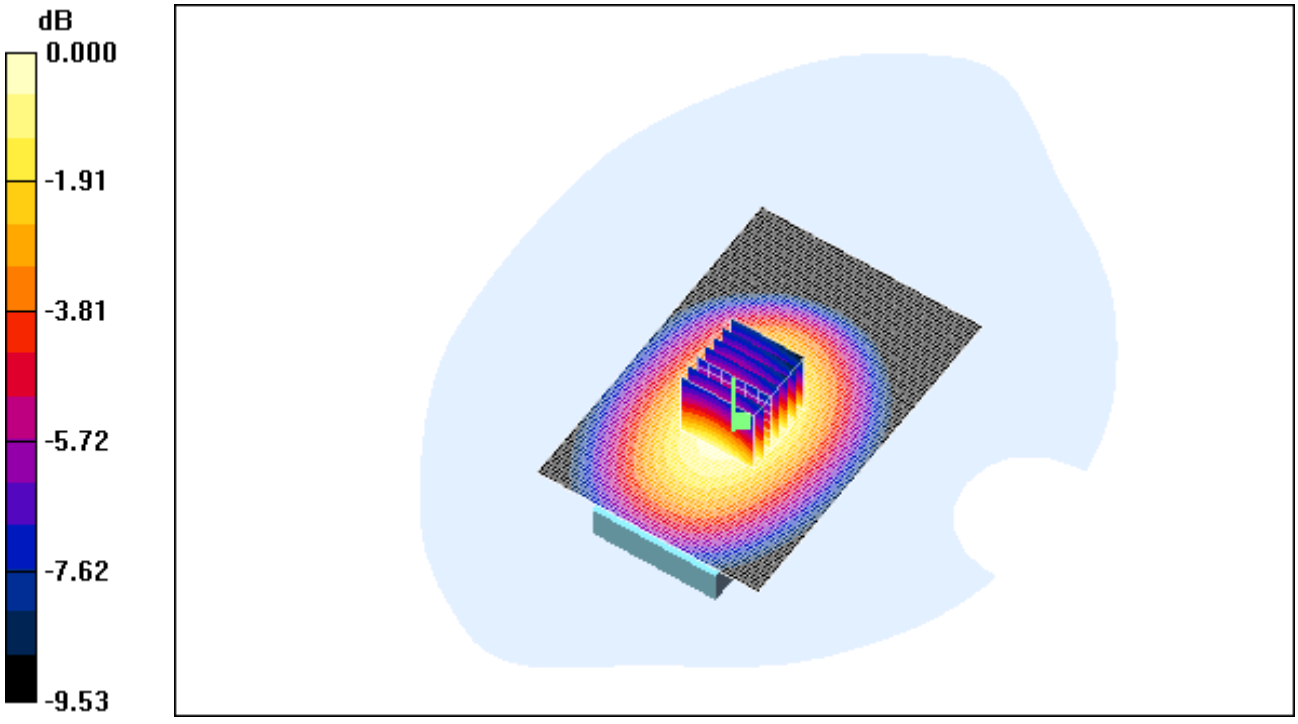
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Worstcase with headset/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.816 mW/g

Body Worn - Worstcase with headset/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 25.0 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.759 mW/g; SAR(10 g) = 0.550 mW/g
Maximum value of SAR (measured) = 0.799 mW/g



0 dB = 0.799mW/g

16.5.14 GSM850-BodyWorn-EGPRS-3TS-High-Rear

Date/Time: 2010-3-17 18:14:21

Test Laboratory: SGS-GSM

GSM850-Body-Worn-EGPRS-3TS-High-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: GSM850-EGPRS Mode; Frequency: 848.8 MHz;Duty Cycle: 1:2.7

Medium: HSL835 Body Medium parameters used: f = 848.8 MHz; σ = 0.988 mho/m; ε_r = 56.4; ρ = 1000 kg/m^3

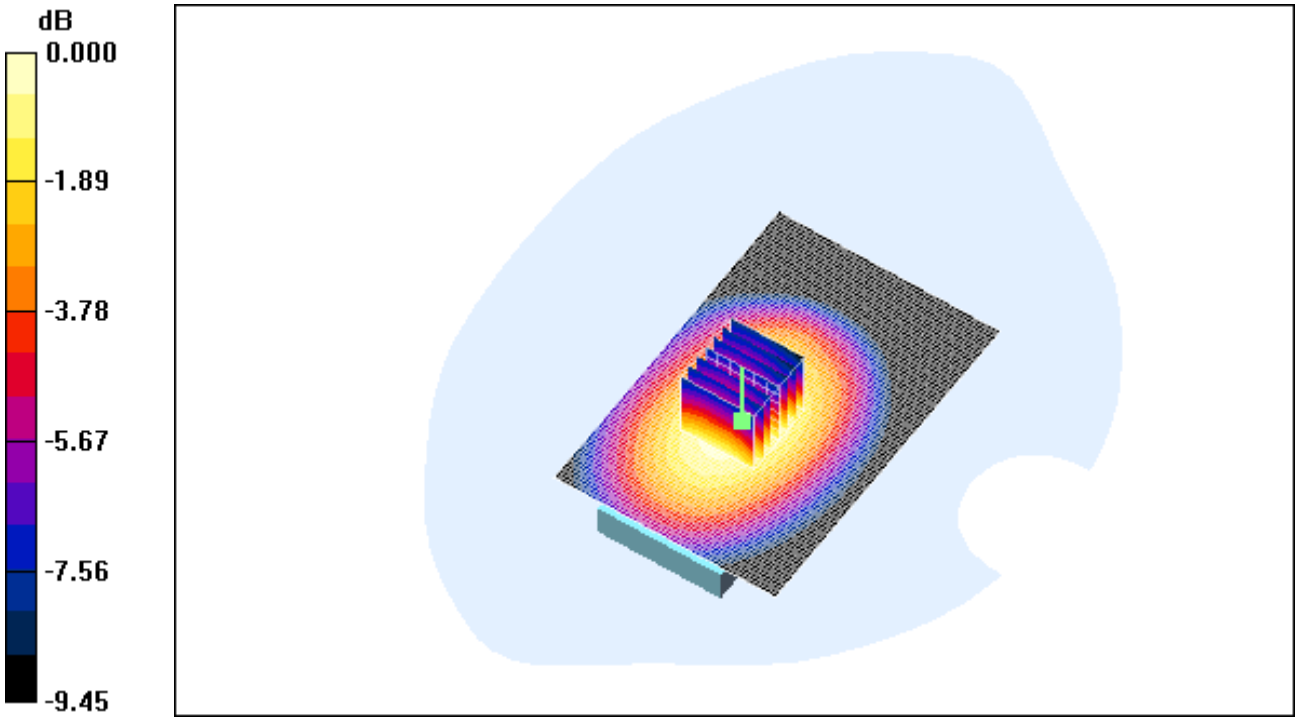
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.887 mW/g

Body Worn - Middle/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 25.7 V/m; Power Drift = -0.168 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.835 mW/g; SAR(10 g) = 0.603 mW/g
Maximum value of SAR (measured) = 0.888 mW/g



0 dB = 0.888mW/g

16.5.15 PCS1900-LeftHandSide-Cheek-Middle

Date/Time: 2010-3-10 13:12:55

Test Laboratory: SGS-GSM

PCS1900-LeftHandSide-Cheek-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-GSM Mode; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium: HSL1900_Head Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39; ρ = 1000 kg/m^3

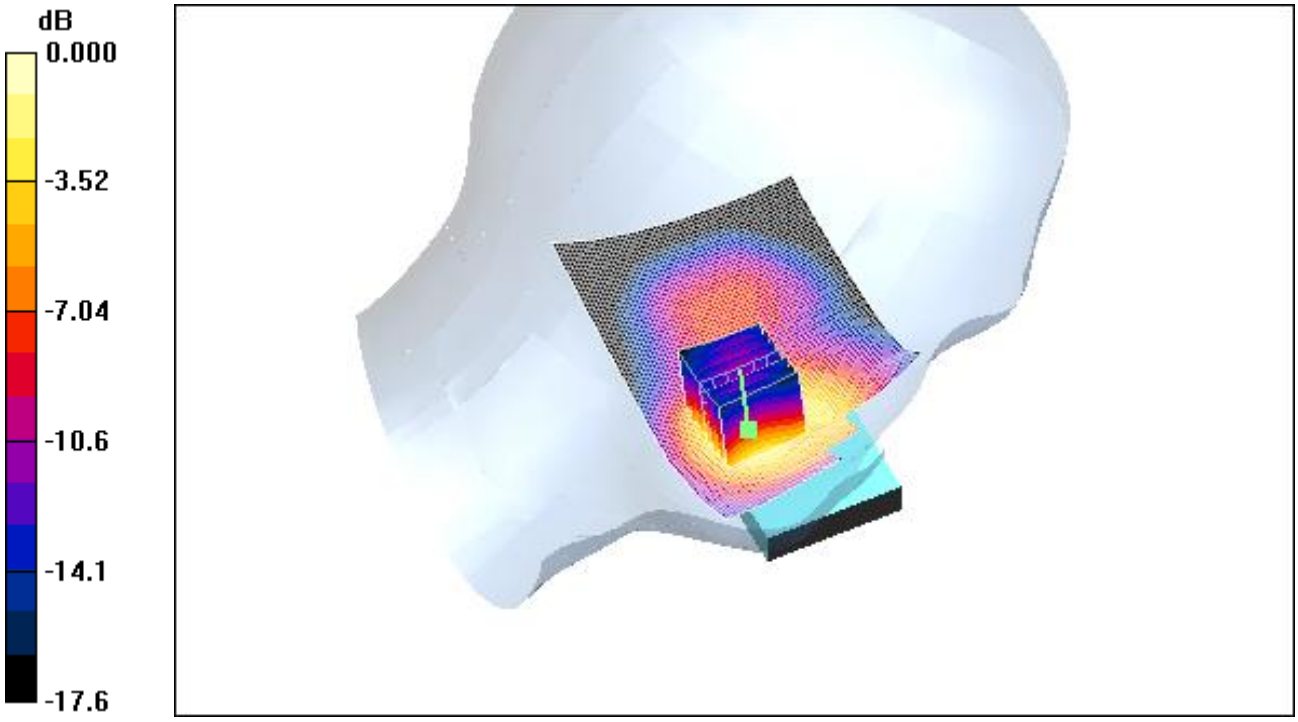
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.97, 4.97, 4.97); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Mid/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 1.08 mW/g

Cheek position - Mid/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 7.92 V/m; Power Drift = -0.097 dB
Peak SAR (extrapolated) = 1.51 W/kg
SAR(1 g) = 0.978 mW/g; SAR(10 g) = 0.555 mW/g
Maximum value of SAR (measured) = 1.08 mW/g



0 dB = 1.08mW/g

16.5.16 PCS1900-LeftHandSide-Tilt-Middle

Date/Time: 2010-3-10 14:38:15

Test Laboratory: SGS-GSM

PCS1900-LeftHandSide-Tilt-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-GSM Mode; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium: HSL1900_Head Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39; ρ = 1000 kg/m^3

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.97, 4.97, 4.97); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Tilt position - Mid/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.382 mW/g

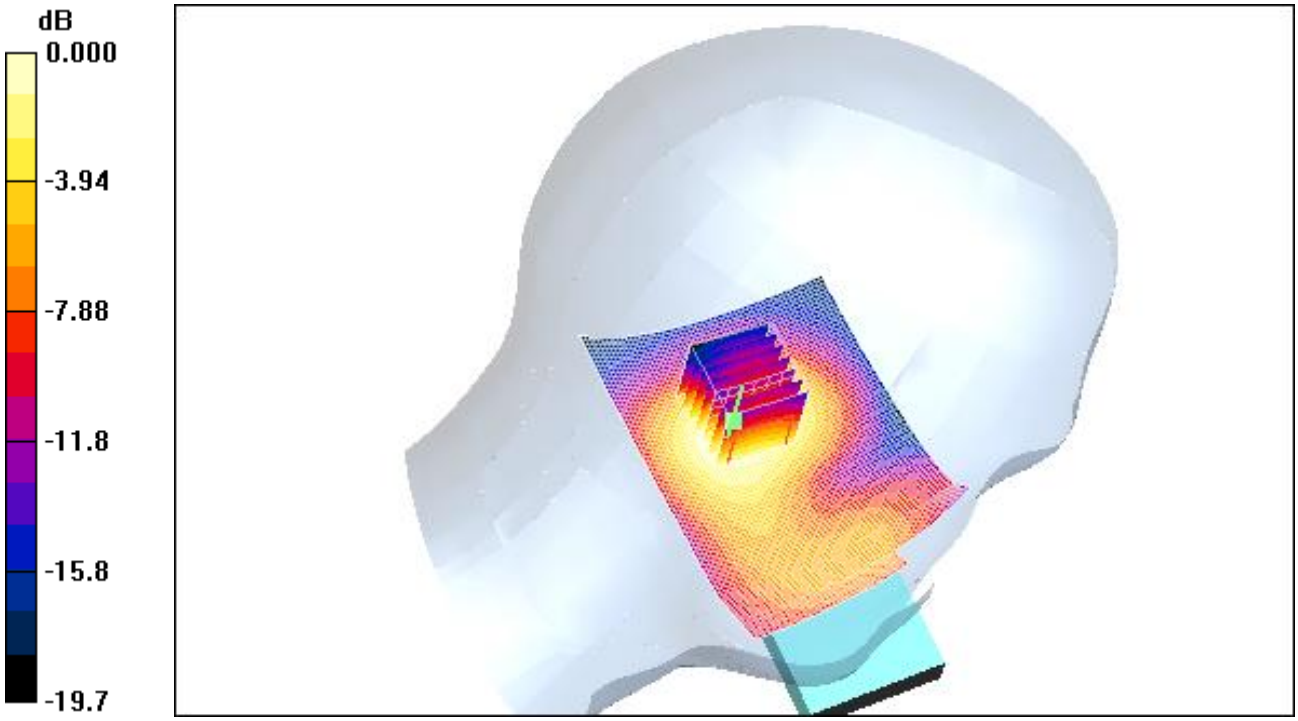
Tilt position - Mid/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**

Reference Value = 15.0 V/m; Power Drift = -0.069 dB

Peak SAR (extrapolated) = 0.515 W/kg

SAR(1 g) = 0.322 mW/g; SAR(10 g) = 0.196 mW/g

Maximum value of SAR (measured) = 0.346 mW/g



0 dB = 0.346mW/g

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Testing Center-GSM Laboratory
3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
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16.5.17 PCS1900-LeftHandSide-Worstcase-Low

Date/Time: 2010-3-10 13:39:02

Test Laboratory: SGS-GSM

PCS1900-LeftHandSide-Cheek-Low

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-GSM Mode; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3

Medium: HSL1900_Head Medium parameters used: f = 1850.2 MHz; σ = 1.37 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3

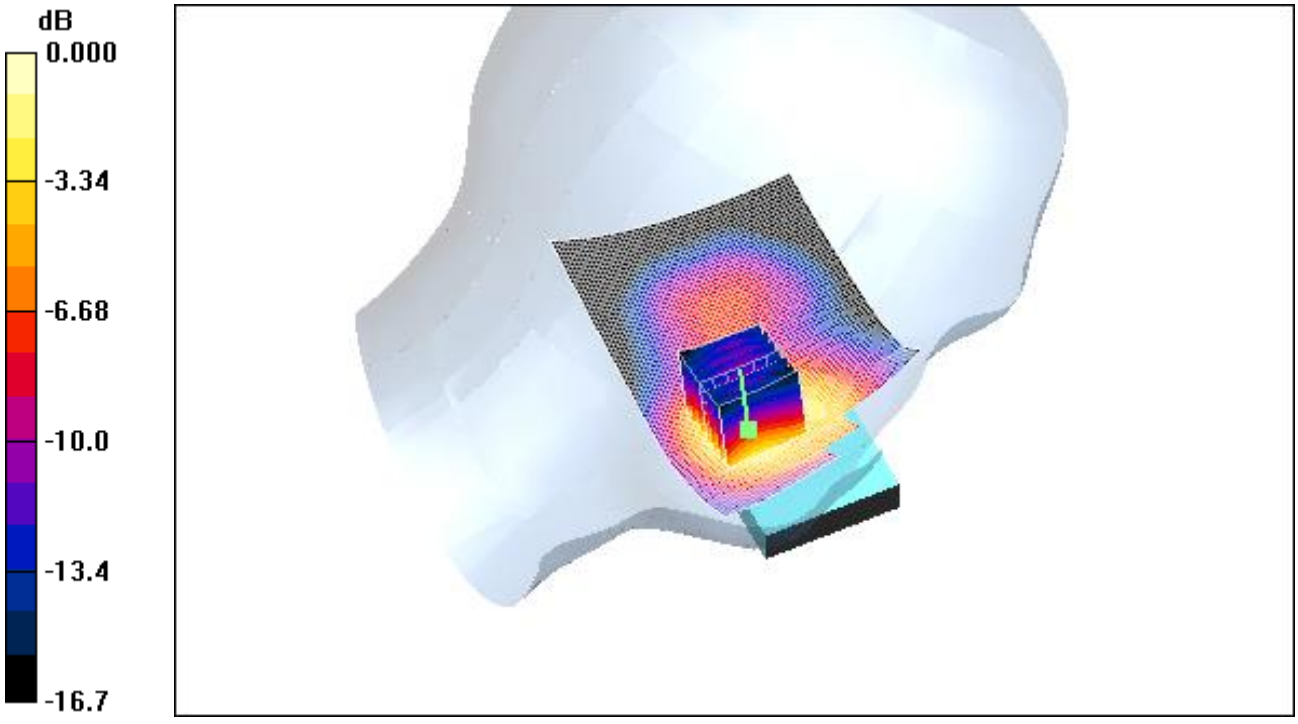
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.97, 4.97, 4.97); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Low/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.986 mW/g

Cheek position - Low/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 7.55 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.887 mW/g; SAR(10 g) = 0.504 mW/g
Maximum value of SAR (measured) = 0.981 mW/g



0 dB = 0.981mW/g

16.5.18 PCS1900-LeftHandSide-Worstcase-High

Date/Time: 2010-3-10 15:18:30

Test Laboratory: SGS-GSM

PCS1900-LeftHandSide-Cheek-High

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-GSM Mode; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3

Medium: HSL1900_Head Medium parameters used: f = 1909.8 MHz; σ = 1.43 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3

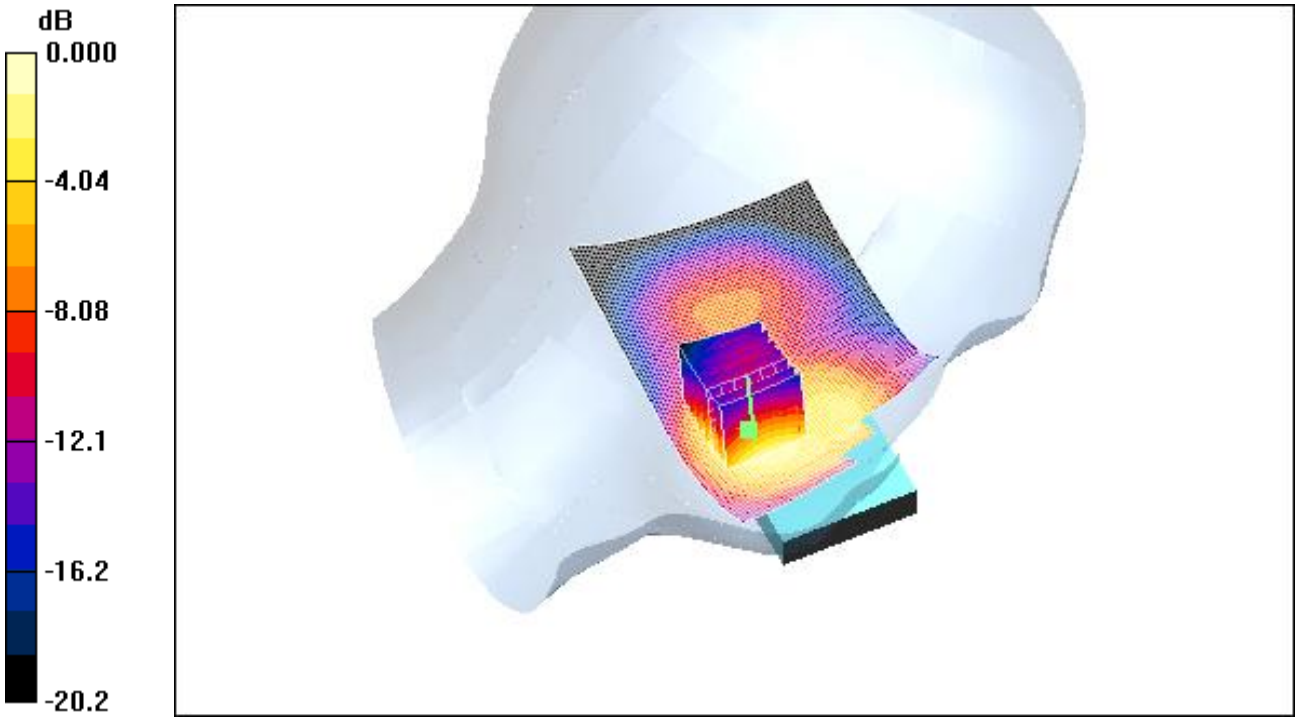
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.97, 4.97, 4.97); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - High 2/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 1.05 mW/g

Cheek position - High 2/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 8.30 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 1.50 W/kg
SAR(1 g) = 0.949 mW/g; SAR(10 g) = 0.548 mW/g
Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.04mW/g

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Testing Center-GSM Laboratory
3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

16.5.19 PCS1900-RightHandSide-Cheek-Middle

Date/Time: 2010-3-10 10:44:34

Test Laboratory: SGS-GSM

PCS1900-RightHandSide-Cheek-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-GSM Mode; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium: HSL1900_Head Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.97, 4.97, 4.97); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Middle/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**

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

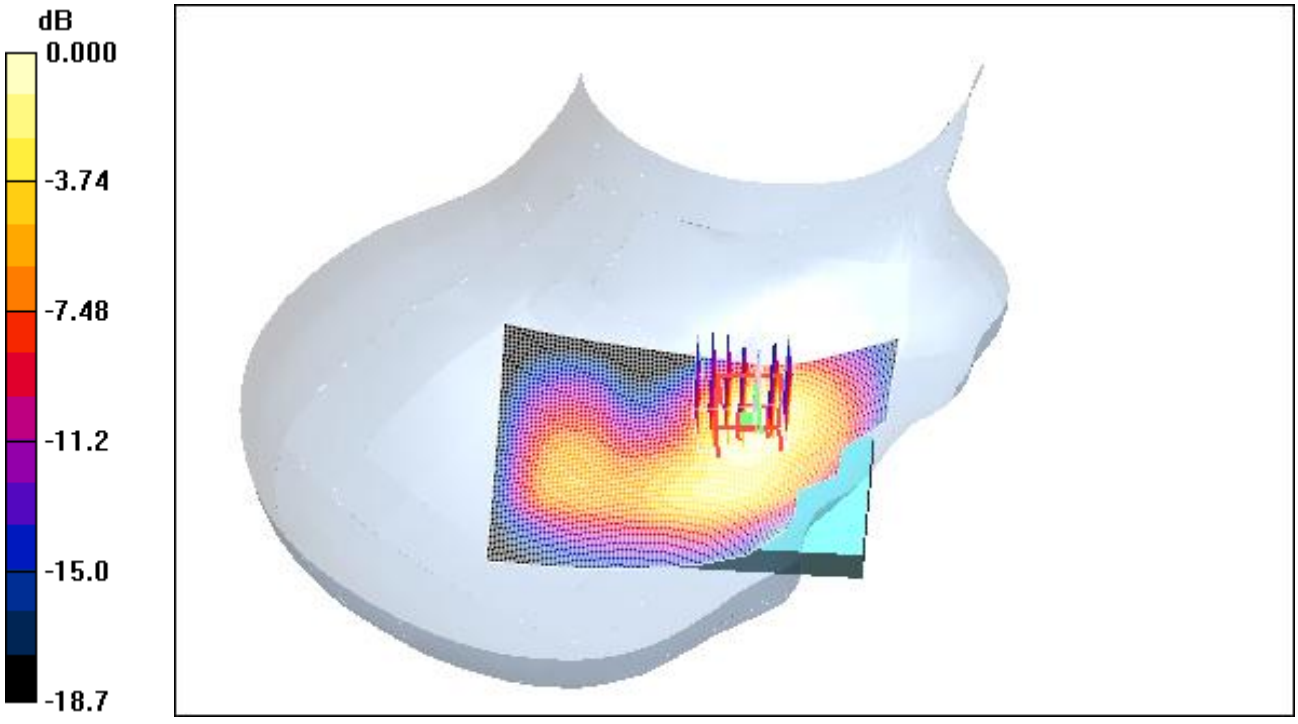
Cheek position - Middle/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**

Reference Value = 14.5 V/m; Power Drift = -0.076 dB

Peak SAR (extrapolated) = 1.76 W/kg

SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.579 mW/g

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



0 dB = 1.12mW/g

16.5.20 PCS1900-RightHandSide-Tilt-Middle

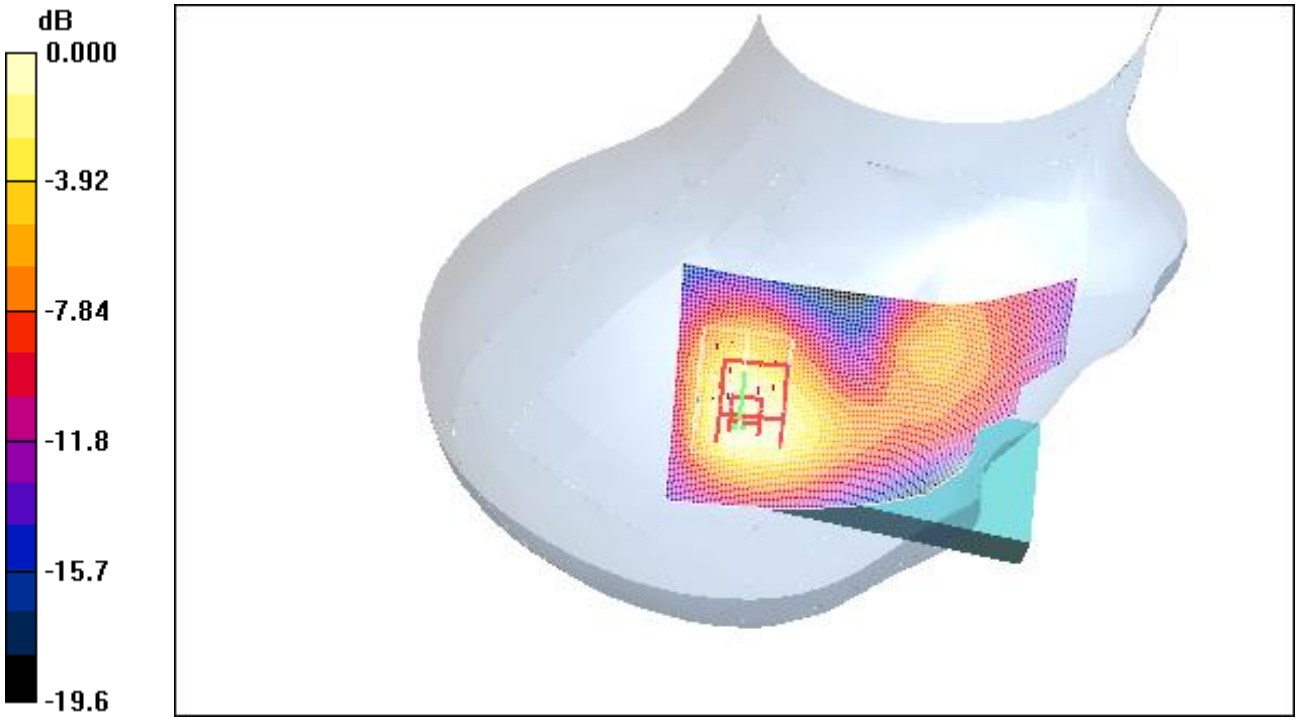
Date/Time: 2010-3-10 10:19:38

Test Laboratory: SGS-GSM
PCS1900-RightHandSide-Tilt-Middle
DUT: M0002AW01; Type: Head; Serial: 352129049999924
Communication System: PCS1900-GSM Mode; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: HSL1900_Head Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.97, 4.97, 4.97); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Tilt position - Middle/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.530 mW/g

Tilt position - Middle/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 17.4 V/m; Power Drift = -0.030 dB
Peak SAR (extrapolated) = 0.696 W/kg
SAR(1 g) = 0.439 mW/g; SAR(10 g) = 0.255 mW/g
Maximum value of SAR (measured) = 0.479 mW/g



0 dB = 0.479mW/g

16.5.21 PCS1900-RightHandSide-Worstcase-Low

Date/Time: 2010-3-10 11:09:02

Test Laboratory: SGS-GSM

PCS1900-RightHandSide-Cheek-Low

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-GSM Mode; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3

Medium: HSL1900_Head Medium parameters used: f = 1850.2 MHz; σ = 1.37 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3

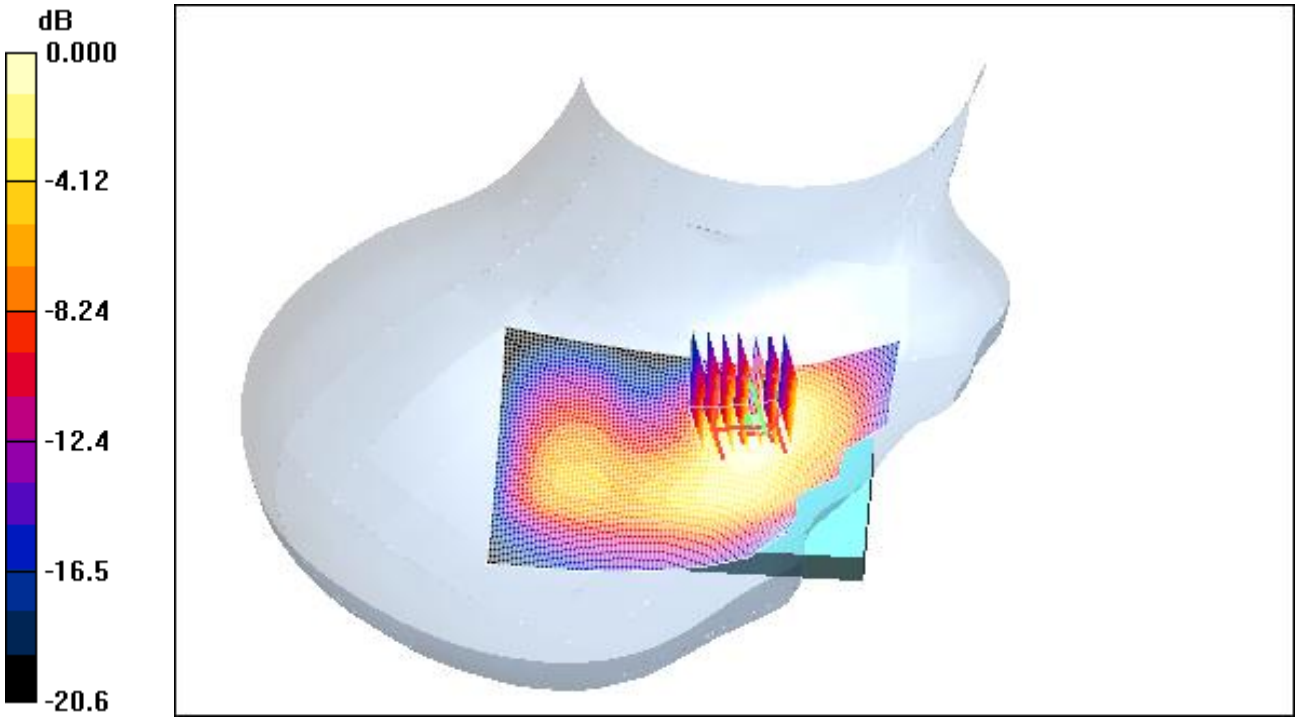
Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.97, 4.97, 4.97); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Low/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.964 mW/g

Cheek position - Low/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 13.4 V/m; Power Drift = 0.026 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 0.892 mW/g; SAR(10 g) = 0.494 mW/g
Maximum value of SAR (measured) = 0.968 mW/g



0 dB = 0.968mW/g

16.5.22 PCS1900-RightHandSide-Worstcase-High

Date/Time: 2010-3-10 12:00:45

Test Laboratory: SGS-GSM

PCS1900-RightHandSide-Cheek-High

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-GSM Mode; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3

Medium: HSL1900_Head Medium parameters used: f = 1909.8 MHz; σ = 1.43 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3

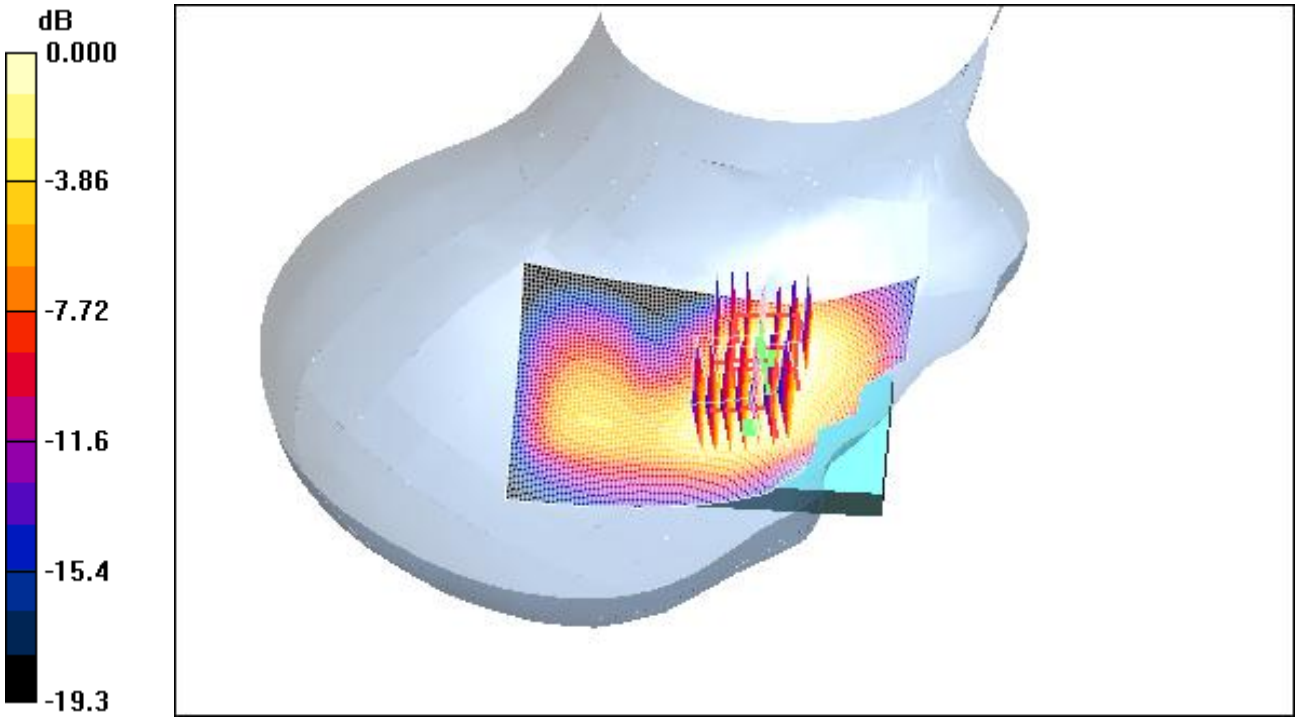
Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.97, 4.97, 4.97); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position -High 2/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 1.16 mW/g

Cheek position -High 2/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 14.2 V/m; Power Drift = -0.072 dB
Peak SAR (extrapolated) = 1.77 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.583 mW/g
Maximum value of SAR (measured) = 1.12 mW/g
Cheek position -High 2/Zoom Scan (7x7x7)/Cube 1: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 14.2 V/m; Power Drift = -0.072 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.793 mW/g; SAR(10 g) = 0.487 mW/g
Maximum value of SAR (measured) = 0.874 mW/g



0 dB = 0.874mW/g

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Testing Center-GSM Laboratory
3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

16.5.23 PCS1900-BodyWorn-GPRS-3TS-Middle-Front

Date/Time: 2010-3-16 13:09:24

Test Laboratory: SGS-GSM

PCS1900-Body-Worn-GPRS-3TS-Middle-Front

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-GPRS Mode; Frequency: 1880 MHz;Duty Cycle: 1:2.7

Medium: HSL 1900 Body Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3

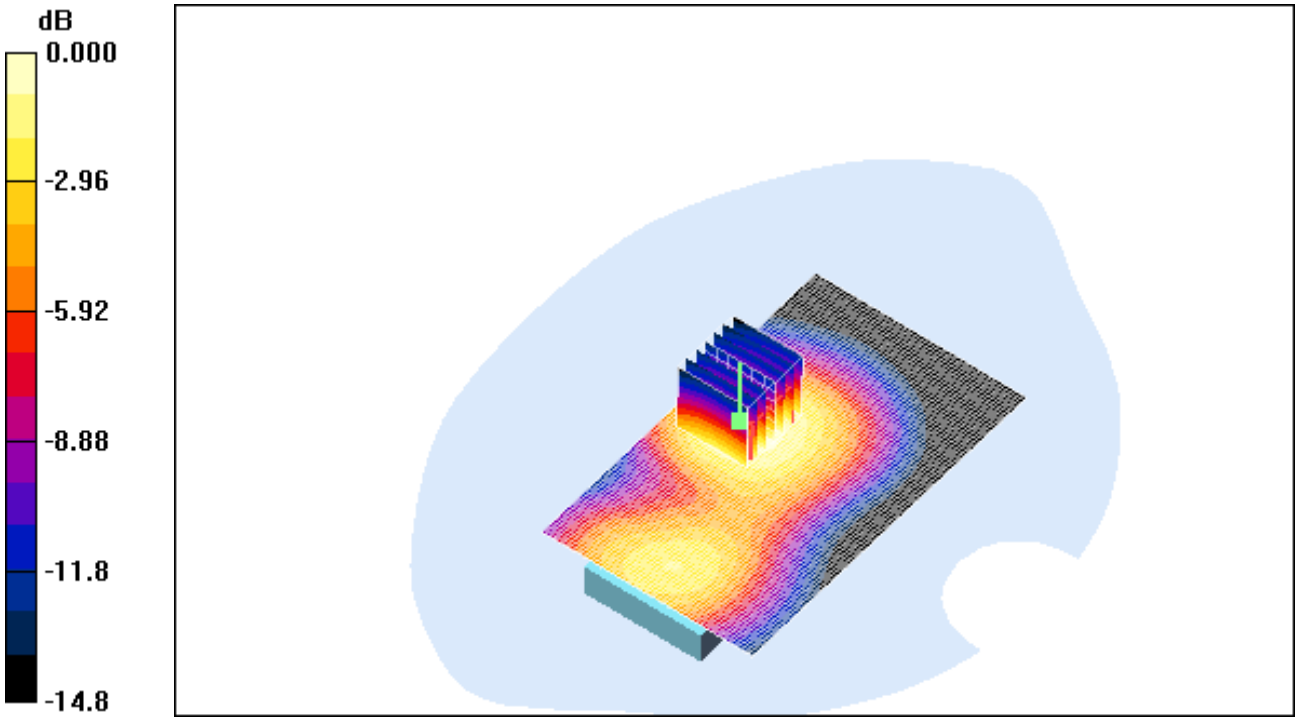
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.58, 4.58, 4.58); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle-Front/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.625 mW/g

Body Worn - Middle-Front/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 17.3 V/m; Power Drift = -0.094 dB
Peak SAR (extrapolated) = 0.865 W/kg
SAR(1 g) = 0.552 mW/g; SAR(10 g) = 0.338 mW/g
Maximum value of SAR (measured) = 0.600 mW/g



0 dB = 0.600mW/g

16.5.24 PCS1900-BodyWorn-GPRS-3TS-Middle-Rear

Date/Time: 2010-3-16 10:55:08

Test Laboratory: SGS-GSM

PCS1900-Body-Worn-GPRS-3TS-Middle-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-GPRS Mode; Frequency: 1880 MHz;Duty Cycle: 1:2.7

Medium: HSL 1900 Body Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3

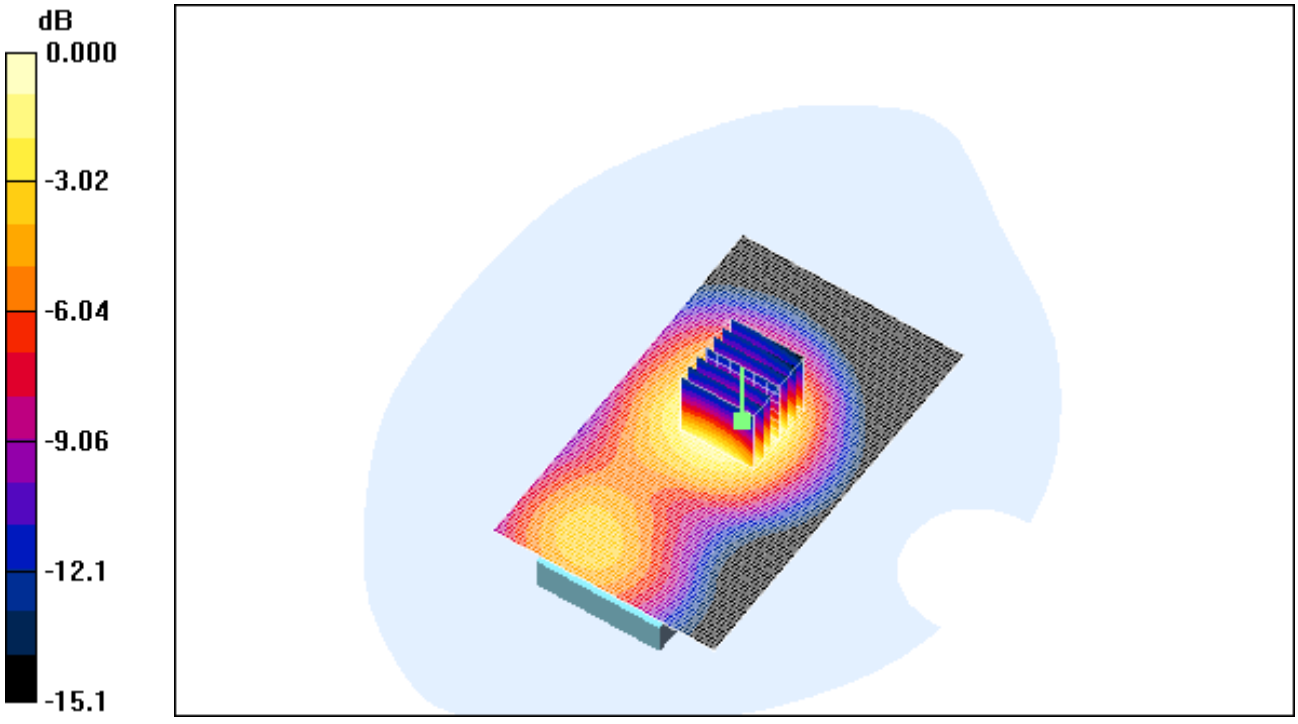
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.58, 4.58, 4.58); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle-Rear/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.724 mW/g

Body Worn - Middle-Rear/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 21.7 V/m; Power Drift = -0.102 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.636 mW/g; SAR(10 g) = 0.384 mW/g
Maximum value of SAR (measured) = 0.690 mW/g



0 dB = 0.690mW/g

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Testing Center-GSM Laboratory
3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

16.5.25 PCS1900-BodyWorn-GPRS-3TS-Low-Rear

Date/Time: 2010-3-16 13:34:16

Test Laboratory: SGS-GSM

PCS1900-Body-Worn-GPRS-3TS-Low-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-GPRS Mode; Frequency: 1850.2 MHz;Duty Cycle: 1:2.7

Medium: HSL 1900 Body Medium parameters used: f = 1850.2 MHz; σ = 1.48 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3

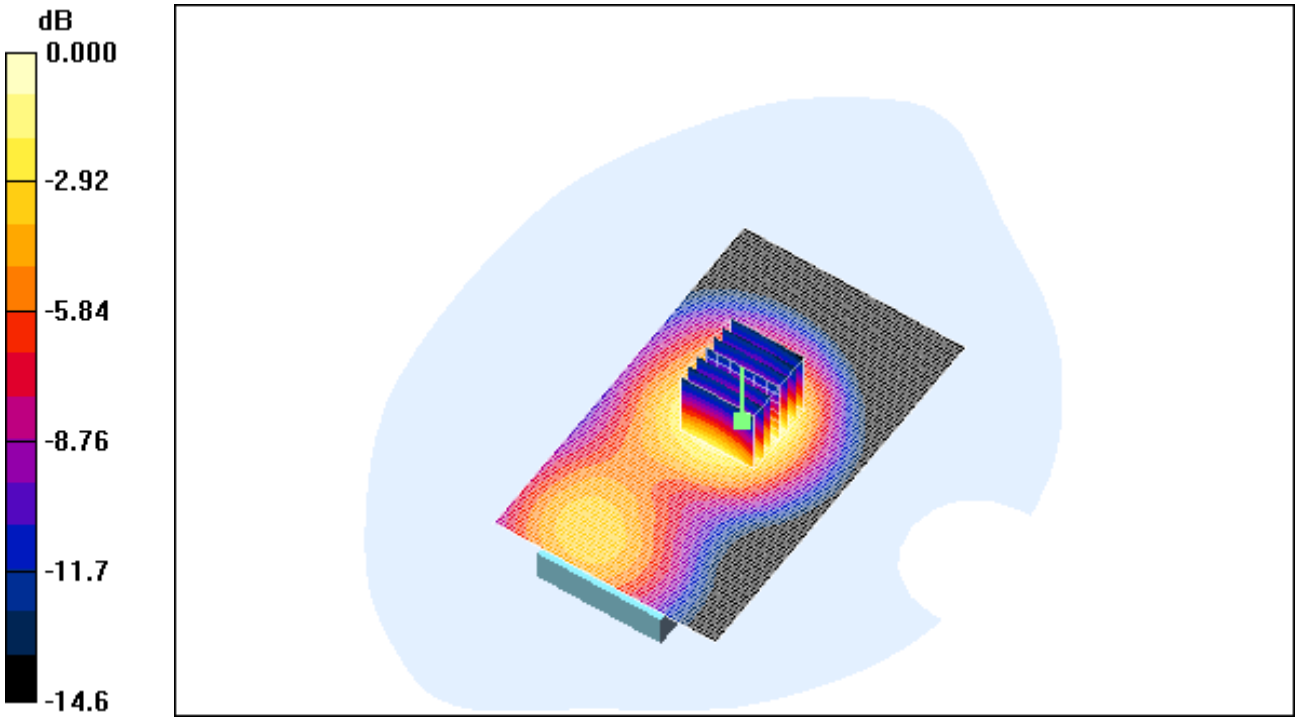
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.58, 4.58, 4.58); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Low/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.624 mW/g

Body Worn - Low/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 20.2 V/m; Power Drift = -0.019 dB
Peak SAR (extrapolated) = 0.896 W/kg
SAR(1 g) = 0.561 mW/g; SAR(10 g) = 0.337 mW/g
Maximum value of SAR (measured) = 0.607 mW/g



0 dB = 0.607mW/g

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3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

16.5.26 PCS1900-BodyWorn-GPRS-3TS-High-Rear

Date/Time: 2010-3-16 13:58:10

Test Laboratory: SGS-GSM

PCS1900-Body-Worn-GPRS-3TS-High-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-GPRS Mode; Frequency: 1909.8 MHz;Duty Cycle: 1:2.7

Medium: HSL 1900 Body Medium parameters used: f = 1909.8 MHz; σ = 1.55 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

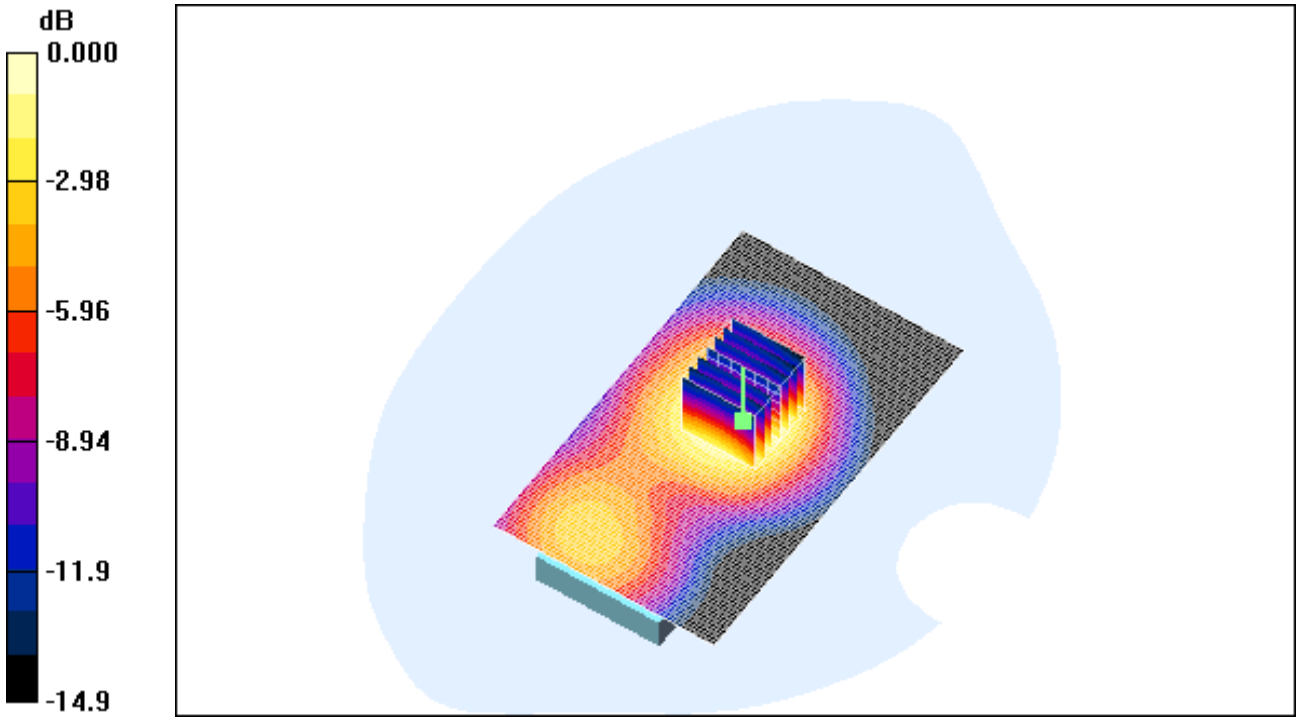
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.58, 4.58, 4.58); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - High/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.664 mW/g

Body Worn - High/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 20.3 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 0.988 W/kg
SAR(1 g) = 0.599 mW/g; SAR(10 g) = 0.359 mW/g
Maximum value of SAR (measured) = 0.642 mW/g



0 dB = 0.642mW/g

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Testing Center-GSM Laboratory
3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

16.5.27 PCS1900-BodyWorn-GPRS-3TS-Worstcase with headset

Date/Time: 2010-3-16 14:23:53

Test Laboratory: SGS-GSM

PCS1900-Body-Worn-GPRS-3TS-Worstcase with headset

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-GPRS Mode; Frequency: 1880 MHz;Duty Cycle: 1:2.7

Medium: HSL 1900 Body Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3

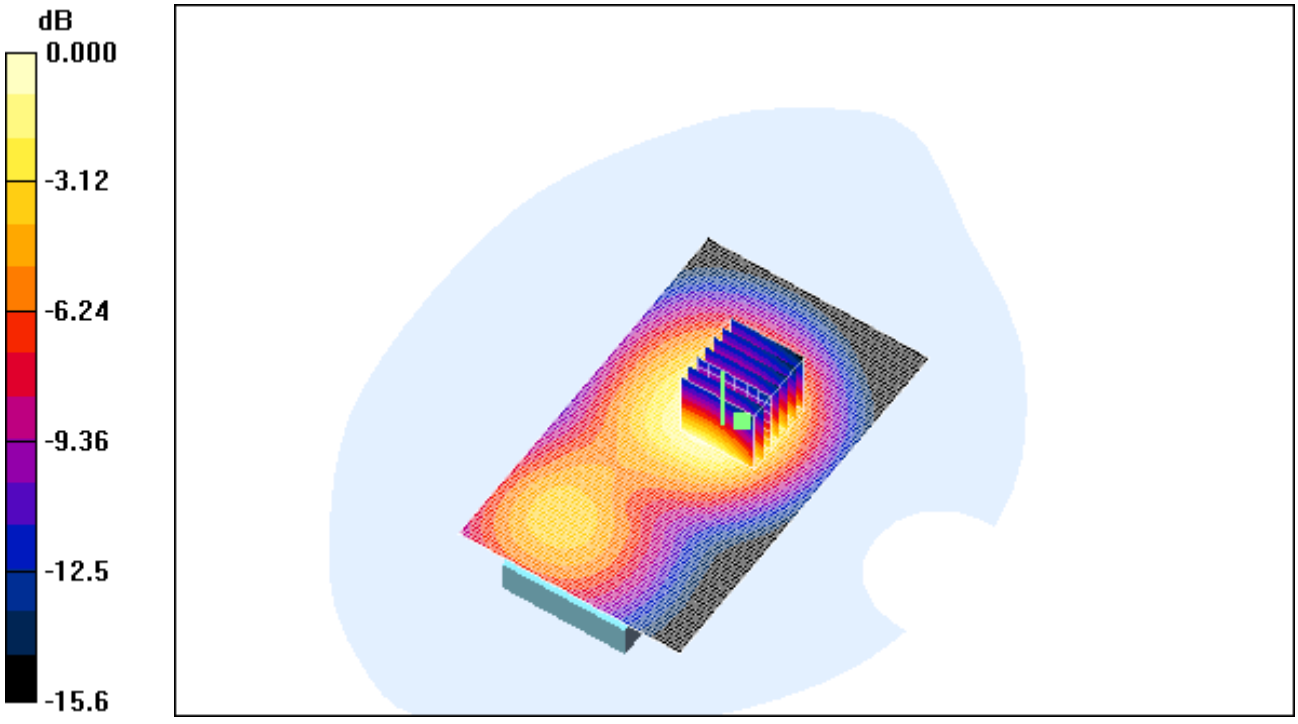
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.58, 4.58, 4.58); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle-with headset/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.622 mW/g

Body Worn - Middle-with headset/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 19.0 V/m; Power Drift = -0.076 dB
Peak SAR (extrapolated) = 0.903 W/kg
SAR(1 g) = 0.564 mW/g; SAR(10 g) = 0.344 mW/g
Maximum value of SAR (measured) = 0.606 mW/g



0 dB = 0.606mW/g

16.5.28 PCS1900-BodyWorn-EGPRS-3TS-Middle-Rear

Date/Time: 2010-3-16 15:14:03

Test Laboratory: SGS-GSM

PCS1900-Body-Worn-EGPRS-3TS-Middle-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: PCS1900-EGPRS Mode; Frequency: 1880 MHz;Duty Cycle: 1:2.7

Medium: HSL 1900 Body Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3

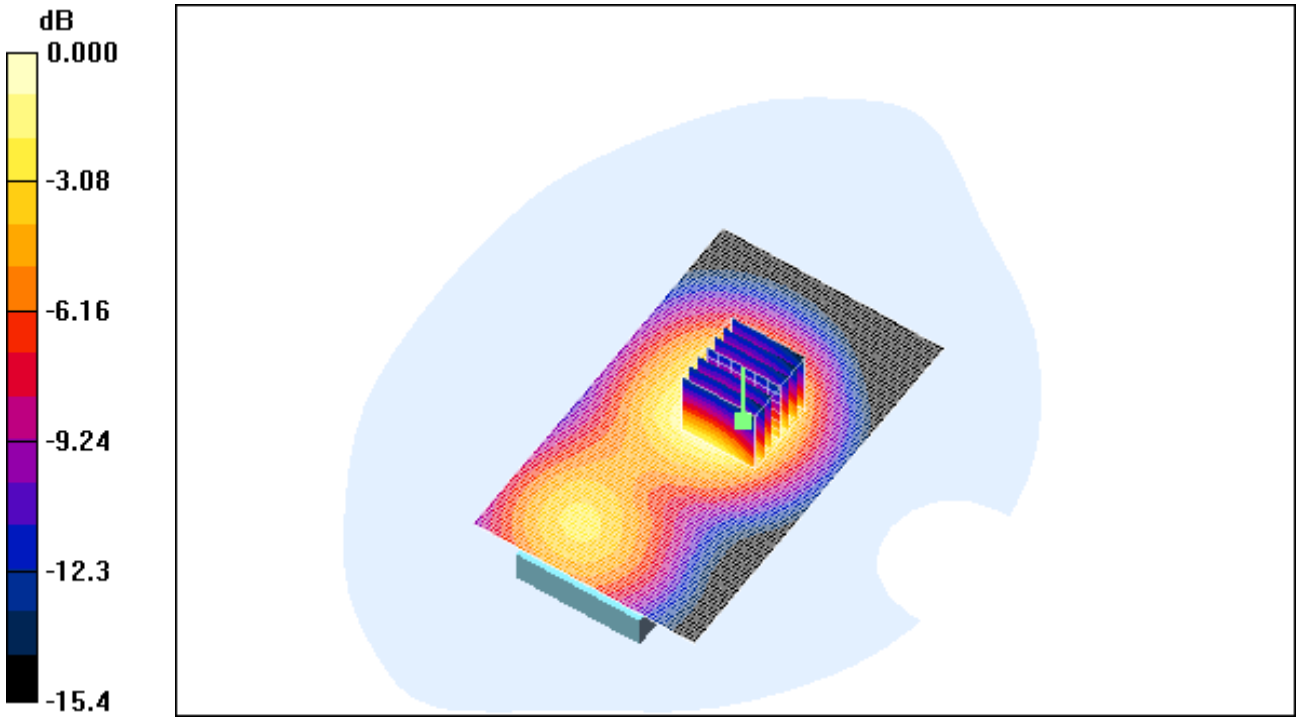
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.58, 4.58, 4.58); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle-Rear/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.622 mW/g

Body Worn - Middle-Rear/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 19.7 V/m; Power Drift = -0.081 dB
Peak SAR (extrapolated) = 0.932 W/kg
SAR(1 g) = 0.579 mW/g; SAR(10 g) = 0.350 mW/g
Maximum value of SAR (measured) = 0.624 mW/g



0 dB = 0.624mW/g

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Testing Center-GSM Laboratory
3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

16.5.29 UMTS FDD IV-LeftHandSide-Cheek-Middle

Date/Time: 2010-3-12 14:16:27

Test Laboratory: SGS-GSM

UMTS FDD IV-LeftHandSide-Cheek-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1732.4 MHz;Duty Cycle: 1:1

Medium: HSL1800_Head Medium parameters used: f = 1732.4 MHz; σ = 1.36 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3

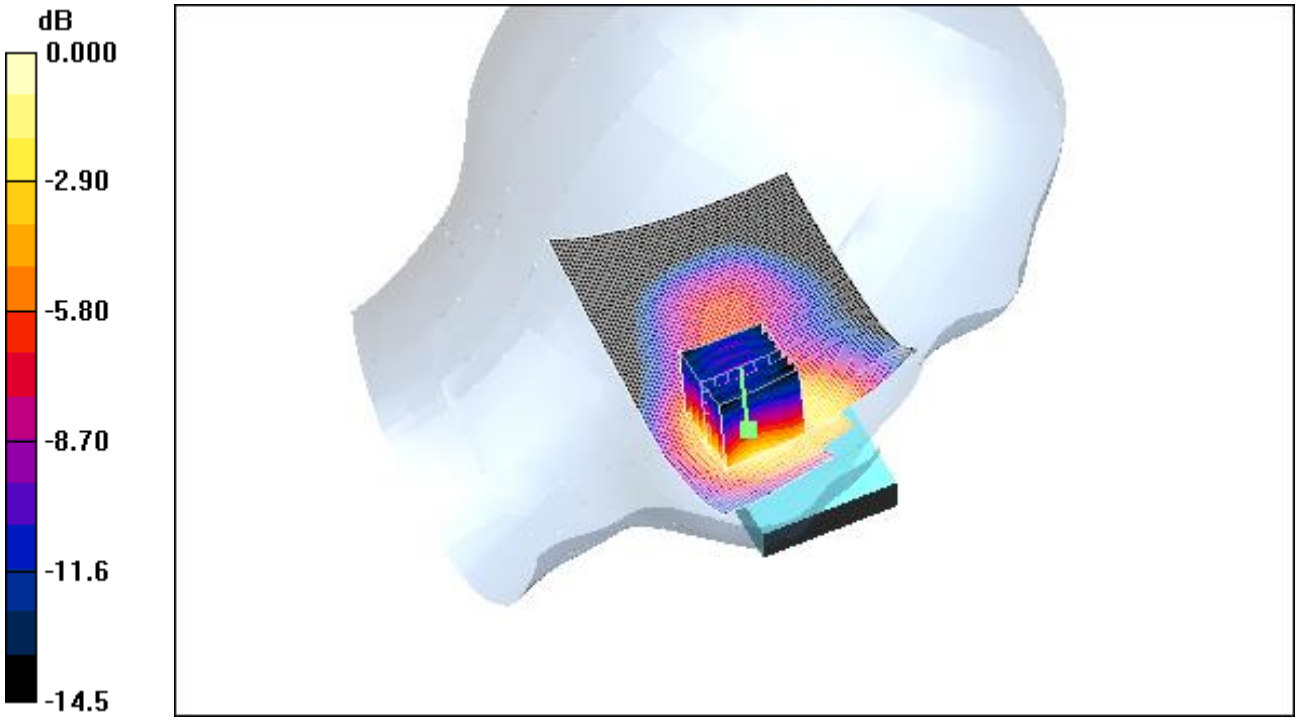
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5, 5, 5); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Mid/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 1.32 mW/g

Cheek position - Mid/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 8.58 V/m; Power Drift = -0.057 dB
Peak SAR (extrapolated) = 1.80 W/kg
SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.706 mW/g
Maximum value of SAR (measured) = 1.30 mW/g



0 dB = 1.30mW/g

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16.5.30 UMTS FDD IV-LeftHandSide-Tilt-Middle

Date/Time: 2010-3-12 16:08:36

Test Laboratory: SGS-GSM

UMTS FDD IV-LeftHandSide-Tilt-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1732.4 MHz;Duty Cycle: 1:1

Medium: HSL1800_Head Medium parameters used: f = 1732.4 MHz; σ = 1.36 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3

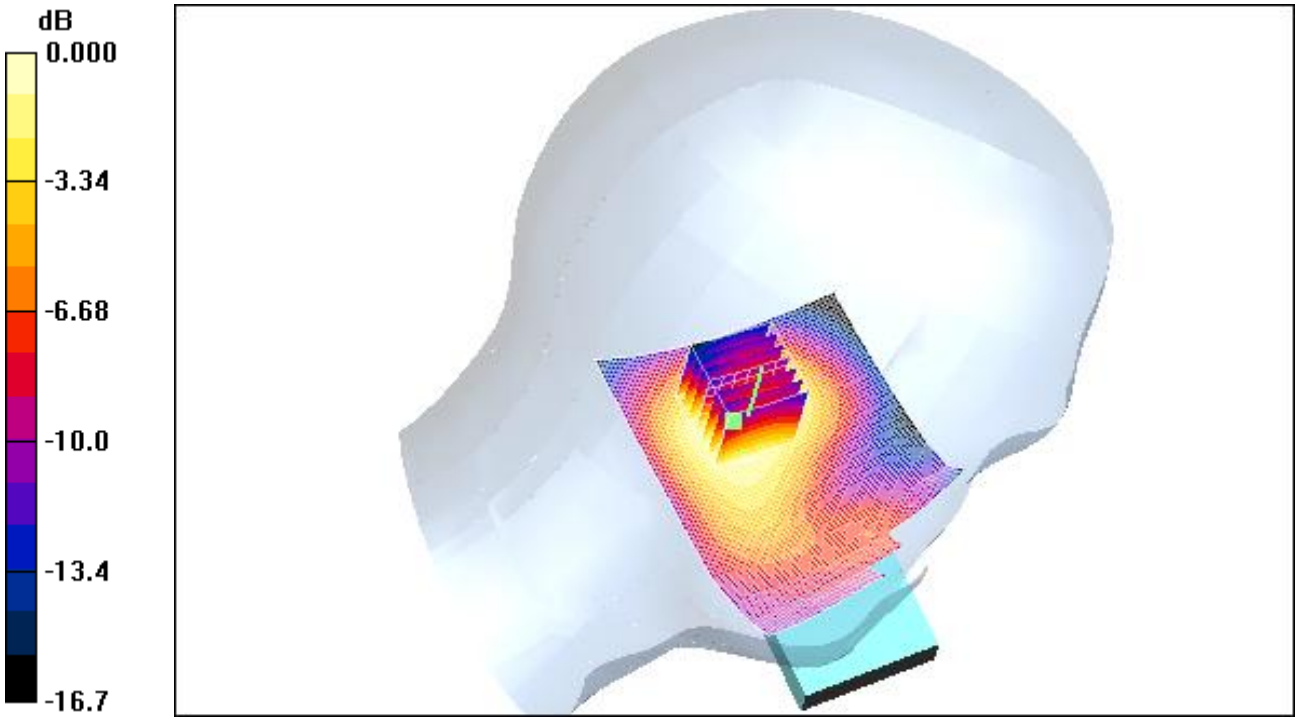
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5, 5, 5); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Tilt position - Mid/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.542 mW/g

Tilt position - Mid/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 17.3 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 0.681 W/kg
SAR(1 g) = 0.470 mW/g; SAR(10 g) = 0.307 mW/g
Maximum value of SAR (measured) = 0.503 mW/g



0 dB = 0.503mW/g

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16.5.31 UMTS FDD IV-LeftHandSide-Cheek-Low

Date/Time: 2010-3-12 15:07:24

Test Laboratory: SGS-GSM

UMTS FDD IV-LeftHandSide-Cheek-Low

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1712.4 MHz;Duty Cycle: 1:1

Medium: HSL1800_Head Medium parameters used: f = 1712.4 MHz; σ = 1.35 mho/m; ε_r = 39; ρ = 1000 kg/m^3

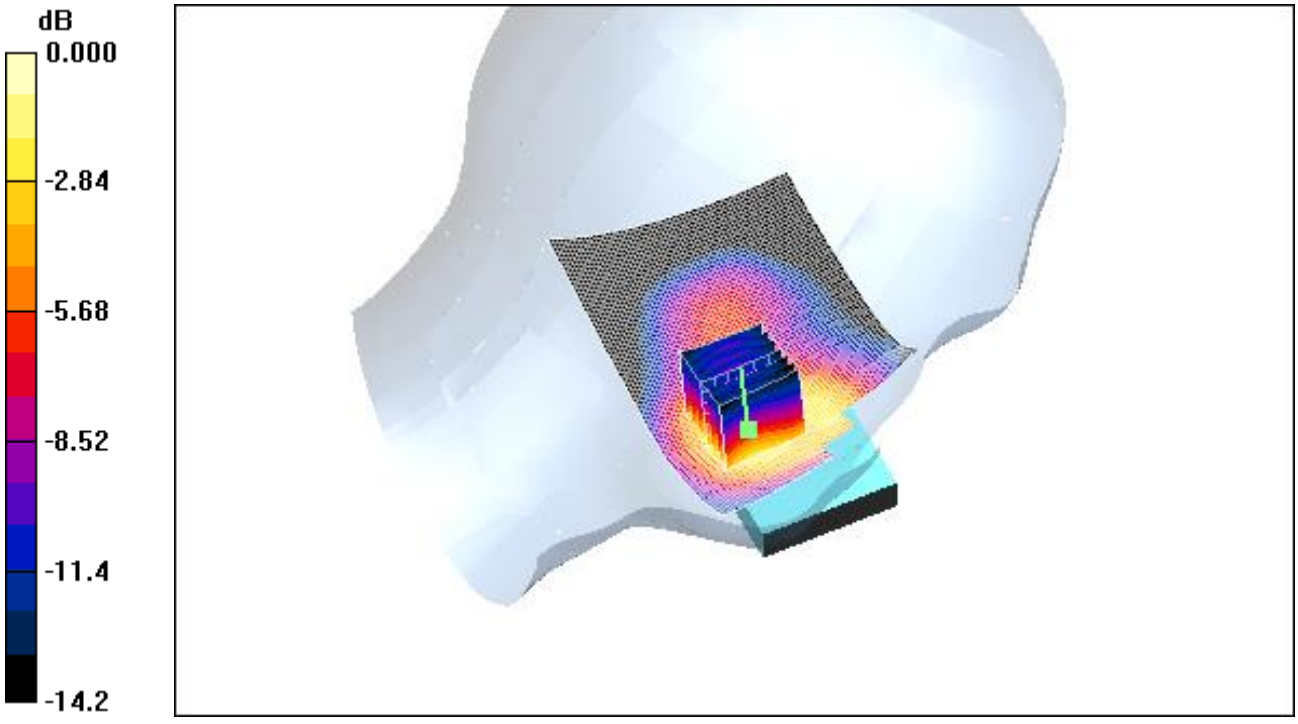
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5, 5, 5); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Low/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 1.30 mW/g

Cheek position - Low/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 8.25 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 1.77 W/kg
SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.703 mW/g
Maximum value of SAR (measured) = 1.28 mW/g



0 dB = 1.28mW/g

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16.5.32 UMTS FDD IV-LeftHandSide-Cheek-High

Date/Time: 2010-3-12 14:42:15

Test Laboratory: SGS-GSM

UMTS FDD IV-LeftHandSide-Cheek-High

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium: HSL1800_Head Medium parameters used: f = 1752.6 MHz; σ = 1.39 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3

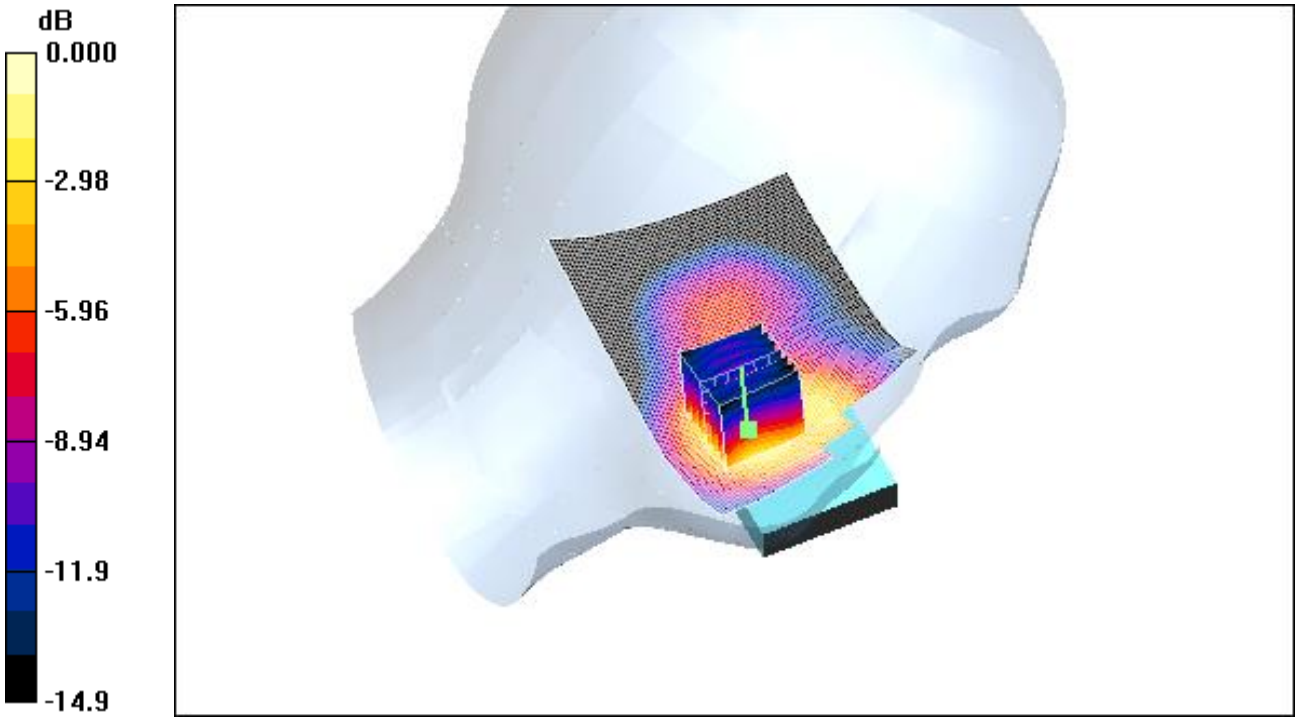
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5, 5, 5); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - High/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 1.35 mW/g

Cheek position - High/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 8.65 V/m; Power Drift = 0.005 dB
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.704 mW/g
Maximum value of SAR (measured) = 1.32 mW/g



0 dB = 1.32mW/g

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16.5.33 UMTS FDD IV-RightHandSide-Cheek-Middle

Date/Time: 2010-3-12 10:16:39

Test Laboratory: SGS-GSM

UMTS FDD IV-RightHandSide-Cheek-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1732.4 MHz;Duty Cycle: 1:1

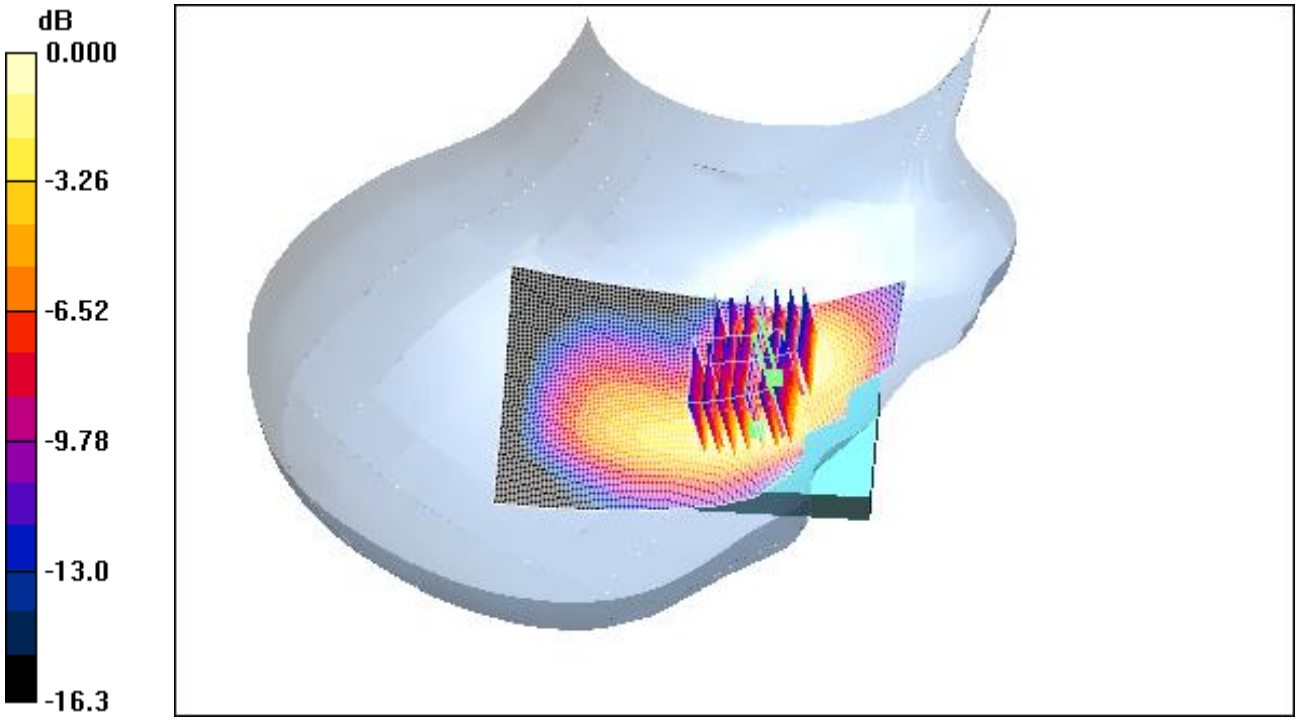
Medium: HSL1800_Head Medium parameters used: f = 1732.4 MHz; σ = 1.36 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5, 5, 5); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Middle/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 1.31 mW/g
Cheek position - Middle/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 11.3 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 2.09 W/kg
SAR(1 g) = 1.23 mW/g; SAR(10 g) = 0.685 mW/g
Maximum value of SAR (measured) = 1.35 mW/g
Cheek position - Middle/Zoom Scan (7x7x7)/Cube 1: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 11.3 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 1.55 W/kg
SAR(1 g) = 0.952 mW/g; SAR(10 g) = 0.592 mW/g
Maximum value of SAR (measured) = 1.10 mW/g



0 dB = 1.10mW/g

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16.5.34 UMTS FDD IV-RightHandSide-Tilt-Middle

Date/Time: 2010-3-12 13:03:25

Test Laboratory: SGS-GSM

UMTS FDD IV-RightHandSide-Tilt-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1732.4 MHz;Duty Cycle: 1:1

Medium: HSL1800_Head Medium parameters used: f = 1732.4 MHz; σ = 1.36 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3

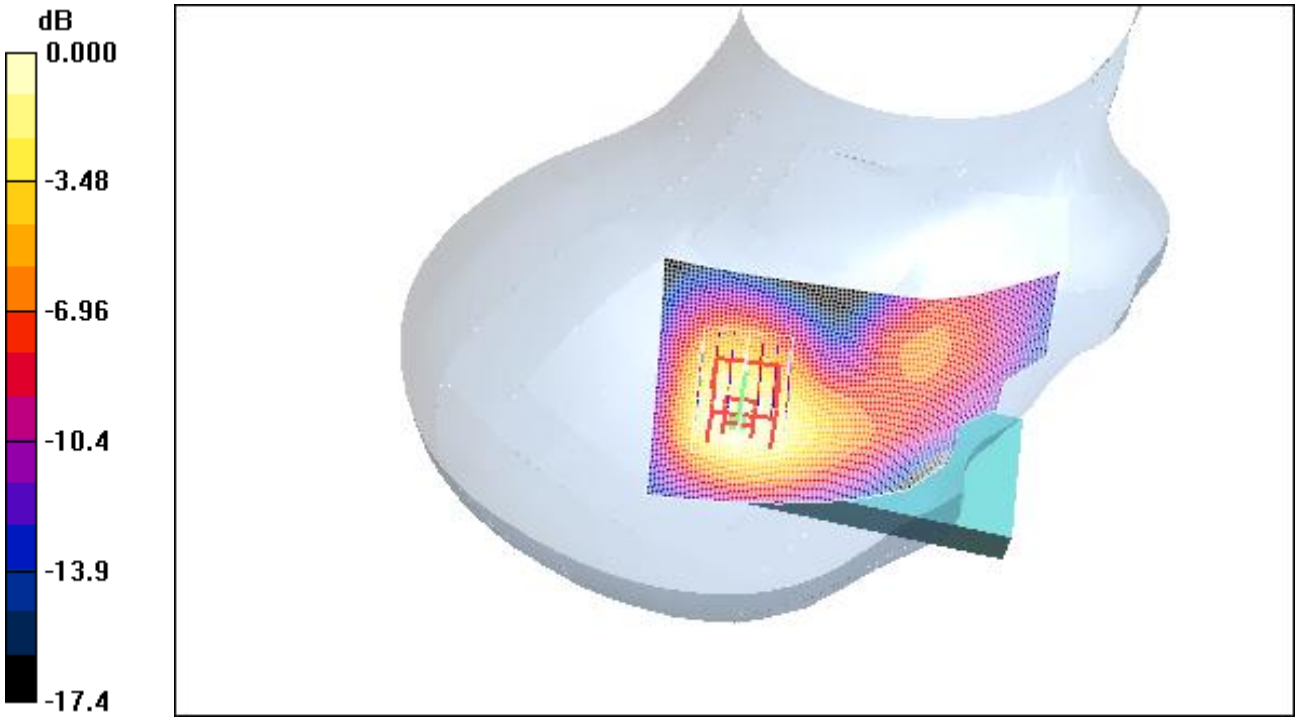
Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5, 5, 5); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Tilt position - Middle/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.783 mW/g

Tilt position - Middle/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 20.2 V/m; Power Drift = 0.077 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.672 mW/g; SAR(10 g) = 0.409 mW/g
Maximum value of SAR (measured) = 0.731 mW/g



0 dB = 0.731mW/g

16.5.35 UMTS FDD IV-RightHandSide-Cheek-Low

Date/Time: 2010-3-12 9:43:21

Test Laboratory: SGS-GSM

UMTS FDD IV-RightHandSide-Cheek-Low

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1712.4 MHz;Duty Cycle: 1:1

Medium: HSL1800_Head Medium parameters used: f = 1712.4 MHz; σ = 1.35 mho/m; ε_r = 39; ρ = 1000 kg/m^3

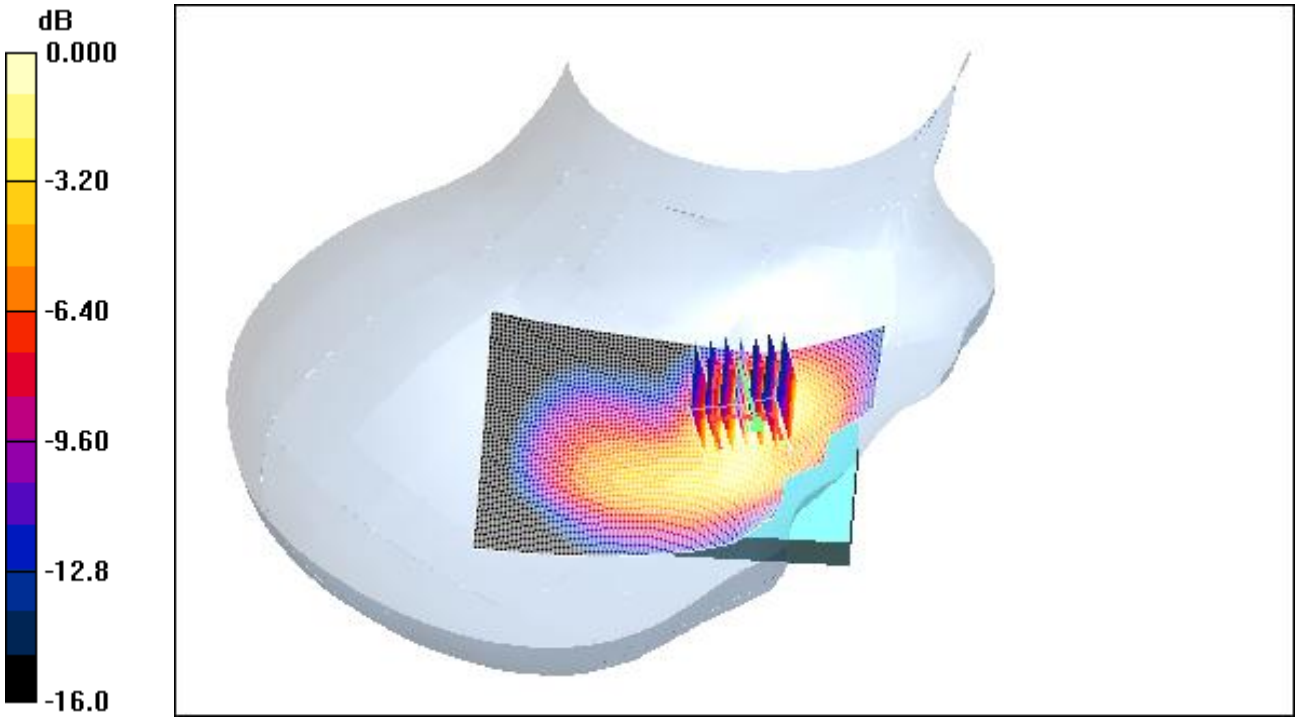
Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5, 5, 5); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Low/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 1.21 mW/g

Cheek position - Low/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 10.3 V/m; Power Drift = 0.196 dB
Peak SAR (extrapolated) = 1.97 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.650 mW/g
Maximum value of SAR (measured) = 1.28 mW/g



0 dB = 1.28mW/g

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16.5.36 UMTS FDD IV-RightHandSide-Cheek-High

Date/Time: 2010-3-12 12:29:44

Test Laboratory: SGS-GSM

UMTS FDD IV-RightHandSide-Cheek-High

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium: HSL1800_Head Medium parameters used: f = 1752.6 MHz; σ = 1.39 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3

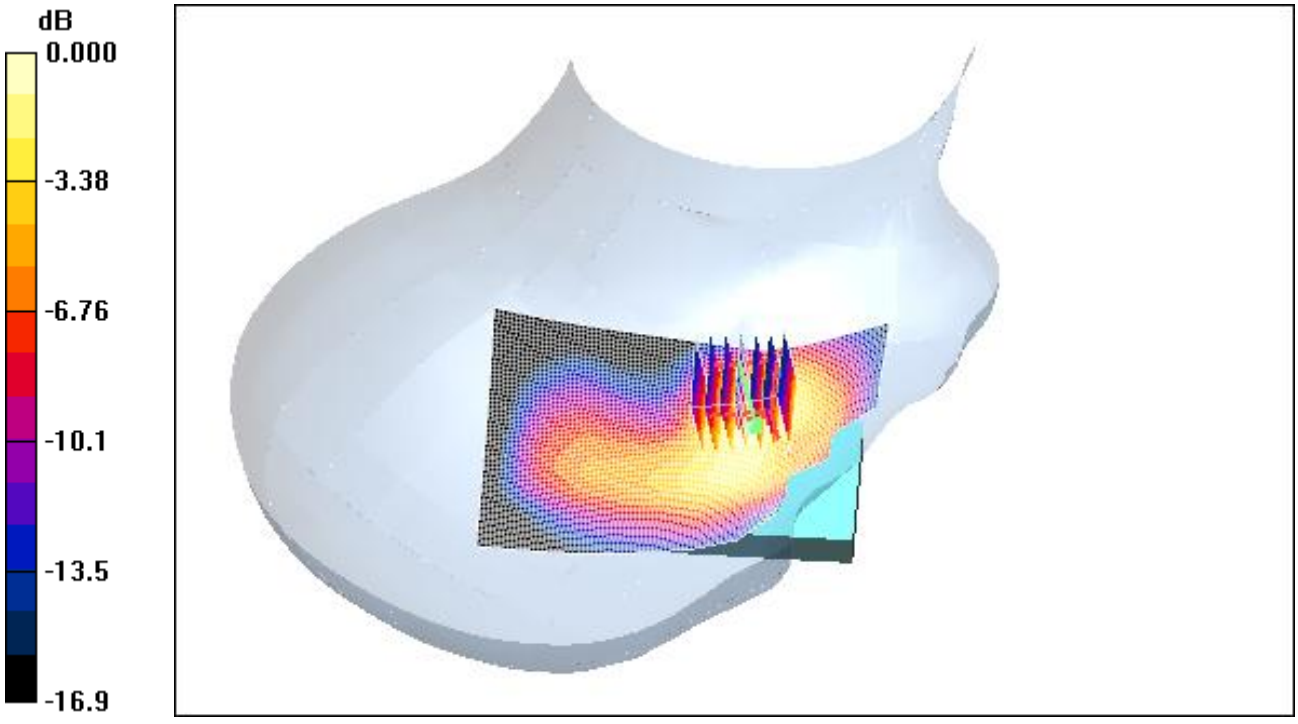
Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5, 5, 5); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position -High 2/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 1.36 mW/g

Cheek position -High 2/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 13.0 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 2.17 W/kg
SAR(1 g) = 1.28 mW/g; SAR(10 g) = 0.707 mW/g
Maximum value of SAR (measured) = 1.42 mW/g



0 dB = 1.42mW/g

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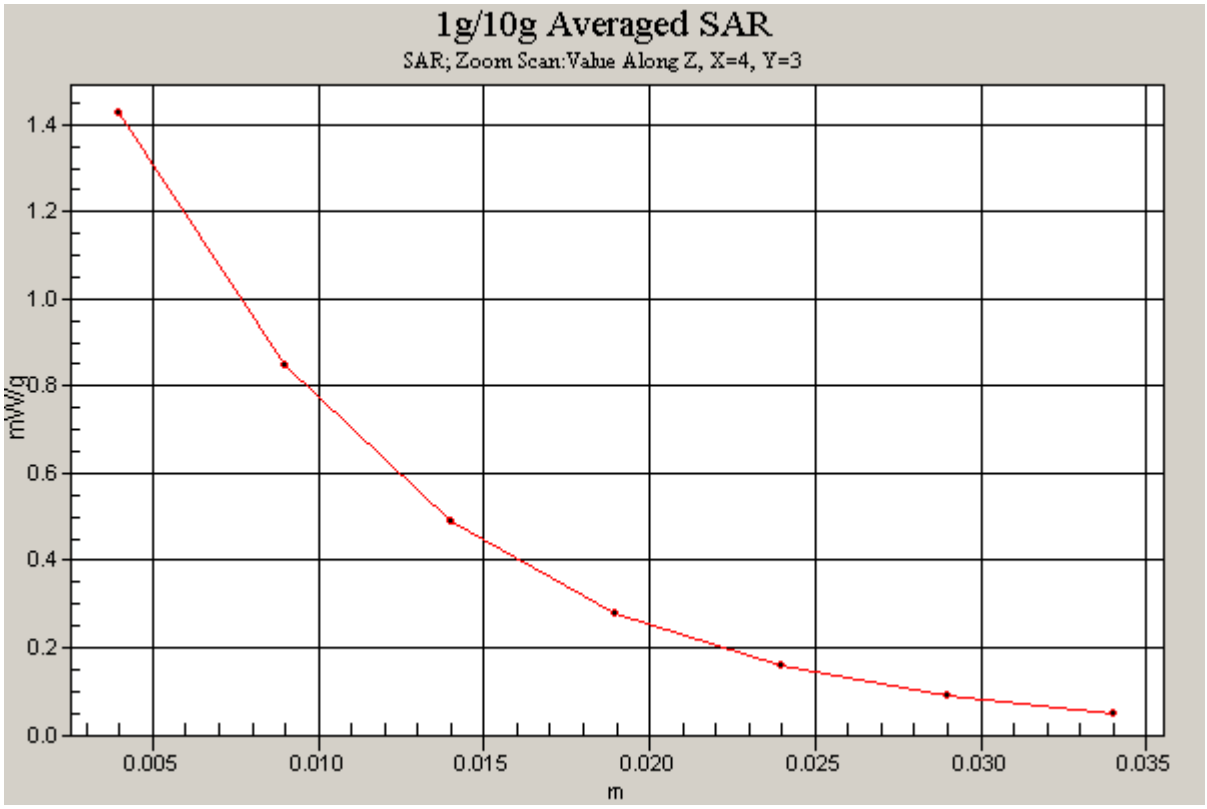

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16.5.37 UMTS FDD IV- BodyWorn-WCDMA-Middle-Front

Date/Time: 2010-3-15 10:51:21

Test Laboratory: SGS-GSM

UMTS FDD IV-Body-Worn-WCDMA-Middle-Front

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1732.4 MHz;Duty Cycle: 1:1

Medium: HSL-1800-Body Medium parameters used: f = 1732.4 MHz; σ = 1.51 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3

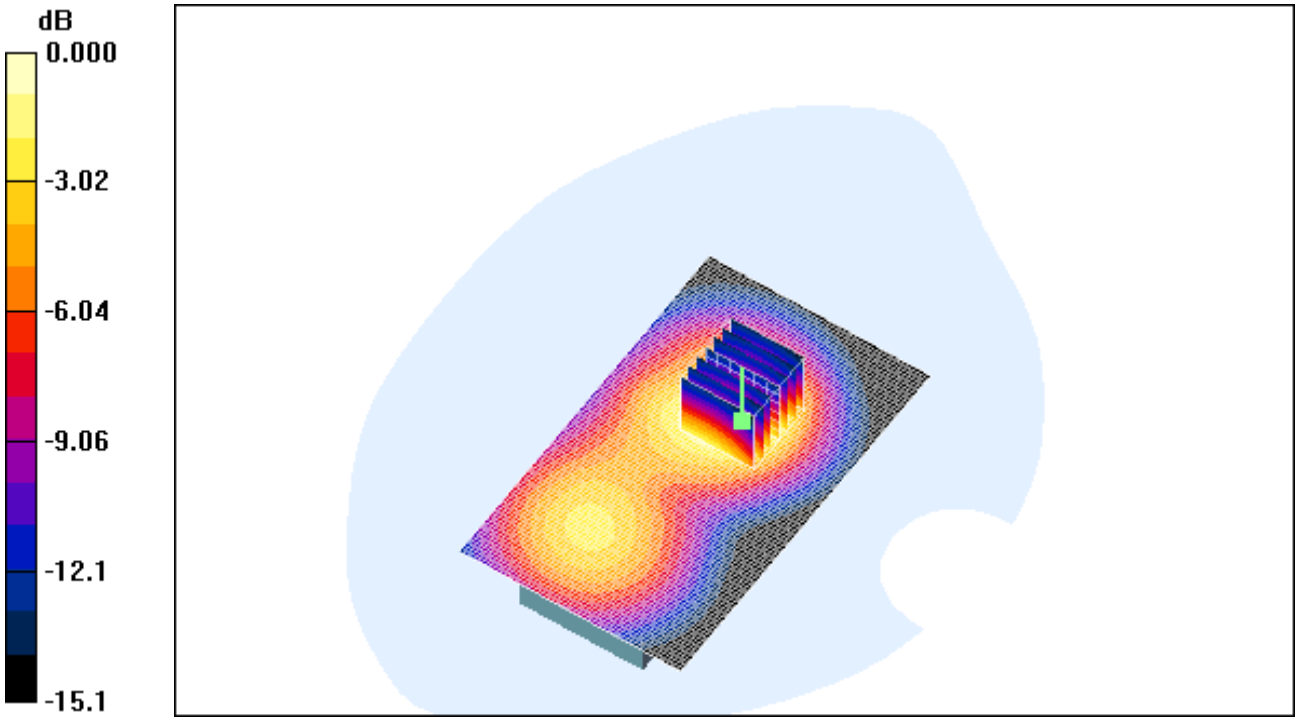
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.76, 4.76, 4.76); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle-Front/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.521 mW/g

Body Worn - Middle-Front/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 13.4 V/m; Power Drift = -0.002 dB
Peak SAR (extrapolated) = 0.770 W/kg
SAR(1 g) = 0.483 mW/g; SAR(10 g) = 0.291 mW/g
Maximum value of SAR (measured) = 0.530 mW/g



0 dB = 0.530mW/g

16.5.38 UMTS FDD IV- BodyWorn-WCDMA-Middle-Rear

Date/Time: 2010-3-15 11:24:05

Test Laboratory: SGS-GSM

UMTS FDD IV-Body-Worn-WCDMA-Middle-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1732.4 MHz;Duty Cycle: 1:1

Medium: HSL-1800-Body Medium parameters used: f = 1732.4 MHz; σ = 1.51 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3

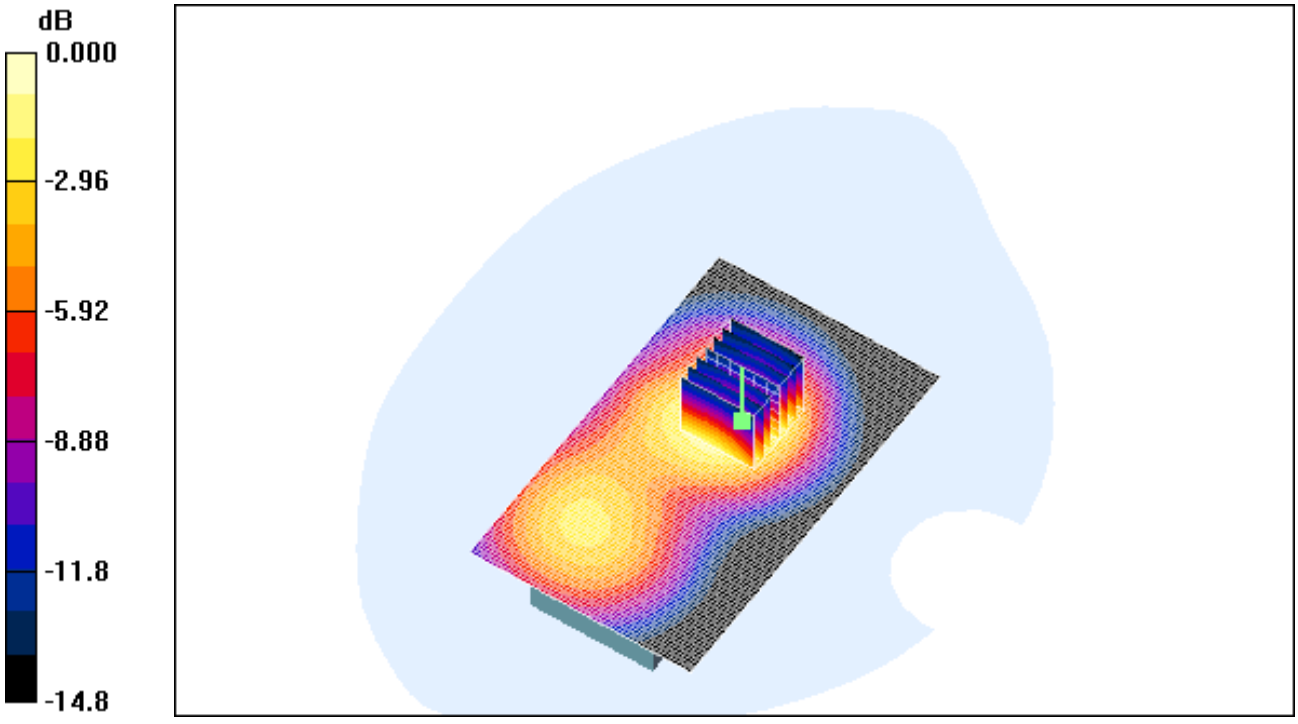
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.76, 4.76, 4.76); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle-Rear/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.771 mW/g

Body Worn - Middle-Rear/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 21.8 V/m; Power Drift = 0.071 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.684 mW/g; SAR(10 g) = 0.401 mW/g
Maximum value of SAR (measured) = 0.749 mW/g



0 dB = 0.749mW/g

16.5.39 UMTS FDD IV- BodyWorn-WCDMA-Low-Rear

Date/Time: 2010-3-15 11:59:55

Test Laboratory: SGS-GSM

UMTS FDD IV-Body-Worn-WCDMA-Low-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1712.4 MHz;Duty Cycle: 1:1

Medium: HSL-1800-Body Medium parameters used: f = 1712.4 MHz; σ = 1.46 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3

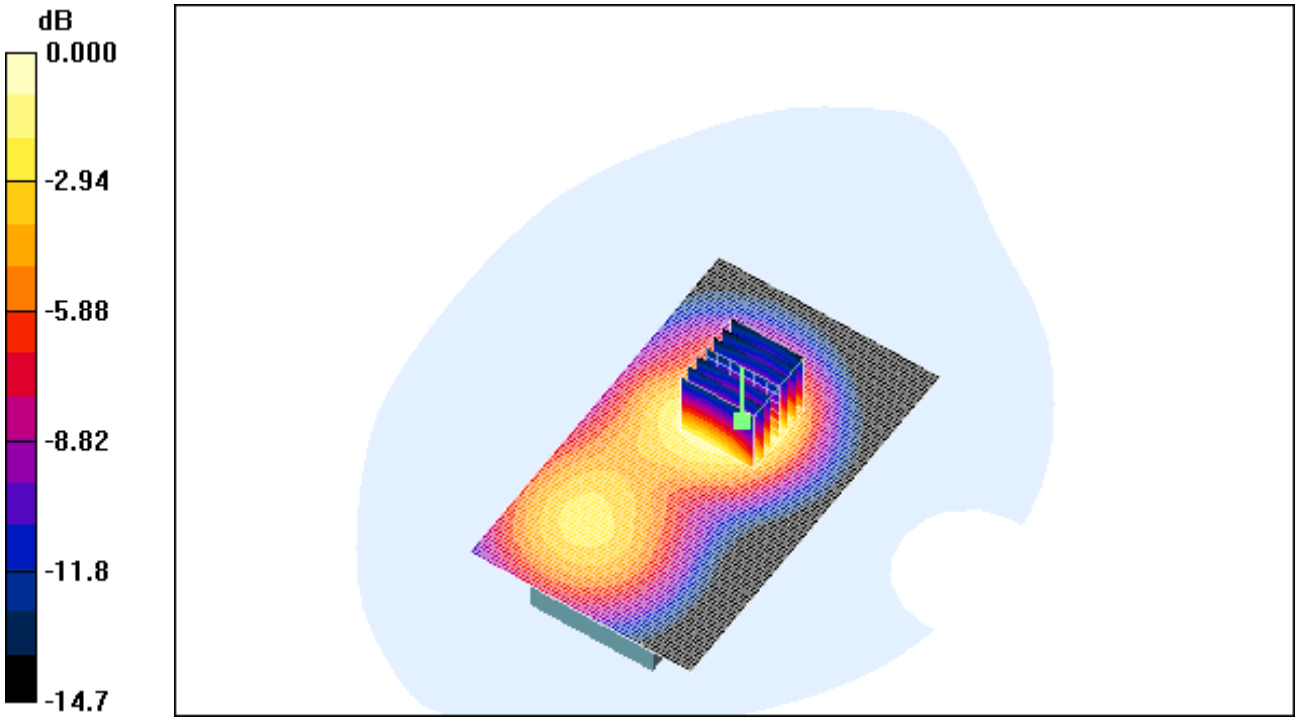
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.76, 4.76, 4.76); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Low-Rear/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.704 mW/g

Body Worn - Low-Rear/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 21.4 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.625 mW/g; SAR(10 g) = 0.367 mW/g
Maximum value of SAR (measured) = 0.684 mW/g



0 dB = 0.684mW/g

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16.5.40 UMTS FDD IV- BodyWorn-WCDMA-High-Rear

Date/Time: 2010-3-15 13:34:32

Test Laboratory: SGS-GSM

UMTS FDD IV-Body-Worn-WCDMA-High-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium: HSL-1800-Body Medium parameters used: f = 1752.6 MHz; σ = 1.55 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3

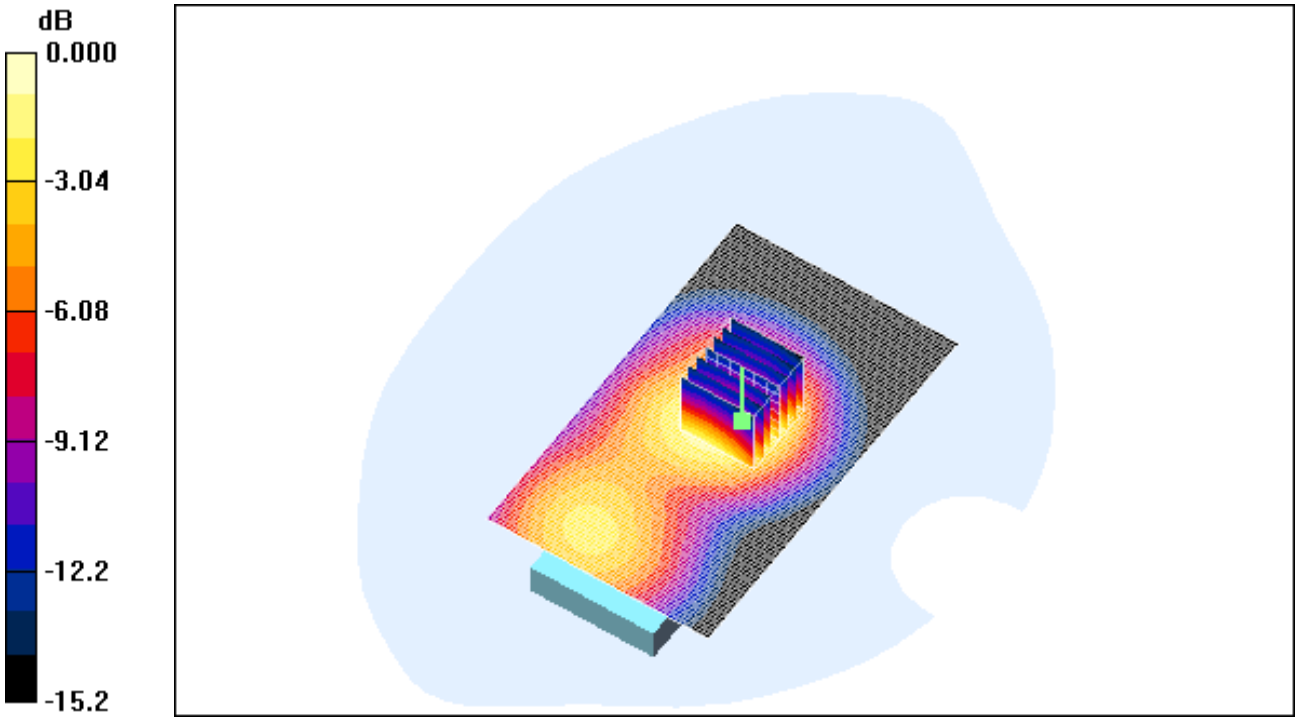
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.76, 4.76, 4.76); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - High-Rear 2/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.663 mW/g

Body Worn - High-Rear 2/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 19.7 V/m; Power Drift = 0.037 dB
Peak SAR (extrapolated) = 0.973 W/kg
SAR(1 g) = 0.597 mW/g; SAR(10 g) = 0.351 mW/g
Maximum value of SAR (measured) = 0.650 mW/g



0 dB = 0.650mW/g

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16.5.41 UMTS FDD IV- BodyWorn-WCDMA-Worstcase with headset

Date/Time: 2010-3-15 14:02:06

Test Laboratory: SGS-GSM

UMTS FDD IV-Body-Worn-WCDMA-Worstcase with headset

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV; Frequency: 1732.4 MHz;Duty Cycle: 1:1

Medium: HSL-1800-Body Medium parameters used: f = 1732.4 MHz; σ = 1.51 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3

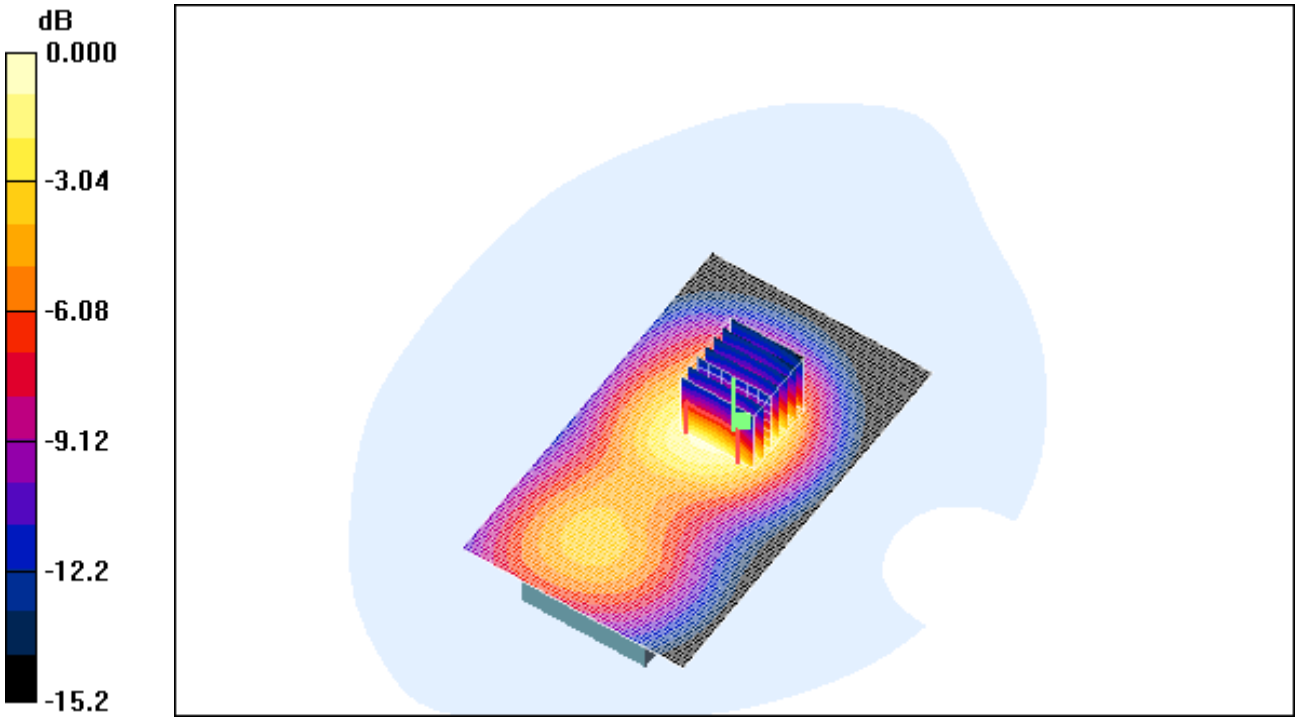
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.76, 4.76, 4.76); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle-Rear with headset/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.757 mW/g

Body Worn - Middle-Rear with headset/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 21.6 V/m; Power Drift = 0.011 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.679 mW/g; SAR(10 g) = 0.407 mW/g
Maximum value of SAR (measured) = 0.742 mW/g



0 dB = 0.742mW/g

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16.5.42 UMTS FDD IV- BodyWorn-HSDPA- Middle-Rear

Date/Time: 2010-3-15 15:52:21

Test Laboratory: SGS-GSM

UMTS FDD IV-Body-Worn-HSDPA-Middle-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV HSDPA; Frequency: 1732.4 MHz;Duty Cycle: 1:1

Medium: HSL-1800-Body Medium parameters used: f = 1732.4 MHz; σ = 1.51 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3

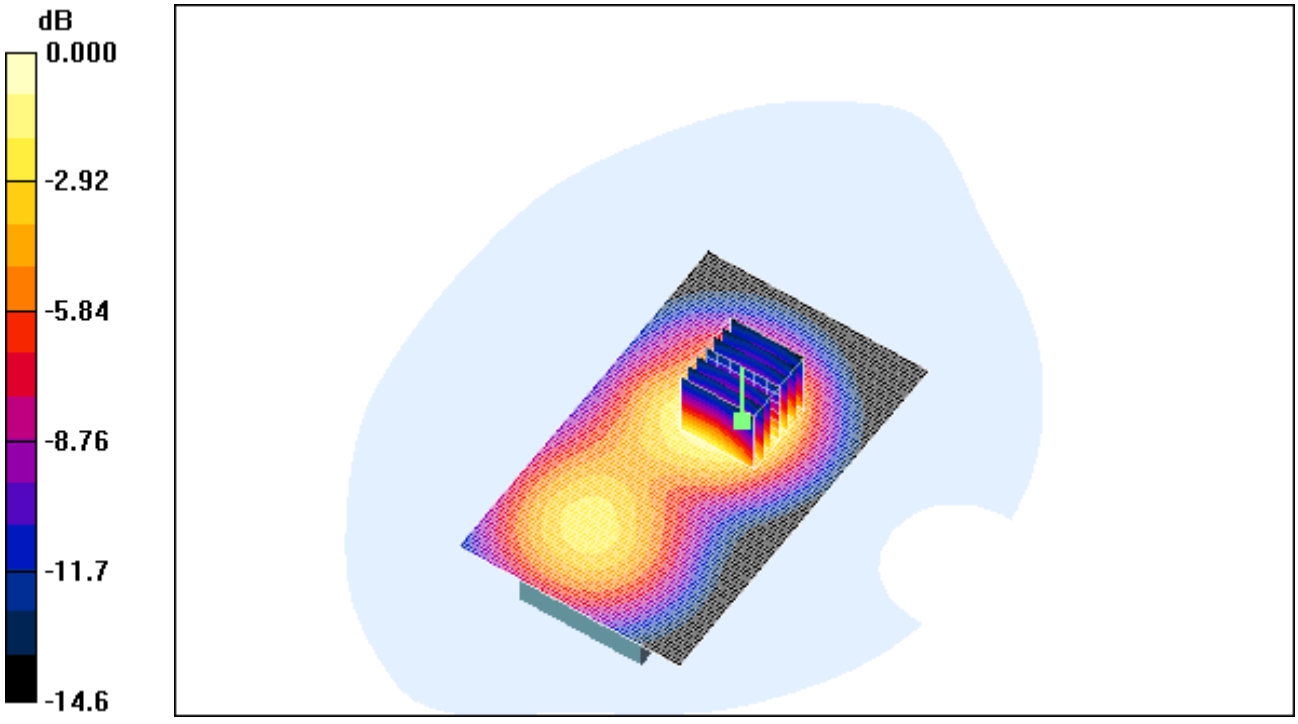
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.76, 4.76, 4.76); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.753 mW/g

Body Worn - Middle/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 21.1 V/m; Power Drift = 0.016 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.668 mW/g; SAR(10 g) = 0.396 mW/g
Maximum value of SAR (measured) = 0.727 mW/g



0 dB = 0.727mW/g

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16.5.43 UMTS FDD IV- BodyWorn-HSDPA-Low-Rear

Date/Time: 2010-3-15 16:50:45

Test Laboratory: SGS-GSM

UMTS FDD IV-Body-Worn-HSDPA-Low-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV HSDPA; Frequency: 1712.4 MHz;Duty Cycle: 1:1

Medium: HSL-1800-Body Medium parameters used: f = 1712.4 MHz; σ = 1.46 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3

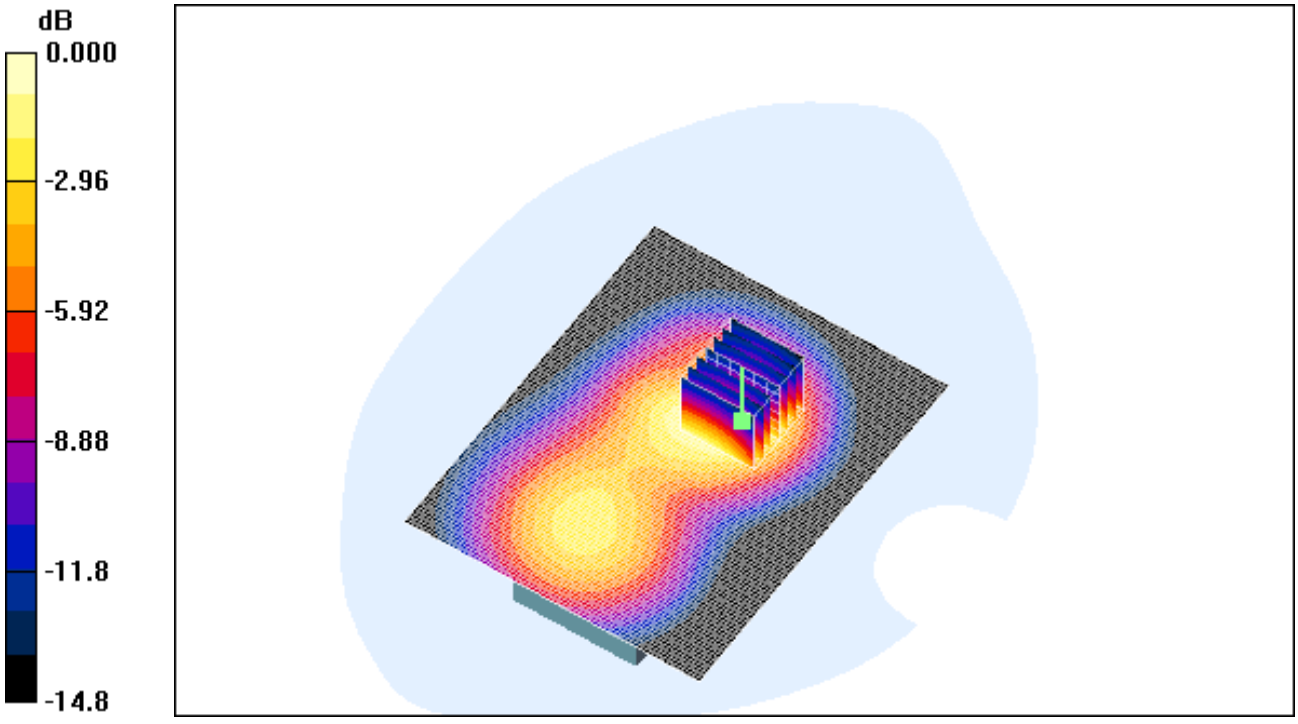
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.76, 4.76, 4.76); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Low/Area Scan (81x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.693 mW/g

Body Worn - Low/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 20.5 V/m; Power Drift = 0.038 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.619 mW/g; SAR(10 g) = 0.367 mW/g
Maximum value of SAR (measured) = 0.676 mW/g



0 dB = 0.676mW/g

16.5.44 UMTS FDD IV- BodyWorn-HSDPA- High-Rear

Date/Time: 2010-3-15 16:20:48

Test Laboratory: SGS-GSM

UMTS FDD IV-Body-Worn-HSDPA-High-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band IV HSDPA; Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium: HSL-1800-Body Medium parameters used: f = 1752.6 MHz; σ = 1.55 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.76, 4.76, 4.76); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - High/Area Scan (81x101x1): **Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.644 mW/g

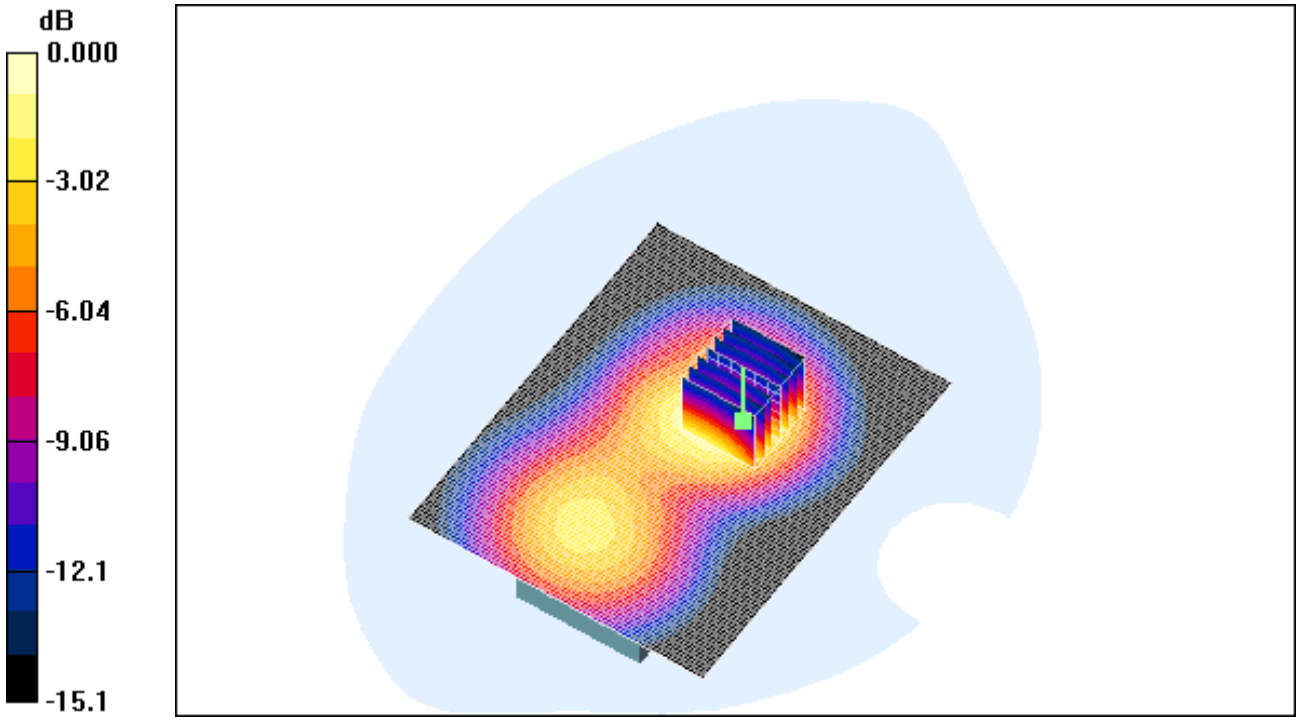
Body Worn - High/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**

Reference Value = 19.2 V/m; Power Drift = 0.000 dB

Peak SAR (extrapolated) = 0.928 W/kg

SAR(1 g) = 0.571 mW/g; SAR(10 g) = 0.338 mW/g

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



0 dB = 0.622mW/g

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16.5.45 UMTS FDD V-LeftHandSide-Cheek-Middle

Date/Time: 2010-3-9 13:10:04

Test Laboratory: SGS-GSM

UMTS FDD V-LeftHandSide-Cheek-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium: HSL835_Head Medium parameters used: f = 836.4 MHz; σ = 0.895 mho/m; ε_r = 42.2; ρ = 1000 kg/m^3

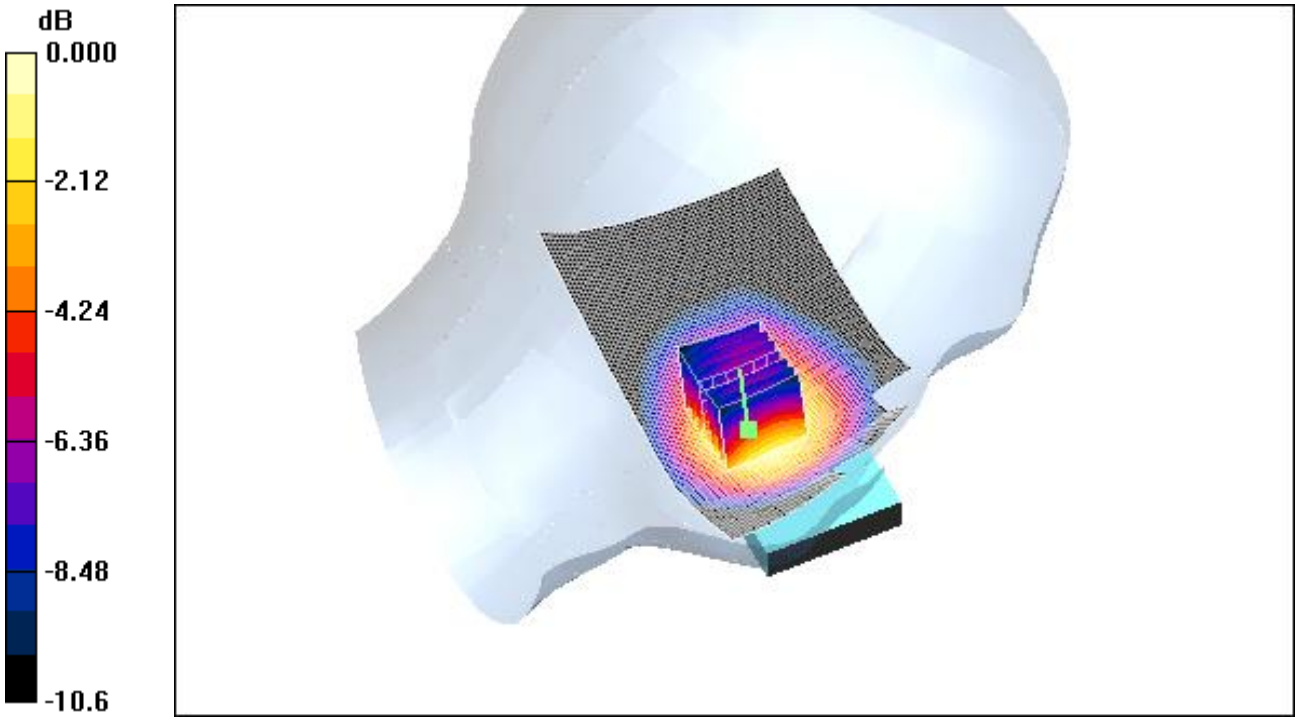
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Mid/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 1.01 mW/g

Cheek position - Mid/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 8.23 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.894 mW/g; SAR(10 g) = 0.626 mW/g
Maximum value of SAR (measured) = 0.944 mW/g



0 dB = 0.944mW/g

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16.5.46 UMTS FDD V-LeftHandSide-Tilt-Middle

Date/Time: 2010-3-9 14:35:52

Test Laboratory: SGS-GSM

UMTS FDD V-LeftHandSide-Tilt-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium: HSL835_Head Medium parameters used: f = 836.4 MHz; σ = 0.895 mho/m; ε_r = 42.2; ρ = 1000 kg/m^3

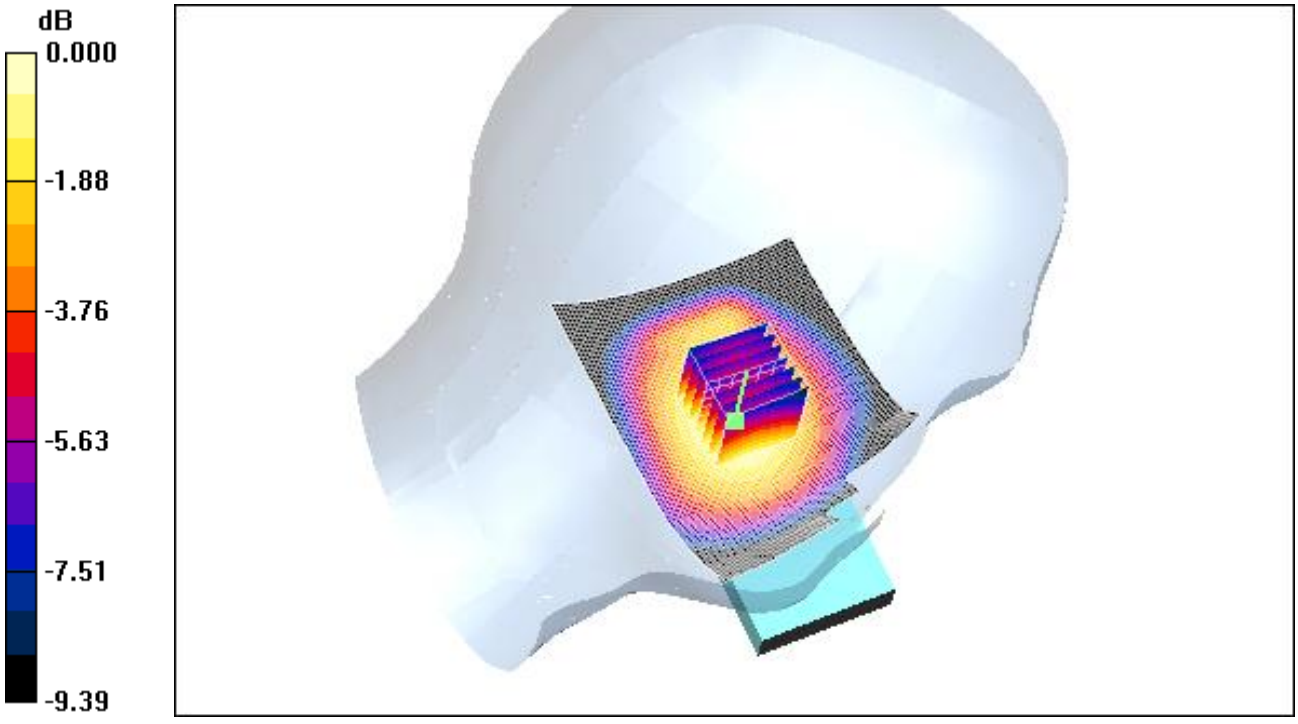
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Tilt position - Mid/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.442 mW/g

Tilt position - Mid/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 15.7 V/m; Power Drift = 0.143 dB
Peak SAR (extrapolated) = 0.564 W/kg
SAR(1 g) = 0.435 mW/g; SAR(10 g) = 0.320 mW/g
Maximum value of SAR (measured) = 0.459 mW/g



0 dB = 0.459mW/g

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16.5.47 UMTS FDD V-LeftHandSide-Cheek-Low

Date/Time: 2010-3-9 15:10:29

Test Laboratory: SGS-GSM

UMTS FDD V-LeftHandSide-Cheek-Low

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 826.4 MHz;Duty Cycle: 1:1

Medium: HSL835_Head Medium parameters used: f = 826.4 MHz; σ = 0.885 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3

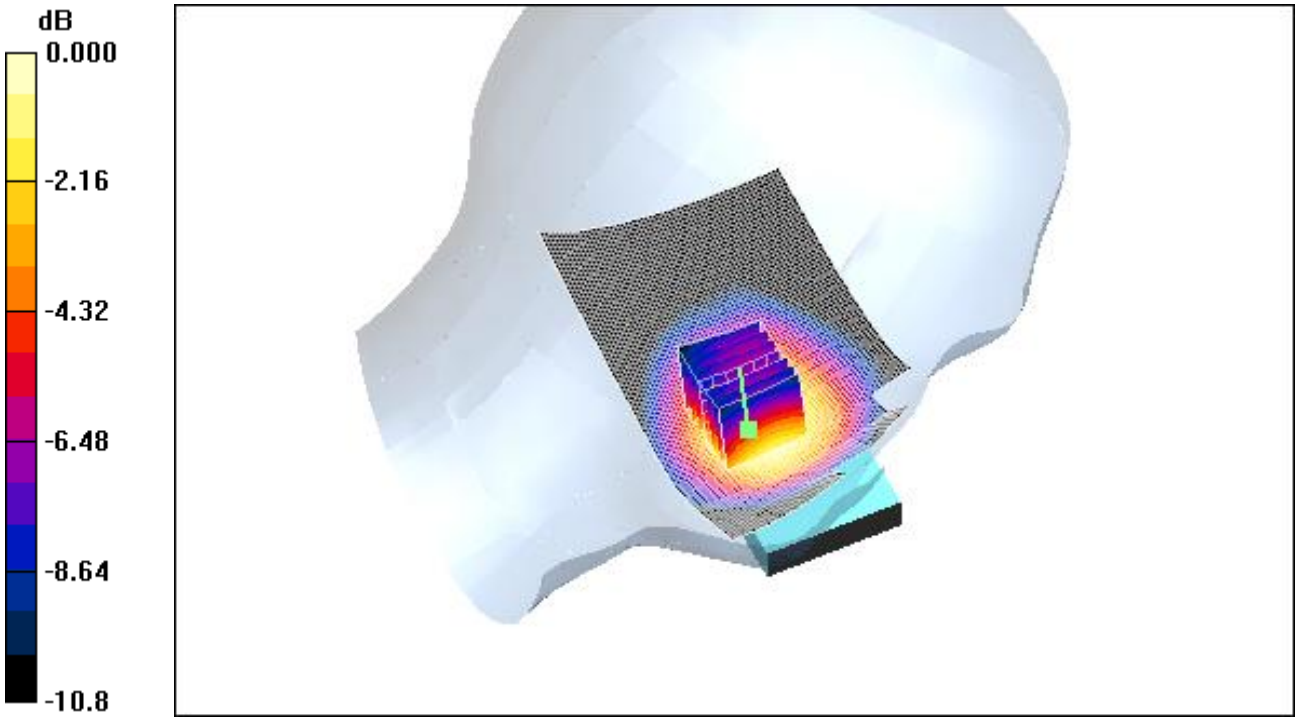
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Low/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 1.02 mW/g

Cheek position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 7.85 V/m; Power Drift = 0.152 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.889 mW/g; SAR(10 g) = 0.626 mW/g
Maximum value of SAR (measured) = 0.938 mW/g



0 dB = 0.938mW/g

16.5.48 UMTS FDD V-LeftHandSide-Cheek-High

Date/Time: 2010-3-9 13:37:07

Test Laboratory: SGS-GSM

UMTS FDD V-LeftHandSide-Cheek-High

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 846.6 MHz;Duty Cycle: 1:1

Medium: HSL835_Head Medium parameters used: f = 846.6 MHz; σ = 0.907 mho/m; ε_r = 42; ρ = 1000 kg/m^3

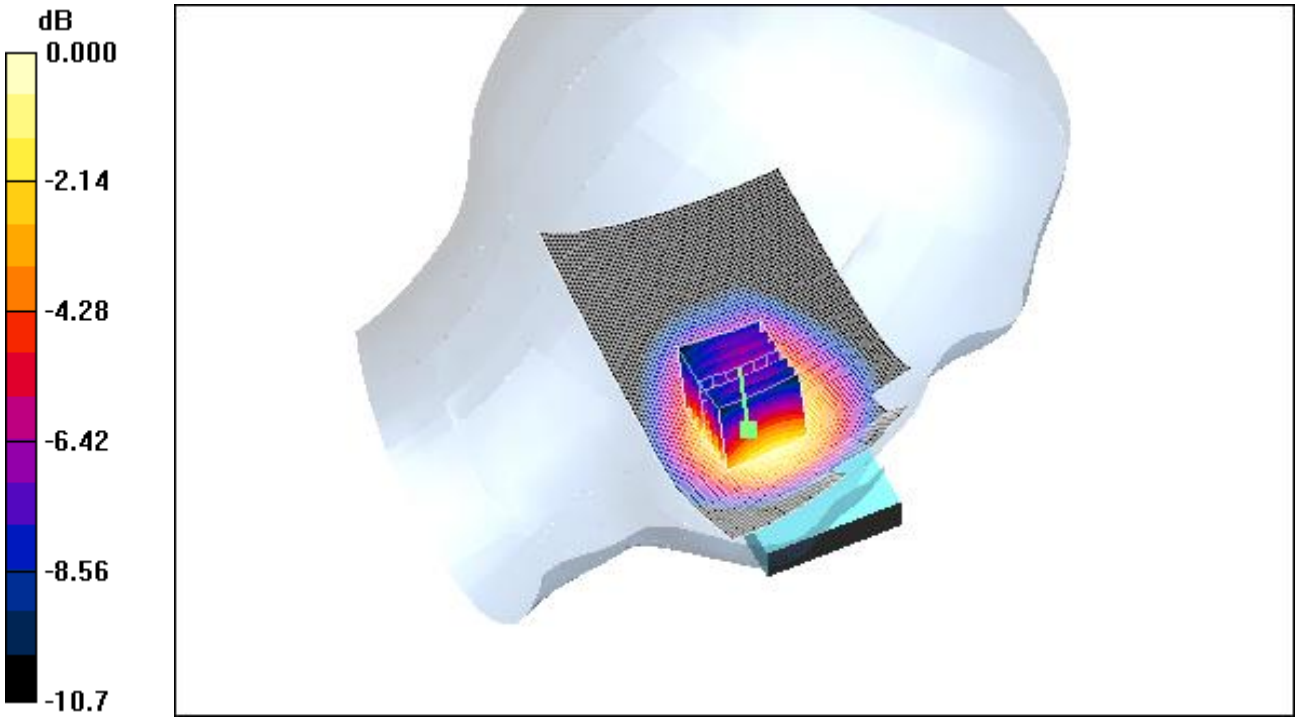
Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position -High/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 1.08 mW/g

Cheek position -High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 8.34 V/m; Power Drift = 0.038 dB
Peak SAR (extrapolated) = 1.34 W/kg
SAR(1 g) = 0.951 mW/g; SAR(10 g) = 0.662 mW/g
Maximum value of SAR (measured) = 1.01 mW/g



0 dB = 1.01mW/g

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16.5.49 UMTS FDD V-RightHandSide-Cheek-Middle

Date/Time: 2010-3-8 17:24:54

Test Laboratory: SGS-GSM

UMTS FDD V-RightHandSide-Cheek-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium: HSL835_Head Medium parameters used: f = 836.4 MHz; σ = 0.895 mho/m; ε_r = 42.2; ρ = 1000 kg/m^3

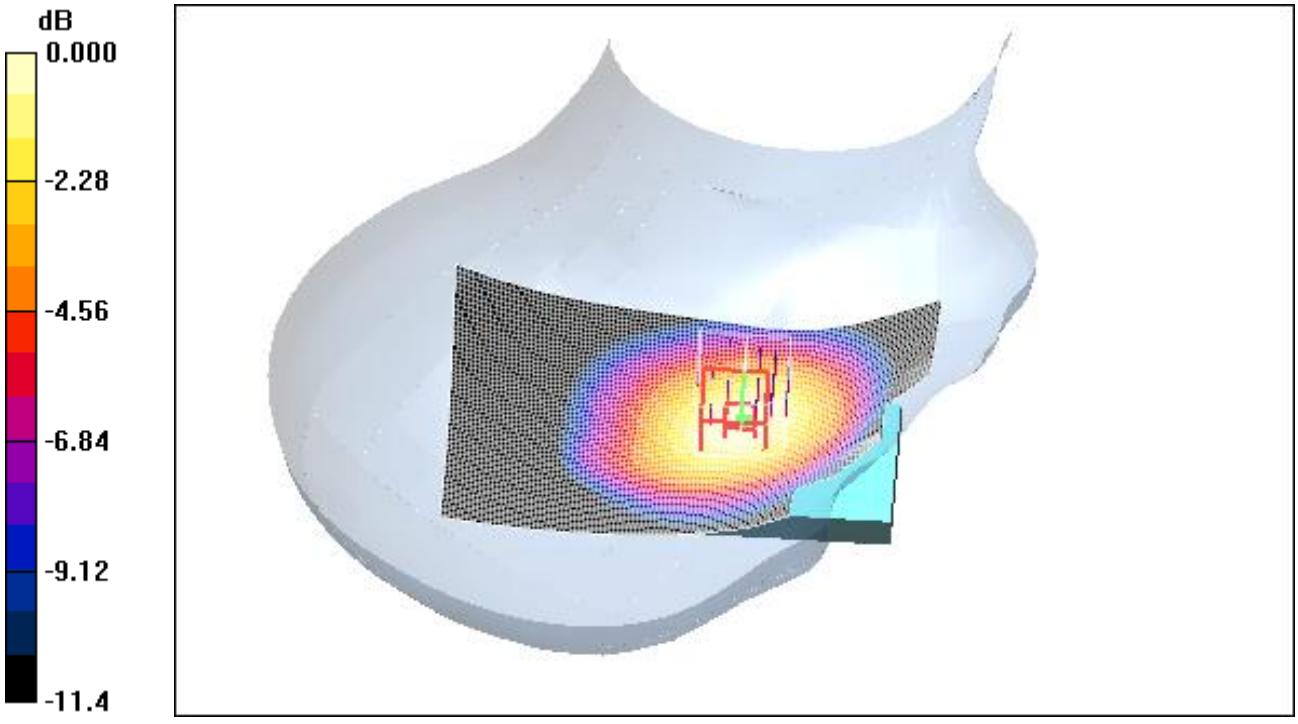
Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Middle/Area Scan (61x111x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.832 mW/g

Cheek position - Middle/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 11.7 V/m; Power Drift = 0.034 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.783 mW/g; SAR(10 g) = 0.543 mW/g
Maximum value of SAR (measured) = 0.844 mW/g



0 dB = 0.844mW/g

16.5.50 UMTS FDD V-RightHandSide-Tilt-Middle

Date/Time: 2010-3-8 17:00:09

Test Laboratory: SGS-GSM

UMTS FDD V-RightHandSide-Tilt-Middle

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium: HSL835_Head Medium parameters used: f = 836.4 MHz; σ = 0.895 mho/m; ε_r = 42.2; ρ = 1000 kg/m^3

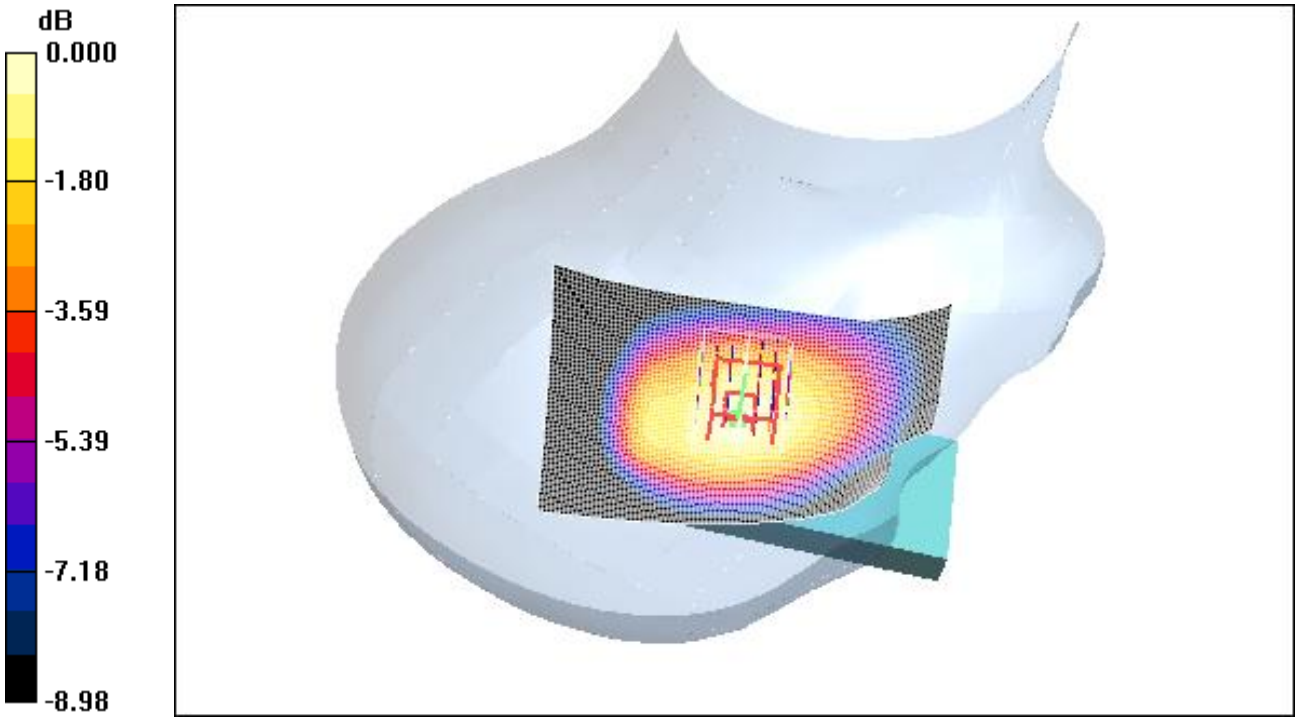
Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Tilt position - Middle/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.456 mW/g

Tilt position - Middle/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 17.2 V/m; Power Drift = 0.346 dB
Peak SAR (extrapolated) = 0.577 W/kg
SAR(1 g) = 0.441 mW/g; SAR(10 g) = 0.322 mW/g
Maximum value of SAR (measured) = 0.467 mW/g



0 dB = 0.467mW/g

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16.5.51 UMTS FDD V-RightHandSide-Cheek-Low

Date/Time: 2010-3-9 15:35:50

Test Laboratory: SGS-GSM

UMTS FDD V-RightHandSide-Cheek-Low

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 826.4 MHz;Duty Cycle: 1:1

Medium: HSL835_Head Medium parameters used: f = 826.4 MHz; σ = 0.885 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3

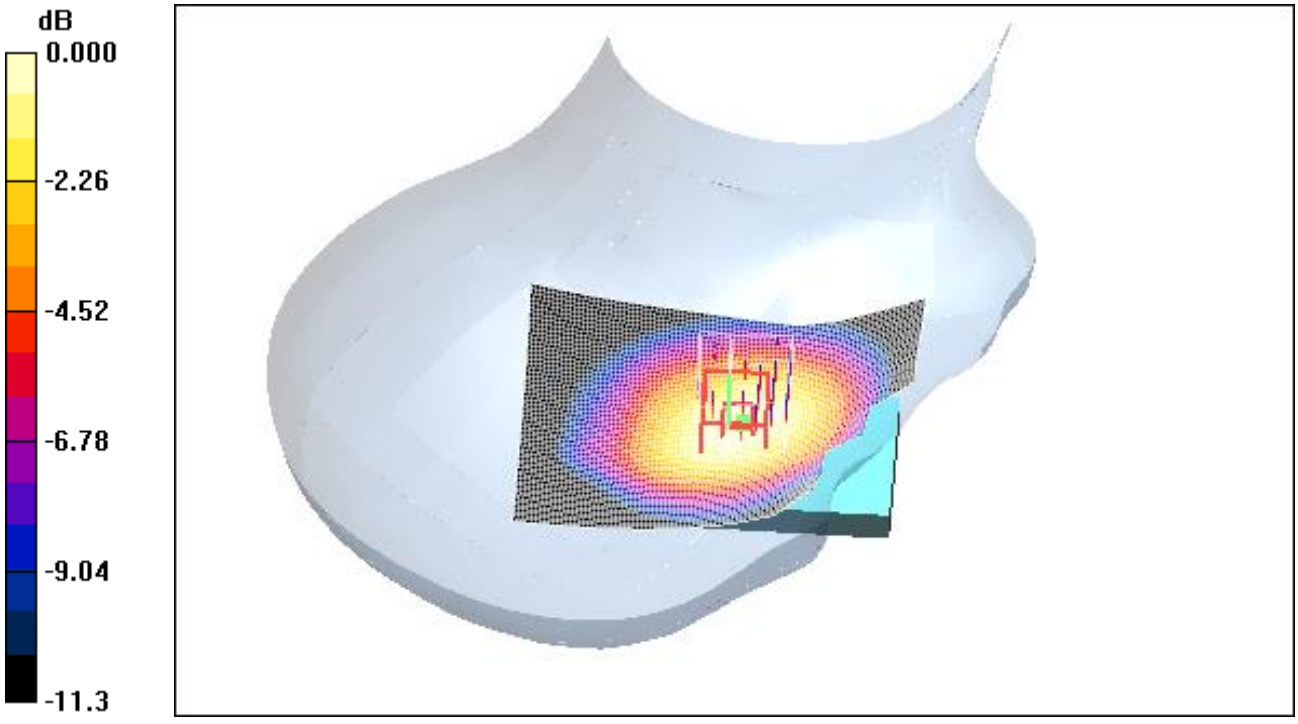
Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - Low/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.843 mW/g

Cheek position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 10.7 V/m; Power Drift = 0.143 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.803 mW/g; SAR(10 g) = 0.570 mW/g
Maximum value of SAR (measured) = 0.857 mW/g



0 dB = 0.857mW/g

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16.5.52 UMTS FDD V-RightHandSide-Cheek-High

Date/Time: 2010-3-9 11:37:24

Test Laboratory: SGS-GSM

UMTS FDD V-RightHandSide-Cheek-High

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 846.6 MHz;Duty Cycle: 1:1

Medium: HSL835_Head Medium parameters used: f = 846.6 MHz; σ = 0.907 mho/m; ε_r = 42; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek position - High/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.881 mW/g

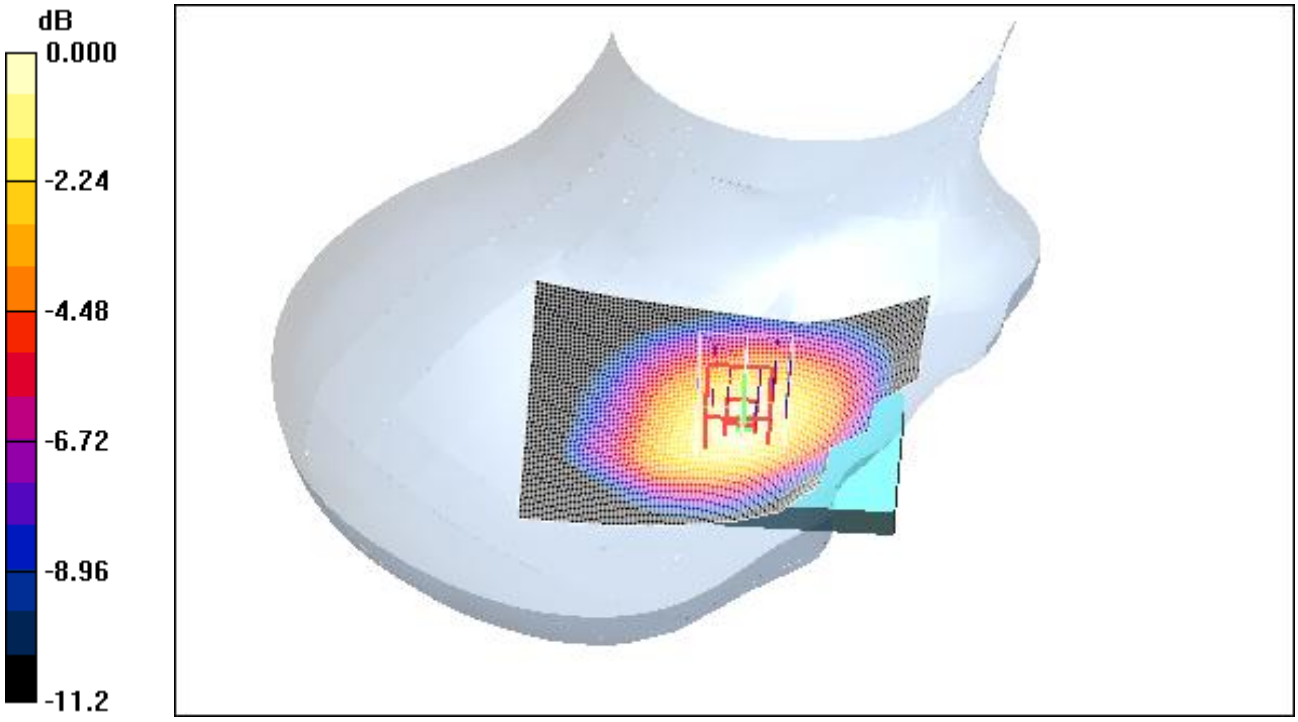
Cheek position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**

Reference Value = 10.7 V/m; Power Drift = 0.174 dB

Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.840 mW/g; SAR(10 g) = 0.584 mW/g

Maximum value of SAR (measured) = 0.915 mW/g



0 dB = 0.915mW/g

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16.5.53 UMTS FDD V-Body Worn-WCDMA-Middle-Front

Date/Time: 2010-3-17 10:18:20

Test Laboratory: SGS-GSM

UMTS FDD V-Body-Worn-WCDMA-Middle-Front

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium: HSL835 Body Medium parameters used: f = 836.4 MHz; σ = 0.974 mho/m; ε_r = 56.6; ρ = 1000 kg/m^3

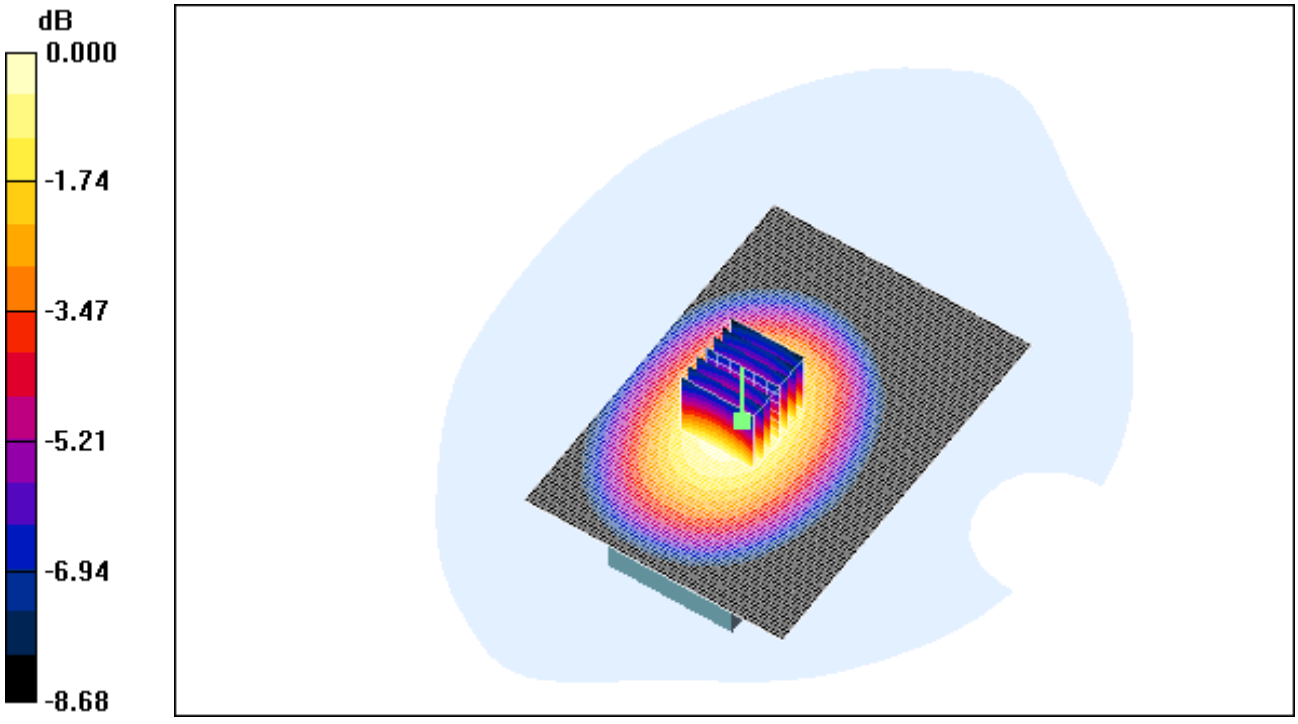
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle Front/Area Scan (71x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.684 mW/g

Body Worn - Middle Front/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 22.6 V/m; Power Drift = 0.193 dB
Peak SAR (extrapolated) = 0.838 W/kg
SAR(1 g) = 0.650 mW/g; SAR(10 g) = 0.479 mW/g
Maximum value of SAR (measured) = 0.686 mW/g



0 dB = 0.686mW/g

16.5.54 UMTS FDD V-Body Worn-WCDMA-Middle-Rear

Date/Time: 2010-3-17 10:44:06

Test Laboratory: SGS-GSM

UMTS FDD V-Body-Worn-WCDMA-Middle-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium: HSL835 Body Medium parameters used: f = 836.4 MHz; σ = 0.974 mho/m; ε_r = 56.6; ρ = 1000 kg/m^3

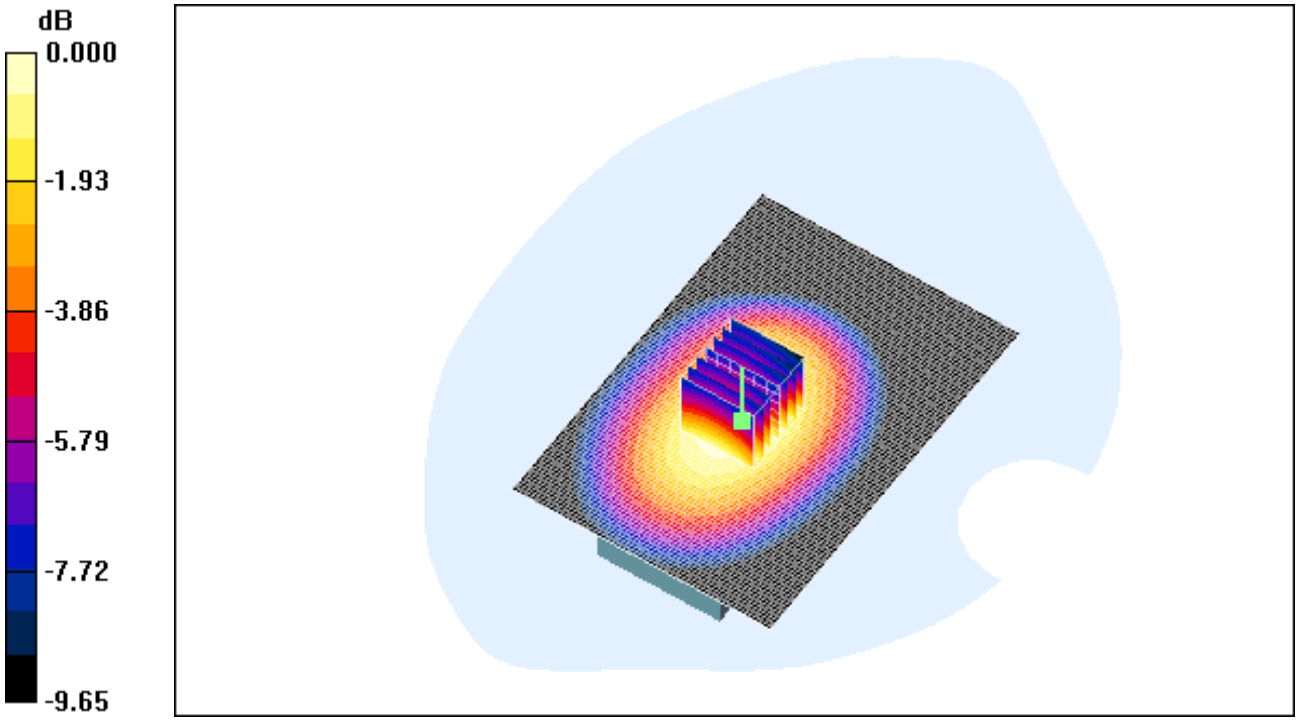
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle Rear/Area Scan (71x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.862 mW/g

Body Worn - Middle Rear/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 25.7 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.817 mW/g; SAR(10 g) = 0.588 mW/g
Maximum value of SAR (measured) = 0.867 mW/g



0 dB = 0.867mW/g

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16.5.55 UMTS FDD V-Body Worn-WCDMA-Low-Rear

Date/Time: 2010-3-17 11:55:04

Test Laboratory: SGS-GSM

UMTS FDD V-Body-Worn-WCDMA-Low-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 826.4 MHz;Duty Cycle: 1:1

Medium: HSL835 Body Medium parameters used: f = 826.4 MHz; σ = 0.962 mho/m; ε_r = 56.8; ρ = 1000 kg/m^3

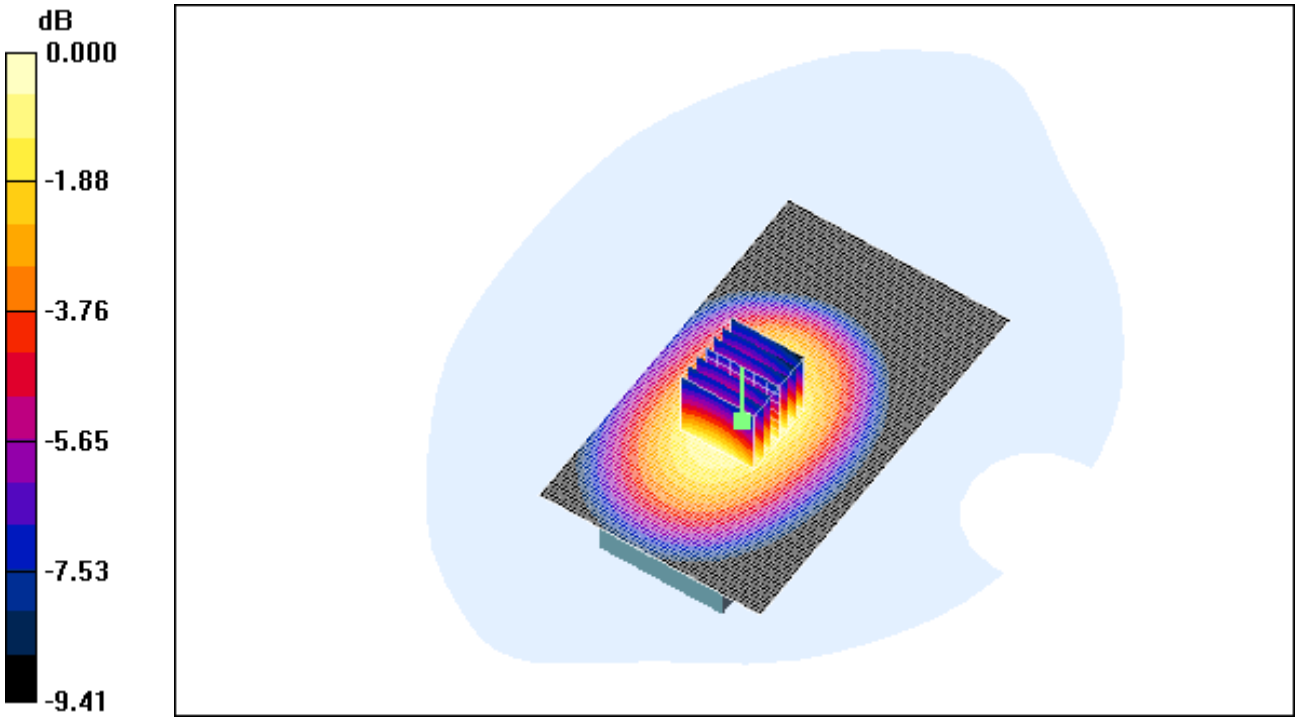
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn -Low/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.824 mW/g

Body Worn -Low/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 24.8 V/m; Power Drift = 0.089 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.787 mW/g; SAR(10 g) = 0.567 mW/g
Maximum value of SAR (measured) = 0.834 mW/g



0 dB = 0.834mW/g

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16.5.56 UMTS FDD V-Body Worn-WCDMA-High-Rear

Date/Time: 2010-3-17 11:12:20

Test Laboratory: SGS-GSM

UMTS FDD V-Body-Worn-WCDMA-High-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 846.6 MHz;Duty Cycle: 1:1

Medium: HSL835 Body Medium parameters used: f = 846.6 MHz; σ = 0.986 mho/m; ε_r = 56.4; ρ = 1000 kg/m^3

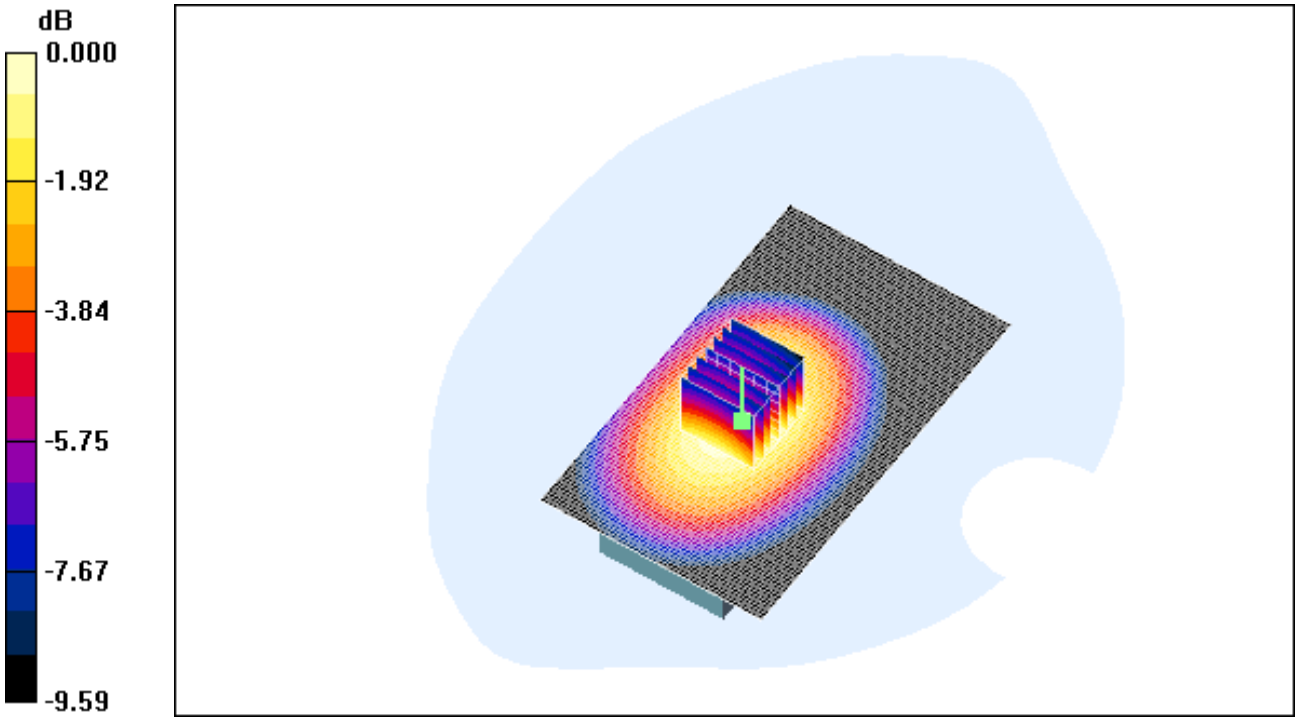
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - High/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.890 mW/g

Body Worn - High/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 25.6 V/m; Power Drift = 0.042 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.832 mW/g; SAR(10 g) = 0.599 mW/g
Maximum value of SAR (measured) = 0.884 mW/g



0 dB = 0.884mW/g

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16.5.57 UMTS FDD V-Body Worn-WCDMA-Worstcase with headset

Date/Time: 2010-3-17 14:06:11

Test Laboratory: SGS-GSM

UMTS FDD V-Body-Worn-WCDMA-Worstcase with headset

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V ; Frequency: 846.6 MHz;Duty Cycle: 1:1

Medium: HSL835 Body Medium parameters used: f = 846.6 MHz; σ = 0.986 mho/m; ε_r = 56.4; ρ = 1000 kg/m^3

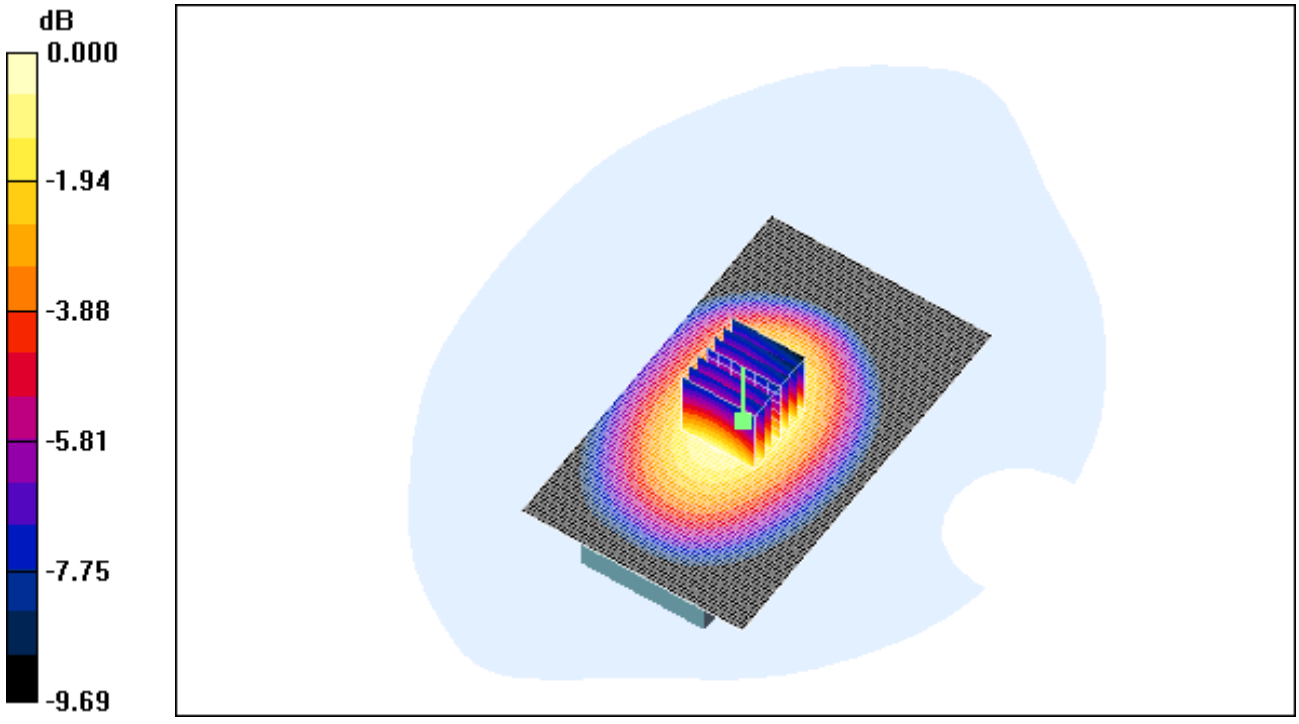
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Worstcase with headset/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.708 mW/g

Body Worn - Worstcase with headset/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 25.1 V/m; Power Drift = -0.050 dB
Peak SAR (extrapolated) = 0.900 W/kg
SAR(1 g) = 0.668 mW/g; SAR(10 g) = 0.477 mW/g
Maximum value of SAR (measured) = 0.714 mW/g



0 dB = 0.714mW/g

16.5.58 UMTS FDD V-Body Worn-HSDPA-Middle- Rear

Date/Time: 2010-3-17 14:55:43

Test Laboratory: SGS-GSM

UMTS FDD V-Body-Worn-HSDPA-Middle-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V HSDPA; Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium: HSL835 Body Medium parameters used: f = 836.4 MHz; σ = 0.974 mho/m; ε_r = 56.6; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Middle/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**

Maximum value of SAR (interpolated) = 0.837 mW/g

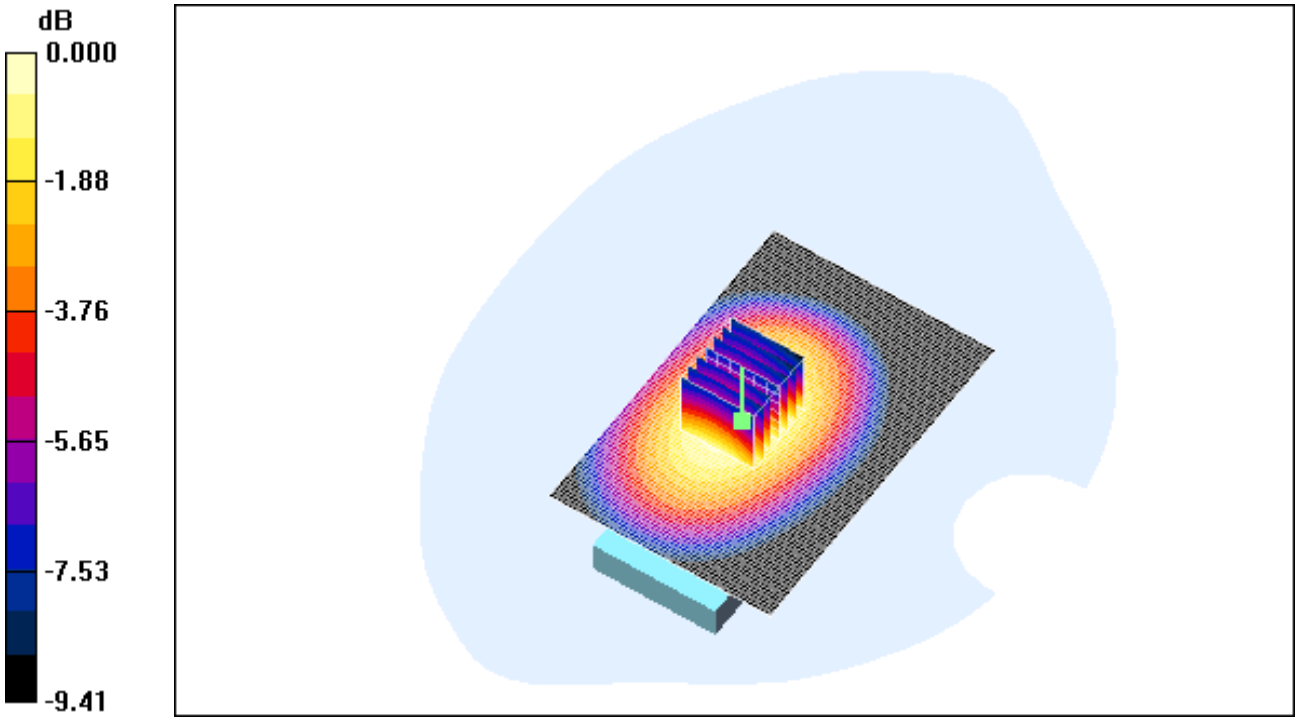
Body Worn - Middle/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**

Reference Value = 27.3 V/m; Power Drift = -0.157 dB

Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.785 mW/g; SAR(10 g) = 0.558 mW/g

Maximum value of SAR (measured) = 0.817 mW/g



0 dB = 0.817mW/g

16.5.59 UMTS FDD V-Body Worn-HSDPA-Low- Rear

Date/Time: 2010-3-17 15:16:07

Test Laboratory: SGS-GSM

UMTS FDD V-Body-Worn-HSDPA-Low-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V HSDPA; Frequency: 826.4 MHz;Duty Cycle: 1:1

Medium: HSL835 Body Medium parameters used: f = 826.4 MHz; σ = 0.962 mho/m; ε_r = 56.8; ρ = 1000 kg/m^3

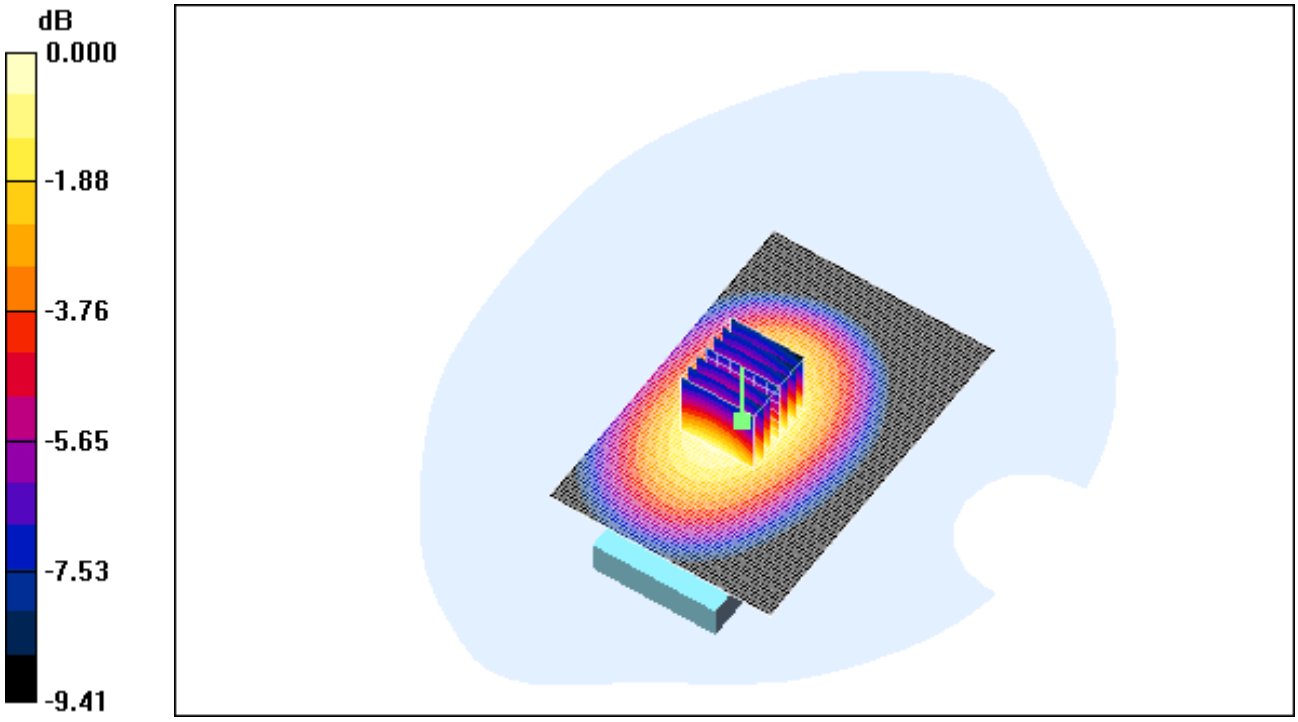
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - Low/Area Scan (61x91x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.823 mW/g

Body Worn - Low/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 27.4 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.786 mW/g; SAR(10 g) = 0.566 mW/g
Maximum value of SAR (measured) = 0.833 mW/g



0 dB = 0.833mW/g

16.5.60 UMTS FDD V-Body Worn-HSDPA-High- Rear

Date/Time: 2010-3-17 14:31:34

Test Laboratory: SGS-GSM

UMTS FDD V-Body-Worn-HSDPA-High-Rear

DUT: M0002AW01; Type: Head; Serial: 352129049999924

Communication System: WCDMA Band V HSDPA; Frequency: 846.6 MHz;Duty Cycle: 1:1

Medium: HSL835 Body Medium parameters used: f = 846.6 MHz; σ = 0.986 mho/m; ε_r = 56.4; ρ = 1000 kg/m^3

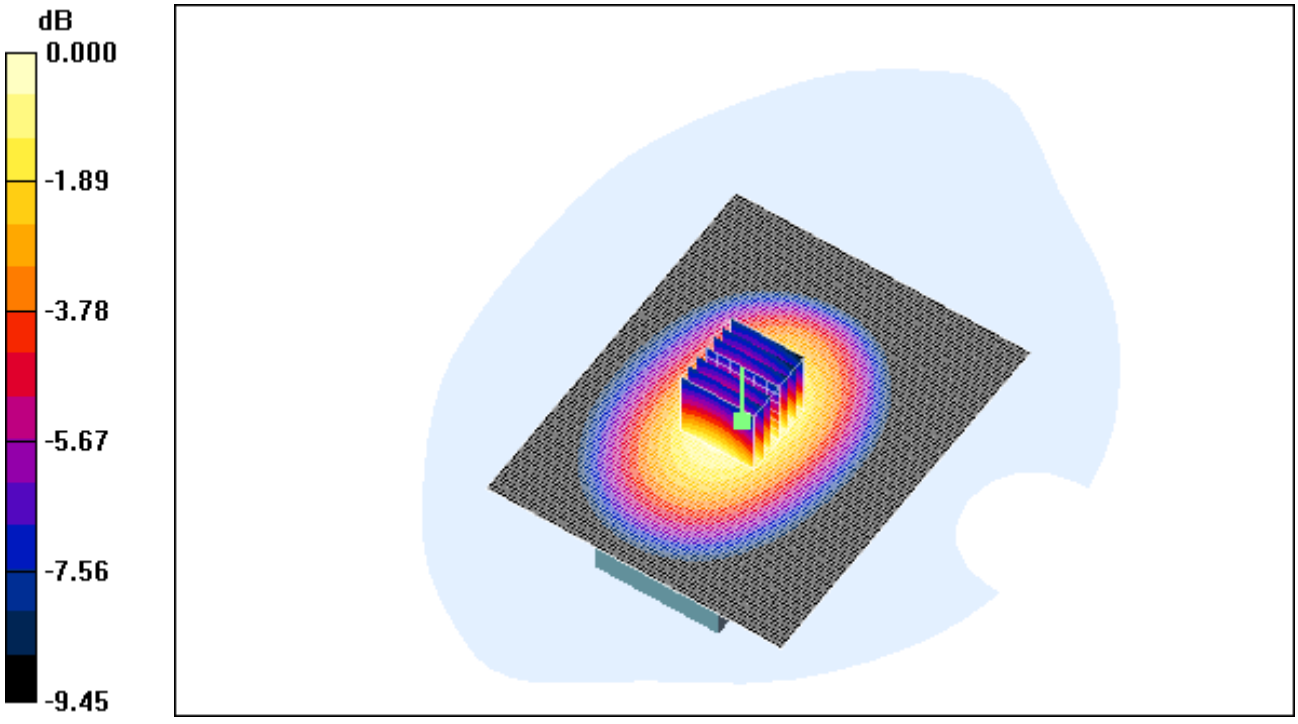
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Body Worn - High/Area Scan (81x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 0.860 mW/g

Body Worn - High/Zoom Scan (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 27.5 V/m; Power Drift = 0.001 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.817 mW/g; SAR(10 g) = 0.585 mW/g
Maximum value of SAR (measured) = 0.863 mW/g



0 dB = 0.863mW/g

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3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

17. Identification of Samples

Product Name	GSM/GPRS/EDGE/WCDMA/HSDPA Handhold Phone	
Brand Name	-	
Marketing Name	W660	
Final Hardware Version	W660_344	
Final Software Version	LQARZ01_240005_0.0.4	
Normal Voltage	3.8 V	
Low Voltage	3.5 V	
High Voltage	4.2 V	
Battery Type	Li-ion	
	3.7V / 1000mAh	
Antenna Type	Inner antenna	
GSM Frequency Bands	GSM850(tested)	Tx: 824~849MHz
		Rx: 869~894MHz
	EGSM 900	Tx: 880~915MHz
		Rx: 925~960 MHz
	DCS 1800	Tx: 1710~1785 MHz
		Rx: 1805~1880 MHz
	PCS1900(tested)	Tx:1850~1910MHz
		Rx:1930~1990MHz
UMTS Frequency Bands	FDDI	Tx:1920~1980MHz
		Rx:2110~2170MHz
	FDDIV(tested)	Tx:1710~1755MHz
		Rx: 2110 - 2155MHz
	FDDV(tested)	Tx:824~849MHz
		Rx: 869~894MHz
Modulation Mode	GMSK,8PSK,QPSK,16QAM	
GSM / GPRS Power Class	GSM850	4
	PCS1900	1
EGPRS Power Class	GSM850	E2
	PCS1900	E2
WCDMA Power Class	FDDIV, FDDV	3
GPRS Multislot class	GSM850.PCS1900	Class 12

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EGPRS Multislot class	GSM850.PCS1900	Class 12
Reference Number	GSM10170698S01	
Serial Number	M0002AW01	
IMEI	352129049999924	
Date of receipt	03-07,2010	
Date of Testing Start	03-08,2010	
Date of Testing End	03-17,2010	

18. Photographs of EUT

Fig.18-1 Front View

Fig.18-2 Back View

Fig.18-3 Battery

Fig.18-4 Headset

Annex A Photographs of Test Setup

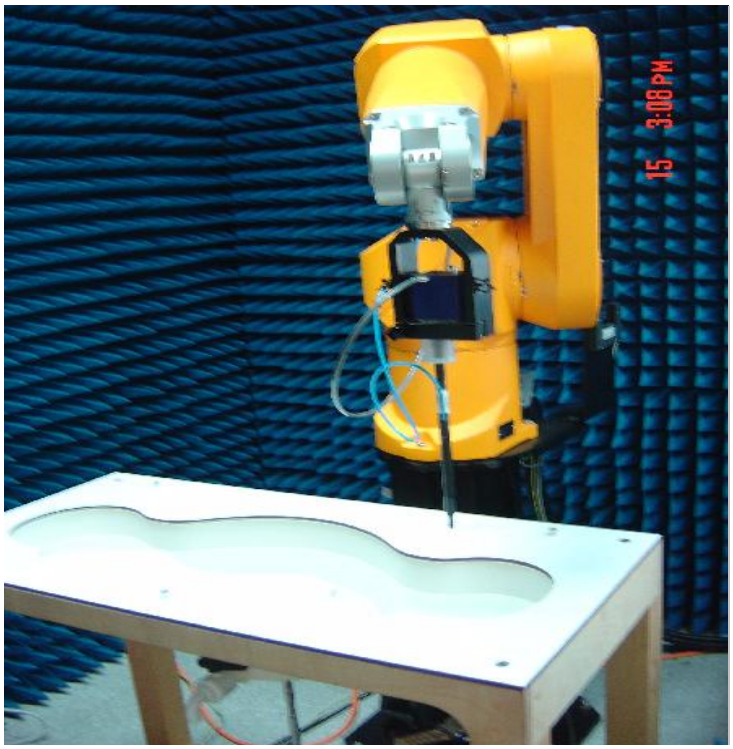

Fig.A-1 Photograph of the SAR measurement System

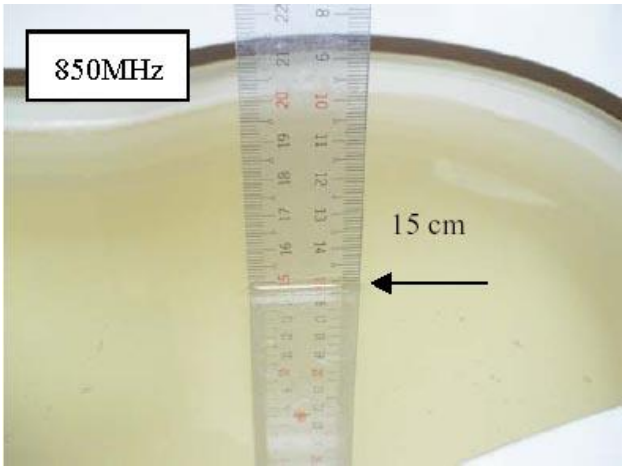

Fig.A-2a Photograph of the Tissue Simulant Liquid depth 15cm for Head

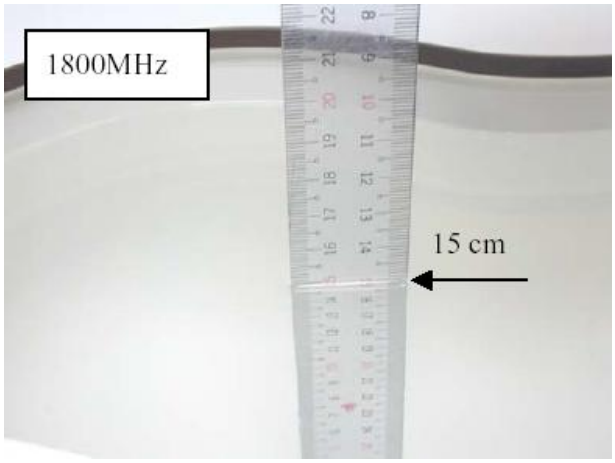

Fig.A-2b Photograph of the Tissue Simulant Liquid depth 15cm for Head

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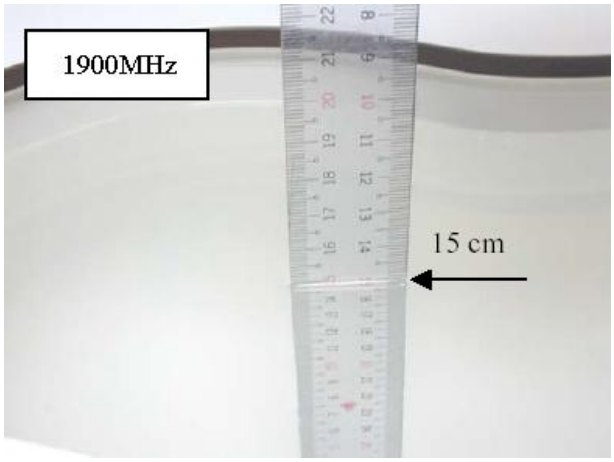
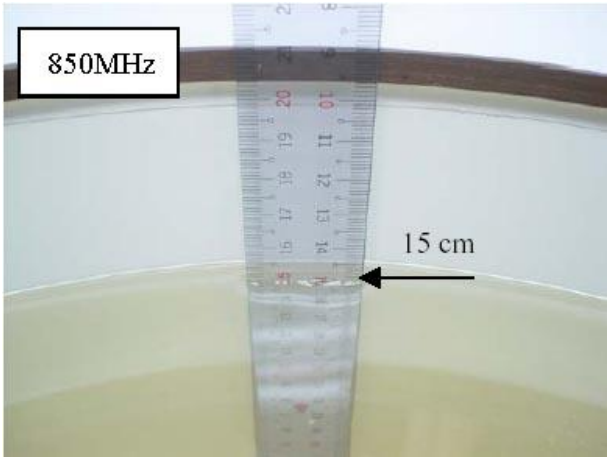


Fig.A-2cPhotograph of the Tissue Simulant Liquid depth 15cm for Head



- Fig.A-3a. Photograph of the Tissue Simulant Liquid depth 15cm for Body Worn

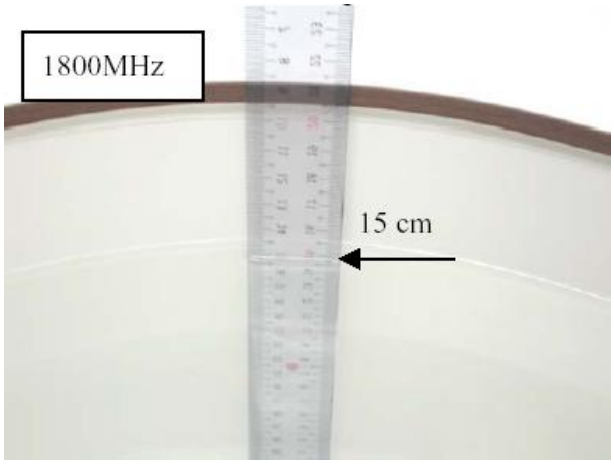


Fig.A-3b.Photograph of the Tissue Simulant Liquid depth 15cm for Body Worn

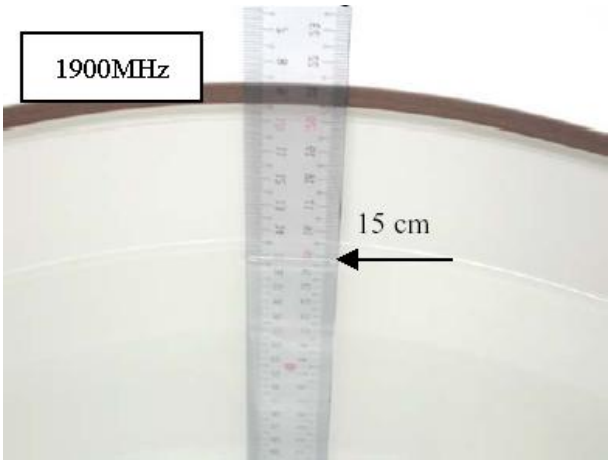


Fig.A-3c. Photograph of the Tissue Simulant Liquid depth 15cm for Body Worn

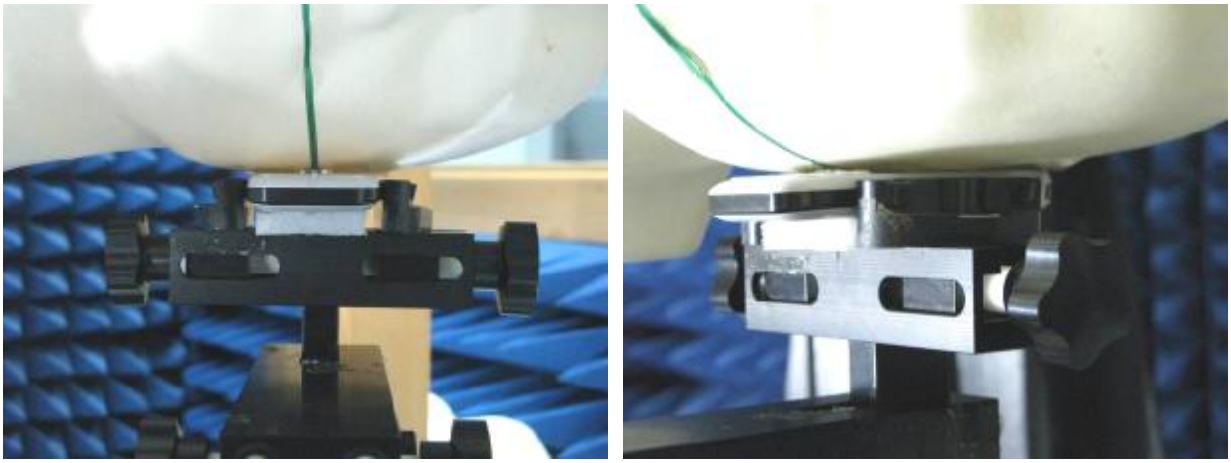


Fig.A-4a Photograph of the Left Hand Side Cheek status

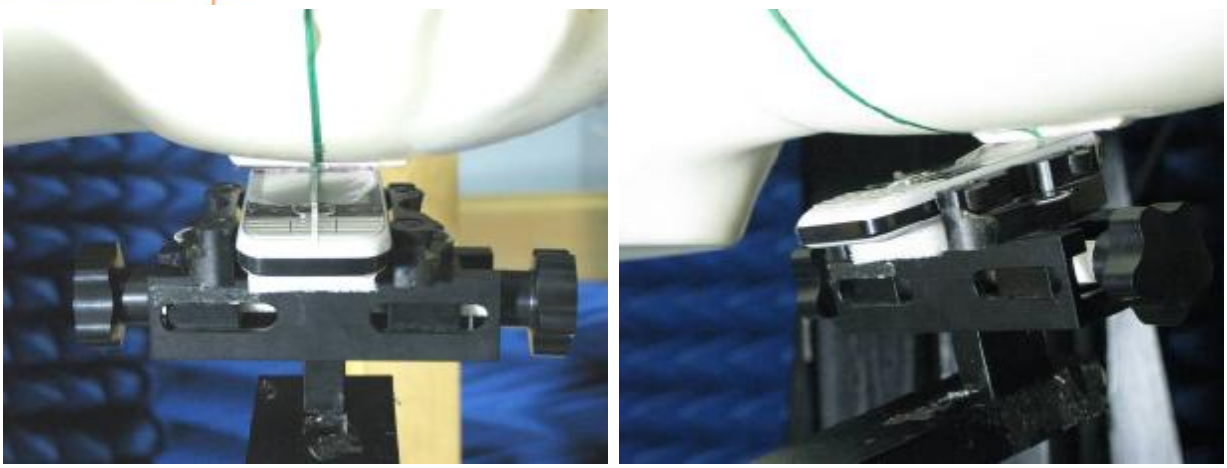


Fig.A-4b Photograph of the Left Hand Side Tilted status

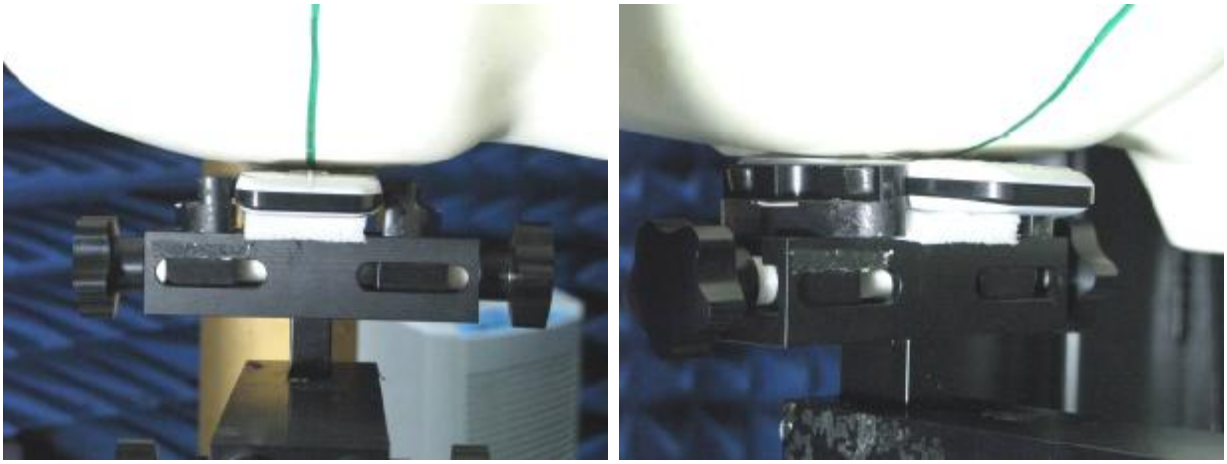


Fig.A-4c Photograph of the Right Hand Side Cheek status

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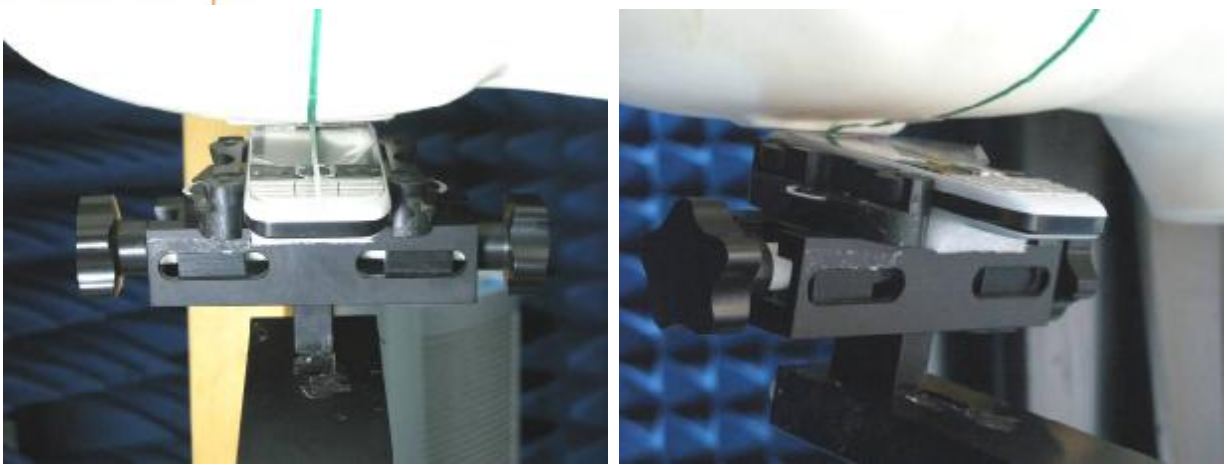

Fig.A-4d Photograph of the Right Hand Side Tilted status

Fig.A-4e Photograph of the Body Worn status-front

Fig.A-4f Photograph of the Body Worn status-rear

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Annex B Tissue Simulant Liquid

Annex B.1 Recipes for Tissue Simulant Liquid

The bellowing tables give the recipes for tissue simulating liquids to be used in different frequency bands.

Frequency (MHz)	835		900		1800-2000	
Tissue Type	**Head**	**Body**	**Head**	**Body**	**Head**	**Body**
Ingredient (% by weight)						
Water	40.30	50.75	40.30	50.75	55.24	70.17
Salt (NaCl)	1.38	0.94	1.38	0.94	0.31	0.39
Sucrose	57.90	48.21	57.90	48.21	0	0
HEC	0.24	0	0.24	0	0	0
Bactericide	0.18	0.10	0.10	0.10	0	0
DGBE	0	0	0	0	44.45	29.44
Measurement dielectric parameters						
Dielectric Constant	41.9	55.0	41.1	54.5	39.2	53.2
Conductivity (S/m)	0.93	0.97	1.04	1.06	1.45	1.59
Target values						
Dielectric Constant	41.5	55.2	41.5	55.0	40.0	53.3
Conductivity (S/m)	0.90	0.97	0.97	1.05	1.40	1.52

Salt: 99^{+}% Pure Sodium Chloride Sucrose: 98^{+}% Pure Sucrose

Water: De-ionized, 16 MΩ^{+} resistivity HEC: Hydroxyethyl Cellulose

DGBE: 99^{+}% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]

Table B-1 Recipe of Tissue Simulat Liquid

Annex B.2 Measurement for Tissue Simulant Liquid

The dielectric properties for this Tissue Simulant Liquids were measured by using the Agilent Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with Agilent E5071B Network Analyzer (300 KHz-8500 MHz). The Conductivity (σ) and Permittivity (ρ) are listed in Table 1.For the SAR measurement given in this report. The temperature variation of the Tissue Simulant Liquids was 22±2°C.

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Frequency (MHz)	Tissue Type	Limit/Measured	Permittivity (ρ)	Conductivity (σ)	Temp (°C)
835	Head	Recommended Limit	41.5±5% (39.43~43.57)	0.90±5% (0.86~0.94)	22±2
		Measured,03-08,2010	42.2	0.894	22.1
		Measured, 03-09,2010	42.1	0.9	22.1
	Body	Recommended Limit	55.2±5% (52.44~57.96)	0.97±5% (0.92~1.01)	22±2
		Measured, 03-17,2010	56.6	0.972	22.0
1800	Head	Recommended Limit	40±5% (38-42)	1.40±5% (1.33~1.47)	22±2
		Measured, 03-12,2010	38.6	1.44	22.2
	Body	Recommended Limit	53.3±5% (50.64~55.96)	1.52±5% (1.45~1.59)	22±2
		Measured, 03-15,2010	52.2	1.57	21.9
1900	Head	Recommended Limit	40±5% (38-42)	1.40±5% (1.33~1.47)	22±2
		Measured, 03-10,2010	38.9	1.42	21.8
	Body	Recommended Limit	53.3±5% (50.64~55.96)	1.52±5% (1.45~1.59)	22±2
		Measured,03-16,2010	53.2	1.54	22.2

Table B-2 Measurement result of Tissue electric parameters

Annex C SAR System Validation

The microwave circuit arrangement for system verification is sketched in Fig. C-1. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. These tests were done at 835&1800&1900MHz. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the table C-1 (A power level of 250mw was input to the dipole antenna). During the tests, the ambient temperature of the laboratory was in the range 22°C, the relative humidity was in the range 60% 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.

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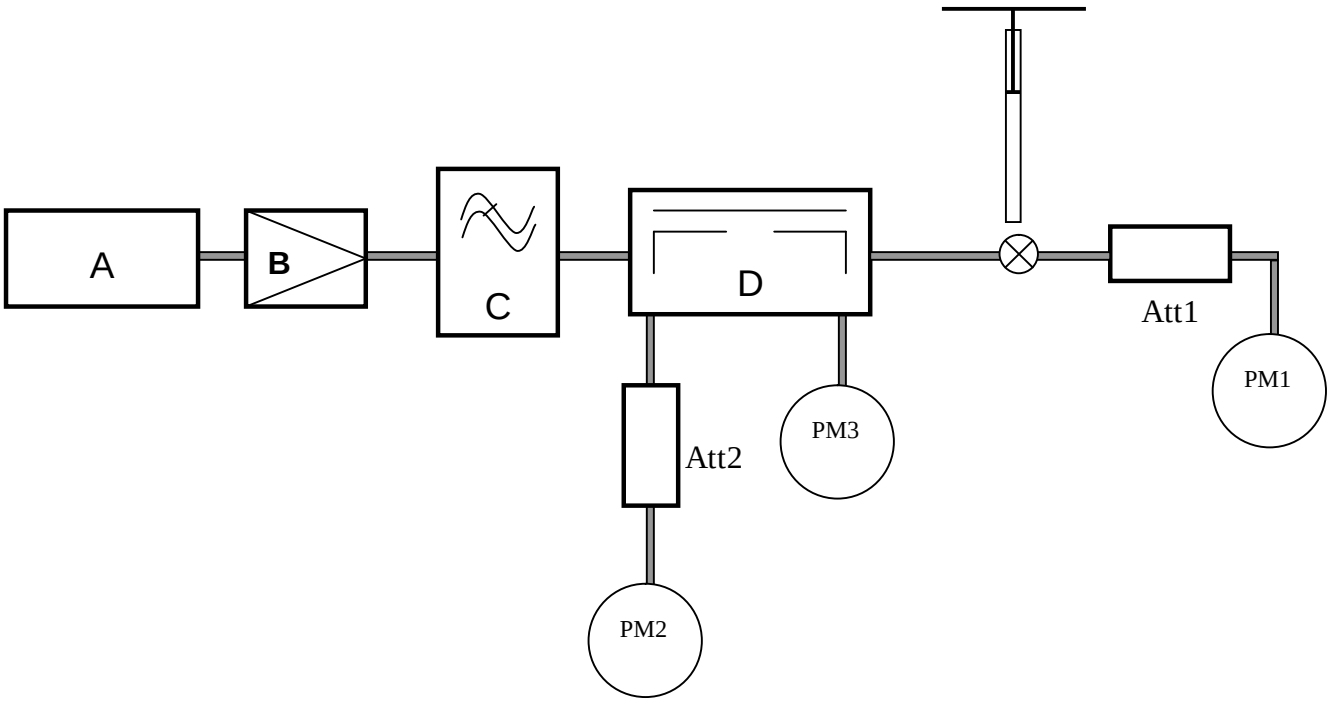

Fig. C-1 the microwave circuit arrangement used for SAR system verification

A. Agilent E4438C Signal Generator

B. Mini-Circuit ZHL-42 Preamplifier

C. Mini-Circuit VLF-2500+ Low Pass Filter

D. Mini-Circuits ZABDC20-252H-N+ Bi-DIR Coupling

PM1. Power Sensor NRP-Z92

PM2. Agilent Model E4416A Power Meter

PM3. Power Sensor NRP-Z92

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Validation Kit	Frequency (MHz)	Tissue Type	Limit/Measurement		
			Condition	Recommended/Measured	1g
D835V2	835	Head	Nomalized to 1mW(for nominal Head TSL parameters)	Recommended Limit	9.62±10% (8.66-10.58)
			Nomalized to 1W(for nominal Head TSL parameters)	-	**9.93**
			250mW input power	Measured, 03-08,2010	**2.46**
			Nomalized to 1W(for nominal Head TSL parameters)		**9.71**
			250mW input power	Measured, 03-09,2010	**2.42**
		Body	Nomalized to 1mW(for nominal Head TSL parameters)	Recommended Limit	9.89±10% (8.90-10.87)
			Nomalized to 1W(for nominal Head TSL parameters)	-	**10.08**
			250mW input power	Measured, 03-17,2010	**2.51**
D1800V2	1800	Head	Nomalized to 1W(for nominal Head TSL parameters)	Recommended Limit	38.6±10% (34.74-42.46)
			Nomalized to 1W(for nominal Head TSL parameters)		**37.53**
			250mW input power	Measured, 03-12,2010	**9.62**
		Body	Nomalized to 1mW(for nominal Head TSL parameters)	Recommended Limit	38.2±10% (34.38-42.02)
			Nomalized to 1W(for nominal Head TSL parameters)	-	**38.64**
			250mW input power	Measured, 03-15,2010	**9.9**
D1900V2	1900	Head	Nomalized to 1W(for nominal Head TSL parameters)	Recommended Limit	39.3±10% (35.37-43.23)
			Nomalized to 1W(for nominal Head TSL parameters)		**40.60**
			250mW input power	Measured, 03-10,2010	**10.3**
		Body	Nomalized to 1mW(for nominal Head TSL parameters)	Recommended Limit	40.4±10% (36.36-44.44)
			Nomalized to 1W(for nominal Head TSL parameters)	-	**40.86**
			250mW input power	Measured, 03-16,2010	**10.3**

Table C-1 SAR System Validation Result

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System Validation for 835MHz-Head-1

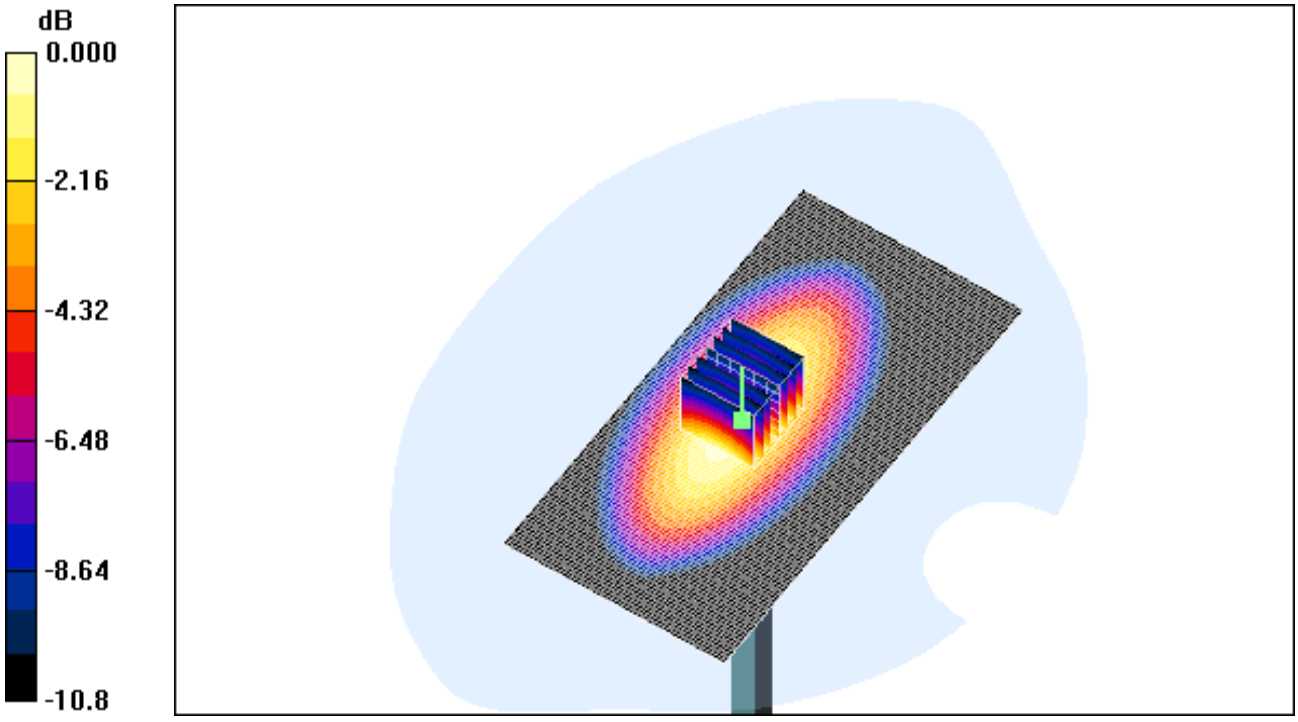
Date/Time: 2010-3-8 9:55:39

Test Laboratory: SGS-GSM
System-Validation-D835-Head
DUT: Dipole 835MHz; Type: D835V2; Serial: D835V2 - SN:4d070
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL900_Head Medium parameters used: f = 835 MHz; σ = 0.894 mho/m; ε_r = 42.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

d=15mm, Pin=250mW/Area Scan (61x121x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 2.59 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 54.1 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 3.77 W/kg
SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.58 mW/g
Maximum value of SAR (measured) = 2.66 mW/g



0 dB = 2.66mW/g

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System Validation for 835MHz-Head-2

Date/Time: 2010-3-9 10:53:46

Test Laboratory: SGS-GSM

System-Validation-D835-Head

DUT: Dipole 835MHz; Type: D835V2; Serial: D835V2 - SN:4d070

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

Medium: HSL900_Head Medium parameters used: f = 835 MHz; σ = 0.9 mho/m; ε_r = 42.1; ρ = 1000 kg/m^3

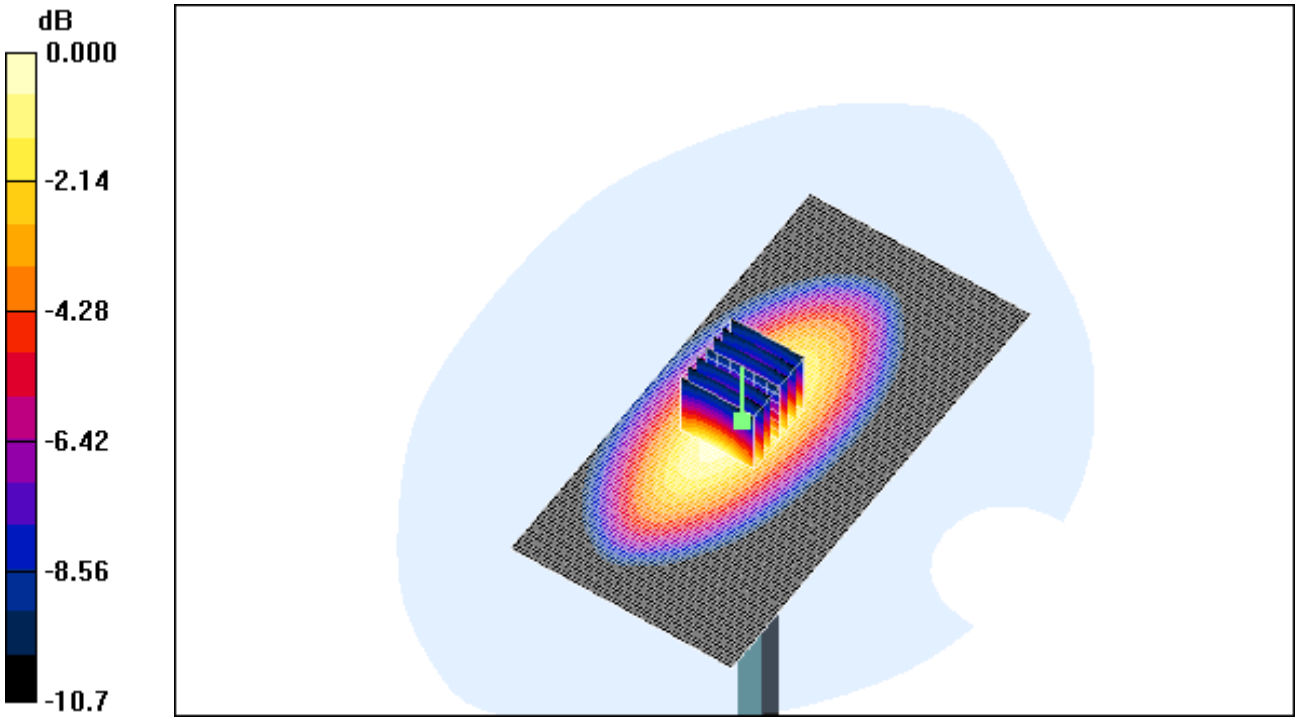
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.84, 5.84, 5.84); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

d=15mm, Pin=250mW/Area Scan (61x121x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 2.57 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 52.3 V/m; Power Drift = 0.002 dB
Peak SAR (extrapolated) = 3.69 W/kg
SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.56 mW/g
Maximum value of SAR (measured) = 2.62 mW/g



0 dB = 2.62mW/g

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System Validation for 835MHz-Body

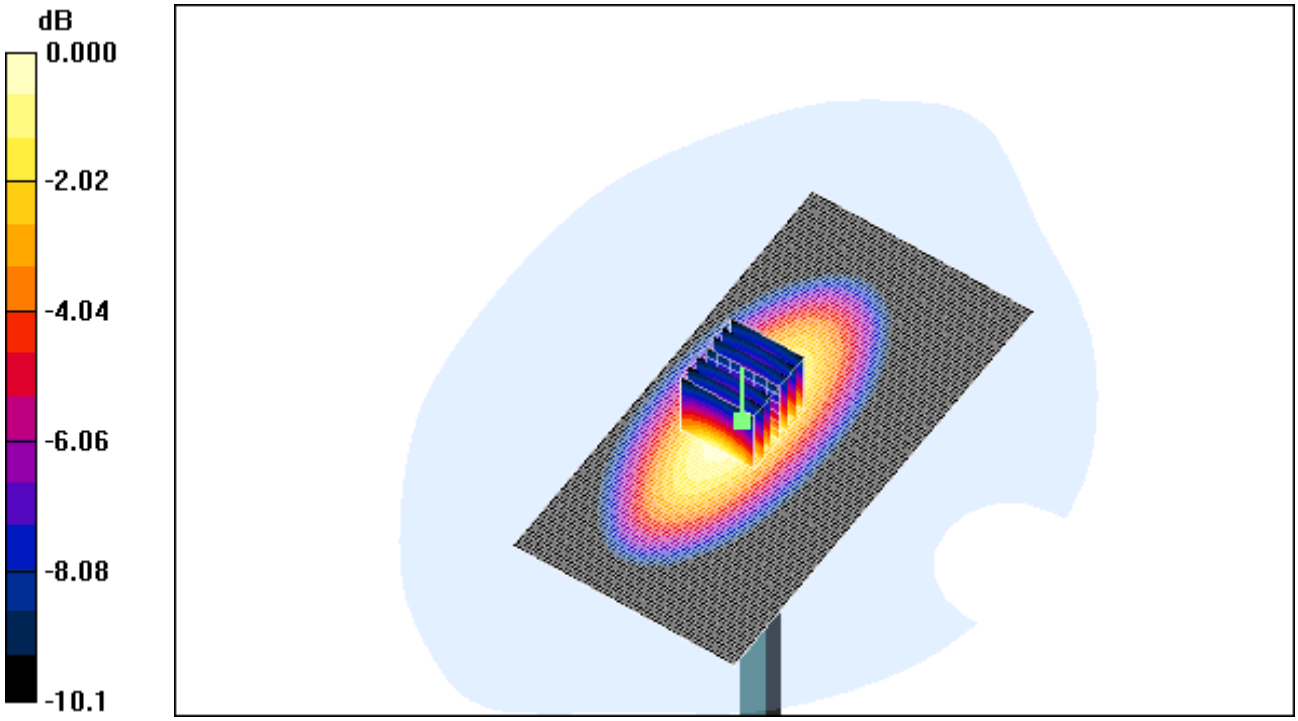
Date/Time: 2010-3-17 9:26:50

Test Laboratory: SGS-GSM
System-Validation-D835-Body
DUT: Dipole 835MHz; Type: D835V2; Serial: D835V2 - SN:4d070
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL835 Body Medium parameters used: f = 835 MHz; σ = 0.972 mho/m; ε_r = 56.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5.68, 5.68, 5.68); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

d=15mm, Pin=250mW/Area Scan (61x121x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 2.68 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 51.5 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 3.73 W/kg
SAR(1 g) = 2.51 mW/g; SAR(10 g) = 1.65 mW/g
Maximum value of SAR (measured) = 2.72 mW/g



0 dB = 2.72mW/g

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System Validation for 1800MHz-Head

Date/Time: 2010-3-12 9:07:11

Test Laboratory: SGS-GSM

System-Validation-D1800-Head

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d070

Communication System: CW; Frequency: 1800 MHz;Duty Cycle: 1:1

Medium: HSL1800_Head Medium parameters used: f = 1800 MHz; σ = 1.44 mho/m; ε_r = 38.6; ρ = 1000 kg/m^3

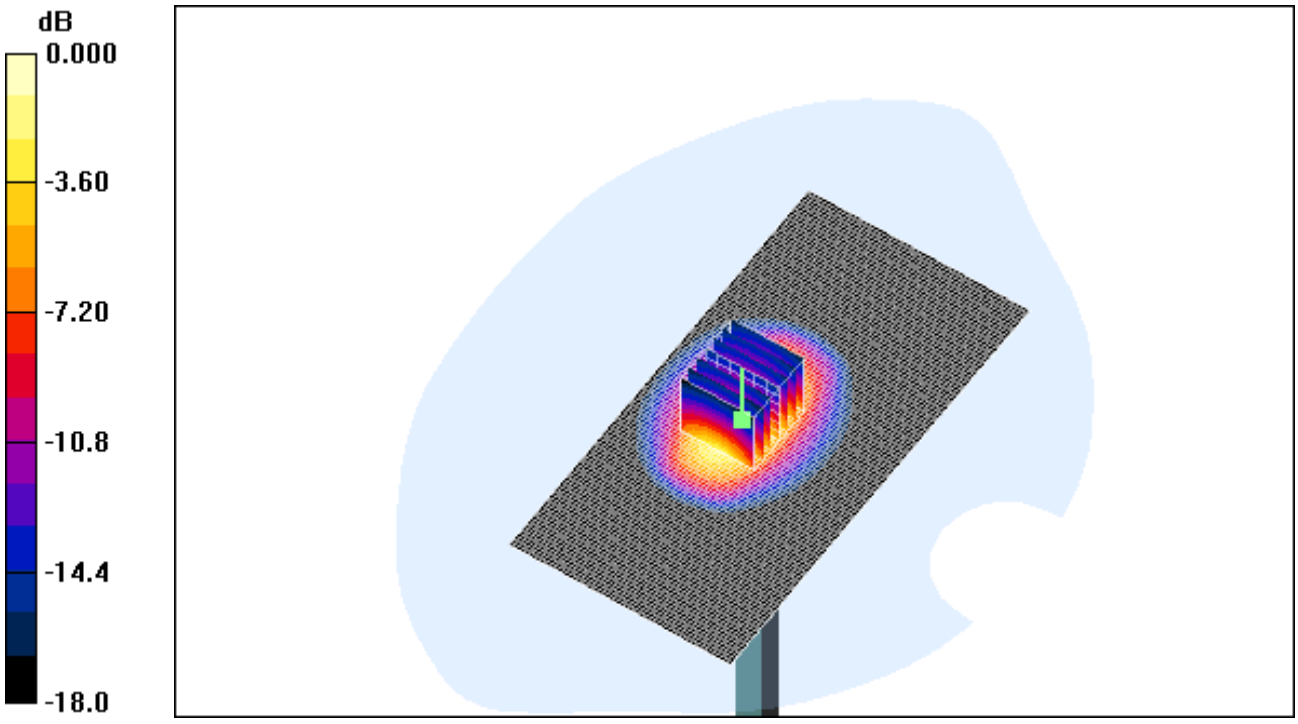
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(5, 5, 5); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

d=10mm, Pin=250mW/Area Scan (61x121x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 10.8 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 81.5 V/m; Power Drift = -0.007 dB
Peak SAR (extrapolated) = 18.1 W/kg
SAR(1 g) = 9.62 mW/g; SAR(10 g) = 4.94 mW/g
Maximum value of SAR (measured) = 10.8 mW/g



0 dB = 10.8mW/g

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System Validation for 1800MHz-Body

Date/Time: 2010-3-15 9:47:32

Test Laboratory: SGS-GSM

System-Validation-D1800-Body

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d070

Communication System: CW; Frequency: 1800 MHz;Duty Cycle: 1:1

Medium: HSL-1800-Body Medium parameters used: f = 1800 MHz; σ = 1.57 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3

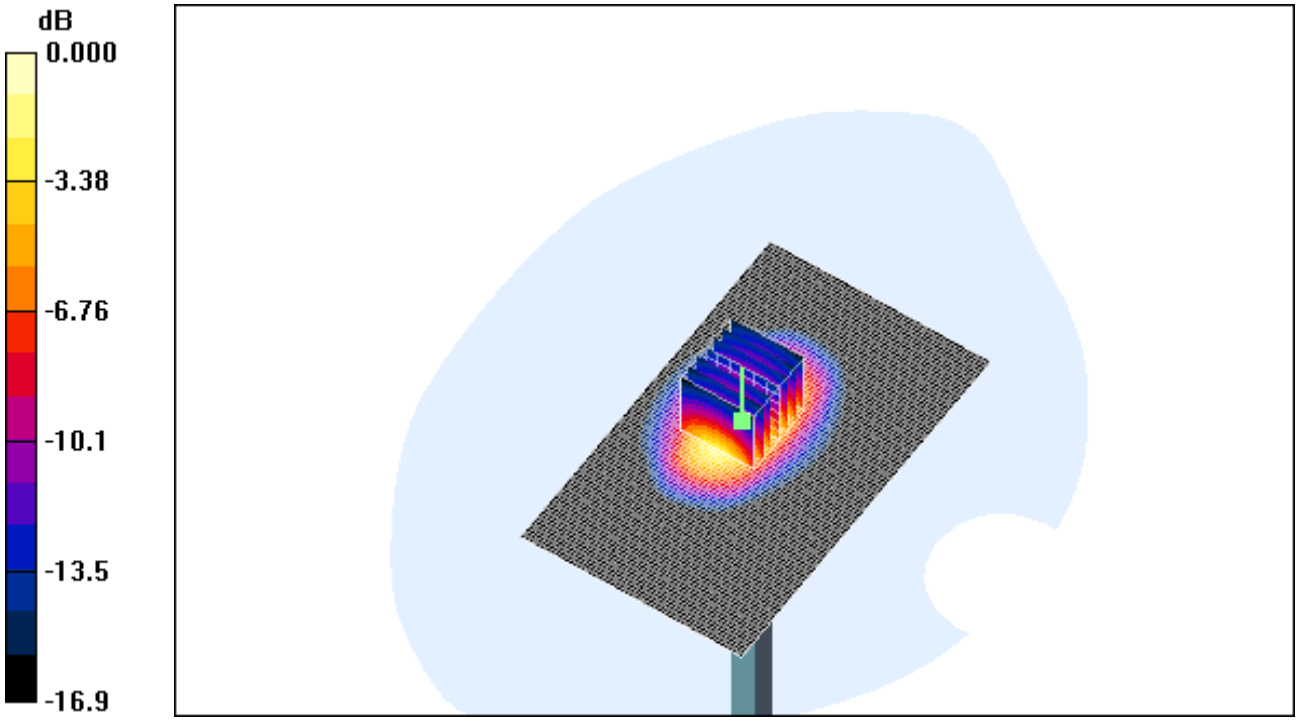
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.76, 4.76, 4.76); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

d=10mm, Pin=250mW/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 11.7 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 77.9 V/m; Power Drift = -0.064 dB
Peak SAR (extrapolated) = 18.0 W/kg
SAR(1 g) = 9.9 mW/g; SAR(10 g) = 5.13 mW/g
Maximum value of SAR (measured) = 11.3 mW/g



0 dB = 11.3mW/g

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System Validation for 1900MHz-Head

Date/Time: 2010-3-10 9:45:02

Test Laboratory: SGS-GSM

System-Validation-D1900-Head

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d028

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

Medium: HSL1900_Head Medium parameters used: f = 1900 MHz; σ = 1.42 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3

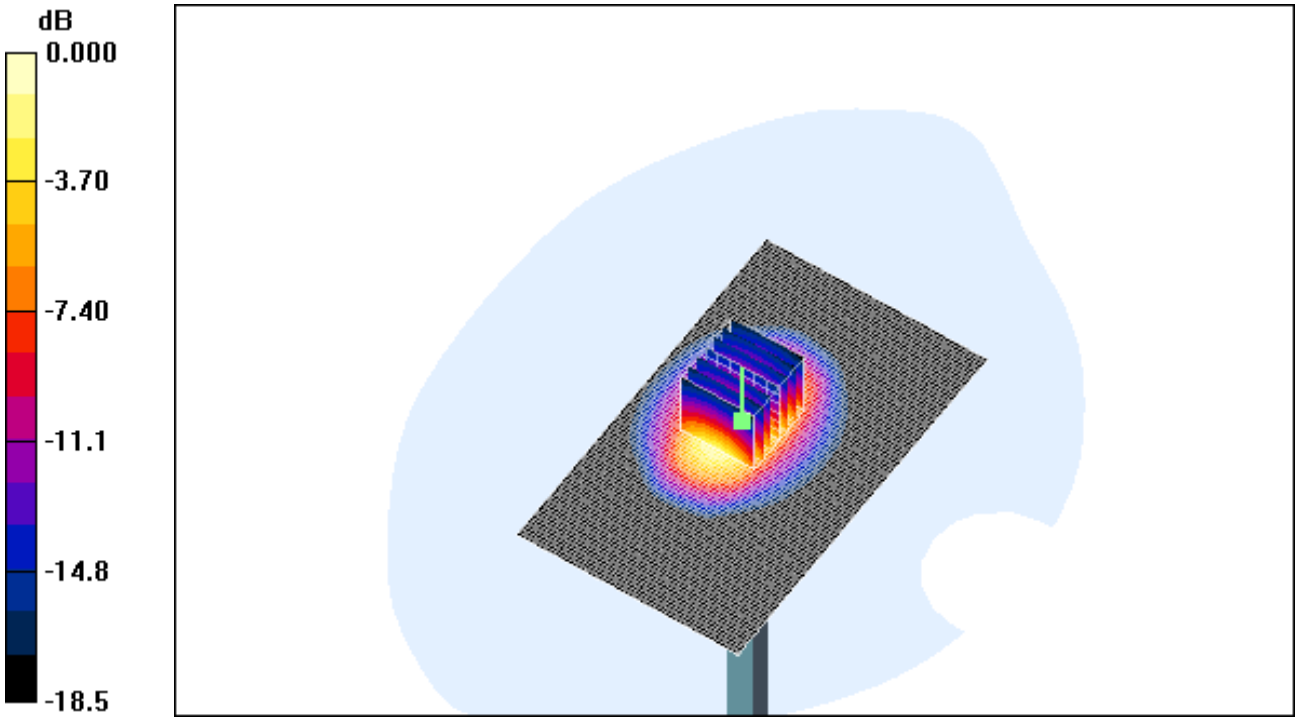
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.97, 4.97, 4.97); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

d=10mm, Pin=250mW/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 12.0 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 85.4 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 19.8 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.19 mW/g
Maximum value of SAR (measured) = 11.6 mW/g



0 dB = 11.6mW/g

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3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
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System Validation for 1900MHz-Body

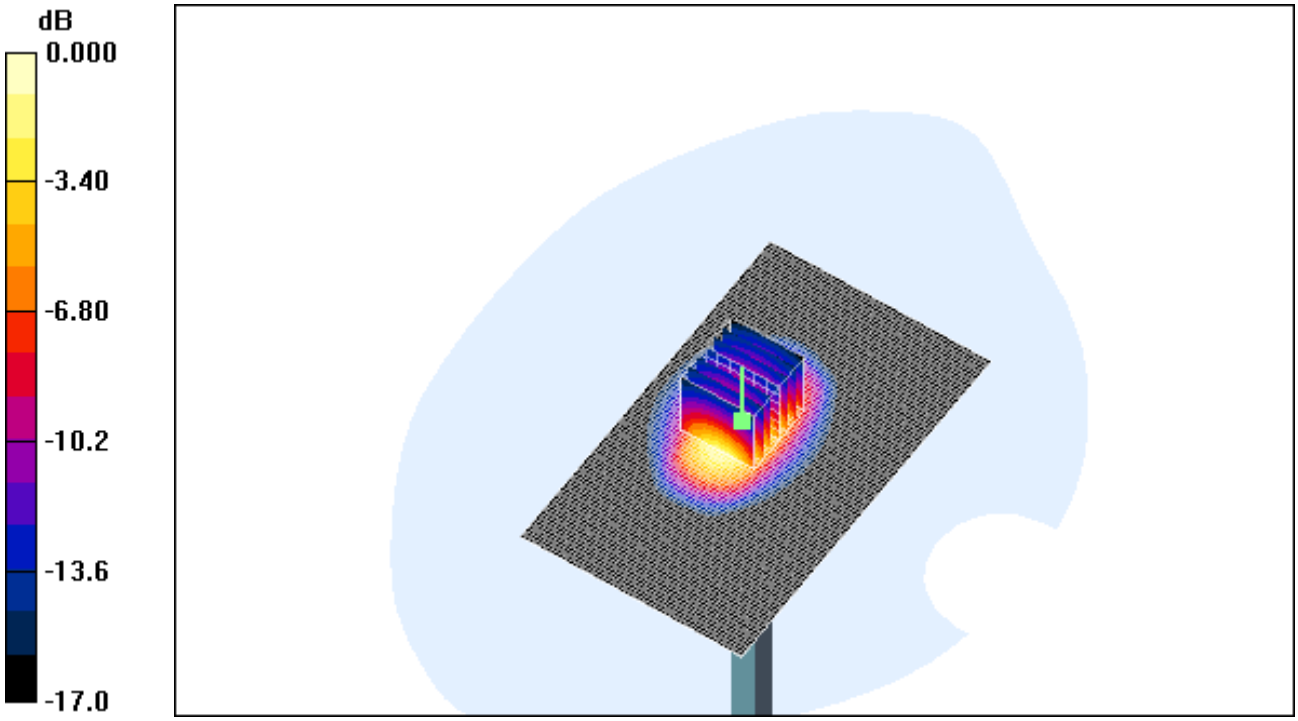
Date/Time: 2010-3-16 9:45:22

Test Laboratory: SGS-GSM
System-Validation-D1900-Body
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d028
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL 1900 Body Medium parameters used: f = 1900 MHz; σ = 1.54 mho/m; ε_r = 53.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: ES3DV3 - SN3088; ConvF(4.58, 4.58, 4.58); Calibrated: 2009-11-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn569; Calibrated: 2009-11-18
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

d=10mm, Pin=250mW/Area Scan (61x101x1): **Measurement grid: dx=15mm, dy=15mm**
Maximum value of SAR (interpolated) = 12.4 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 81.9 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 18.3 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.37 mW/g
Maximum value of SAR (measured) = 11.6 mW/g



0 dB = 11.6mW/g

Annex D Description of Test Position

Annex D.1 SAM Phantom Shape

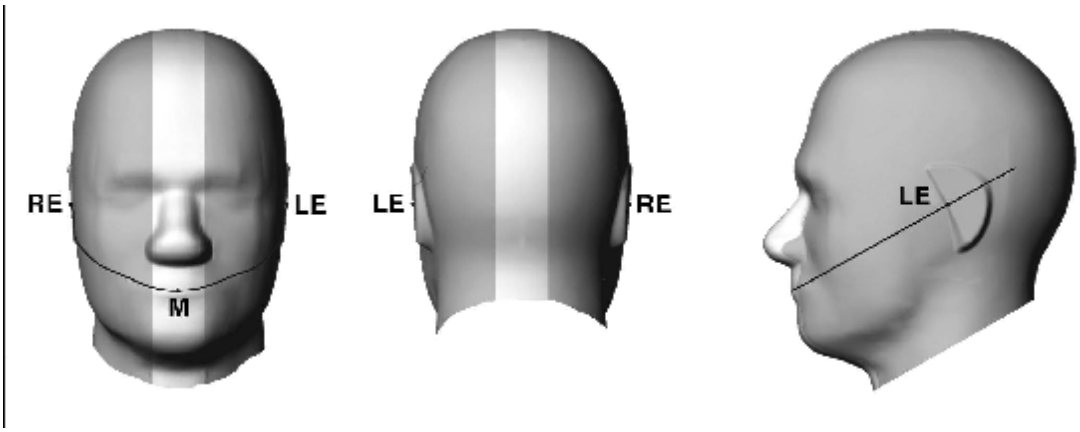


Figure D-1 front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup of Figure D-2. Note: The center strip including the nose region has a different thickness tolerance.

Figure D-2 Sagittally bisected phantom with extended perimeter (shown placed on its side as used for SAR measurements)

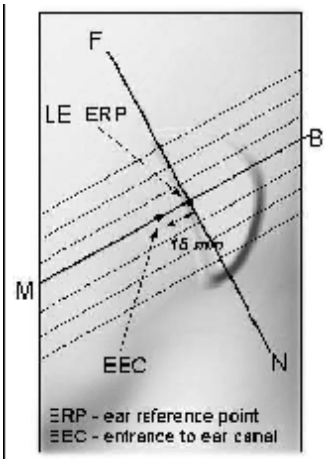


Figure D-3 Close-up side view of phantom showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations

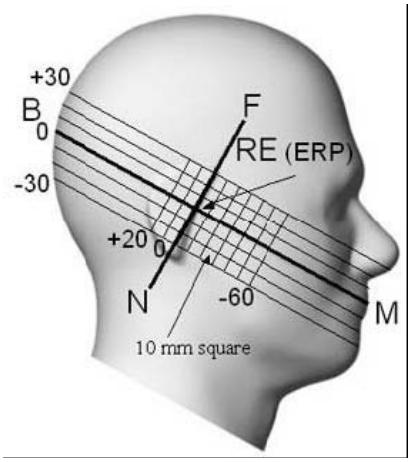


Figure D-4 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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Annex D.2 EUT constructions

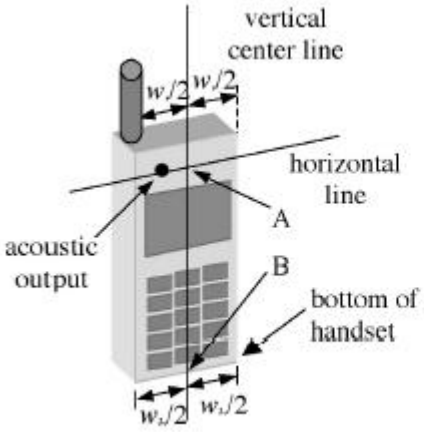

Figure D-5a Handset vertical and horizontal reference lines-"fixed case"

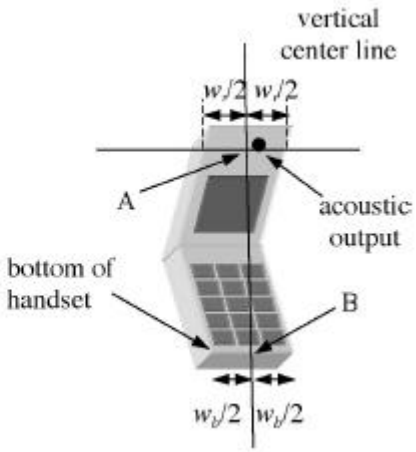

Figure D-5b Handset vertical and horizontal reference lines-"clam-shell case"

Annex D.3 Definition of the "cheek" position

a) Position the device with the vertical centre line of the body of the device and the horizontal line crossing the centre of the ear piece in a plane parallel to the sagittal plane of the phantom ("initial position" see Figure 1-7). While maintaining the device in this plane, align the vertical centre line with the reference plane containing the three ear and mouth reference points (M, RE and LE) and align the centre of the ear piece with the line RE-LE;

b) Translate the mobile phone box towards the phantom with the ear piece aligned with the line LE-RE until the phone touches the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the box until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.

Annex D.4 Definition of the "tilted" position

a) Position the device in the "cheek" position described above;

b) While maintaining the device in the reference plane described above and pivoting against the ear, move it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost.

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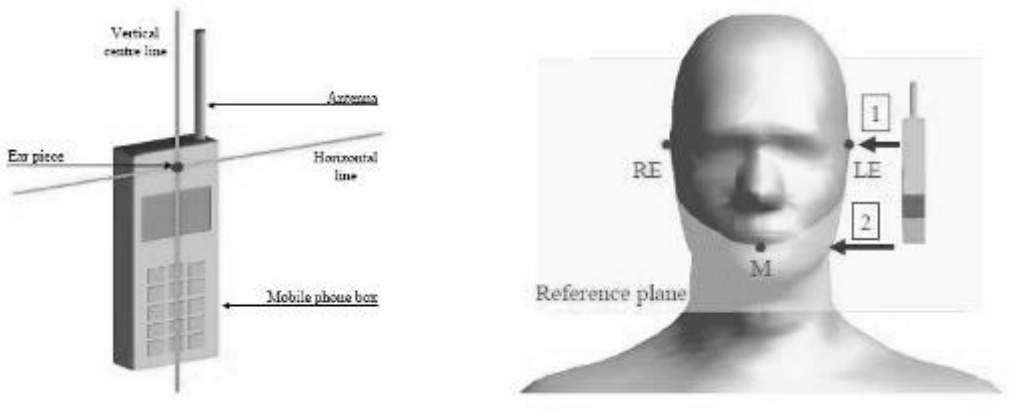

Figure D-6 Definition of the reference lines and points, on the phone and on the phantom and initial position

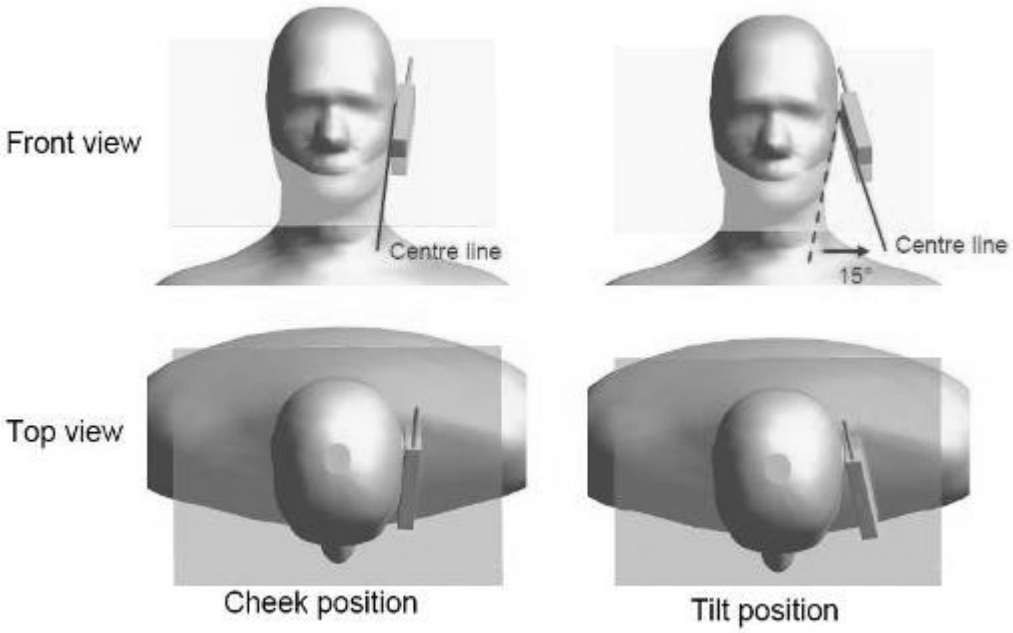

Figure D-7 "Cheek" and "tilt" positions of the mobile phone on the left side

Annex E Calibration certificate

Annex E.1 Probe Calibration certificate

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

S C S Schweizerischer Kalibrierdienst
Service suisse d'étalonnage
Servizio svizzero di taratura
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 SH (Auden)

Certificate No: ES3-3088_Nov09

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3088

Calibration procedure(s) QA CAL-01 v6, QA CAL-23.v3 and QA CAL-25.v2
Calibration procedure for dosimetric E-field probes

Calibration date: November 19, 2009

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41495277	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41498087	1-Apr-09 (No. 217-01030)	Apr-10
Reference 3 dB Attenuator	SN: S5054 (3c)	31-Mar-09 (No. 217-01026)	Mar-10
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-09 (No. 217-01028)	Mar-10
Reference 30 dB Attenuator	SN: S5129 (30b)	31-Mar-09 (No. 217-01027)	Mar-10
Reference Probe ES3DV2	SN: 3013	2-Jan-09 (No. ES3-3013_Jan09)	Jan-10
DAE4	SN: 660	29-Sep-09 (No. DAE4-660_Sep09)	Sep-10

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-09)	In house check: Oct10

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

Issued: November 24, 2009

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

Certificate No: ES3-3088_Nov09 Page 1 of 11

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Probe ES3DV3

SN:3088

Manufactured:	July 20, 2005
Last calibrated:	December 22, 2008
Recalibrated:	November 19, 2009

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

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ES3DV3 SN:3088 November 19, 2009

DASY - Parameters of Probe: ES3DV3 SN:3088

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.32	1.27	1.26	± 10.1%
DCP (mV)[B]	94.2	94.4	94.3	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	C	VR mV	Unc[F] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	300.0	± 1.5%
			Y	0.00	0.00	1.00	300.0	
			Z	0.00	0.00	1.00	300.0	

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

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[F] Uncertainty is determined using the maximum deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

ES3DV3 SN:3088 November 19, 2009

DASY - Parameters of Probe: ES3DV3 SN:3088

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
900	± 50 / ± 100	41.5 ± 5%	0.97 ± 5%	5.84	5.84	5.84	0.90	1.06 ± 11.0%
1810	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	5.00	5.00	5.00	0.38	1.75 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	4.97	4.97	4.97	0.48	1.53 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	4.40	4.40	4.40	0.43	1.79 ± 11.0%

[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: ES3-3088_Nov09 Page 5 of 11

ES3DV3 SN:3088 November 19, 2009

DASY - Parameters of Probe: ES3DV3 SN:3088

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
900	± 50 / ± 100	55.0 ± 5%	1.05 ± 5%	5.68	5.68	5.68	0.37	1.07 ± 11.0%
1810	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.76	4.76	4.76	0.41	1.88 ± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.58	4.58	4.58	0.36	2.13 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	4.20	4.20	4.20	0.69	1.04 ± 11.0%

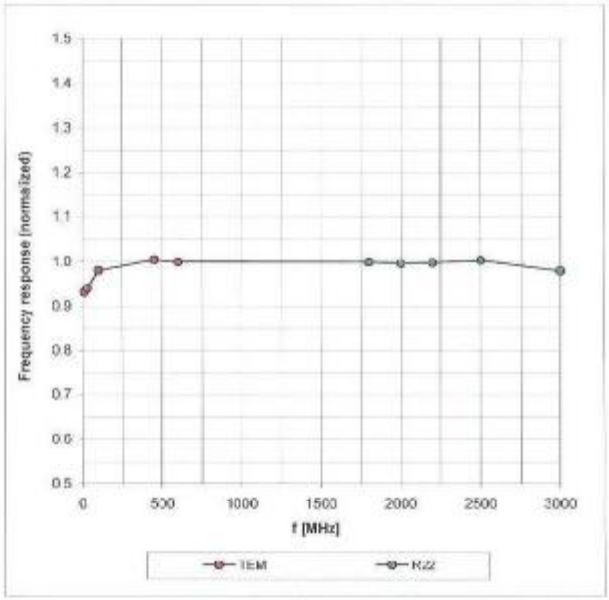
[C] The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

Certificate No: ES3-3088_Nov09 Page 6 of 11

ES3DV3 SN:3088 November 19, 2009

Frequency Response of E-Field

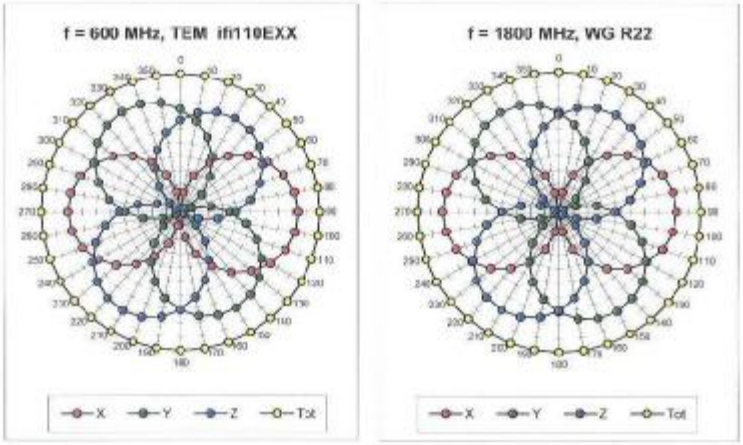
(TEM-Cell:ifi110 EXX, Waveguide: R22)

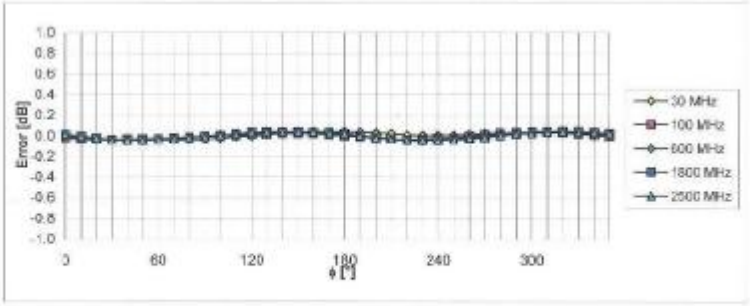


Uncertainty of Frequency Response of E-field: ± 5.3% (k=2)

ES3DV3 SN:3088 November 19, 2009

Receiving Pattern (ϕ), ϑ = 0°





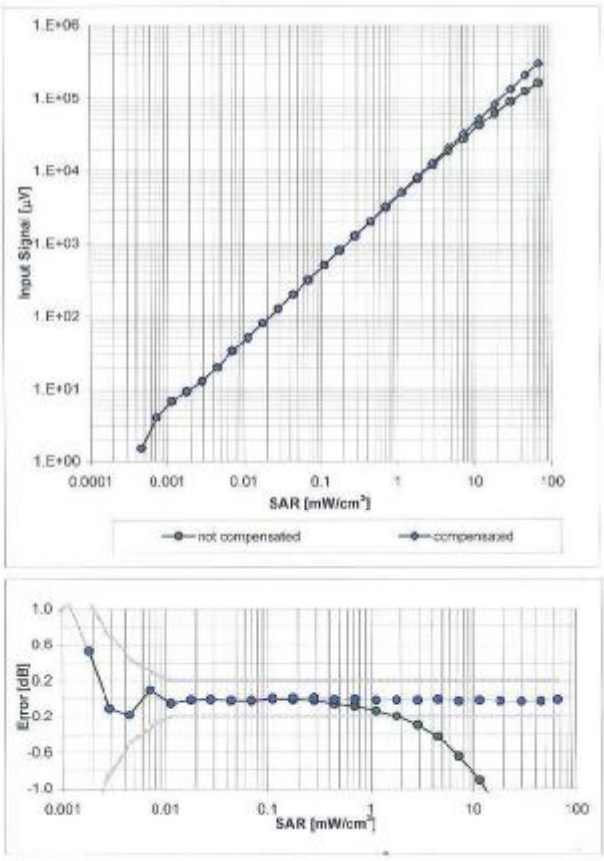
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Certificate No: ES3-3088_Nov09 Page 8 of 11

ES3DV3 SN:3088 November 19, 2009

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)

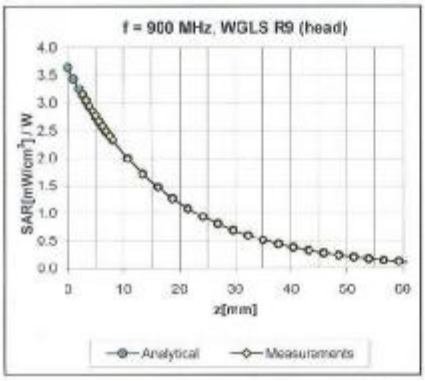


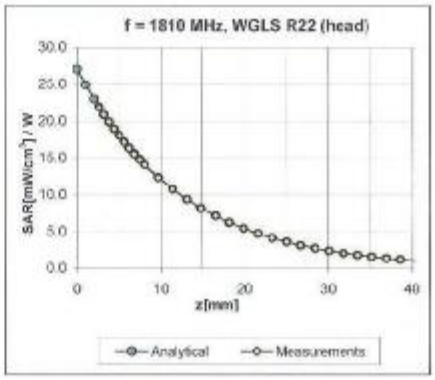
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Certificate No: ES3-3088_Nov09 Page 9 of 11

ES3DV3 SN:3088 November 19, 2009

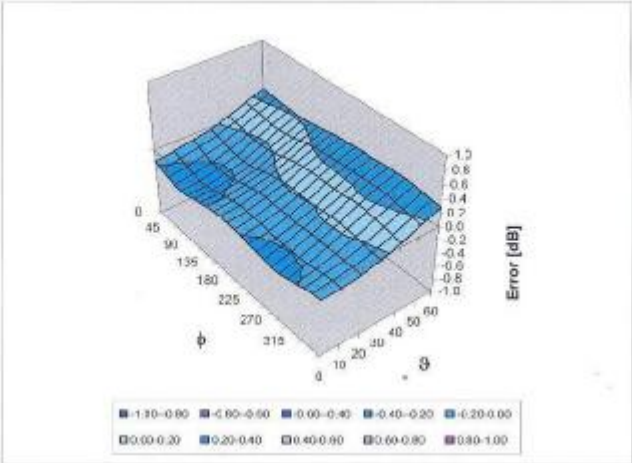
Conversion Factor Assessment





Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



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

Certificate No: ES3-3088_Nov09 Page 10 of 11

ES3DV3 SN:3088 November 19, 2009

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4.0 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

Certificate No: ES3-3088_Nov09 Page 11 of 11

Annex E.2 DAE 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
Swiss Calibration Service

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Accreditation No.: SCS 108

Client SGS – SH (Auden)

Certificate No: DAE3-569_Nov09

CALIBRATION CERTIFICATE

Object	DAE3 - SD 000 D03 AA - SN: 569
Calibration procedure(s)	QA CAL-06.v12 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	November 18, 2009

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	1-Oct-09 (No: 9055)	Oct-10
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	05-Jun-09 (in house check)	In house check: Jun-10

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

Issued: November 18, 2009

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Certificate No: DAE3-569_Nov09 Page 1 of 5

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Accreditation No.: SCS 108

Glossary

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

Methods Applied and Interpretation of Parameters

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

DC Voltage Measurement

A/D - Converter Resolution nominal

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

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

Calibration Factors	X	Y	Z
High Range	404.766 ± 0.1% (k=2)	404.352 ± 0.1% (k=2)	404.129 ± 0.1% (k=2)
Low Range	3.94150 ± 0.7% (k=2)	3.93629 ± 0.7% (k=2)	3.95193 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	264.0 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	200000.4	3.78	0.00
Channel X	+ Input	20001.03	0.33	0.00
Channel X	- Input	-19995.39	5.31	-0.03
Channel Y	+ Input	200010.9	3.93	0.00
Channel Y	+ Input	19997.76	-2.84	-0.01
Channel Y	- Input	-20002.85	-3.05	0.02
Channel Z	+ Input	200008.6	4.33	0.00
Channel Z	+ Input	19999.62	-0.88	-0.00
Channel Z	- Input	-20001.79	0.01	0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	1999.7	-0.28	-0.01
Channel X	+ Input	199.60	-0.40	-0.20
Channel X	- Input	-201.13	-1.23	0.62
Channel Y	+ Input	2000.0	0.02	0.00
Channel Y	+ Input	199.28	-0.82	-0.41
Channel Y	- Input	-201.40	-1.50	0.75
Channel Z	+ Input	1999.9	-0.17	-0.01
Channel Z	+ Input	198.61	-1.39	-0.70
Channel Z	- Input	-201.65	-1.75	0.88

2. Common mode sensitivity

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

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	-3.14	-5.24
	- 200	6.52	4.85
Channel Y	200	7.98	7.35
	- 200	-8.52	-8.82
Channel Z	200	-5.05	-5.64
	- 200	3.96	4.09

3. Channel separation

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

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	2.19	0.12
Channel Y	200	2.65	-	3.55
Channel Z	200	1.86	-0.43	-

4. AD-Converter Values with inputs shorted

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

	High Range (LSB)	Low Range (LSB)
Channel X	16392	14986
Channel Y	15762	16421
Channel Z	16298	16514

5. Input Offset Measurement

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

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	-0.18	-1.21	0.79	0.33
Channel Y	-0.61	-1.80	0.79	0.30
Channel Z	-0.97	-2.37	-0.10	0.36

6. Input Offset Current

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

7. Input Resistance

	Zeroing (MOhm)	Measuring (MOhm)
Channel X	0.2000	199.8
Channel Y	0.2000	204.0
Channel Z	0.2001	204.9

8. Low Battery Alarm Voltage (verified during pre test)

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

9. Power Consumption (verified during pre test)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.0	+6	+14
Supply (- Vcc)	-0.01	-8	-9

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Annex E.3 Dipole Calibration certification

D835V2

(8)

Calibration Laboratory of
Schmid & Partner
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Accreditation No.: SCS 108

Client: SGS SH (Auden)

Certificate No: D835V2-4d070_Dec08

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d070
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	December 15, 2008
Condition of the calibrated item	In Tolerance

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	01-Jul-08 (No. 217-00864)	Jul-09
Type-N mismatch combination	SN: 5047.2 / 06327	01-Jul-08 (No. 217-00867)	Jul-09
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09

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

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

Issued: December 15, 2008

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Certificate No: D835V2-4d070_Dec08 Page 1 of 9

Measurement Conditions

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

DASY Version	DASY5	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.3 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature during test	(22.5 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.43 mW / g
SAR normalized	normalized to 1W	9.72 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**9.62 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.60 mW / g
SAR normalized	normalized to 1W	6.40 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**6.34 mW / g ± 16.5 % (k=2)**

[1] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.7 ± 6 %	1.01 mho/m ± 6 %
Body TSL temperature during test	(21.8 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.55 mW / g
SAR normalized	normalized to 1W	10.2 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**9.89 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.68 mW / g
SAR normalized	normalized to 1W	6.72 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**6.58 mW / g ± 16.5 % (k=2)**

[2] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

DASY5 Validation Report for Head TSL

Date/Time: 08.12.2008 10:31:04

Test Laboratory: SPEAG, Zurich, Switzerland

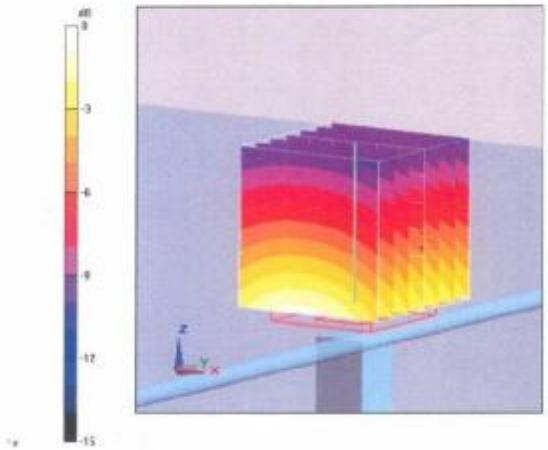
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d070

Communication System: CW-835; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL 900 MHz
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(5.97, 5.97, 5.97); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Pin=250mW; dip=15mm; dist=3.4mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.7 V/m; Power Drift = -0.000938 dB
Peak SAR (extrapolated) = 3.56 W/kg
SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.6 mW/g
Maximum value of SAR (measured) = 2.73 mW/g



0 dB = 2.73mW/g

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DASY5 Validation Report for Body TSL

Date/Time: 15.12.2008 11:58:06

Test Laboratory: SPEAG, Zurich, Switzerland

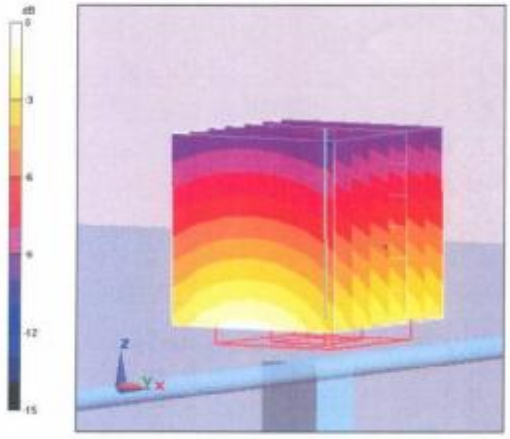
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d070

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900
Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(5.9, 5.9, 5.9); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Pin = 250mW, d = 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.7 V/m; Power Drift = 0.00608 dB
Peak SAR (extrapolated) = 3.69 W/kg
SAR(1 g) = 2.55 mW/g; SAR(10 g) = 1.68 mW/g
Maximum value of SAR (measured) = 2.87 mW/g



0 dB = 2.87mW/g

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D1800V2

Calibration Laboratory of
Schmid & Partner
Engineering AG
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Accreditation No.: SCS 108

Client SGS-SH (Auden)

Certificate No: D1800V2-2d070_Nov09

CALIBRATION CERTIFICATE

Object	D1800V2 - SN: 2d070
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date	November 24, 2009

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-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-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 8753C	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

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

Issued: November 25, 2009

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Certificate No: D1800V2-2d070_Nov09 Page 1 of 9

Measurement Conditions

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

DASY Version	DASY5	V5.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V6.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1800 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.1 ± 6 %	1.40 mho/m ± 6 %
Head TSL temperature during test	(22.1 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.65 mW / g
SAR normalized	normalized to 1W	38.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**38.5 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.10 mW / g
SAR normalized	normalized to 1W	20.4 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.4 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.5 ± 6 %	1.50 mho/m ± 6 %
Body TSL temperature during test	(21.5 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.45 mW / g
SAR normalized	normalized to 1W	37.8 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**38.2 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.00 mW / g
SAR normalized	normalized to 1W	20.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.1 mW / g ± 16.5 % (k=2)**

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DASY5 Validation Report for Head TSL

Date/Time: 24.11.2009 11:39:58

Test Laboratory: SPEAG, Zurich, Switzerland

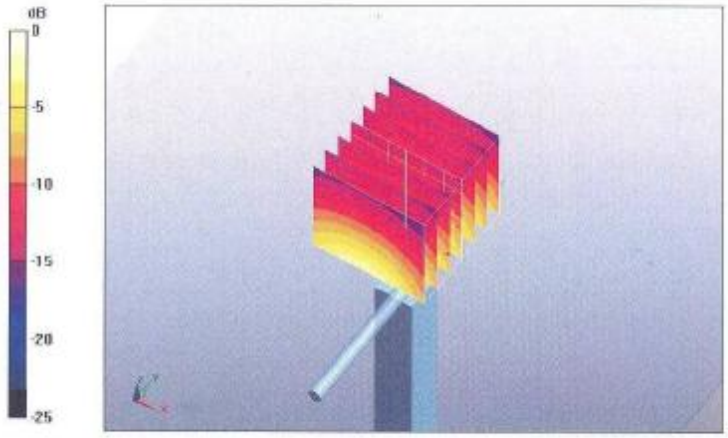
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d070

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: HSL U11 BB
Medium parameters used: f = 1800 MHz; σ = 1.4 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.25, 5.25, 5.25); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.9 V/m; Power Drift = 0.044 dB
Peak SAR (extrapolated) = 17.4 W/kg
SAR(1 g) = 9.65 mW/g; SAR(10 g) = 5.1 mW/g
Maximum value of SAR (measured) = 12 mW/g



0 dB = 12mW/g

DASY5 Validation Report for Body

Date/Time: 17.11.2009 11:09:04

Test Laboratory: SPEAG, Zurich, Switzerland

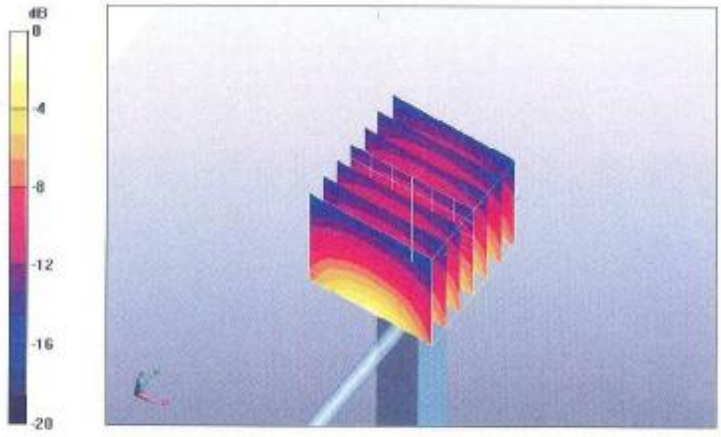
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d070

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: MSL U10 BB
Medium parameters used: f = 1800 MHz; σ = 1.5 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.8, 4.8, 4.8); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.4 V/m; Power Drift = -0.00936 dB
Peak SAR (extrapolated) = 17.4 W/kg
SAR(1 g) = 9.45 mW/g; SAR(10 g) = 5 mW/g
Maximum value of SAR (measured) = 12 mW/g



0 dB = 12mW/g

D1900V2

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-SH (Auden)

Certificate No: D1900V2-5d028_Nov09

CALIBRATION CERTIFICATE

Object D1900V2 - SN: 5d028

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

Calibration date November 24, 2009

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 critica for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-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-09)	In house check: Oct-10

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

Issued: November 25, 2009

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

Certificate No: D1900V2-5d028_Nov09 Page 1 of 9

Measurement Conditions

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

DASY Version	DASY5	V5.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.8 ± 6 %	1.44 mho/m ± 6 %
Head TSL temperature during test	(21.5 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.0 mW / g
SAR normalized	normalized to 1W	40.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.3 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.22 mW / g
SAR normalized	normalized to 1W	20.9 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.7 mW /g ± 16.5 % (k=2)**

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Testing Center-GSM Laboratory
3rd Building, No. 889, Yishan Road, Shanghai, China 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 ww.cn.sgs.com
中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.5 ± 6 %	1.58 mho/m ± 6 %
Body TSL temperature during test	(21.2 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.3 mW / g
SAR normalized	normalized to 1W	41.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**40.4 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.44 mW / g
SAR normalized	normalized to 1W	21.8 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.5 mW / g ± 16.5 % (k=2)**

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中国•上海•徐汇区宜山路 889 号 3 号楼 邮编: 200233 t (86 -21) 61402666*2736 f (86 -21) 54500149 e sgs.china@sgs.com

DASY5 Validation Report for Head TSL

Date/Time: 24.11.2009 13:29:02

Test Laboratory: SPEAG, Zurich, Switzerland

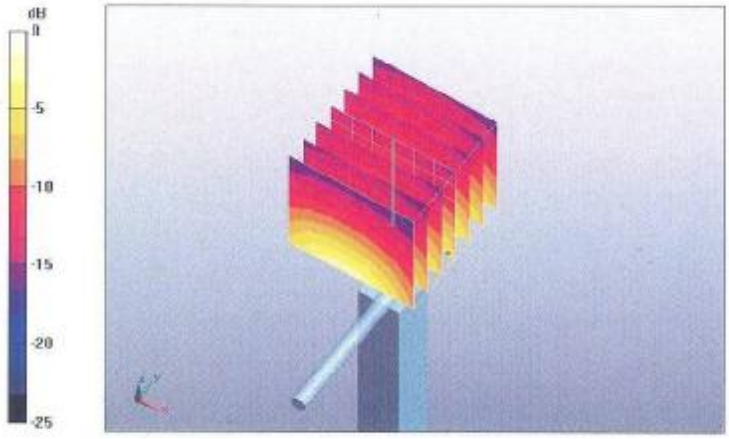
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d028

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL U11 BB
Medium parameters used: f = 1900 MHz; σ = 1.44 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.4 V/m; Power Drift = 0.037 dB
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 10 mW/g; SAR(10 g) = 5.22 mW/g
Maximum value of SAR (measured) = 12.5 mW/g



0 dB = 12.5mW/g

Certificate No: D1900V2-5d028_Nov09 Page 6 of 9

DASY5 Validation Report for Body

Date/Time: 17.11.2009 13:08:34

Test Laboratory: SPEAG, Zurich, Switzerland

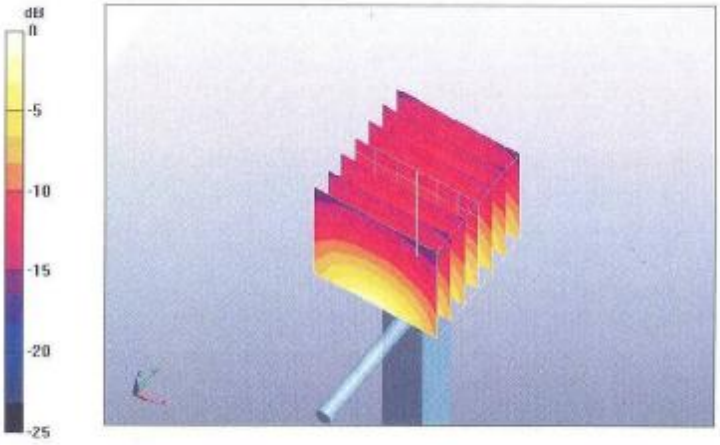
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d028

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: MSL U10 BB
Medium parameters used: f = 1900 MHz; σ = 1.58 mho/m; ε_r = 53.6; ρ = 1000 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: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.9 V/m; Power Drift = 0.00895 dB
Peak SAR (extrapolated) = 17.7 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.44 mW/g
Maximum value of SAR (measured) = 13 mW/g



0 dB = 13mW/g

Certificate No: D1900V2-5d028_Nov09 Page 8 of 9

END OF REPORT