SAR TEST REPORT

Eequipment Under Test :	GSM 850&PCS1900MHz MOBILE PHONE
FCC ID :	SG70507M1610
Model No. :	M1610
Applicant :	Qingdao Haier Telecom Co, .ltd.
Address of Applicant :	Haier Park, No. 1 Haier Road, Qingdao, 266101, P.R. China
Date of Receipt :	2005.07.20
Date of Test :	2005.08.04 – 2005.08.16
Date of Issue :	2005.08.17

Standards:

FCC OET Bulletin 65 supplement C, ANSI/IEEE C95.1, C95.3, IEEE 1528-2002

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

Remarks:

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

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS-CSTC Shanghai GSM Lab or testing done by SGS-CSTC Shanghai GSM Lab must approve SGS Shanghai GSM Lab in connection with distribution or use of the product described in this report in writing.
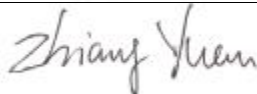
Tested by :	*Alpha Xie*	Date :	2005.08.17
Approved by :	*Zhang Yuen*	Date :	2005.08.17

Contents

1. General Information

1.1 Test Laboratory

GSM Lab

SGS-CSTC Standards Technical Services Co.Ltd Shanghai Branch

9F,the 3rd Building, No.899, Yishan Rd, Xuhui District, Shanghai, China

Zip code: 200233

Telephone: +86 (0) 21 6495 1616

Fax: +86 (0) 21 6495 3679

Internet: http://www.cn.sgs.com

1.2 Details of Applicant

Name: Qingdao Haier Telecom Co, .ltd.

Address: Haier Park, No. 1 Haier Road, Qingdao, 266101, P.R. China

1.3 Description of EUT(s)

Brand name	Haier	
Model No.	M1610	
Battery Type	Lithium-Ion, 3.7Volt	
Antenna Type	External Antenna	
Operation Mode	GSM850/PCS1900	
Modulation Mode	GMSK	
Frequency range	GSM850	Tx: 824~849 MHz
		Rx: 869~894 MHz
	GSM1900	Tx: 1850~1910 MHz
		Rx: 1930~1990 MHz
Maximum RF Conducted Power	GSM850: 29dBm, GSM1900: 30dBm	

1.4 Test Environment

Ambient temperature: 22.0° C

Tissue Simulating Liquid: 22° C

Relative Humidity: 32%

1.5 Operation Configuration

Configuration 1: GSM 850, LeftHandSide Touch & 15° Tilt Position

Configuration 2: GSM 850, RightHandSide Touch & 15° Tilt Position

Configuration 3: GSM 850, BodyWorn (1.5cm between EUT and phantom)

Configuration 4: GSM 1900, LeftHandSide Touch & 15° Tilt Position

Configuration 5: GSM 1900, RightHandSide Touch & 15° Tilt Position

Configuration 6: GSM 1900, BodyWorn (1.5cm between EUT and phantom)

1.6 The SAR Measurement System

A photograph of the SAR measurement System is given in Fig.a.

This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (Speag Dasy 4 professional system). A Model ET3DV6 1774 E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= $\sigma (|E_i|^2)/ \rho$ where σ and ρ are the conductivity and mass density of the tissue-simulant.

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

Ÿ   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).

Ÿ   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.

Ÿ   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.

Ÿ   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.
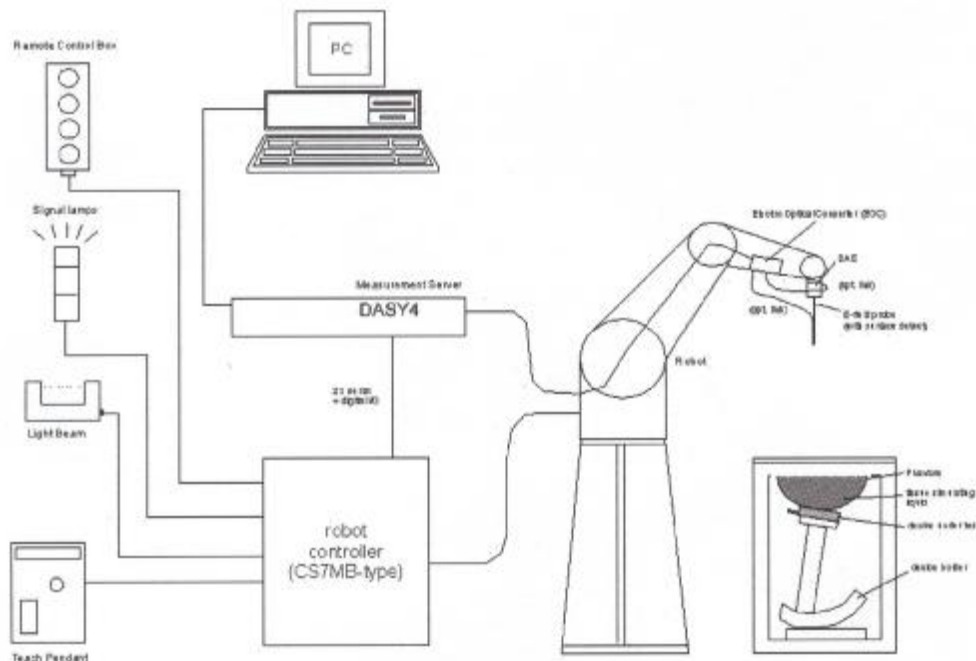
Fig. a SAR System Configuration

Ÿ   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.

Ÿ   A probe alignment unit which improves the (absolute) accuracy of the probe positioning.

Ÿ   A computer operating Windows 2000 or Windows XP.

Ÿ   DASY4 software.

Ÿ   Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.

Ÿ   The SAM twin phantom enabling testing left-hand, right-hand and body-worn usage.

Ÿ   The device holder for handheld mobile phones.

Ÿ   Tissue simulating liquid mixed according to the given recipes.

Ÿ   Validation dipole kits allowing to validate the proper functioning of the system.

1.7 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. These tests were done at 850MHz and 1900MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1 (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the ambient temperature of the laboratory was in the range 22°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.
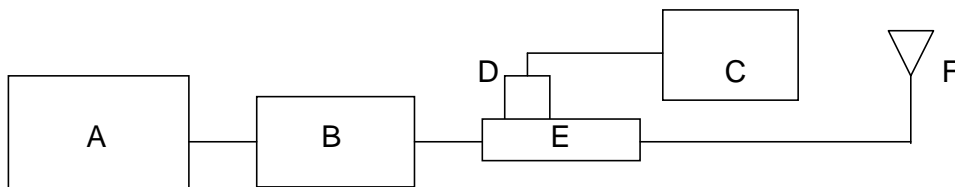
Fig. b the microwave circuit arrangement used for SAR system verification

A. Agilent Model E4438C Signal Generator
B. Agilent Model 8449B Preamplifier
C. Agilent Model E4416A Power Meter
D. Agilent Model 8481H Power Sensor
E. HT CP6100 20N Dual directional coupler
F. Reference dipole antenna

Validation Kit	Frequency	Target SAR 1g (250mW)	Target SAR 10g (250mW)	Measured SAR 1g	Measured SAR 10g	Measured Date
ET3DV6 SN1774	900M Head	2.69	1.73	2.63	1.66	2005-08-08
ET3DV6 SN1774	900M Body	2.75	1.77	2.69	1.7	2005-08-11
ET3DV6 SN1774	1900M Head	10.4	5.35	10.29	5.28	2005-08-10
ET3DV6 SN1774	1900M Body	10.52	5.53	10.37	5.36	2005-08-04

Table 1. Result System Validation

1.8 Tissue Simulant Fluid for the Frequency Band 850MHz and 1900MHZ

The dielectric properties for this body-simulant fluid were measured by using the HP 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 2.For the SAR measurement given in this report. The temperature variation of the Tissue Simulant Fluid was 22°C.

Frequency (MHz)	Tissue Type	Limit/Measured	Permittivity (ρ)	Conductivity (σ)	Simulated Tissue Temp (°C)
850	Head	Measured, 2005-08-08	41.69	0.877	22
		Recommended Limit	41.5±5%	0.90±10%	20-24
850	Body	Measured, 2005-08-11	52.52	0.997	22
		Recommended Limit	55.2±5%	0.97±10%	20-24
1900	Head	Measured, 2005-08-10	39.99	1.46	22
		Recommended Limit	40.0±5%	1.40±10%	20-24
1900	Body	Measured, 2005-08-04	51.46	1.55	22
		Recommended Limit	53.3±5%	1.52±10%	20-24

Table 2. Dielectric parameters for the Frequency Band 850MHz&1900MHZ

1.9 Test Standards and Limits

According to FCC 47 CFR §2.1093(d) the limits to be used for evalutation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specifice absorption rate (SAR) in Section 4.2 of "IEEE Standard for Safty Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3KHz to 300GHz," ANSI/IEEE C95.1-1992, Conpyright 1992 by the Institute of Electrical & Electronics Engineers, Inc., New York, New York 10071.

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

Table 3. RF Exposure Limits

Notes:

1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.

2. Summary of Results

Frequency Band(MHz)	EUT position	Conducted Output Power (Average)	1g Average (mW/g)	Power Drift (dB)	Amb. Temp (℃)	Verdict
GSM 850	LeftHandSide Touch, Low Channel	29.7	0.497	-0.04	22	PASS
	LeftHandSide Touch, Mid Channel	30.0	0.404	-0.3	22	PASS
	LeftHandSide Touch, High Channel	30.1	0.364	-0.02	22	PASS
	LeftHandSide Tilt, Low Channel	29.7	0.125	-0.02	22	PASS
	LeftHandSide Tilt, Mid Channel	30.0	0.103	-0.09	22	PASS
	LeftHandSide Tilt, High Channel	30.1	0.101	-0.01	22	PASS
	RightHandSide Touch, Low Channel	29.7	0.499	0.1	22	PASS
	RightHandSide Touch, Mid Channel	30.0	0.407	-0.01	22	PASS
	RightHandSide Touch, High Channel	30.1	0.365	0.004	22	PASS
	RightHandSide Tilt, Low Channel	29.7	0.137	-0.03	22	PASS
	RightHandSide Tilt, Mid Channel	30.0	0.111	-0.04	22	PASS
	RightHandSide Tilt, High Channel	30.1	0.0999	-0.06	22	PASS
	BodyWorn, Low Channel	29.7	0.235	-0.1	22	PASS
	BodyWorn, Mid Channel	30.0	0.204	-0.09	22	PASS
	BodyWorn, High Channel	30.1	0.206	-0.04	22	PASS
GPRS 850	BodyWorn, Low Channel	29.7	0.623	0.422	22	PASS
	BodyWorn, Mid Channel	30.0	0.529	0.357	22	PASS
	BodyWorn, High Channel	30.1	0.561	0.377	22	PASS
GSM 1900	LeftHandSide Touch, Low Channel	29.5	0.798	-0.8	22	PASS
	LeftHandSide Touch, Mid Channel	29.6	0.717	-0.1	22	PASS
	LeftHandSide Touch, High Channel	29.7	0.698	-0.08	22	PASS

	LeftHandSide Tilt, Low Channel	**29.5**	**0.166**	**0.2**	**22**	**PASS**
	LeftHandSide Tilt, Mid Channel	**29.6**	**0.158**	**-0.06**	**22**	**PASS**
	LeftHandSide Tilt, High Channel	**29.7**	**0.151**	**-0.02**	**22**	**PASS**
	RightHandSide Touch, Low Channel	**29.5**	**0.658**	**0.1**	**22**	**PASS**
	RightHandSide Touch, Mid Channel	**29.6**	**0.634**	**0.02**	**22**	**PASS**
	RightHandSide Touch, High Channel	**29.7**	**0.688**	**-0.03**	**22**	**PASS**
	RightHandSide Tilt, Low Channel	**29.5**	**0.174**	**-0.07**	**22**	**PASS**
	RightHandSide Tilt, Mid Channel	**29.6**	**0.151**	**-0.01**	**22**	**PASS**
	RightHandSide Tilt, High Channel	**29.7**	**0.154**	**-0.07**	**22**	**PASS**
	BodyWorn, Low Channel	**29.5**	**0.302**	**-0.008**	**22**	**PASS**
	BodyWorn, Mid Channel	**29.6**	**0.305**	**0.02**	**22**	**PASS**
	BodyWorn, High Channel	**29.7**	**0.363**	**0.06**	**22**	**PASS**
GPRS 1900	**BodyWorn, Low Channel**	**29.5**	**0.636**	**-0.1**	**22**	**PASS**
	BodyWorn, Mid Channel	**29.6**	**0.656**	**-0.003**	**22**	**PASS**
	BodyWorn, High Channel	**29.7**	**0.784**	**-0.07**	**22**	**PASS**

Note:

1. In GSM850 band, the low, middle and high channels are CH128/824.2MHz, CH189/836.4MHz and CH251/848.8MHz separately.

2. In GSM1900 band, the low, middle and high channels are CH512/1805.2MHz, CH661/1880.0MHz and CH810/1909.8MHz separately.

3. For the Bodyworn measurements the sample was only placed with the antenna toward the phantom since this position delivers the highest SAR values.

3. Instruments List

Instrument	Model	Serial number	No.	Date of last Calibration
Desktop PC	COMPAQ EVO	N/A	GSM-SAR-025	N/A
Dasy 4 software	V 4.1 build 47	N/A	GSM-SAR-001	N/A
Probe	ET3DV6	1774	GSM-SAR-021	2004.10.26
DAE	DAE3	569	GSM-SAR-023	2005.3.20
Phantom	SAM	N/A	GSM-SAR-005	N/A
Robot	RX90L	N/A	GSM-SAR-008	N/A
900MHz system validation dipole	D900V2	184	GSM-SAR-013	2005.3.20
1900MHz system validation dipole	D1900V2	5d028	GSM-SAR-020	2005.3.20
Dielectric probe kit	85070D	US01440168	GSM-SAR-016	2004.12.20
Agilent network analyzer	E5071B	MY42100549	GSM-SAR-007	2004.12.20
Agilent signal generator	E4438	14438CATO-19719	GSM-SAR-008	2004.12.20
Agilent preamplifier	8449B	3008A01921	GSM-SAR-009	2004.12.20
Agilent power meter	E4416A	GB41292095	GSM-SAR-010	2004.12.20
Agilent power sensor	8481h	MY41091234	GSM-SAR-011	2004.12.20
HT CP6100 20N Coupling	6100	SCP301480120	GSM-SAR-012	2004.12.20
R&S Universal radio communication tester	CMU200	103633	GSM-AUD-002	2004.12.20

4. Measurements

850MHz GSM Mode

4.1 FCC-OET65-LeftHandSide-Touch-GSM850-Low

Date/Time: 08/08/05 16:07:59

Test Laboratory: SGS-GSM

File Name: FCC-OET65-LeftHandSide-Touch-GSM850.da4

FCC-OET65-LeftHandSide-Touch-GSM850-Low

DUT: GSM50059-Head; Type: Head; Serial: 20050808
Program: Compliance Testing: EN 50361 Protocol Left-Hand Side)

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium: HSL850 (σ = 0.865816 mho/m, ε_r = 41.8373, ρ = 1000 kg/m^3)
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.96, 6.96, 6.96); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - Low/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 6.6 V/m
Power Drift = -0.04 dB
Maximum value of SAR = 0.528 mW/g

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

Peak SAR (extrapolated) = 0.699 W/kg

SAR(1 g) = 0.497 mW/g; SAR(10 g) = 0.326 mW/g

Reference Value = 6.6 V/m

Power Drift = -0.04 dB

Maximum value of SAR = 0.529 mW/g
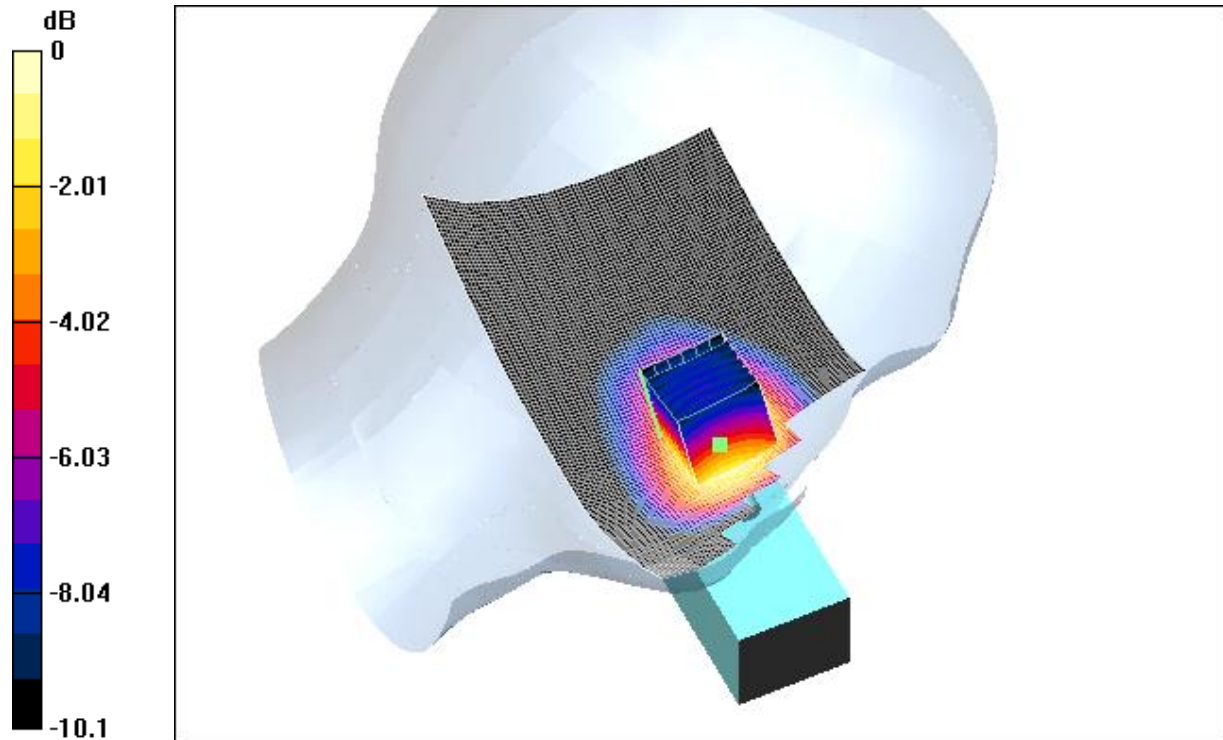
0 dB = 0.529mW/g

4.2 FCC-OET65-LeftHandSide-Touch-GSM850-Mid

Date/Time: 08/08/05 16:07:59

Test Laboratory: SGS-GSM

File Name: FCC-OET65-LeftHandSide-Touch-GSM850.da4

FCC-OET65-LeftHandSide-Touch-GSM850-Mid

DUT: GSM50059-Head; Type: Head; Serial: 20050808

Program: Compliance Testing: EN 50361 Protocol Left-Hand Side)

Communication System: GSM850; Frequency: 836.4 MHz;Duty Cycle: 1:8.3

Medium: HSL850 (σ = 0.8773 mho/m, ε_r = 41.699, ρ = 1000 kg/m^3)

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.96, 6.96, 6.96); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - Middle/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 5.98 V/m

Power Drift = -0.3 dB

Maximum value of SAR = 0.434 mW/g

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

Peak SAR (extrapolated) = 0.565 W/kg

SAR(1 g) = 0.404 mW/g; SAR(10 g) = 0.266 mW/g

Reference Value = 5.98 V/m

Power Drift = -0.3 dB

Maximum value of SAR = 0.433 mW/g
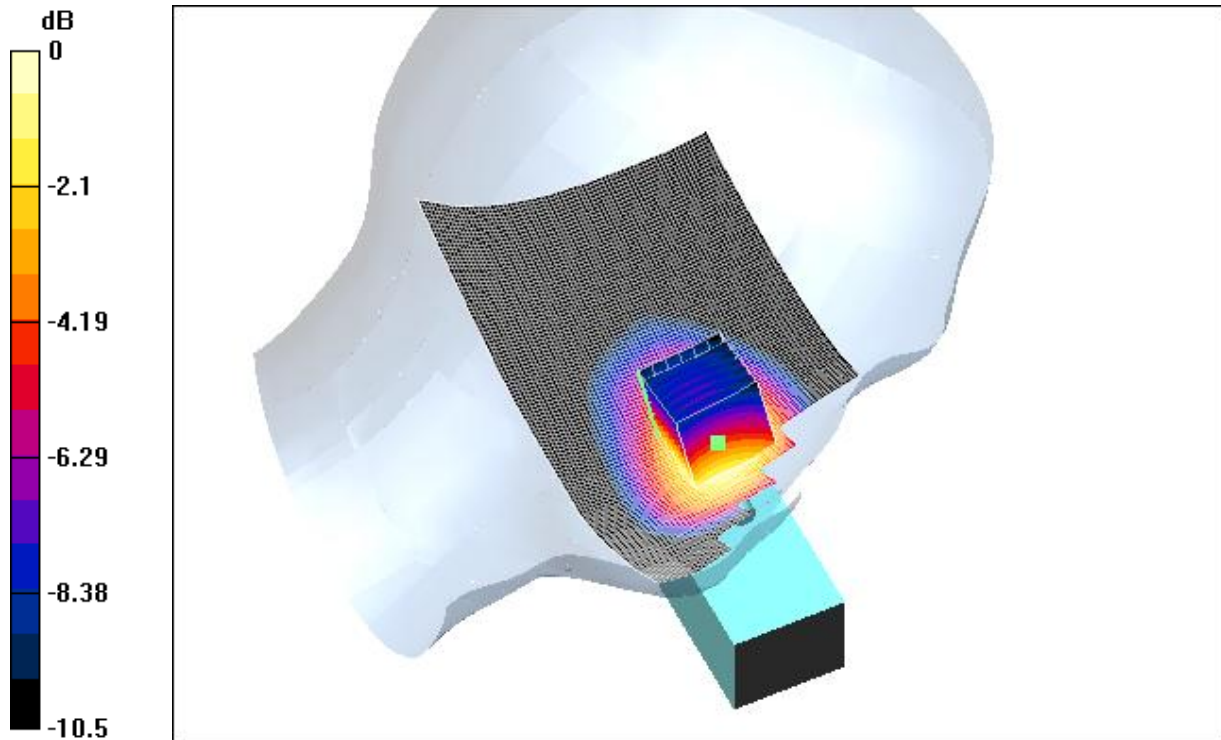
0 dB = 0.433mW/g

4.3 FCC-OET65-LeftHandSide-Touch-GSM850-High

Date/Time: 08/08/05 16:07:59

Test Laboratory: SGS-GSM
File Name: FCC-OET65-LeftHandSide-Touch-GSM850.da4

FCC-OET65-LeftHandSide-Touch-GSM850-High

DUT: GSM50059-Head; Type: Head; Serial: 20050808
Program: Compliance Testing: EN 50361 Protocol Left-Hand Side)

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium: HSL850 (σ = 0.889355 mho/m, ε_r = 41.5624, ρ = 1000 kg/m^3)

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.96, 6.96, 6.96); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - High/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 5.42 V/m

Power Drift = -0.02 dB

Maximum value of SAR = 0.385 mW/g

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

Peak SAR (extrapolated) = 0.518 W/kg

SAR(1 g) = 0.364 mW/g; SAR(10 g) = 0.236 mW/g

Reference Value = 5.42 V/m

Power Drift = -0.02 dB

Maximum value of SAR = 0.386 mW/g
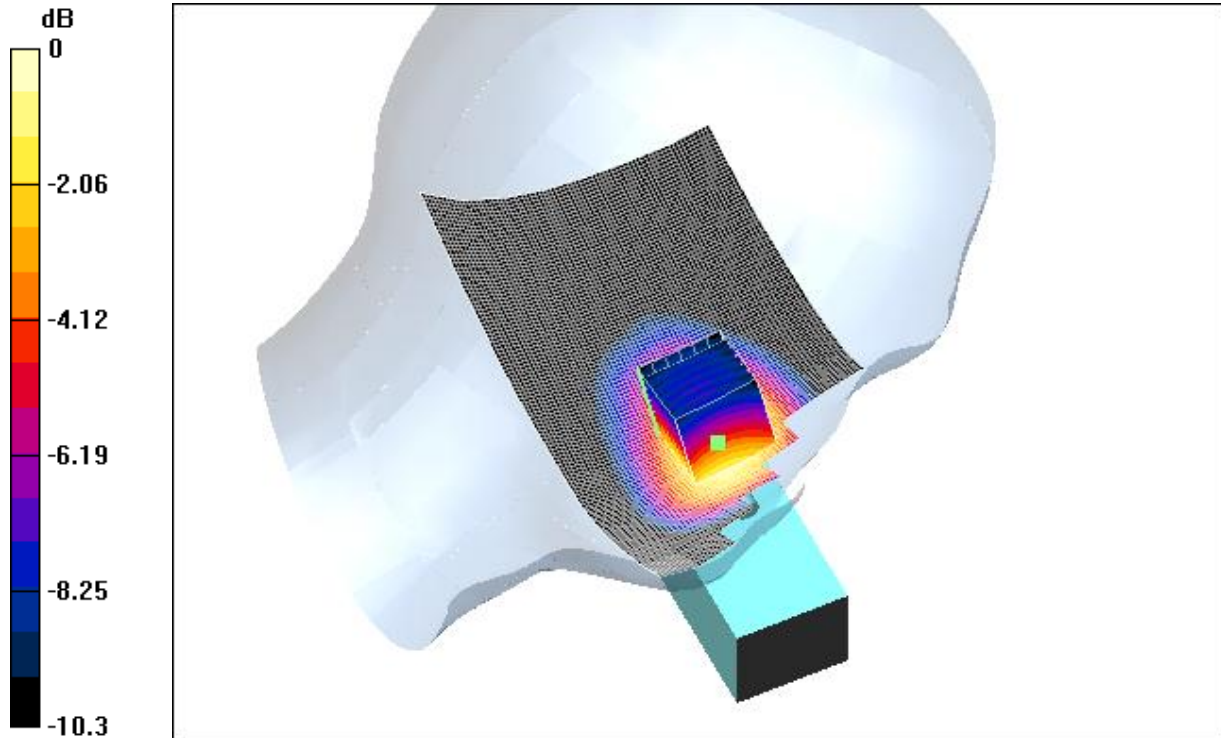
0 dB = 0.386mW/g

4.4 FCC-OET65-LeftHandSide-Tilt-GSM850-Low

Date/Time: 08/09/05 09:57:09

Test Laboratory: SGS-GSM
File Name: FCC-OET65-LeftHandSide-Tilt-GSM850.da4

FCC-OET65-LeftHandSide-Tilt-GSM850-Low

DUT: GSM50059-Head; Type: Head; Serial: 20050808
Program: Compliance Testing: EN 50361 Protocol Left-Hand Side)

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium: HSL850 (σ = 0.865816 mho/m, ε_r = 41.8373, ρ = 1000 kg/m^3)

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.96, 6.96, 6.96); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - Low/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 8.22 V/m

Power Drift = -0.02 dB

Maximum value of SAR = 0.131 mW/g

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

Peak SAR (extrapolated) = 0.162 W/kg

SAR(1 g) = 0.125 mW/g; SAR(10 g) = 0.091 mW/g

Reference Value = 8.22 V/m

Power Drift = -0.02 dB

Maximum value of SAR = 0.132 mW/g
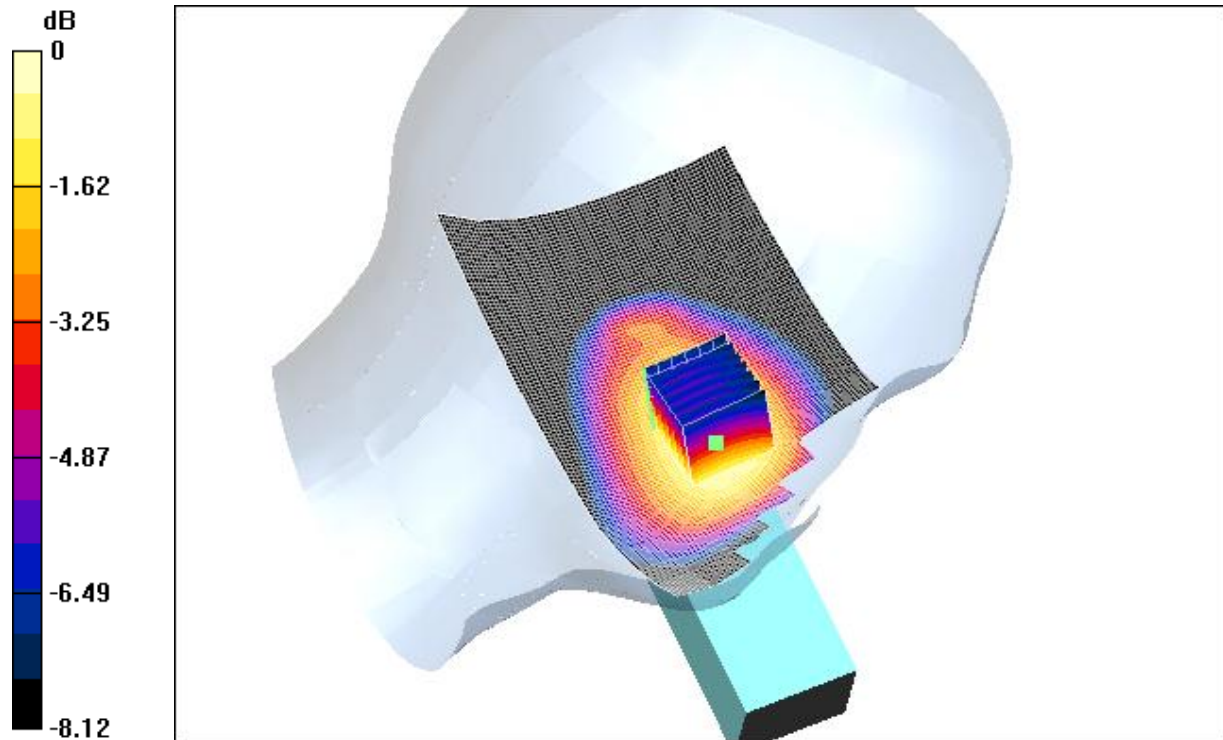
0 dB = 0.132mW/g

4.5 FCC-OET65-LeftHandSide-Tilt-GSM850-Mid

Date/Time: 08/09/05 09:57:09

Test Laboratory: SGS-GSM
File Name: FCC-OET65-LeftHandSide-Tilt-GSM850.da4

FCC-OET65-LeftHandSide-Tilt-GSM850-Mid

DUT: GSM50059-Head; Type: Head; Serial: 20050808
Program: Compliance Testing: EN 50361 Protocol Left-Hand Side)

Communication System: GSM850; Frequency: 836.4 MHz;Duty Cycle: 1:8.3
Medium: HSL850 (σ = 0.8773 mho/m, ε_r = 41.699, ρ = 1000 kg/m^3)

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.96, 6.96, 6.96); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - Middle/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 7.48 V/m

Power Drift = -0.09 dB

Maximum value of SAR = 0.108 mW/g

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

Peak SAR (extrapolated) = 0.132 W/kg

SAR(1 g) = 0.103 mW/g; SAR(10 g) = 0.0752 mW/g

Reference Value = 7.48 V/m

Power Drift = -0.09 dB

Maximum value of SAR = 0.109 mW/g
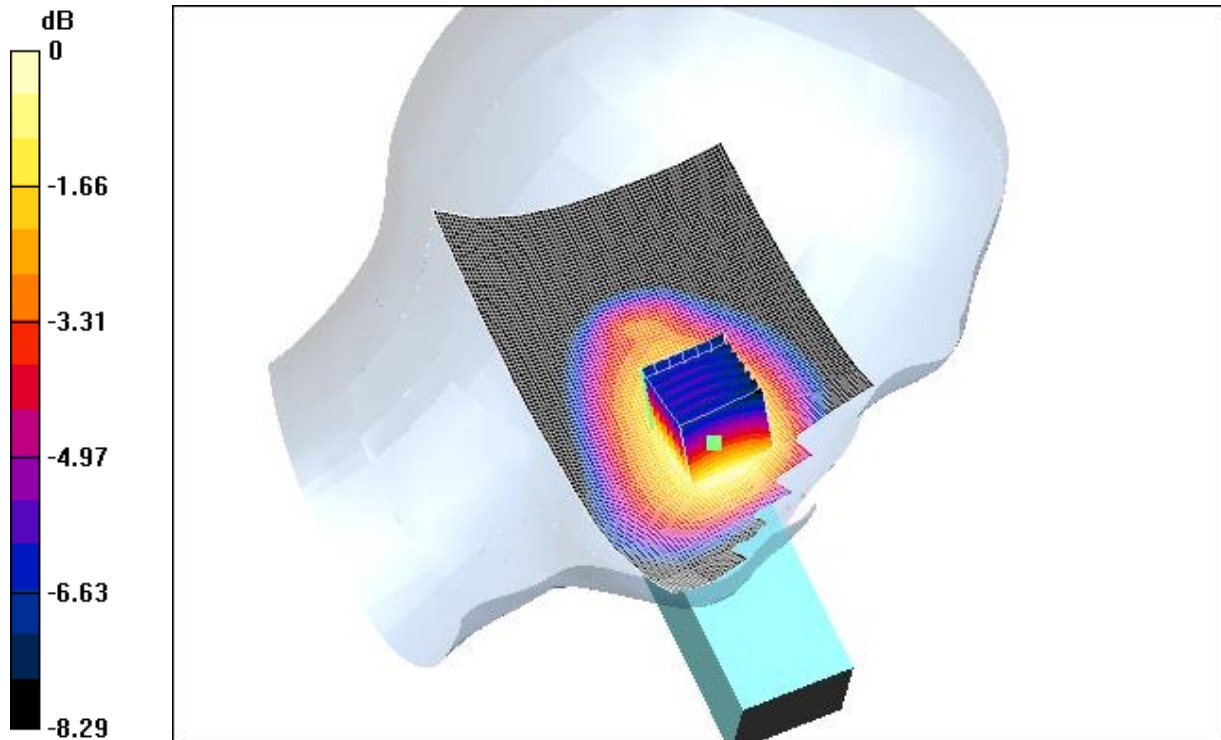
0 dB = 0.109mW/g

4.6 FCC-OET65-LeftHandSide-Tilt-GSM850-High

Date/Time: 08/09/05 09:57:09

Test Laboratory: SGS-GSM
File Name: FCC-OET65-LeftHandSide-Tilt-GSM850.da4

FCC-OET65-LeftHandSide-Tilt-GSM850-High

DUT: GSM50059-Head; Type: Head; Serial: 20050808
Program: Compliance Testing: EN 50361 Protocol Left-Hand Side)

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium: HSL850 (σ = 0.889355 mho/m, ε_r = 41.5624, ρ = 1000 kg/m^3)

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.96, 6.96, 6.96); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - High/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 7.06 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.106 mW/g

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

Peak SAR (extrapolated) = 0.132 W/kg

SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.0733 mW/g

Reference Value = 7.06 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.107 mW/g
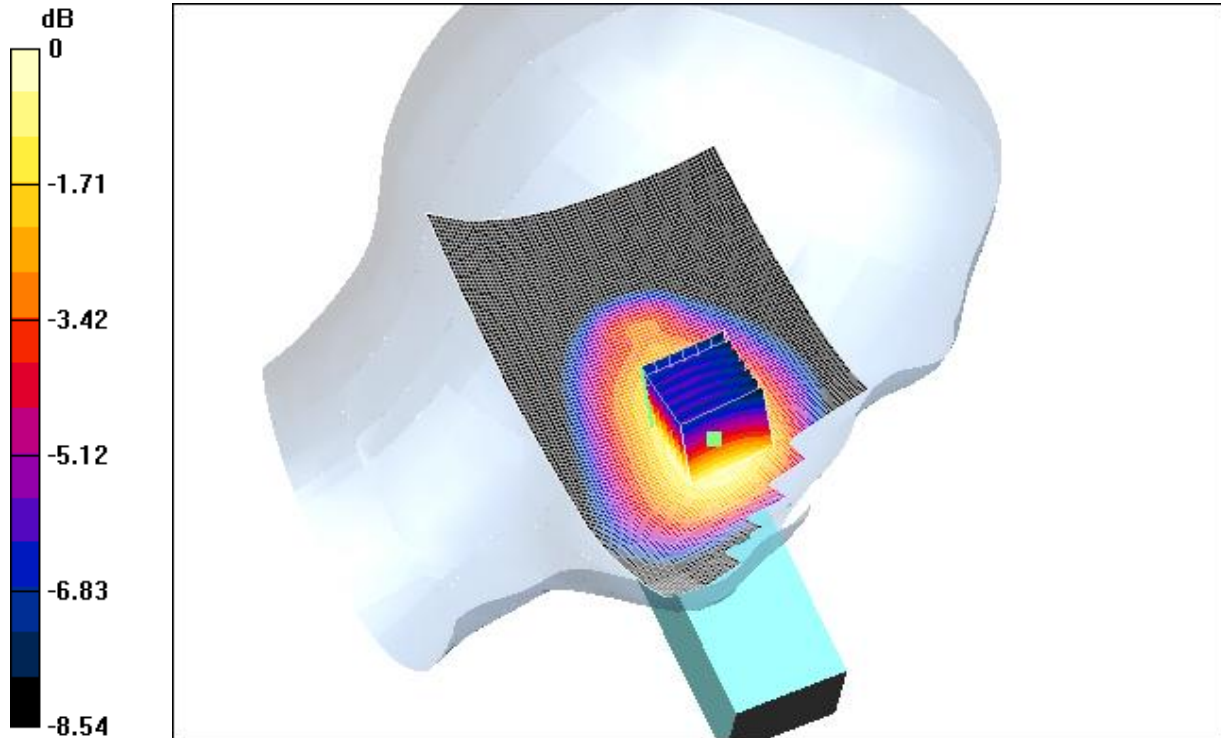
0 dB = 0.107mW/g

4.7 FCC-OET65-RightHandSide-Touch-GSM850-Low

Date/Time: 08/09/05 13:02:57

Test Laboratory: SGS-GSM
File Name: FCC-OET65-RightHandSide-Touch-GSM850.da4

FCC-OET65-RightHandSide-Touch-GSM850-Low

DUT: GSM50059-Head; Type: Head; Serial: 20050808
Program: Compliance Testing: EN 50361 Protocol Right-Hand Side)

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium: HSL850 (σ = 0.865816 mho/m, ε_r = 41.8373, ρ = 1000 kg/m^3)

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.96, 6.96, 6.96); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - Low/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 7.02 V/m

Power Drift = 0.1 dB

Maximum value of SAR = 0.542 mW/g

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

Peak SAR (extrapolated) = 0.701 W/kg

SAR(1 g) = 0.499 mW/g; SAR(10 g) = 0.328 mW/g

Reference Value = 7.02 V/m

Power Drift = 0.1 dB

Maximum value of SAR = 0.538 mW/g
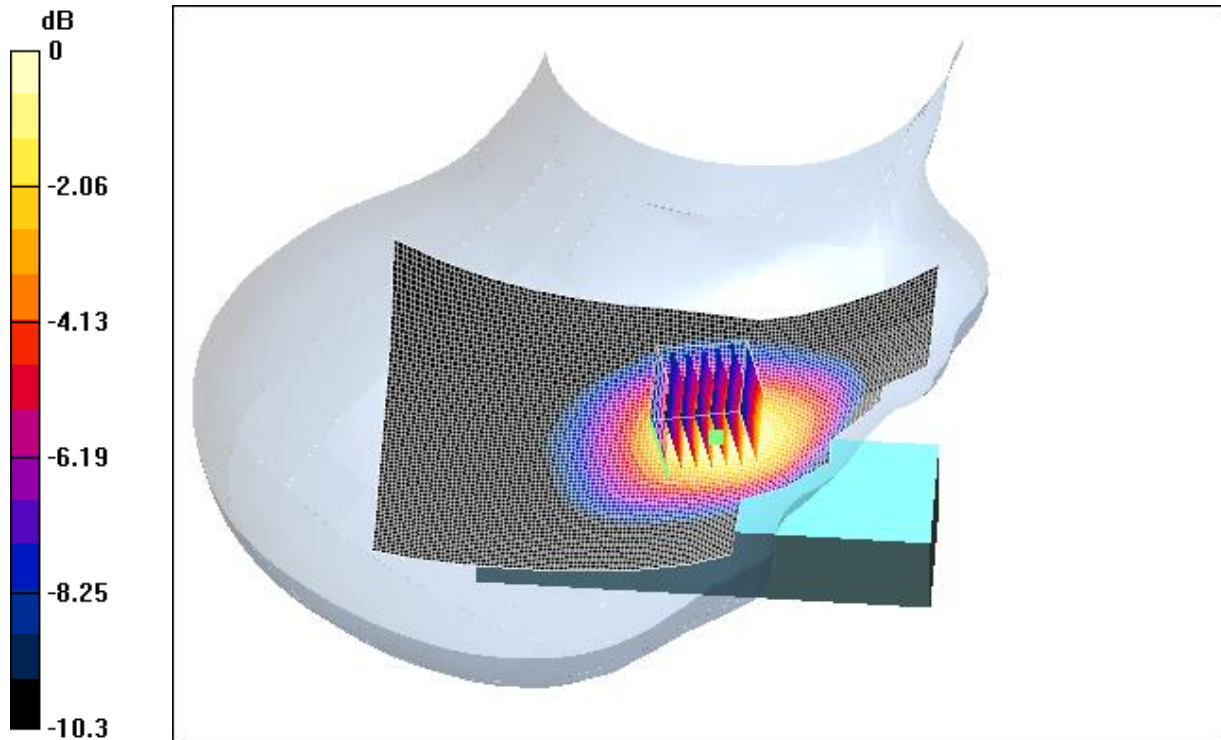
0 dB = 0.538mW/g

4.8 FCC-OET65-RightHandSide-Touch-GSM850-Mid

Date/Time: 08/09/05 13:02:57

Test Laboratory: SGS-GSM
File Name: FCC-OET65-RightHandSide-Touch-GSM850.da4

FCC-OET65-RightHandSide-Touch-GSM850-Mid

DUT: GSM50059-Head; Type: Head; Serial: 20050808
Program: Compliance Testing: EN 50361 Protocol Right-Hand Side)

Communication System: GSM850; Frequency: 836.4 MHz;Duty Cycle: 1:8.3
Medium: HSL850 (σ = 0.8773 mho/m, ε_r = 41.699, ρ = 1000 kg/m^3)

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.96, 6.96, 6.96); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - Middle/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 6.38 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.442 mW/g

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

Peak SAR (extrapolated) = 0.576 W/kg

SAR(1 g) = 0.407 mW/g; SAR(10 g) = 0.266 mW/g

Reference Value = 6.38 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.435 mW/g
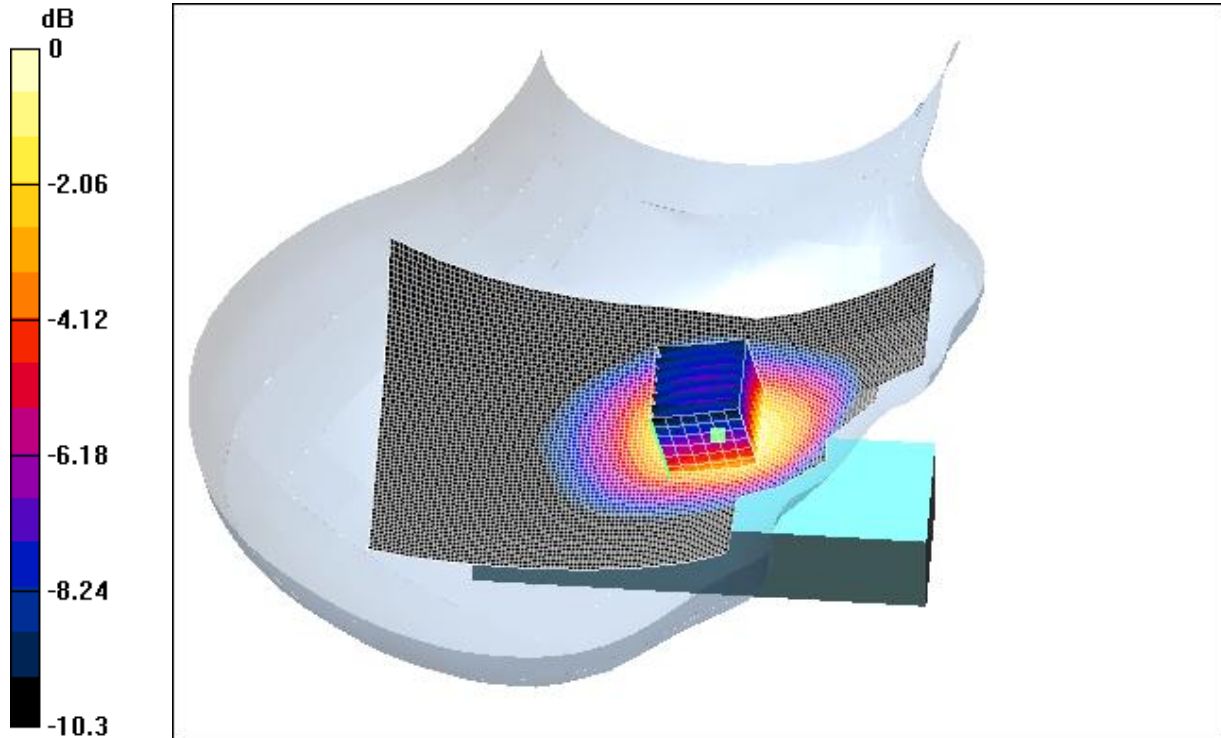
0 dB = 0.435mW/g

4.9 FCC-OET65-RightHandSide-Touch-GSM850-High

Date/Time: 08/09/05 13:02:57

Test Laboratory: SGS-GSM

File Name: FCC-OET65-RightHandSide-Touch-GSM850.da4

FCC-OET65-RightHandSide-Touch-GSM850-High

DUT: GSM50059-Head; Type: Head; Serial: 20050808
Program: Compliance Testing: EN 50361 Protocol Right-Hand Side)

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium: HSL850 (σ = 0.889355 mho/m, ε_r = 41.5624, ρ = 1000 kg/m^3)

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.96, 6.96, 6.96); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - High/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 5.97 V/m

Power Drift = 0.004 dB

Maximum value of SAR = 0.398 mW/g

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

Peak SAR (extrapolated) = 0.508 W/kg

SAR(1 g) = 0.365 mW/g; SAR(10 g) = 0.238 mW/g

Reference Value = 5.97 V/m

Power Drift = 0.004 dB

Maximum value of SAR = 0.392 mW/g
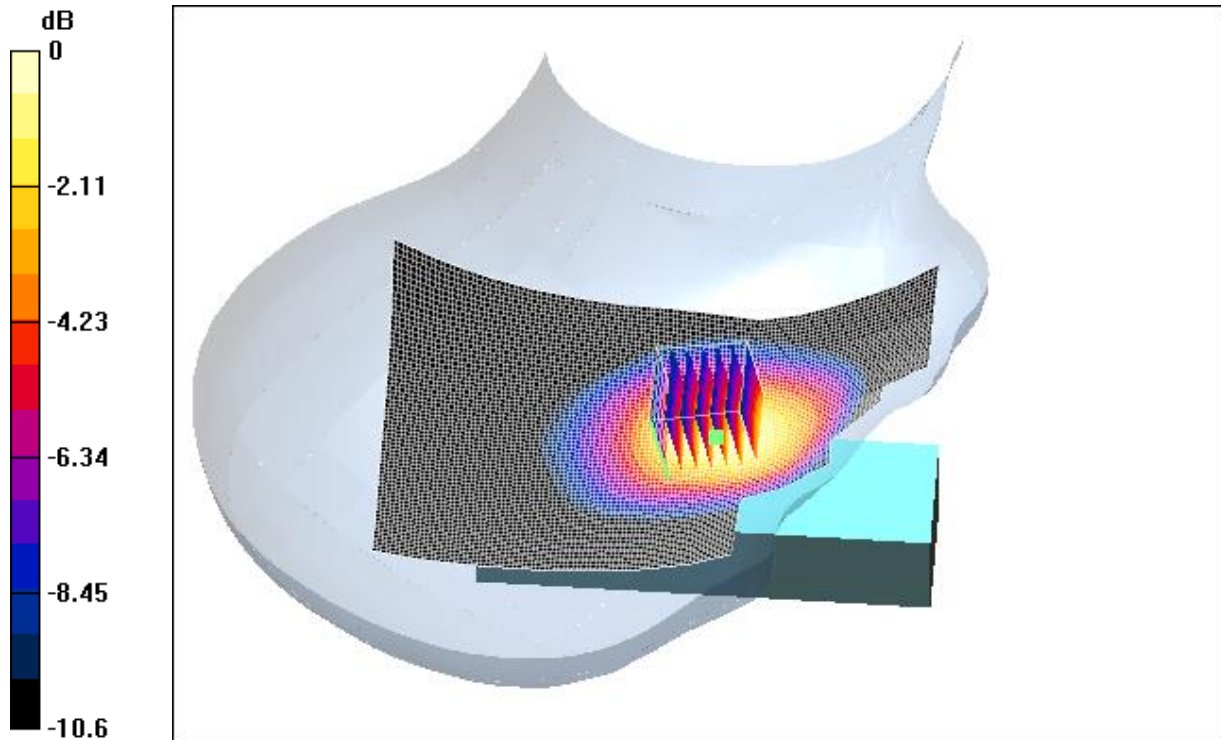
0 dB = 0.392mW/g

4.10 FCC-OET65-RightHandSide-Tilt-GSM850-Low

Date/Time: 08/09/05 15:48:17

Test Laboratory: SGS-GSM

File Name: FCC-OET65-RightHandSide-Tilt-GSM850-1.da4

FCC-OET65-RightHandSide-Tilt-GSM850-Low

DUT: GSM50059-Head; Type: Head; Serial: 20050808
Program: Compliance Testing: EN 50361 Protocol Right-Hand Side)

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium: HSL850 (σ = 0.865816 mho/m, ε_r = 41.8373, ρ = 1000 kg/m^3)

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.96, 6.96, 6.96); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - Low/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 8.86 V/m

Power Drift = -0.03 dB

Maximum value of SAR = 0.141 mW/g

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

Peak SAR (extrapolated) = 0.202 W/kg

SAR(1 g) = 0.137 mW/g; SAR(10 g) = 0.1 mW/g

Reference Value = 8.86 V/m

Power Drift = -0.03 dB

Maximum value of SAR = 0.147 mW/g
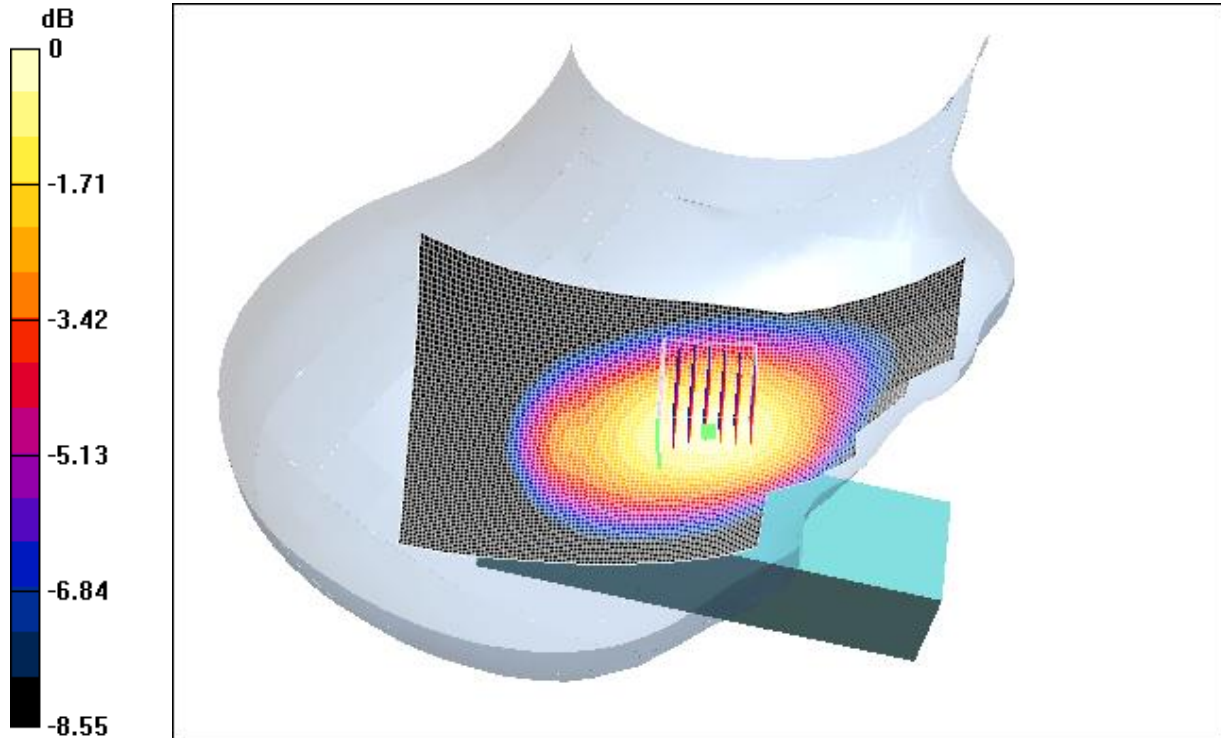
0 dB = 0.147mW/g

4.11 FCC-OET65-RightHandSide-Tilt-GSM850-Mid

Date/Time: 08/09/05 14:15:32

Test Laboratory: SGS-GSM

File Name: FCC-OET65-RightHandSide-Tilt-GSM850.da4

FCC-OET65-RightHandSide-Tilt-GSM850-Mid

DUT: GSM50059-Head; Type: Head; Serial: 20050808

Program: Compliance Testing: EN 50361 Protocol Right-Hand Side)

Communication System: GSM850; Frequency: 836.4 MHz;Duty Cycle: 1:8.3

Medium: HSL850 (σ = 0.8773 mho/m, ε_r = 41.699, ρ = 1000 kg/m^3)

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.96, 6.96, 6.96); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - Middle/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 7.88 V/m

Power Drift = -0.04 dB

Maximum value of SAR = 0.115 mW/g

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

Peak SAR (extrapolated) = 0.165 W/kg

SAR(1 g) = 0.111 mW/g; SAR(10 g) = 0.081 mW/g

Reference Value = 7.88 V/m

Power Drift = -0.04 dB

Maximum value of SAR = 0.118 mW/g
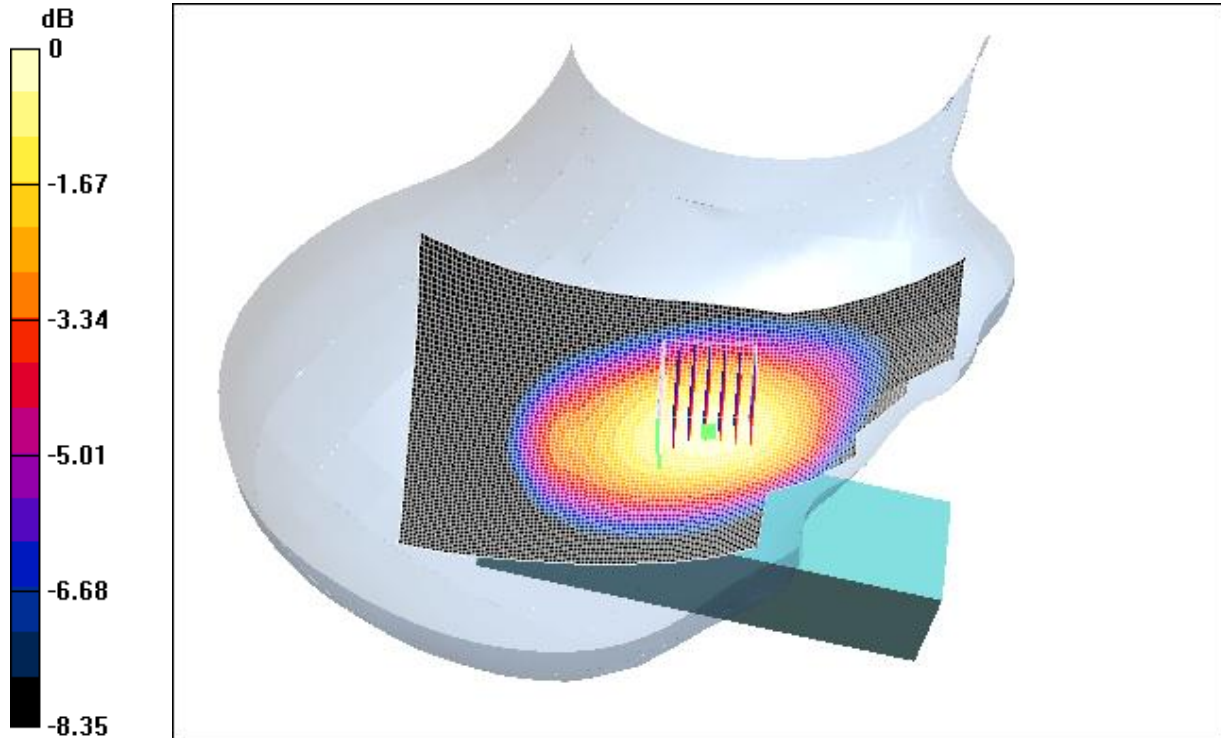
0 dB = 0.118mW/g

4.12 FCC-OET65-RightHandSide-Tilt-GSM850-High

Date/Time: 08/09/05 15:00:39

Test Laboratory: SGS-GSM
File Name: FCC-OET65-RightHandSide-Tilt-GSM850.da4

FCC-OET65-RightHandSide-Tilt-GSM850-High

DUT: GSM50059-Head; Type: Head; Serial: 20050808
Program: Compliance Testing: EN 50361 Protocol Right-Hand Side)

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium: HSL850 (σ = 0.889355 mho/m, ε_r = 41.5624, ρ = 1000 kg/m^3)

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.96, 6.96, 6.96); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - High/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 7.44 V/m

Power Drift = -0.06 dB

Maximum value of SAR = 0.104 mW/g

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

Peak SAR (extrapolated) = 0.148 W/kg

SAR(1 g) = 0.0999 mW/g; SAR(10 g) = 0.0727 mW/g

Reference Value = 7.44 V/m

Power Drift = -0.06 dB

Maximum value of SAR = 0.107 mW/g
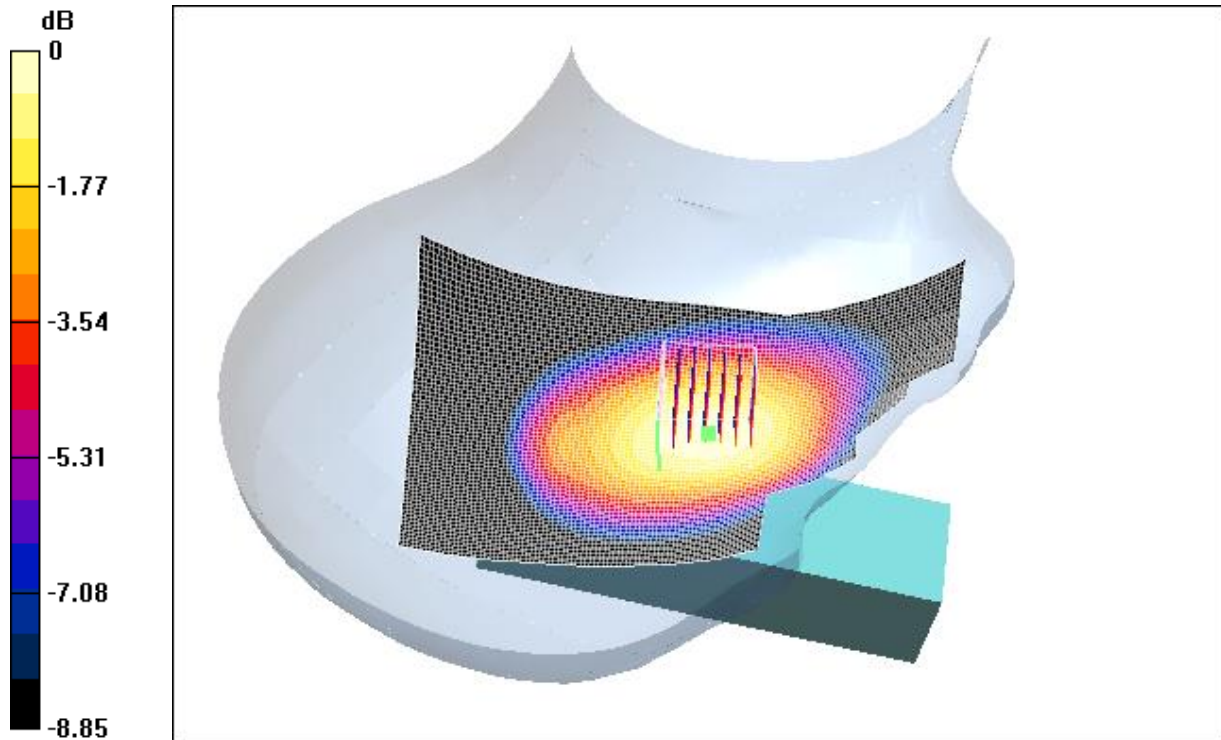
0 dB = 0.107mW/g

4.13 FCC-OET65-Body-Worn-GSM850-Low

Date/Time: 08/11/05 13:47:27

Test Laboratory: SGS-GSM

File Name: FCC-OET65-Body-Worn-GSM850.da4

FCC-OET65-Body-Worn-GSM850-Low

DUT: GSM50059; Type: Body; Serial: 20050811

Program: Compliance Testing: FCC OET65 Protocol (Body Worn)

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

Medium: HSL850-Body (σ = 0.982648 mho/m, ε_r = 52.6441, ρ = 1000 kg/m^3)

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.65, 6.65, 6.65); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Body Worn - Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 13.2 V/m

Power Drift = -0.1 dB

Maximum value of SAR = 0.253 mW/g

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

Peak SAR (extrapolated) = 0.321 W/kg

SAR(1 g) = 0.235 mW/g; SAR(10 g) = 0.157 mW/g

Reference Value = 13.2 V/m

Power Drift = -0.1 dB

Maximum value of SAR = 0.251 mW/g
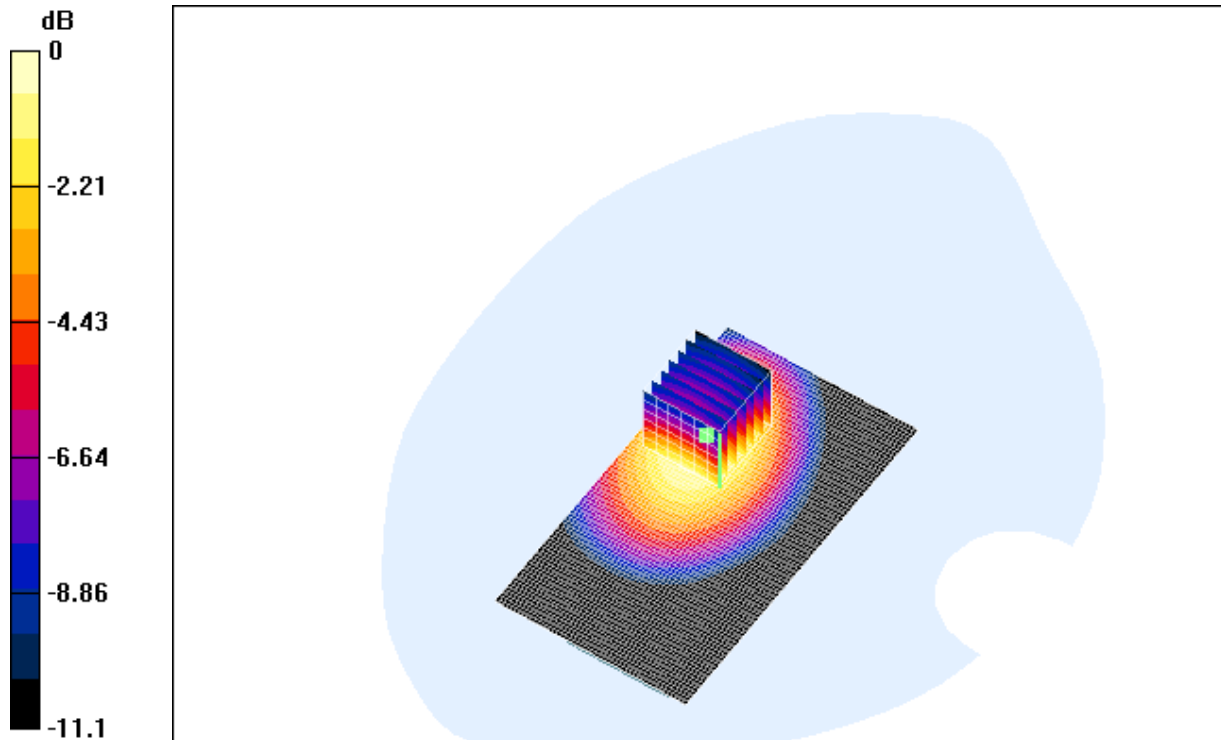
0 dB = 0.251mW/g

4.14 FCC-OET65-Body-Worn-GSM850-Mid

Date/Time: 08/11/05 13:47:27

Test Laboratory: SGS-GSM

File Name: FCC-OET65-Body-Worn-GSM850.da4

FCC-OET65-Body-Worn-GSM850-Mid

DUT: GSM50059; Type: Body; Serial: 20050811
Program: Compliance Testing: FCC OET65 Protocol (Body Worn)

Communication System: GSM850; Frequency: 836.4 MHz;Duty Cycle: 1:8.3
Medium: HSL850-Body (σ = 0.99717 mho/m, ε_r = 52.5261, ρ = 1000 kg/m^3)

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.65, 6.65, 6.65); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Body Worn - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 11.7 V/m

Power Drift = -0.09 dB

Maximum value of SAR = 0.219 mW/g

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

Peak SAR (extrapolated) = 0.282 W/kg

SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.136 mW/g

Reference Value = 11.7 V/m

Power Drift = -0.09 dB

Maximum value of SAR = 0.218 mW/g
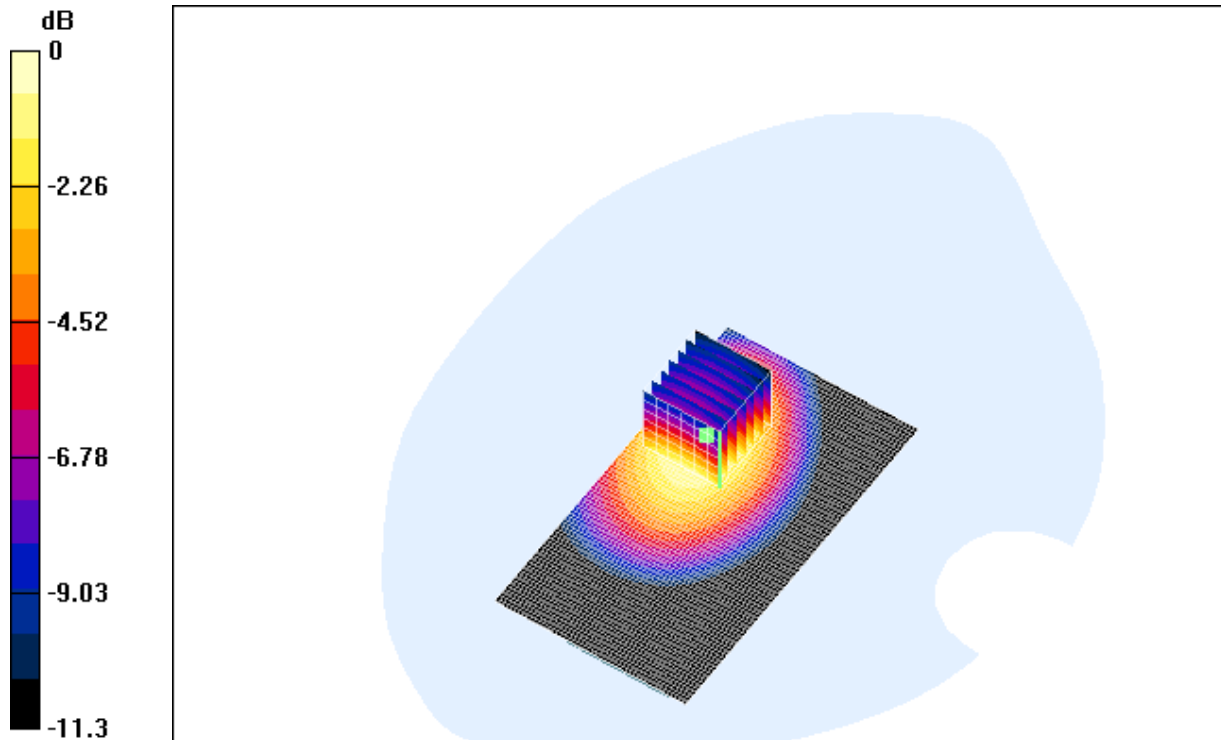
0 dB = 0.218mW/g

4.15 FCC-OET65-Body-Worn-GSM850-High

Date/Time: 08/11/05 13:47:27

Test Laboratory: SGS-GSM
File Name: FCC-OET65-Body-Worn-GSM850.da4

FCC-OET65-Body-Worn-GSM850-High

DUT: GSM50059; Type: Body; Serial: 20050811
Program: Compliance Testing: FCC OET65 Protocol (Body Worn)

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium: HSL850-Body (σ = 1.01257 mho/m, ε_r = 52.4876, ρ = 1000 kg/m^3)

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.65, 6.65, 6.65); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Body Worn - High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 11.3 V/m

Power Drift = -0.04 dB

Maximum value of SAR = 0.219 mW/g

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

Peak SAR (extrapolated) = 0.289 W/kg

SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.136 mW/g

Reference Value = 11.3 V/m

Power Drift = -0.04 dB

Maximum value of SAR = 0.22 mW/g
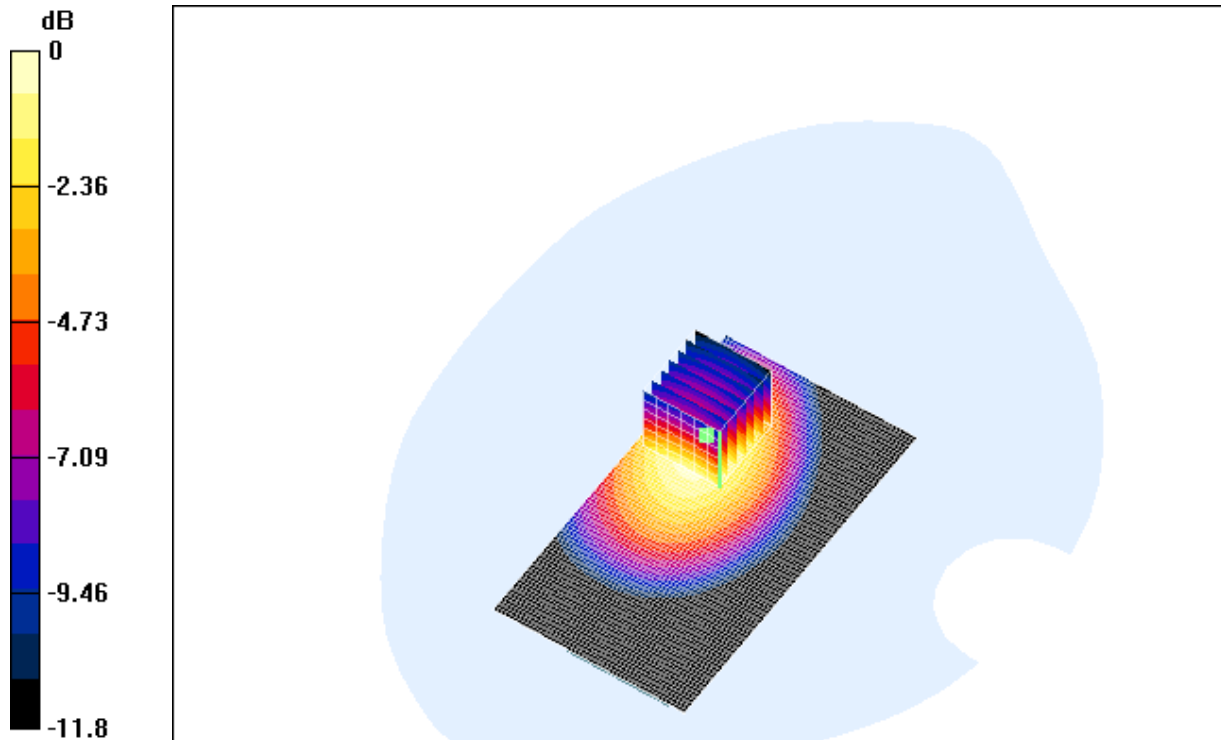
0 dB = 0.22mW/g

850MHz GPRS Mode

4.16 FCC-OET65-Body-Worn-GSM850-GPRS-Low

Date/Time: 08/16/05 18:45:18

Test Laboratory: SGS-GSM
File Name: FCC-OET65-Body-Worn-GSM850-GPRS-01.da4

FCC-OET65-Body-Worn-GSM850-GPRS-Low

DUT: GSM50059; Type: Body; Serial: 20050811
Program: Compliance Testing: FCC OET65 Protocol (Body Worn)

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:4

Medium: HSL850-Body (σ = 0.982648 mho/m, ε_r = 52.6441, ρ = 1000 kg/m^3)

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.65, 6.65, 6.65); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Body Worn - Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 23.4 V/m

Power Drift = -0.09 dB

Maximum value of SAR = 0.67 mW/g

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

Peak SAR (extrapolated) = 0.852 W/kg

SAR(1 g) = 0.623 mW/g; SAR(10 g) = 0.422 mW/g

Reference Value = 23.4 V/m

Power Drift = -0.09 dB

Maximum value of SAR = 0.665 mW/g
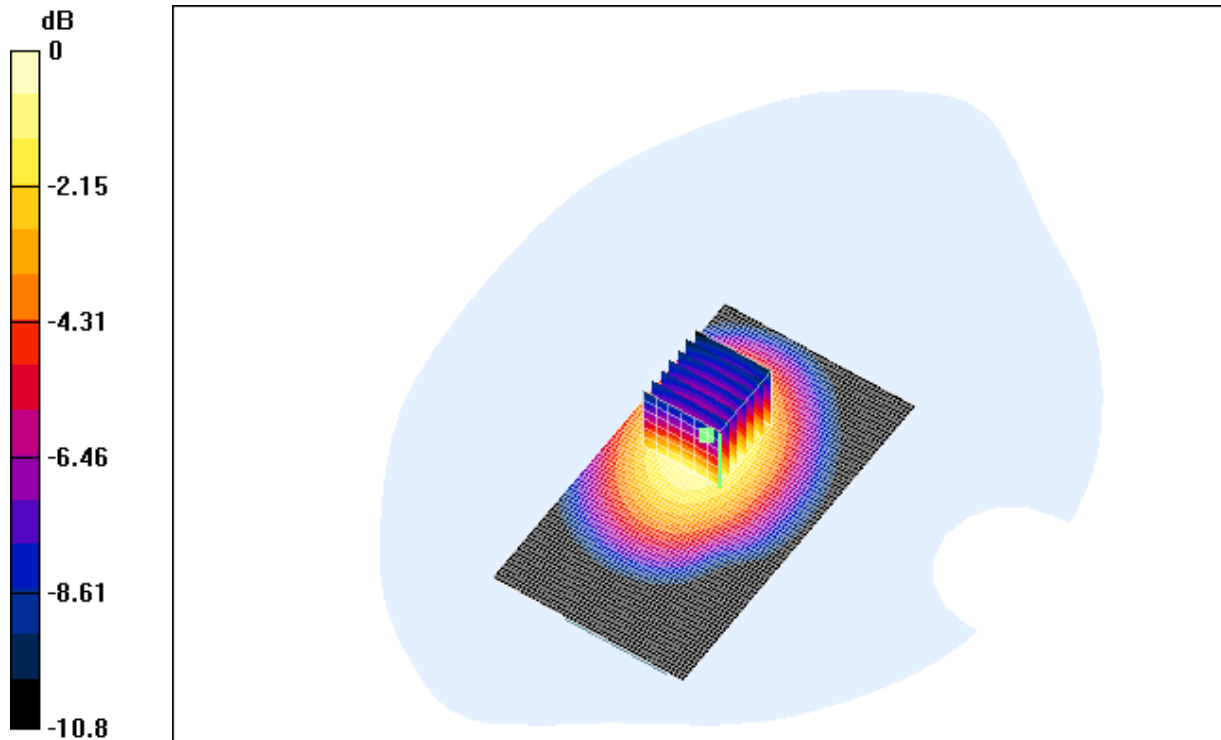
0 dB = 0.665mW/g

4.17 FCC-OET65-Body-Worn-GSM850-GPRS-Middle

Date/Time: 08/16/05 18:45:18

Test Laboratory: SGS-GSM
File Name: FCC-OET65-Body-Worn-GSM850-GPRS-01.da4

FCC-OET65-Body-Worn-GSM850-GPRS-Mid

DUT: GSM50059; Type: Body; Serial: 20050811
Program: Compliance Testing: FCC OET65 Protocol (Body Worn)

Communication System: GSM850; Frequency: 836.4 MHz;Duty Cycle: 1:4
Medium: HSL850-Body (σ = 0.99717 mho/m, ε_r = 52.5261, ρ = 1000 kg/m^3)

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.65, 6.65, 6.65); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Body Worn - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 21.3 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.571 mW/g

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

Peak SAR (extrapolated) = 0.72 W/kg

SAR(1 g) = 0.529 mW/g; SAR(10 g) = 0.357 mW/g

Reference Value = 21.3 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.563 mW/g
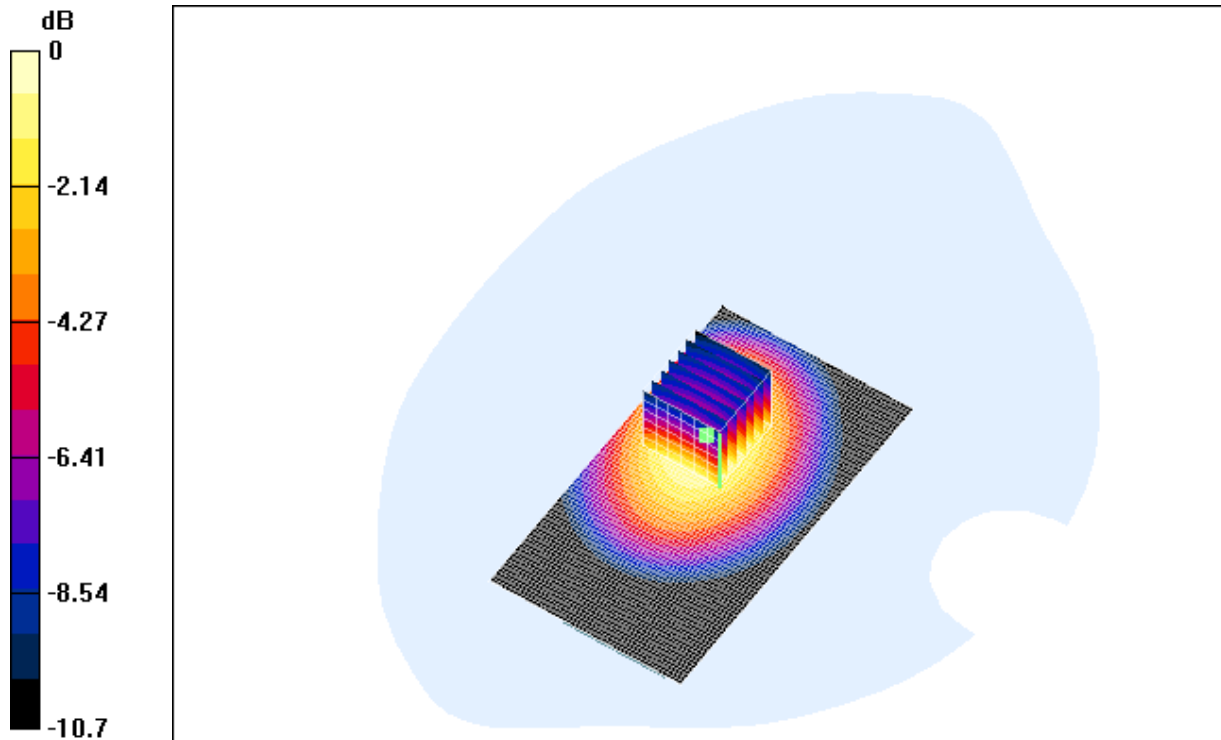
0 dB = 0.563mW/g

4.18 FCC-OET65-Body-Worn-GSM850-GPRS-High

Date/Time: 08/16/05 18:45:18

Test Laboratory: SGS-GSM

File Name: FCC-OET65-Body-Worn-GSM850-GPRS-01.da4

FCC-OET65-Body-Worn-GSM850-GPRS-High

DUT: GSM50059; Type: Body; Serial: 20050811
Program: Compliance Testing: FCC OET65 Protocol (Body Worn)

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium: HSL850-Body (σ = 1.01257 mho/m, ε_r = 52.4876, ρ = 1000 kg/m^3)

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(6.65, 6.65, 6.65); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Body Worn - High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 20.2 V/m

Power Drift = 0.04 dB

Maximum value of SAR = 0.6 mW/g

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

Peak SAR (extrapolated) = 0.777 W/kg

SAR(1 g) = 0.561 mW/g; SAR(10 g) = 0.377 mW/g

Reference Value = 20.2 V/m

Power Drift = 0.04 dB

Maximum value of SAR = 0.595 mW/g
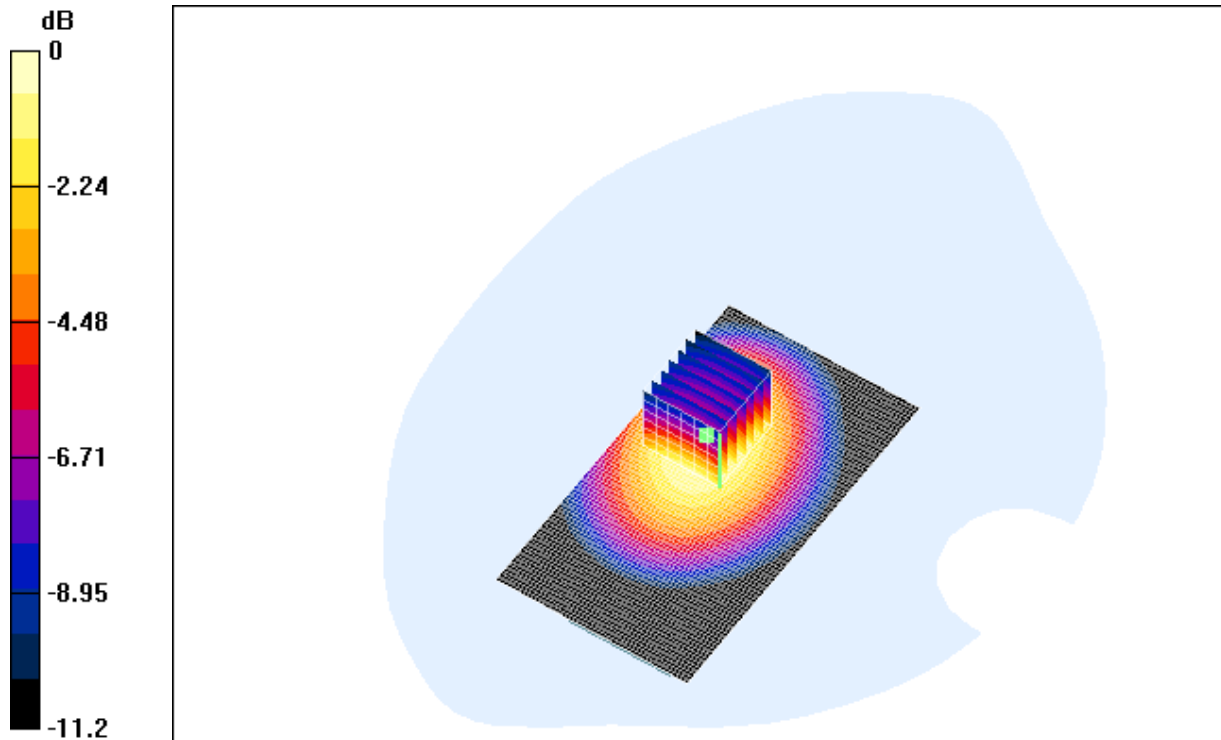
0 dB = 0.595mW/g

1900MHz GSM Mode

4.19 FCC-OET65-LeftHandSide-Touch-GSM1900-Low

Date/Time: 08/10/05 16:25:48

Test Laboratory: SGS-GSM

File Name: FCC-OET65-LeftHandSide-Touch-GSM1900.da4

FCC-OET65-LeftHandSide-Touch-GSM1900-Low

DUT: GSM50059-Head; Type: Head; Serial: 20050810
Program: Compliance Testing: EN 50361 Protocol Left-Hand Side)

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

Medium: HSL1900-Head (σ = 1.41808 mho/m, ε_r = 40.5312, ρ = 1000 kg/m^3)

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(5.25, 5.25, 5.25); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - Low/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 8.16 V/m

Power Drift = -0.8 dB

Maximum value of SAR = 0.86 mW/g

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

Peak SAR (extrapolated) = 1.07 W/kg

SAR(1 g) = 0.798 mW/g; SAR(10 g) = 0.514 mW/g

Reference Value = 8.16 V/m

Power Drift = -0.8 dB

Maximum value of SAR = 0.854 mW/g
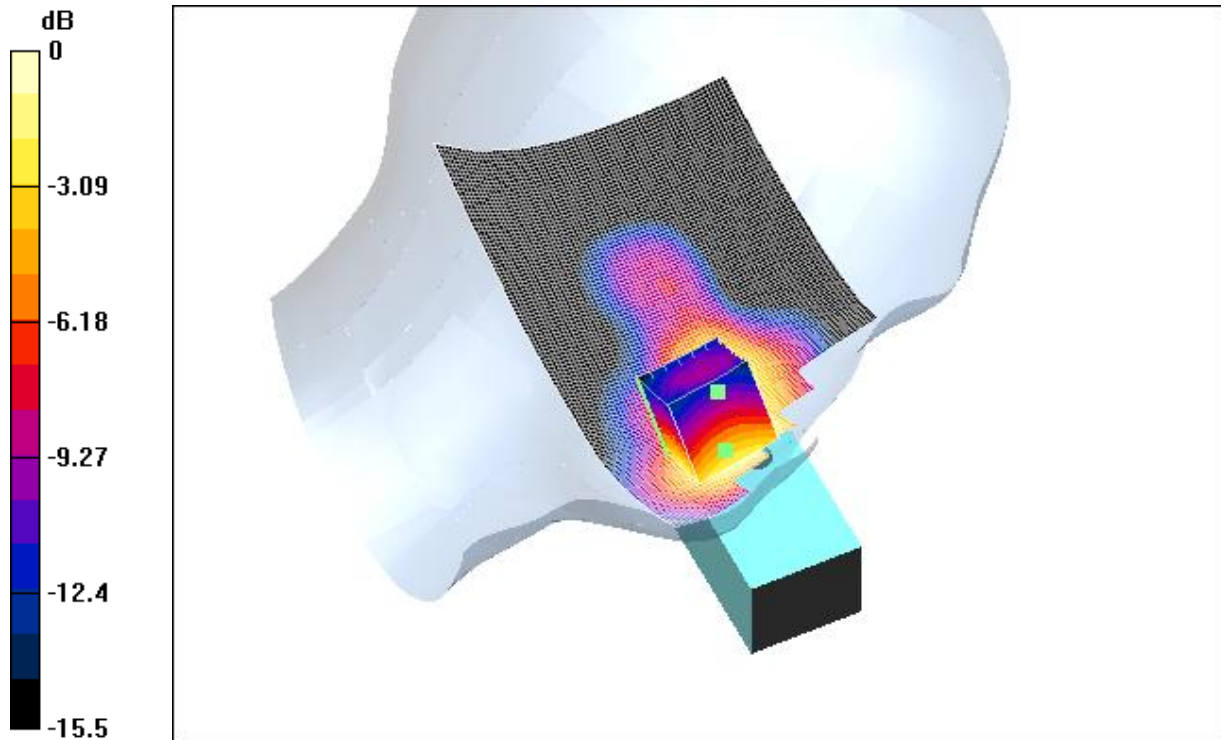
0 dB = 0.854mW/g

4.20 FCC-OET65-LeftHandSide-Touch-GSM1900-Mid

Date/Time: 08/10/05 16:25:48

Test Laboratory: SGS-GSM

File Name: FCC-OET65-LeftHandSide-Touch-GSM1900.da4

FCC-OET65-LeftHandSide-Touch-GSM1900-Mid

DUT: GSM50059-Head; Type: Head; Serial: 20050810
Program: Compliance Testing: EN 50361 Protocol Left-Hand Side)

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: HSL1900-Head (σ = 1.44443 mho/m, ε_r = 40.3239, ρ = 1000 kg/m^3)

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(5.25, 5.25, 5.25); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - Middle/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 7.42 V/m

Power Drift = -0.1 dB

Maximum value of SAR = 0.767 mW/g

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

Peak SAR (extrapolated) = 0.992 W/kg

SAR(1 g) = 0.717 mW/g; SAR(10 g) = 0.456 mW/g

Reference Value = 7.42 V/m

Power Drift = -0.1 dB

Maximum value of SAR = 0.773 mW/g
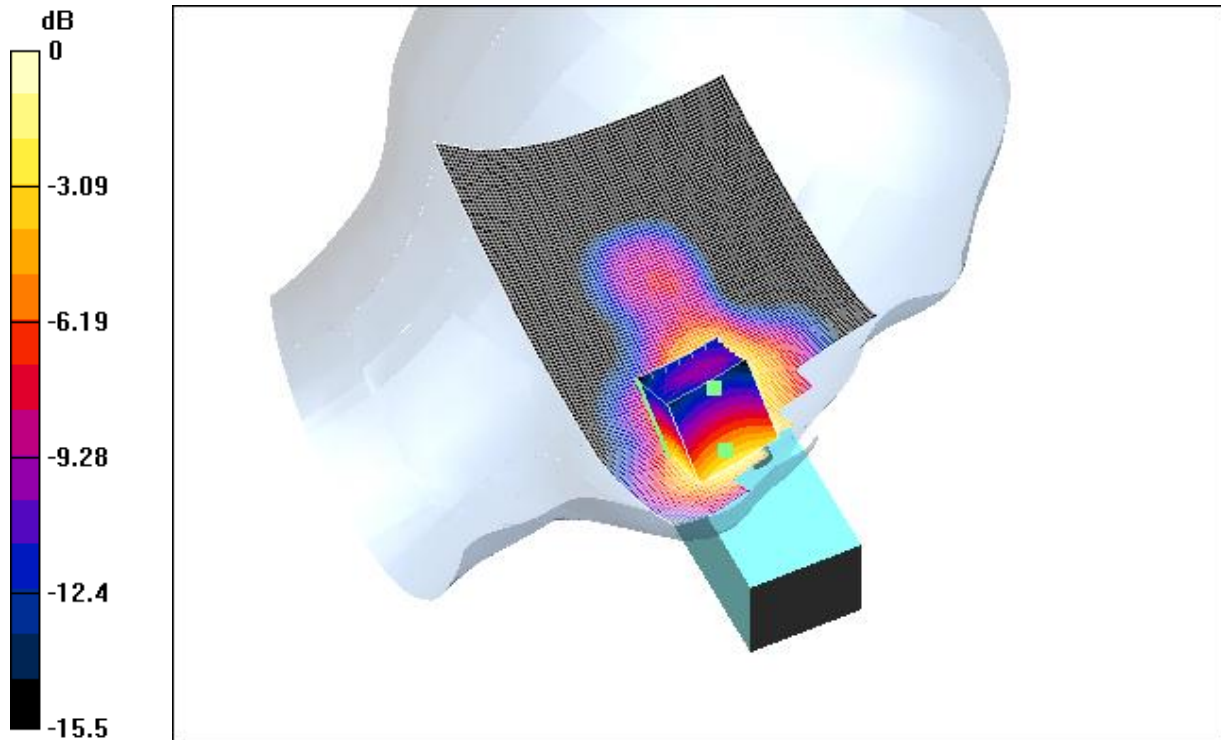
0 dB = 0.773mW/g

4.21 FCC-OET65-LeftHandSide-Touch-GSM1900-High

Date/Time: 08/10/05 16:25:48

Test Laboratory: SGS-GSM

File Name: FCC-OET65-LeftHandSide-Touch-GSM1900.da4

FCC-OET65-LeftHandSide-Touch-GSM1900-High

DUT: GSM50059-Head; Type: Head; Serial: 20050810

Program: Compliance Testing: EN 50361 Protocol Left-Hand Side)

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

Medium: HSL1900-Head (σ = 1.46824 mho/m, ε_r = 39.9929, ρ = 1000 kg/m^3)

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(5.25, 5.25, 5.25); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - High/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 7.66 V/m

Power Drift = -0.08 dB

Maximum value of SAR = 0.758 mW/g

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

Peak SAR (extrapolated) = 1.21 W/kg

SAR(1 g) = 0.698 mW/g; SAR(10 g) = 0.377 mW/g

Reference Value = 7.66 V/m

Power Drift = -0.08 dB

Maximum value of SAR = 0.774 mW/g
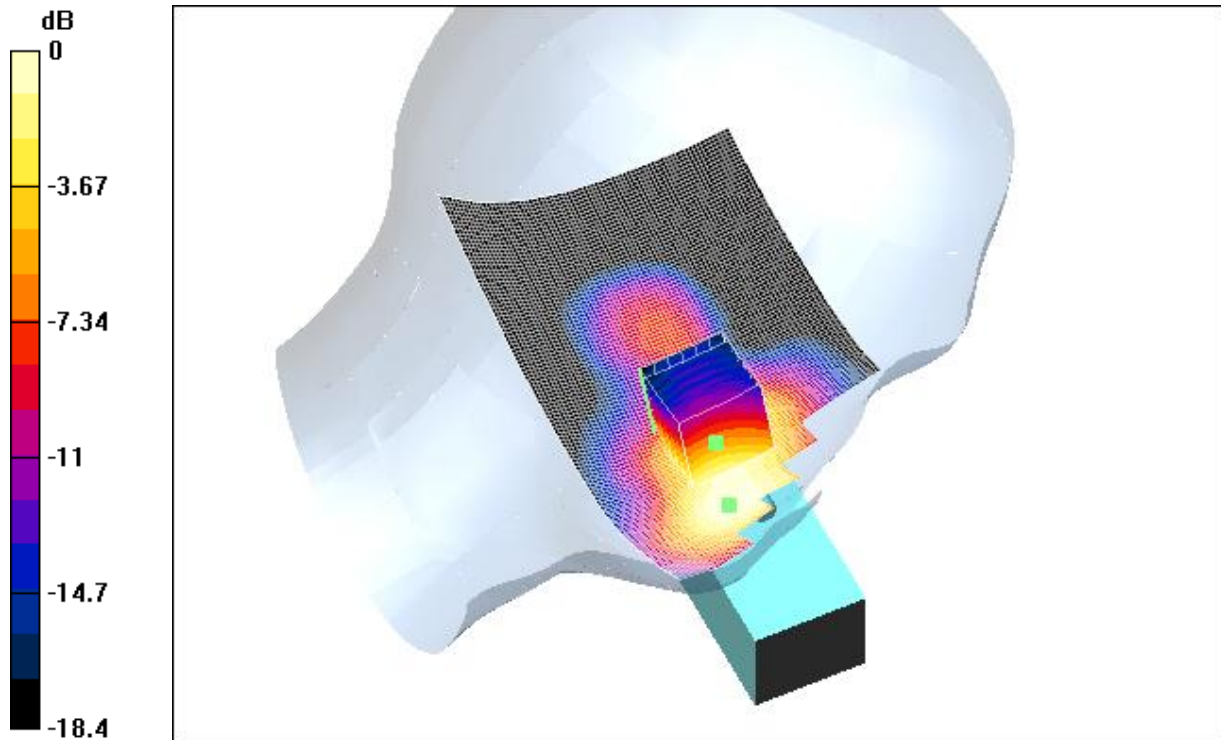
0 dB = 0.774mW/g

4.22 FCC-OET65-LeftHandSide-Tilt-GSM1900-Low

Date/Time: 08/10/05 17:09:09

Test Laboratory: SGS-GSM
File Name: FCC-OET65-LeftHandSide-Tilt-GSM1900.da4

FCC-OET65-LeftHandSide-Tilt-GSM1900-Low

DUT: GSM50059-Head; Type: Head; Serial: 20050810
Program: Compliance Testing: EN 50361 Protocol Left-Hand Side)

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium: HSL1900-Head (σ = 1.41808 mho/m, ε_r = 40.5312, ρ = 1000 kg/m^3)

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(5.25, 5.25, 5.25); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - Low/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 9.79 V/m

Power Drift = 0.2 dB

Maximum value of SAR = 0.185 mW/g

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

Peak SAR (extrapolated) = 0.235 W/kg

SAR(1 g) = 0.166 mW/g; SAR(10 g) = 0.0987 mW/g

Reference Value = 9.79 V/m

Power Drift = 0.2 dB

Maximum value of SAR = 0.182 mW/g
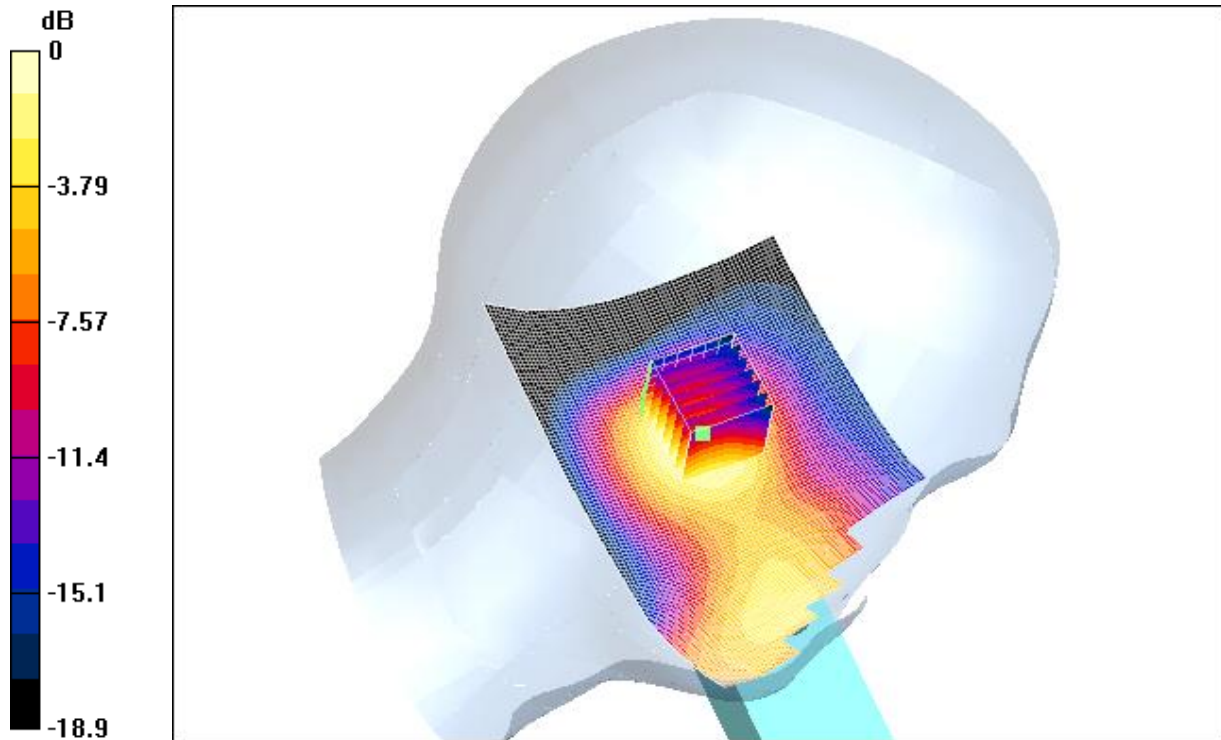
0 dB = 0.182mW/g

4.23 FCC-OET65-LeftHandSide-Tilt-GSM1900-Mid

Date/Time: 08/11/05 09:49:52

Test Laboratory: SGS-GSM

File Name: FCC-OET65-LeftHandSide-Tilt-GSM1900.da4

FCC-OET65-LeftHandSide-Tilt-GSM1900-Mid

DUT: GSM50059-Head; Type: Head; Serial: 20050810
Program: Compliance Testing: EN 50361 Protocol Left-Hand Side)

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: HSL1900-Head (σ = 1.44443 mho/m, ε_r = 40.3239, ρ = 1000 kg/m^3)

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(5.25, 5.25, 5.25); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - Middle/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 9.92 V/m

Power Drift = -0.06 dB

Maximum value of SAR = 0.174 mW/g

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

Peak SAR (extrapolated) = 0.227 W/kg

SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.0933 mW/g

Reference Value = 9.92 V/m

Power Drift = -0.06 dB

Maximum value of SAR = 0.169 mW/g
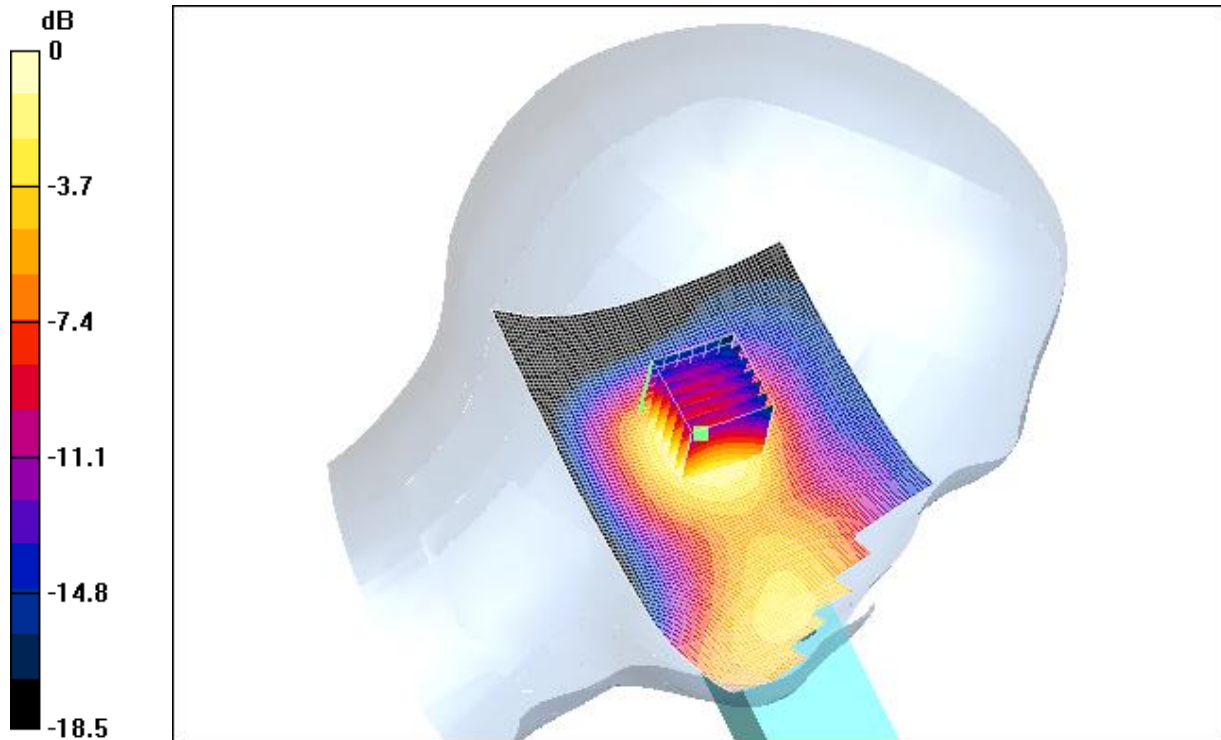
0 dB = 0.169mW/g

4.24 FCC-OET65-LeftHandSide-Tilt-GSM1900-High

Date/Time: 08/11/05 09:49:52

Test Laboratory: SGS-GSM

File Name: FCC-OET65-LeftHandSide-Tilt-GSM1900.da4

FCC-OET65-LeftHandSide-Tilt-GSM1900-High

DUT: GSM50059-Head; Type: Head; Serial: 20050810
Program: Compliance Testing: EN 50361 Protocol Left-Hand Side)

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium: HSL1900-Head (σ = 1.46824 mho/m, ε_r = 39.9929, ρ = 1000 kg/m^3)

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(5.25, 5.25, 5.25); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - High/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 9.72 V/m

Power Drift = -0.02 dB

Maximum value of SAR = 0.168 mW/g

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

Peak SAR (extrapolated) = 0.221 W/kg

SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.0876 mW/g

Reference Value = 9.72 V/m

Power Drift = -0.02 dB

Maximum value of SAR = 0.164 mW/g
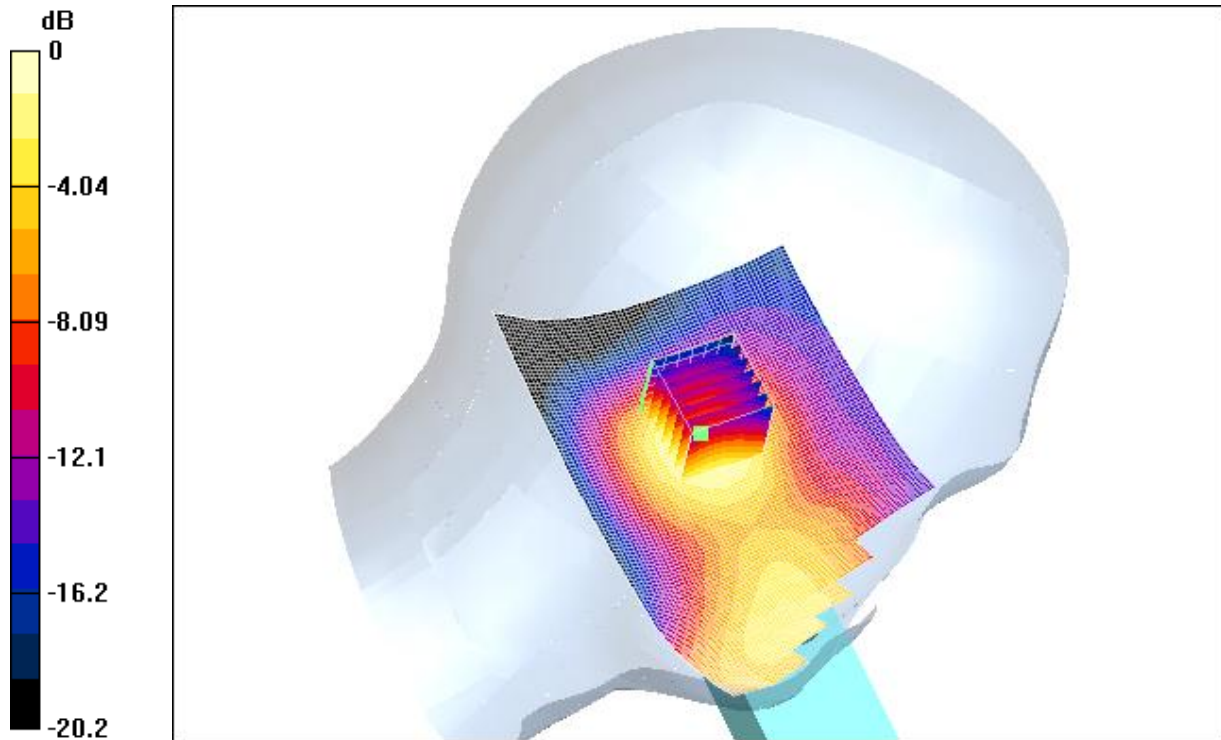
0 dB = 0.164mW/g

4.25 FCC-OET65-RightHandSide-Touch-GSM1900-Low

Date/Time: 08/10/05 11:13:38

Test Laboratory: SGS-GSM
File Name: FCC-OET65-RightHandSide-Touch-GSM1900.da4

FCC-OET65-RightHandSide-Touch-GSM1900-Low

DUT: GSM50059-Head; Type: Head; Serial: 20050810
Program: Compliance Testing: EN 50361 Protocol Right-Hand Side)

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium: HSL1900-Head (σ = 1.41808 mho/m, ε_r = 40.5312, ρ = 1000 kg/m^3)

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(5.25, 5.25, 5.25); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - Low/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 7.81 V/m

Power Drift = 0.1 dB

Maximum value of SAR = 0.732 mW/g

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

Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.658 mW/g; SAR(10 g) = 0.375 mW/g

Reference Value = 7.81 V/m

Power Drift = 0.1 dB

Maximum value of SAR = 0.739 mW/g
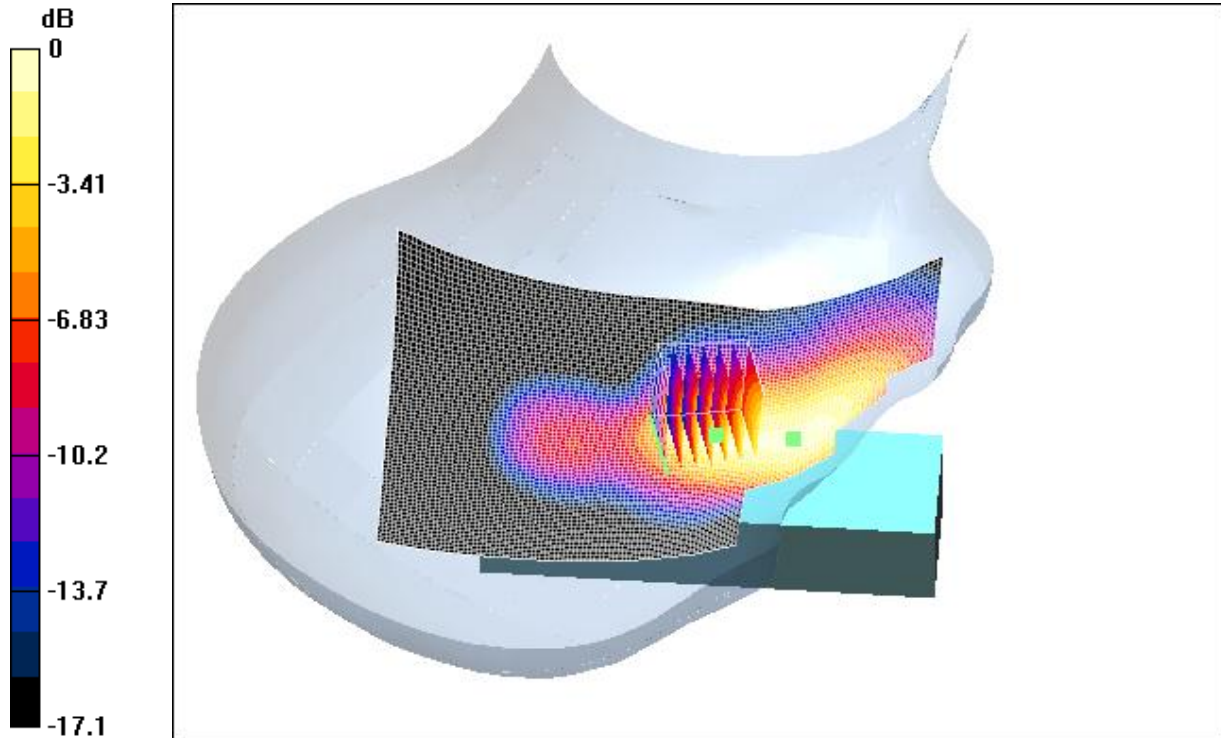
0 dB = 0.739mW/g

4.26 FCC-OET65-RightHandSide-Touch-GSM1900-Mid

Date/Time: 08/10/05 11:13:38

Test Laboratory: SGS-GSM

File Name: FCC-OET65-RightHandSide-Touch-GSM1900.da4

FCC-OET65-RightHandSide-Touch-GSM1900-Mid

DUT: GSM50059-Head; Type: Head; Serial: 20050810

Program: Compliance Testing: EN 50361 Protocol Right-Hand Side)

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

Medium: HSL1900-Head (σ = 1.44443 mho/m, ε_r = 40.3239, ρ = 1000 kg/m^3)

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(5.25, 5.25, 5.25); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - Middle/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 7.94 V/m

Power Drift = 0.02 dB

Maximum value of SAR = 0.696 mW/g

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

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.634 mW/g; SAR(10 g) = 0.35 mW/g

Reference Value = 7.94 V/m

Power Drift = 0.02 dB

Maximum value of SAR = 0.704 mW/g
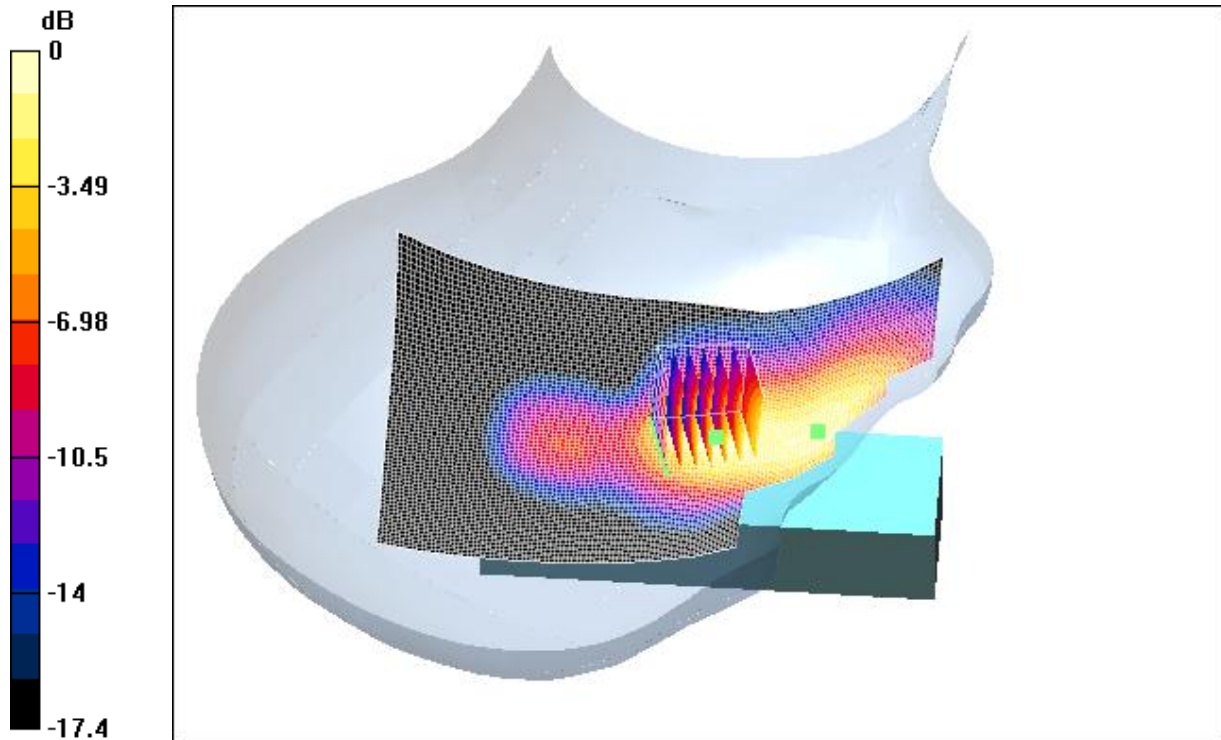
0 dB = 0.704mW/g

4.27 FCC-OET65-RightHandSide-Touch-GSM1900-High

Date/Time: 08/10/05 11:13:38

Test Laboratory: SGS-GSM
File Name: FCC-OET65-RightHandSide-Touch-GSM1900.da4

FCC-OET65-RightHandSide-Touch-GSM1900-High

DUT: GSM50059-Head; Type: Head; Serial: 20050810
Program: Compliance Testing: EN 50361 Protocol Right-Hand Side)

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium: HSL1900-Head (σ = 1.46824 mho/m, ε_r = 39.9929, ρ = 1000 kg/m^3)

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(5.25, 5.25, 5.25); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Touch position - High/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 8.27 V/m

Power Drift = -0.03 dB

Maximum value of SAR = 0.749 mW/g

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

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.688 mW/g; SAR(10 g) = 0.371 mW/g

Reference Value = 8.27 V/m

Power Drift = -0.03 dB

Maximum value of SAR = 0.768 mW/g
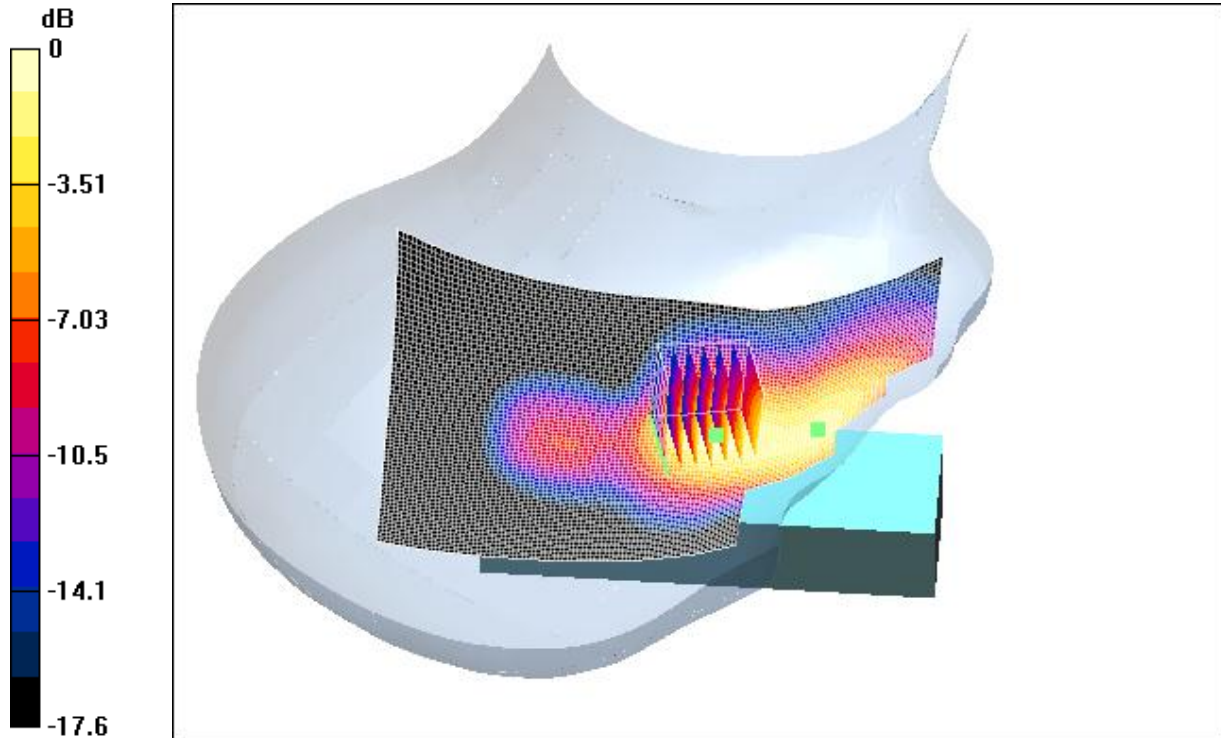
0 dB = 0.768mW/g

4.28 FCC-OET65-RightHandSide-Tilt-GSM1900-Low

Date/Time: 08/10/05 14:16:04

Test Laboratory: SGS-GSM

File Name: FCC-OET65-RightHandSide-Tilt-GSM1900.da4

FCC-OET65-RightHandSide-Tilt-GSM1900-Low

DUT: GSM50059-Head; Type: Head; Serial: 20050810
Program: Compliance Testing: EN 50361 Protocol Right-Hand Side)

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium: HSL1900-Head (σ = 1.41808 mho/m, ε_r = 40.5312, ρ = 1000 kg/m^3)

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(5.25, 5.25, 5.25); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - Low/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 11.5 V/m

Power Drift = -0.07 dB

Maximum value of SAR = 0.206 mW/g

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

Peak SAR (extrapolated) = 0.246 W/kg

SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.104 mW/g

Reference Value = 11.5 V/m

Power Drift = -0.07 dB

Maximum value of SAR = 0.192 mW/g
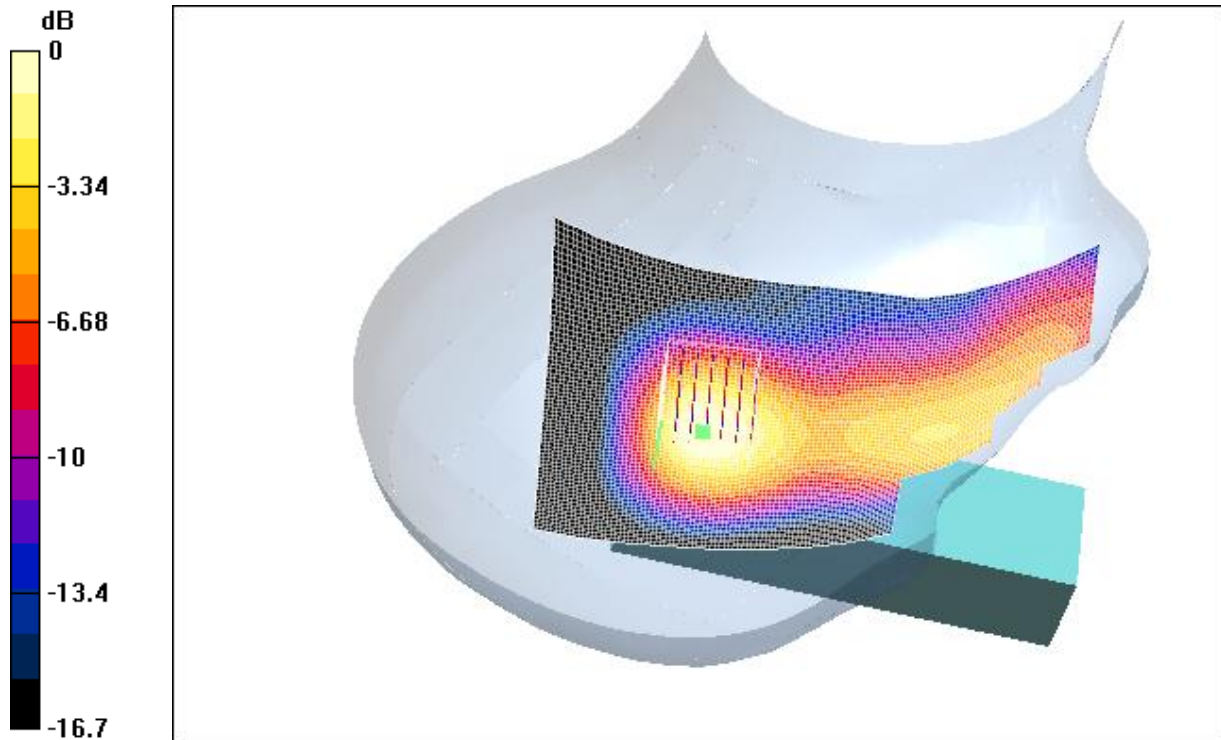
0 dB = 0.192mW/g

4.29 FCC-OET65-RightHandSide-Tilt-GSM1900-Mid

Date/Time: 08/10/05 14:16:04

Test Laboratory: SGS-GSM
File Name: FCC-OET65-RightHandSide-Tilt-GSM1900.da4

FCC-OET65-RightHandSide-Tilt-GSM1900-Mid

DUT: GSM50059-Head; Type: Head; Serial: 20050810
Program: Compliance Testing: EN 50361 Protocol Right-Hand Side)

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: HSL1900-Head (σ = 1.44443 mho/m, ε_r = 40.3239, ρ = 1000 kg/m^3)

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(5.25, 5.25, 5.25); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - Middle/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 10.3 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.177 mW/g

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

Peak SAR (extrapolated) = 0.213 W/kg

SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.091 mW/g

Reference Value = 10.3 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.166 mW/g
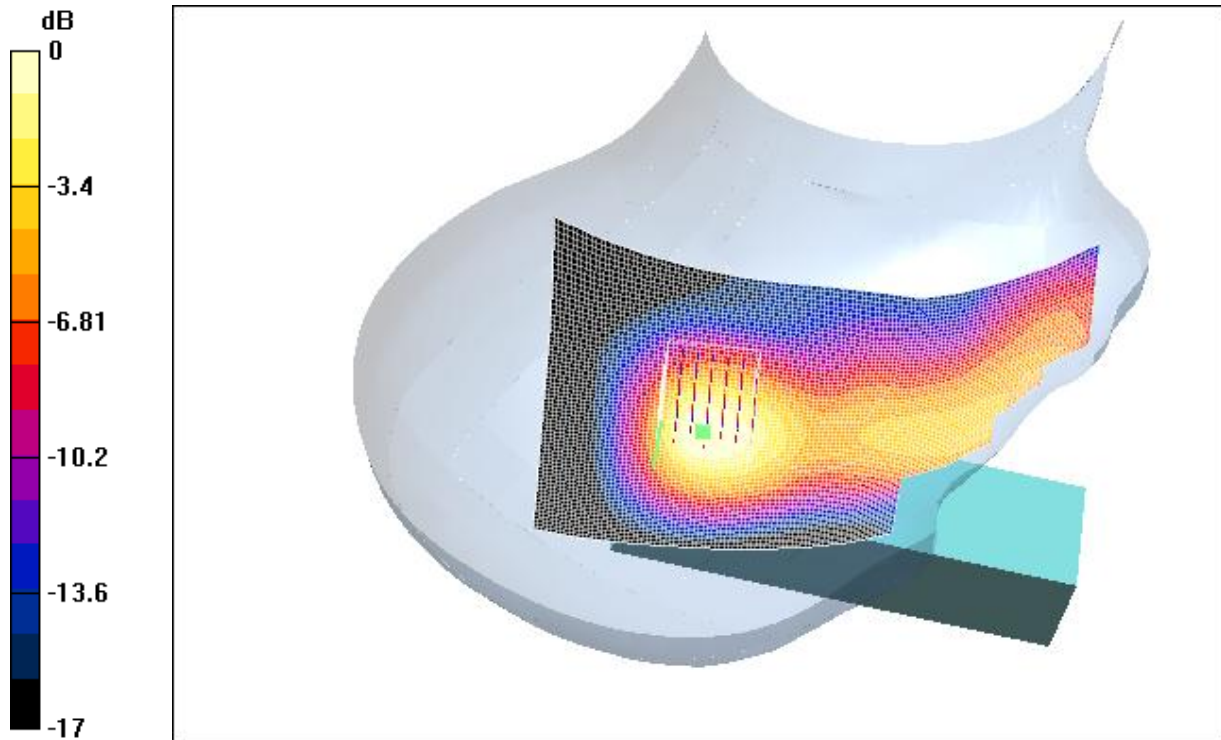
0 dB = 0.166mW/g

4.30 FCC-OET65-RightHandSide-Tilt-GSM1900-High

Date/Time: 08/10/05 14:16:04

Test Laboratory: SGS-GSM

File Name: FCC-OET65-RightHandSide-Tilt-GSM1900.da4

FCC-OET65-RightHandSide-Tilt-GSM1900-High

DUT: GSM50059-Head; Type: Head; Serial: 20050810

Program: Compliance Testing: EN 50361 Protocol Right-Hand Side)

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

Medium: HSL1900-Head (σ = 1.46824 mho/m, ε_r = 39.9929, ρ = 1000 kg/m^3)

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(5.25, 5.25, 5.25); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Tilt position - High/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 10.6 V/m

Power Drift = -0.07 dB

Maximum value of SAR = 0.182 mW/g

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

Peak SAR (extrapolated) = 0.218 W/kg

SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.0921 mW/g

Reference Value = 10.6 V/m

Power Drift = -0.07 dB

Maximum value of SAR = 0.17 mW/g
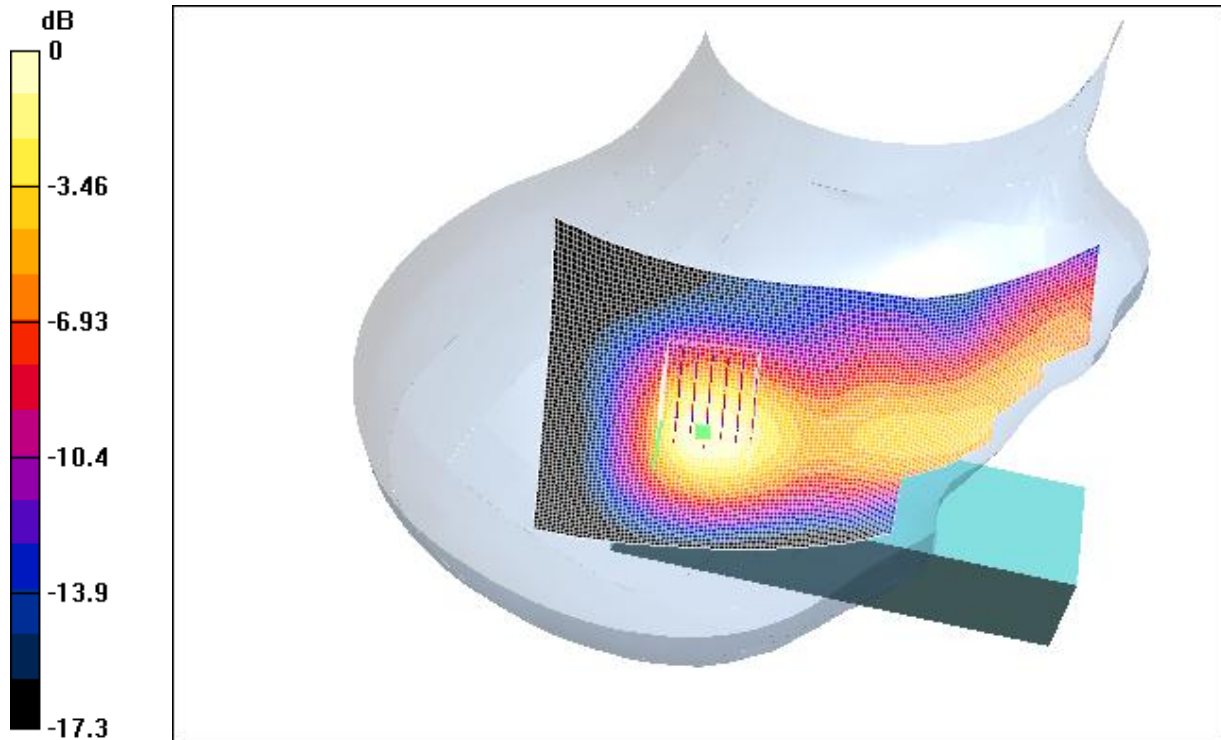
0 dB = 0.17mW/g

4.31 FCC-OET65-Body-Worn-GSM1900-Low

Date/Time: 08/04/05 16:02:35

Test Laboratory: SGS-GSM

File Name: FCC-OET65-Body-Worn-GSM1900.da4

FCC-OET65-Body-Worn-GSM1900-Low

DUT: GSM50059; Type: Body; Serial: 20050803
Program: Compliance Testing: FCC OET65 Protocol (Body Worn)

Communication System: GSM1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium: HSL1900-Body (σ = 1.48803 mho/m, ε_r = 51.6495, ρ = 1000 kg/m^3)

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(4.66, 4.66, 4.66); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Body Worn - Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 10.9 V/m

Power Drift = -0.008 dB

Maximum value of SAR = 0.328 mW/g

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

Peak SAR (extrapolated) = 0.456 W/kg

SAR(1 g) = 0.302 mW/g; SAR(10 g) = 0.185 mW/g

Reference Value = 10.9 V/m

Power Drift = -0.008 dB

Maximum value of SAR = 0.325 mW/g
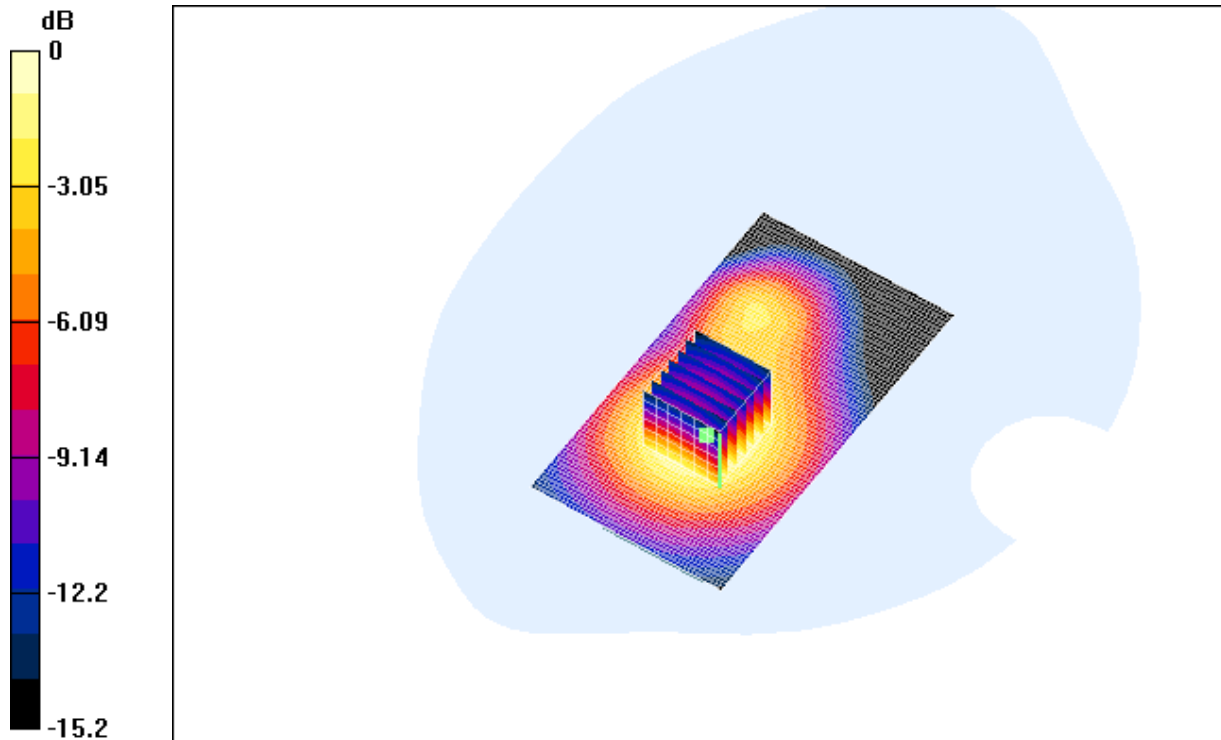
0 dB = 0.325mW/g

4.32 FCC-OET65-Body-Worn-GSM1900-Mid

Date/Time: 08/04/05 16:27:10

Test Laboratory: SGS-GSM
File Name: FCC-OET65-Body-Worn-GSM1900.da4

FCC-OET65-Body-Worn-GSM1900-Mid

DUT: GSM50059; Type: Body; Serial: 20050803
Program: Compliance Testing: FCC OET65 Protocol (Body Worn)

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: HSL1900-Body (σ = 1.52127 mho/m, ε_r = 51.5237, ρ = 1000 kg/m^3)

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(4.66, 4.66, 4.66); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Body Worn - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 10.4 V/m

Power Drift = 0.02 dB

Maximum value of SAR = 0.335 mW/g

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

Peak SAR (extrapolated) = 0.465 W/kg

SAR(1 g) = 0.305 mW/g; SAR(10 g) = 0.186 mW/g

Reference Value = 10.4 V/m

Power Drift = 0.02 dB

Maximum value of SAR = 0.327 mW/g
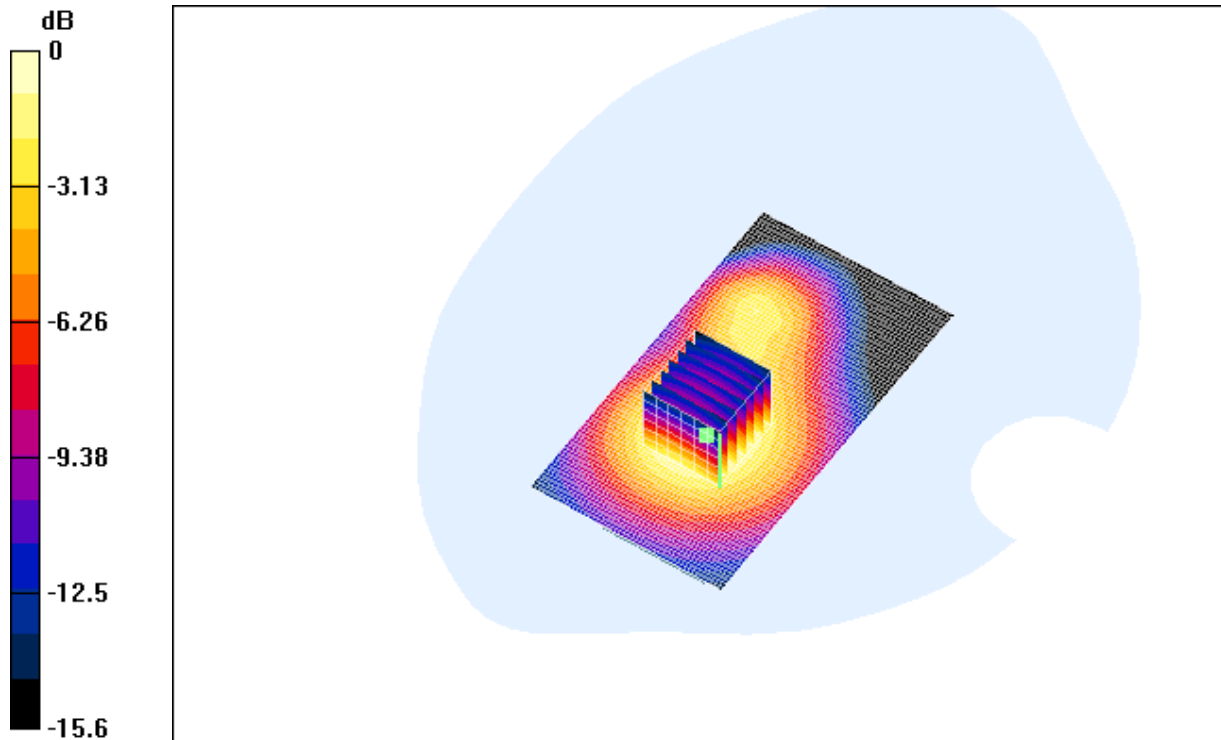
0 dB = 0.327mW/g

4.33 FCC-OET65-Body-Worn-GSM1900-High

Date/Time: 08/04/05 17:03:45

Test Laboratory: SGS-GSM
File Name: FCC-OET65-Body-Worn-GSM1900.da4

FCC-OET65-Body-Worn-GSM1900-High

DUT: GSM50059; Type: Body; Serial: 20050803
Program: Compliance Testing: FCC OET65 Protocol (Body Worn)

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium: HSL1900-Body (σ = 1.55344 mho/m, ε_r = 51.4693, ρ = 1000 kg/m^3)

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(4.66, 4.66, 4.66); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Body Worn - High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 10.6 V/m

Power Drift = 0.06 dB

Maximum value of SAR = 0.395 mW/g

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

Peak SAR (extrapolated) = 0.561 W/kg

SAR(1 g) = 0.363 mW/g; SAR(10 g) = 0.219 mW/g

Reference Value = 10.6 V/m

Power Drift = 0.06 dB

Maximum value of SAR = 0.387 mW/g
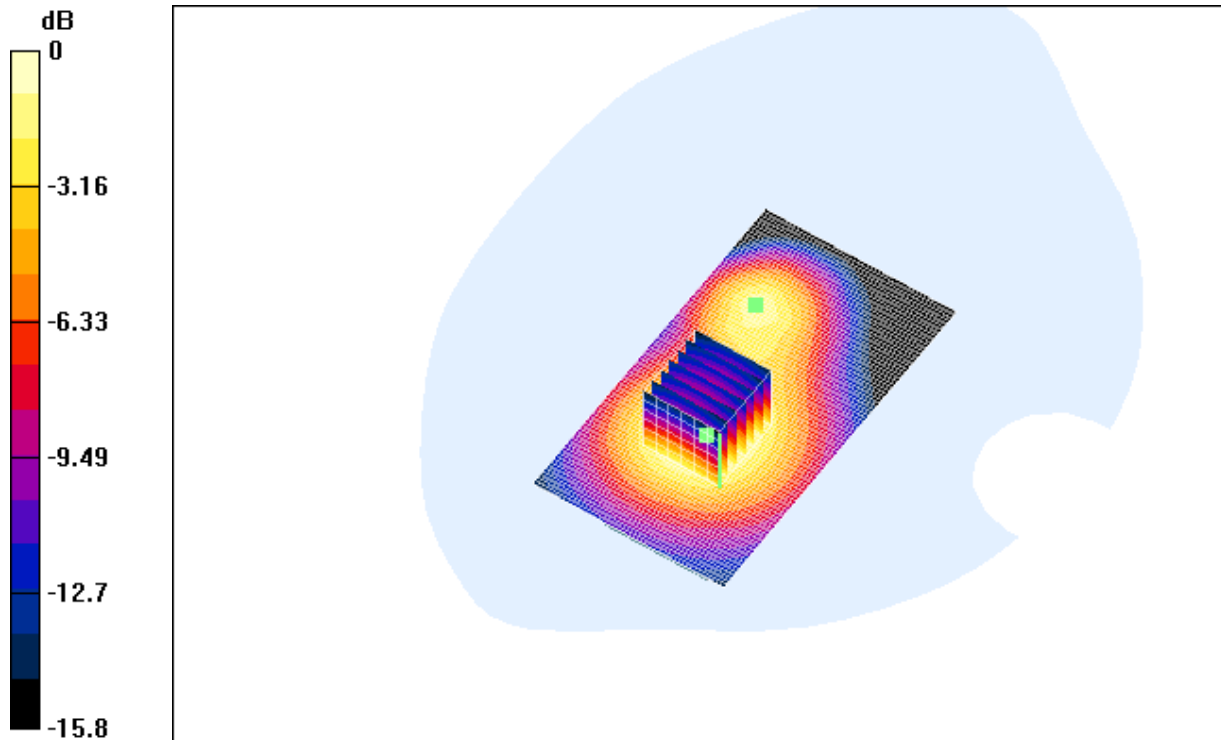
0 dB = 0.387mW/g

1900MHz GPRS Mode

4.34 FCC-OET65-Body-Worn-GSM1900-GPRS-Low

Date/Time: 08/08/05 13:36:32

Test Laboratory: SGS-GSM

File Name: FCC-OET65-Body-Worn-GSM1900-GPRS.da4

FCC-OET65-Body-Worn-GSM1900-GPRS-Low

DUT: GSM50059; Type: Body; Serial: 20050803

Program: Compliance Testing: FCC OET65 Protocol (Body Worn)

Communication System: GSM1900-GPRS; Frequency: 1850.2 MHz;Duty Cycle: 1:4

Medium: HSL1900-Body (σ = 1.48803 mho/m, ε_r = 51.6495, ρ = 1000 kg/m^3)

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(4.66, 4.66, 4.66); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Body Worn - Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 15.1 V/m

Power Drift = -0.1 dB

Maximum value of SAR = 0.697 mW/g

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

Peak SAR (extrapolated) = 0.96 W/kg

SAR(1 g) = 0.636 mW/g; SAR(10 g) = 0.388 mW/g

Reference Value = 15.1 V/m

Power Drift = -0.1 dB

Maximum value of SAR = 0.682 mW/g
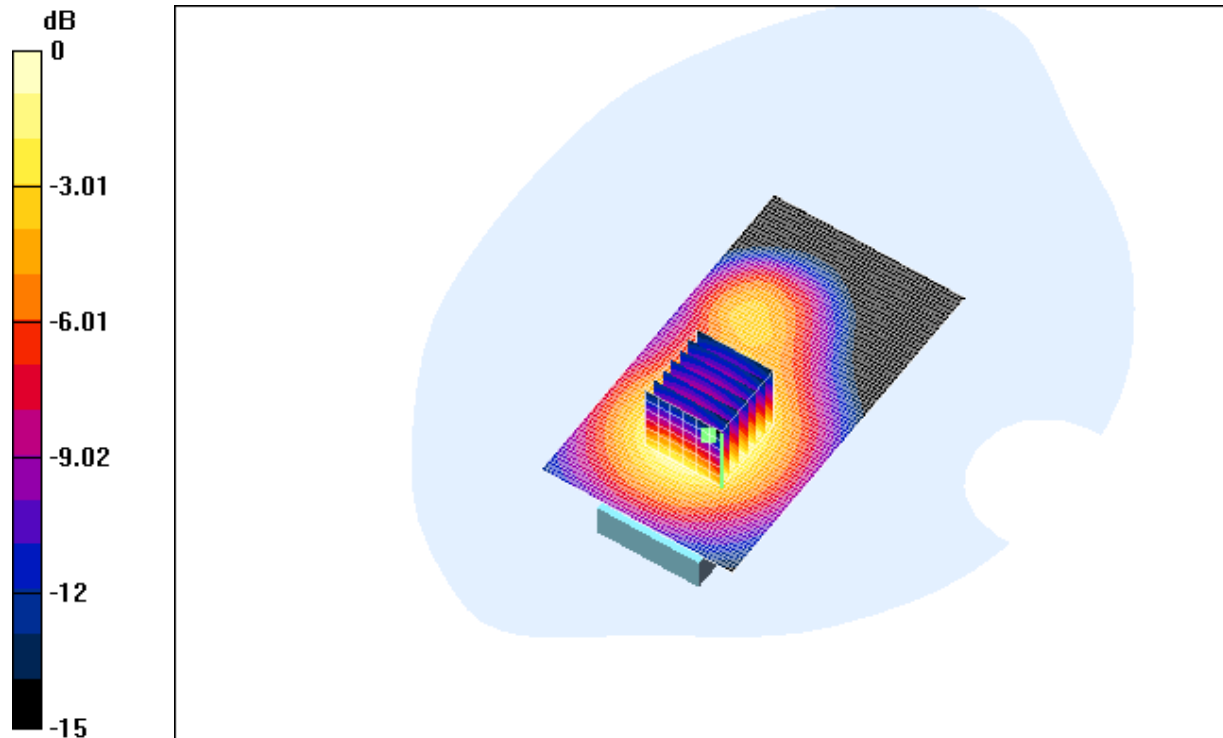
0 dB = 0.682mW/g

4.35 FCC-OET65-Body-Worn-GSM1900-GPRS-Middle

Date/Time: 08/08/05 13:36:32

Test Laboratory: SGS-GSM
File Name: FCC-OET65-Body-Worn-GSM1900-GPRS.da4

FCC-OET65-Body-Worn-GSM1900-GPRS-Mid

DUT: GSM50059; Type: Body; Serial: 20050803
Program: Compliance Testing: FCC OET65 Protocol (Body Worn)

Communication System: GSM1900-GPRS; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium: HSL1900-Body (σ = 1.52127 mho/m, ε_r = 51.5237, ρ = 1000 kg/m^3)

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(4.66, 4.66, 4.66); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Body Worn - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 14.2 V/m

Power Drift = -0.003 dB

Maximum value of SAR = 0.71 mW/g

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

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.656 mW/g; SAR(10 g) = 0.395 mW/g

Reference Value = 14.2 V/m

Power Drift = -0.003 dB

Maximum value of SAR = 0.702 mW/g
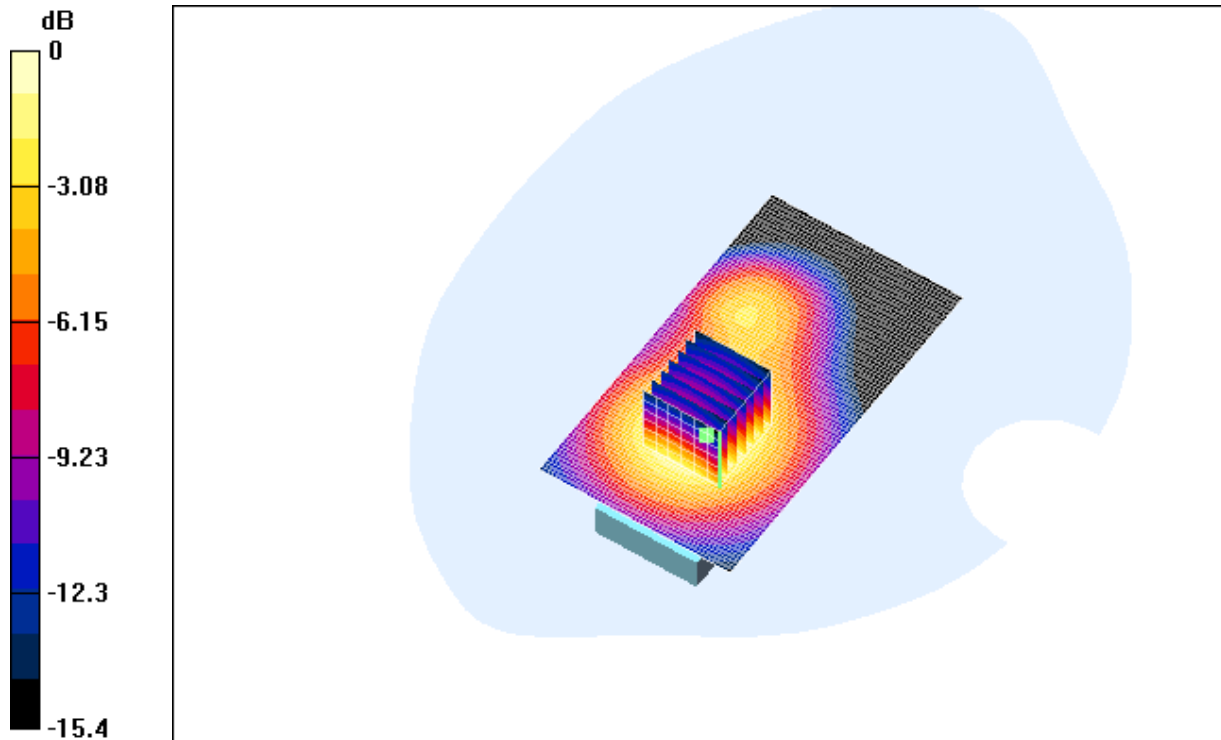
0 dB = 0.702mW/g

4.36 FCC-OET65-Body-Worn-GSM1900-GPRS-High

Date/Time: 08/08/05 13:36:32

Test Laboratory: SGS-GSM
File Name: FCC-OET65-Body-Worn-GSM1900-GPRS.da4

FCC-OET65-Body-Worn-GSM1900-GPRS-High

DUT: GSM50059; Type: Body; Serial: 20050803
Program: Compliance Testing: FCC OET65 Protocol (Body Worn)

Communication System: GSM1900-GPRS; Frequency: 1909.8 MHz;Duty Cycle: 1:4
Medium: HSL1900-Body (σ = 1.55344 mho/m, ε_r = 51.4693, ρ = 1000 kg/m^3)

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1774; ConvF(4.66, 4.66, 4.66); Calibrated: 2004-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn611; Calibrated: DAE not calibrated
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1283
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Body Worn - High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 14.4 V/m

Power Drift = -0.07 dB

Maximum value of SAR = 0.85 mW/g

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

Peak SAR (extrapolated) = 1.24 W/kg

SAR(1 g) = 0.784 mW/g; SAR(10 g) = 0.467 mW/g

Reference Value = 14.4 V/m

Power Drift = -0.07 dB

Maximum value of SAR = 0.843 mW/g
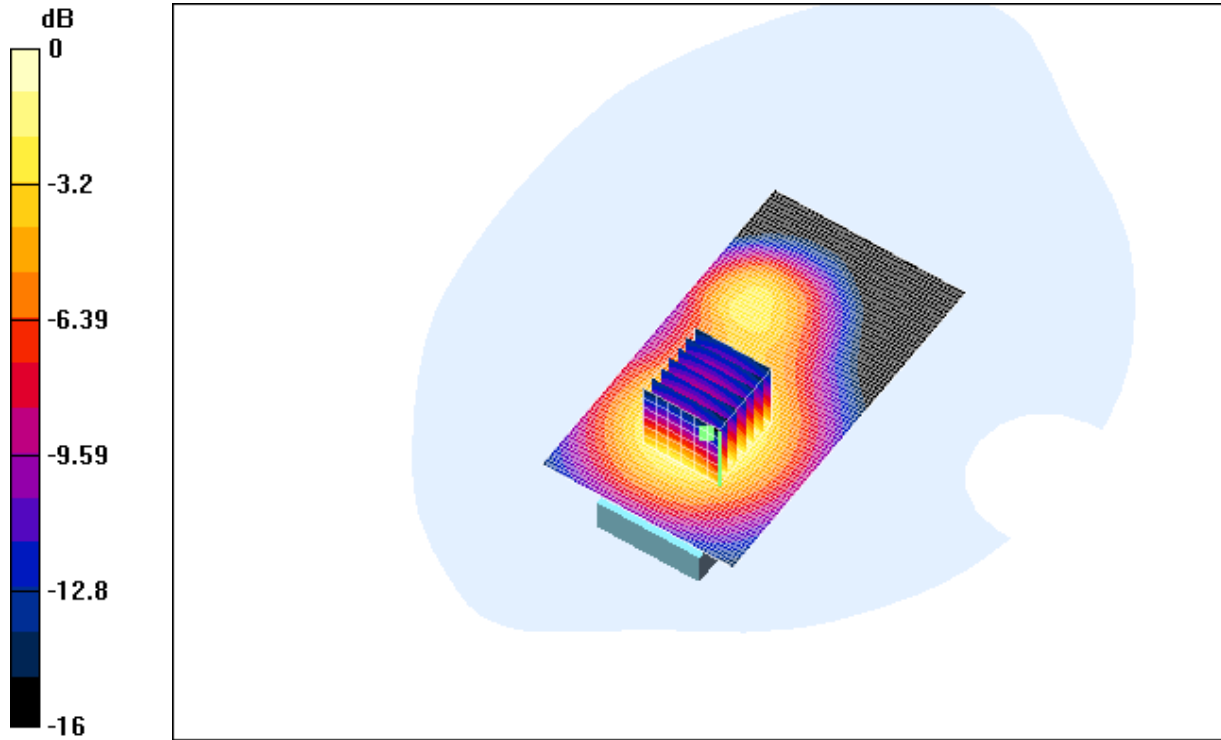
0 dB = 0.843mW/g

Appendix

1. Photographs of Test Setup
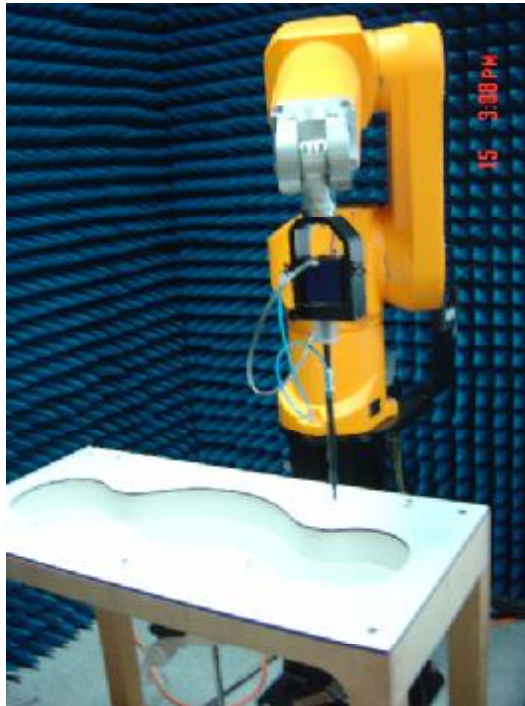
Fig.1 Photograph of the SAR measurement System
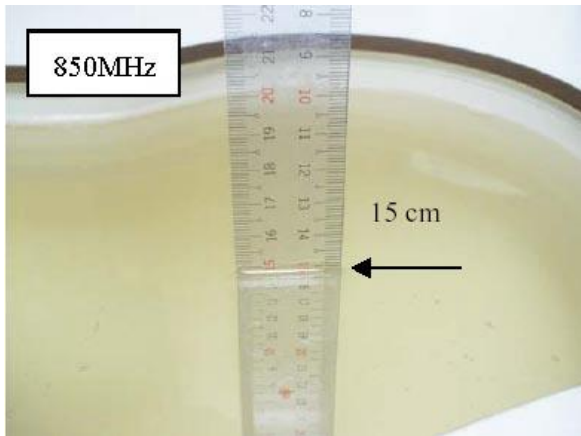
Fig.2 Photograph of the Tissue Simulant
Fluid Fluid Liquid depth 15cm
for Left-Head Side
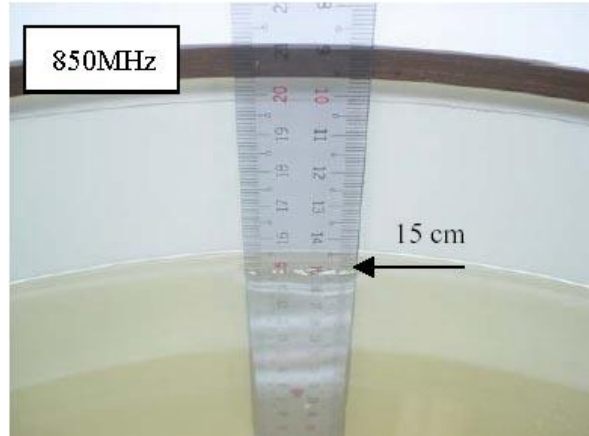
Fig.3 Photograph of the Tissue Simulant
Liquid depth 15cm for Body-Worn
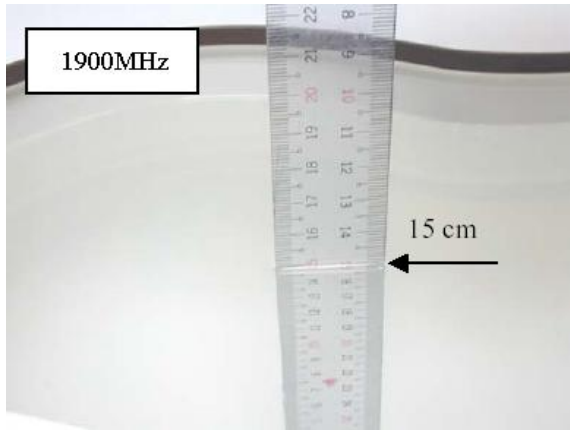
Fig.4 Photograph of the Tissue Simulant
Fluid Fluid Liquid depth 15cm
for Right-Head Side
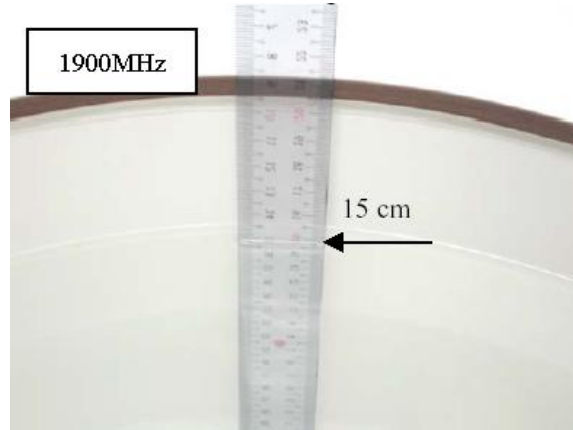
Fig.5 Photograph of the Tissue Simulant
Liquid depth 15cm for Body-Worn
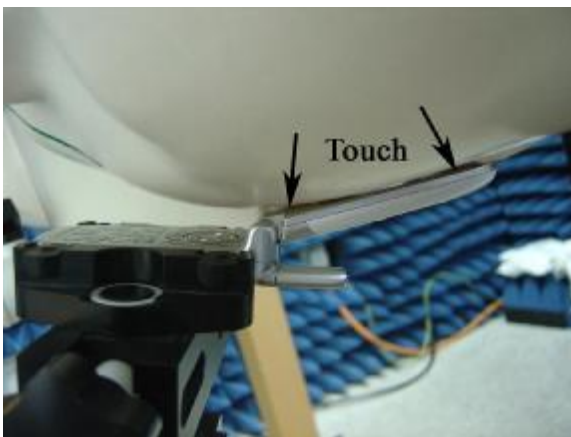
Fig.6 Photograph of the Left Hand Side Touch status
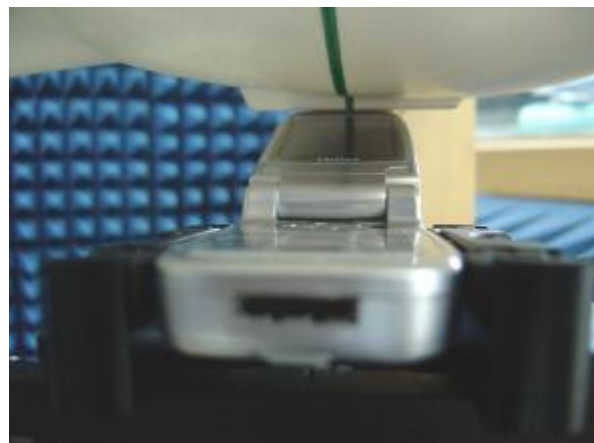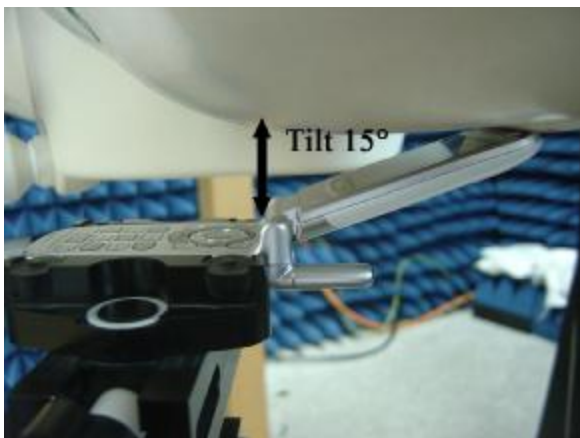
Fig.7 Photograph of the Left Hand Side Tilt status

Fig.8 Photograph of the Right Hand Side Touch status

Fig.9 Photograph of the Right Hand Side Tilt status
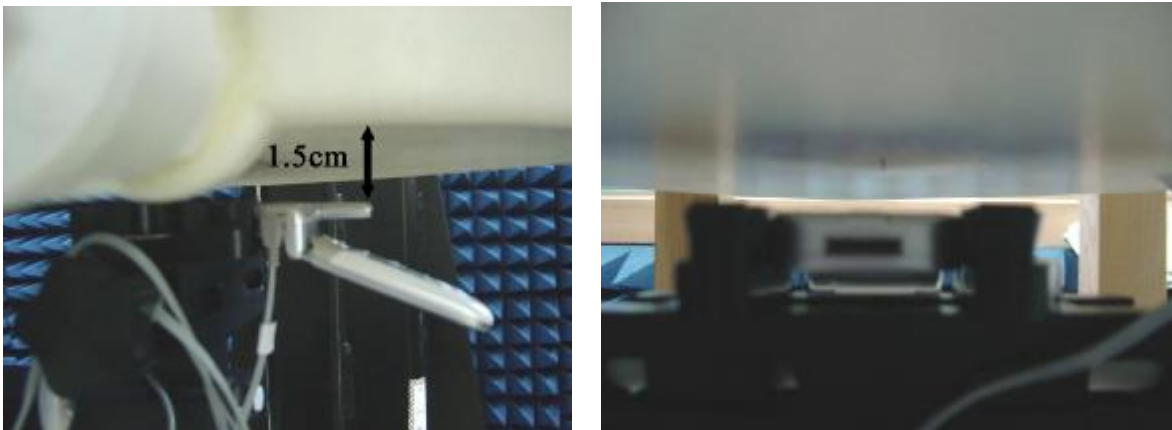
Fig.10 Photograph of the BodyWorn status

Note:

1. The Mobile Phone without headphone in GPRS Mode BodyWorn Status.

2. *Photographs of the EUT*

Fig.11 Front View

Fig.12 Back View

3. Photographs of the battery

Fig.13 Front view of battery

Fig.14 Back view of battery

4. Photograph of the charger

Fig.15 Charger

5. Probe Calibration certificate

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

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

Accredited by the Swiss Federal Office of Metrology and Accreditation
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 China (Auden)**   Certificate No: **ET3-1774_Oct04**

CALIBRATION CERTIFICATE

Object	ET3DV6 - SN:1774
Calibration procedure(s)	QA CAL-01.v5 Calibration procedure for dosimetric E-field probes
Calibration date:	October 26, 2004
Condition of the calibrated item	In Tolerance

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	5-May-04 (METAS, No. 251-00388)	May-05
Power sensor E4412A	MY41495277	5-May-04 (METAS, No. 251-00388)	May-05
Reference 3 dB Attenuator	SN: S5054 (3c)	3-Apr-03 (METAS, No. 251-00403)	Aug-05
Reference 20 dB Attenuator	SN: S5086 (20b)	3-May-04 (METAS, No. 251-00389)	May-05
Reference 30 dB Attenuator	SN: S5129 (30b)	3-Apr-03 (METAS, No. 251-00404)	Aug-05
Reference Probe ES3DV2	SN:3013	8-Jan-04 (SPEAG, No. ES3-3013_Jan04)	Jan-05
DAE4	SN: 617	26-May-04 (SPEAG, No. DAE4-617_May04)	May-05

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092180	18-Sep-02 (SPEAG, in house check Oct-03)	In house check: Oct 05
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-03)	In house check: Nov 04

	Name	Function	Signature
Calibrated by:	Nico Vetterli	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: October 28, 2004

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

Certificate No: ET3-1774_Oct04   Page 1 of 9

ET3DV6 SN:1774   October 26, 2004

Probe ET3DV6

SN:1774

Manufactured:	April 15, 2003
Last calibrated:	May 23, 2003
Repaired:	October 18, 2004
Recalibrated:	October 26, 2004

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

ET3DV6 SN:1774   October 26, 2004

DASY - Parameters of Probe: ET3DV6 SN:1774

Sensitivity in Free Space[A]   Diode Compression[B]

NormX	$1.92 \pm 9.9\%$	$\mu V/(V/m)^2$	DCP X	93 mV
NormY	$1.80 \pm 9.9\%$	$\mu V/(V/m)^2$	DCP Y	93 mV
NormZ	$1.72 \pm 9.9\%$	$\mu V/(V/m)^2$	DCP Z	93 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL   900 MHz   Typical SAR gradient: 5 % per mm

		3.7 mm	4.7 mm
Sensor Center to Phantom Surface Distance			
SAR_{be} [%]	Without Correction Algorithm	8.8	4.6
SAR_{be} [%]	With Correction Algorithm	0.7	0.1

TSL   1750 MHz   Typical SAR gradient: 10 % per mm

		3.7 mm	4.7 mm
Sensor Center to Phantom Surface Distance			
SAR_{be} [%]	Without Correction Algorithm	12.5	8.3
SAR_{be} [%]	With Correction Algorithm	0.7	0.1

Sensor Offset

Probe Tip to Sensor Center   **2.7** mm

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

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

ET3DV6 SN:1774   October 26, 2004

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)
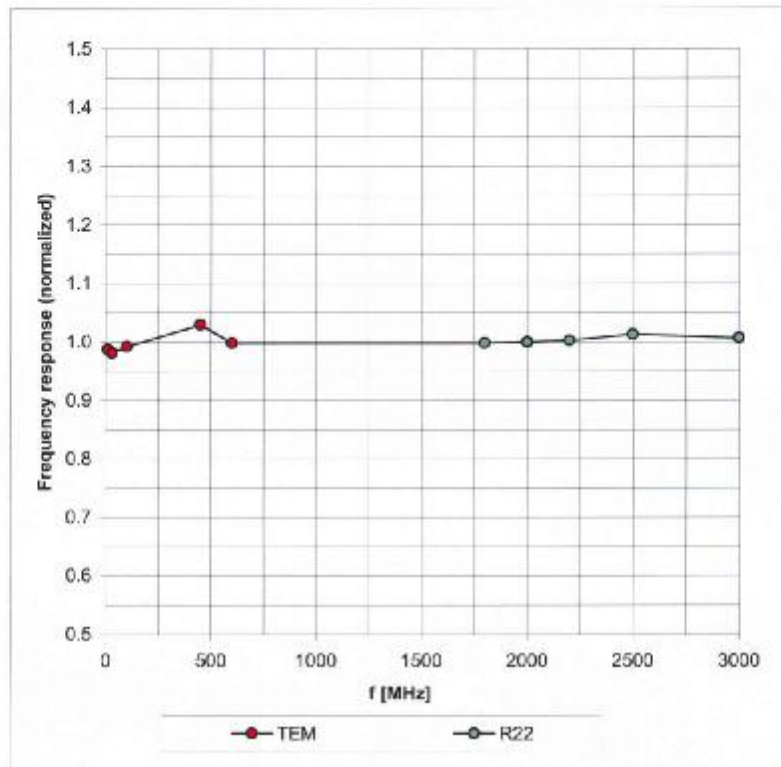
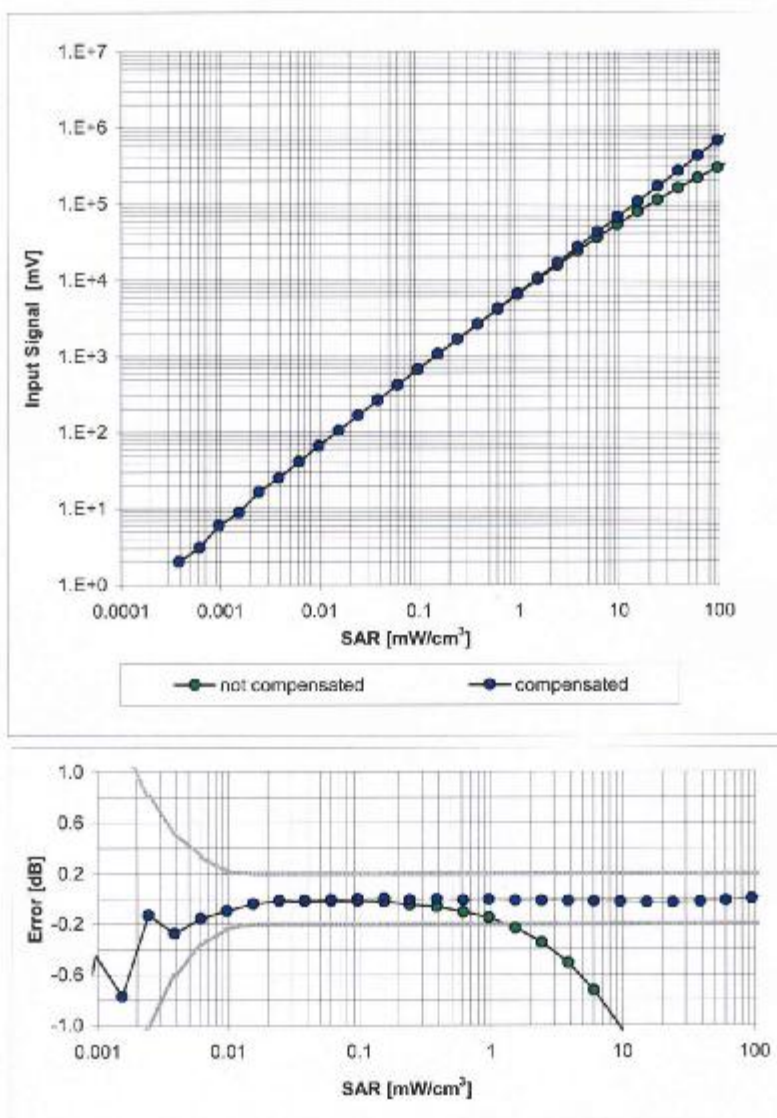
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

ET3DV6 SN:1774   October 26, 2004

Dynamic Range f(SAR$_{head}$)

(Waveguide R22, f = 1800 MHz)
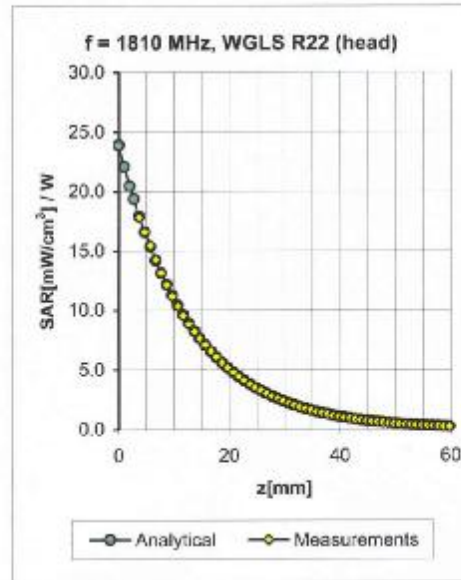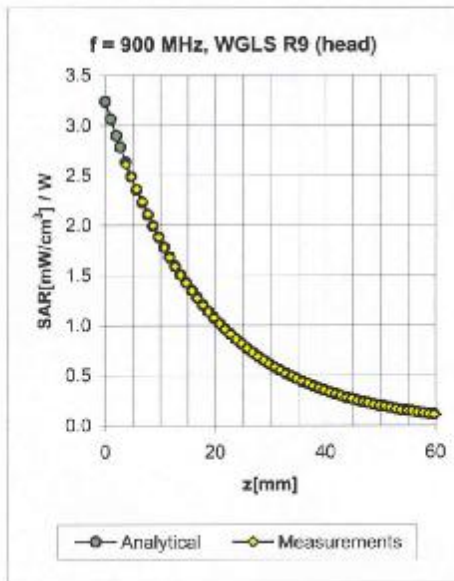

Uncertainty of Linearity Assessment: ± 0.6% (k=2)

ET3DV6 SN:1774

October 26, 2004

Conversion Factor Assessment

f = 900 MHz, WGLS R9 (head)

f = 1810 MHz, WGLS R22 (head)

f [MHz]	Validity [MHz]^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	1.13	1.42	6.96 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	1.09	1.46	6.61 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.58	2.31	5.48 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.54	2.52	5.25 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.63	2.30	4.70 ± 11.8% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.96	1.58	6.65 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	1.00	1.57	6.36 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.52	2.81	4.79 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.52	2.98	4.66 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.62	2.18	4.35 ± 11.8% (k=2)

^{c} The validity of ± 100 MHz only applies for DASY 4.3 B17 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.
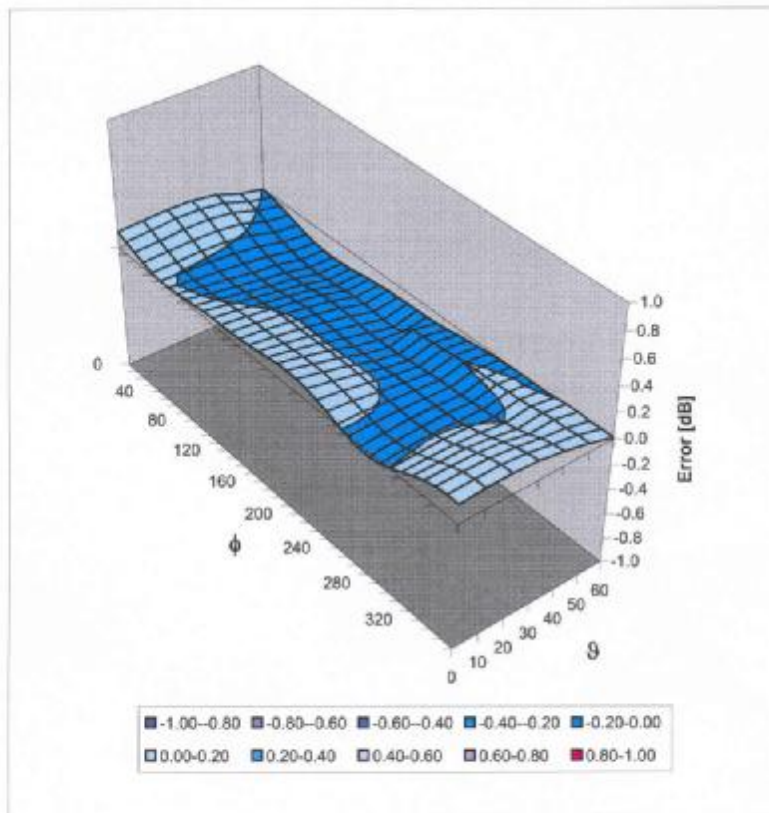
ET3DV6 SN:1774   October 26, 2004

Deviation from Isotropy in HSL
Error (φ, ϑ), f = 900 MHz
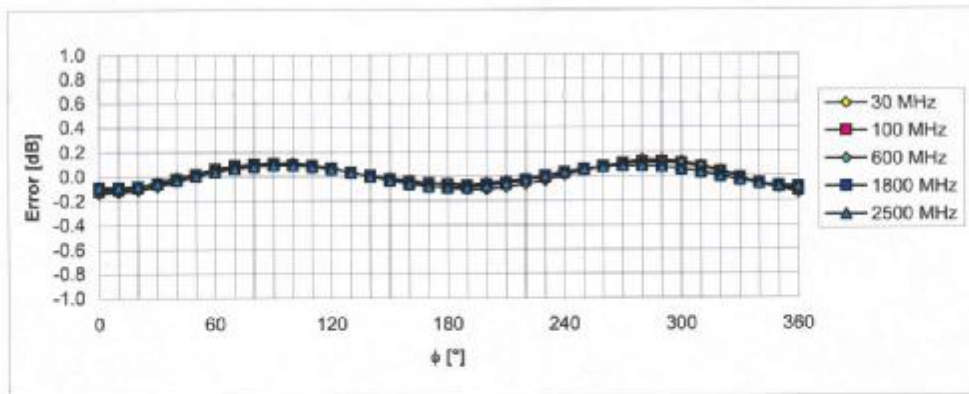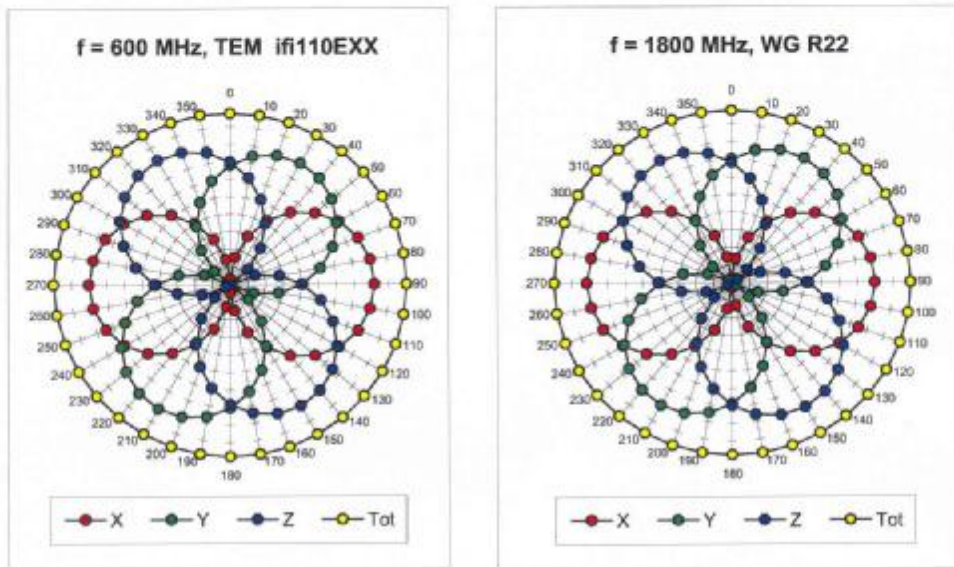

Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

ET3DV6 SN:1774

October 26, 2004

Receiving Pattern (φ), ϑ = 0°

f = 600 MHz, TEM ifi110EXX

f = 1800 MHz, WG R22

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

6.   Uncertainty analysis

Error Description	Tol. ($\pm$ %)	Prob. dist.	Div.	(c_i) (1g)	(c_i) (10g)	Std. unc. ($\pm$ %) (1g)	Std. unc. ($\pm$ %) (10g)	(v_i)
Measurement System								
Probe Calibration	4.8	N	1	1	1	4.8	4.8	∞
Axial Isotropy	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
Hemispherical Isotropy	0	R	$\sqrt{3}$	1	1	0	0	∞
Boundary Effects	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Linearity	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
System Detection Limit	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Readout Electronics	1.0	N	1	1	1	1.0	1.0	∞
Response Time	0	R	$\sqrt{3}$	1	1	0	0	∞
Integration Time	0	R	$\sqrt{3}$	1	1	0	0	∞
RF Ambient Conditions	3.0	R	$\sqrt{3}$	1	1	1.7	1.7	∞
Probe Positioner	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	∞
Probe Positioning	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
Algorithms for Max. SAR Eval.	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Dipole								
Dipole Axis to Liquid Distance	2.0	R	$\sqrt{3}$	1	1	1.2	1.2	∞
Input power and SAR drift meas.	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
Phantom and Tissue Param.								
Phantom Uncertainty	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
Liquid Conductivity (target)	5.0	R.	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (meas.)	2.5	N	1	0.64	0.43	1.6	1.1	∞
Liquid Permittivity (target)	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (meas.)	2.5	N	1	0.6	0.49	1.5	1.2	∞
Combined Stdandard Uncertainty						8.4	8.1	∞
Coverage Factor for 95%		kp=2						
Expanded Uncertainty						16.8	16.2	

Dasy4 Uncertainty Budget

7. Phantom description

Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Certificate of conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 CA
Series No	TP-1150 and higher
Manufacturer / Origin	Untersee Composites Hauptstr. 69 CH-8559 Fruthwilen Switzerland

Tests

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

Test	Requirement	Details	Units tested
Shape	Compliance with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness	Compliant with the requirements according to the standards	2mm +/- 0.2mm in specific areas	First article, Samples
Material parameters	Dielectric parameters for required frequencies	200 MHz – 3 GHz Relative permittivity < 5 Loss tangent < 0.05.	Material sample TP 104-5
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards	Liquid type HSL 1800 and others according to the standard.	Pre-series, First article

Standards

[1] CENELEC EN 50361
[2] IEEE P1528-200x draft 6.5
[3] IEC PT 62209 draft 0.9
(*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of [1] and [3].

Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standard [1] and draft standards [2] and [3].

Date   28.02.2002

Signature / Stamp

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The end