TEST REPORT

TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: SO-01E

To: OET Bulletin 65 Supplement C: (2001-01)
IEEE1528:2003

FCC ID: PY7PM-0070

Test Report Serial No:
RFI-SAR-RP87208JD02A V1.0

This Test Report Is Issued Under The Authority Of Chris Guy, Head of Global Approvals:	(APPROVED SIGNATORY)
Checked By: Richelieu Quoi	(APPROVED SIGNATORY)
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RFI Global Services Ltd,
Pavilion A, Ashwood Park, Ashwood Way, Basingstoke, Hampshire, RG23 8BG, UK
Tel. +44 (0) 1256 312000 Fax +44 (0) 1256 312001
web: www.rfi-global.com email: contactus@rfi-global.com

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1. Customer Information

Company Name:	Sony Mobile Communications AB
Address:	Nya Vattentornet 22188 Lund Sweden

2. Equipment Under Test (EUT)

2.1. Identification of Equipment Under Test (EUT)

Description:	Mobile Handset
Brand Name:	Sony
Model Name or Number:	SO-01E
Serial Number:	CB5A1K8HPR
Type Number:	PM-0070-BV
IMEI Number:	35314805-00075-1
Hardware Version Number:	AP1
Software Version Number:	9.0.A.0.120
Hardware Revision of GSM Module:	None Specified
Software Revision of GSM Module:	None Specified
FCC ID Number:	PY7PM-0070
Country of Manufacture:	China
Date of Receipt:	27th July 2012

Note(s):

This sample was used to perform WWAN SAR testing on bands GSM850 and UMTS FDD 5 only. The sample supports simultaneous transmission with the WWAN and WLAN antenna > 5 cm apart. Wireless Personal Hotspot is also supported and was evaluated as per KDB 941225 D06 "Hot Spot SAR v01"

Description:	Mobile Handset
Brand Name:	Sony
Model Name or Number:	SO-01E
Serial Number:	CB5A1K8HC5
Type Number:	PM-0070-BV
IMEI Number:	35314805-000349-0
Hardware Version Number:	AP1
Software Version Number:	9.0.A.0.120
Hardware Revision of GSM Module:	None Specified
Software Revision of GSM Module:	None Specified
FCC ID Number:	PY7PM-0070
Country of Manufacture:	China
Date of Receipt:	27th July 2012

Note(s):

This sample was used to perform WWAN SAR testing on bands PCS1900 only. The sample supports simultaneous transmission with the WWAN and WLAN antenna > 5 cm apart. Wireless Personal Hotspot is also supported and was evaluated as per KDB 941225 D06 "Hot Spot SAR v01"

Identification of Equipment Under Test (EUT)	
Description:	Mobile Handset
Brand Name:	Sony
Model Name or Number:	SO-01E
Serial Number:	CB5A1K8HGA
Type Number:	PM-0070-BV
IMEI Number:	35314805-000347-4
Hardware Version Number:	AP1
Software Version Number:	s_atp_tsubasa_1_0_8_0_e
Hardware Revision of GSM Module:	None Specified
Software Revision of GSM Module:	None Specified
FCC ID Number:	PY7PM-0070
Country of Manufacture:	China
Date of Receipt:	27th July 2012

Note(s):

This sample was used to perform WLAN SAR testing only. The sample supports simultaneous transmission with the WWAN and WLAN antenna > 5 cm apart. Wireless Personal Hotspot is also supported and was evaluated as per KDB 941225 D06 "Hot Spot SAR v01”

Description:	Mobile Handset
Brand Name:	Sony
Model Name or Number:	SO-01E
Serial Number:	CB5A1K8HFH
Type Number:	PM-0070-BV
IMEI Number:	35314805-000345-8
Hardware Version Number:	AP1
Software Version Number:	9.0.A.0.120
Hardware Revision of GSM Module:	None Specified
Software Revision of GSM Module:	None Specified
FCC ID Number:	PY7PM-0070
Country of Manufacture:	China
Date of Receipt:	27th July 2012

Note(s):

This sample was used to perform WWAN conducted power measurements only. The sample supports simultaneous transmission with the WWAN and WLAN antenna > 5 cm apart. Wireless Personal Hotspot is also supported and was evaluated as per KDB 941225 D06 "Hot Spot SAR v01”

Identification of Equipment Under Test (EUT)	
Description:	Mobile Handset (WWAN)
Brand Name:	Sony
Model Name or Number:	SO-01E
Serial Number:	CB5A1K8JB6
Type Number:	PM-0070-BV
IMEI Number:	35314805-000068-6
Hardware Version Number:	AP1
Software Version Number:	s_atp_tsubasa_1_0_8_0_e
Hardware Revision of GSM Module:	None Specified
Software Revision of GSM Module:	None Specified
FCC ID Number:	PY7PM-0070
Country of Manufacture:	China
Date of Receipt:	27th July 2012

Note(s):

This sample was used to perform WLAN conducted power measurements only. The sample supports simultaneous transmission with the WWAN and WLAN antenna > 5 cm apart. Wireless Personal Hotspot is also supported and was evaluated as per KDB 941225 D06 "Hot Spot SAR v01”

2.2. Description of EUT

The Equipment Under Test is a Smart Phone with GSM 2G Quad Band, 3G Quad band, LTE Tri Band and Wi-Fi bands. The EUT has GPRS Class 12 / EDGE Class 12, UMTS FDD 1, 5, 6, 19 With HSPA, LTE Band 1, 19, 21, WLAN 802.11 a/b/g/n, *Bluetooth Class 1*, Personal hotspot mode and RFID.

2.3. Modifications Incorporated in the EUT

EUT (IMEI: 35314805-00075-1) is used to perform GSM850 and UMTS FDD 5 measurements only.

EUT (IMEI: 35314805-000349-0) is used to perform PCS1900 SAR measurements only.

EUT (IMEI: 35314805-000347-4) is used to perform WLAN SAR measurements only.

EUT (IMEI: 35314805-000345-8) is used to perform WWAN conducted power measurements only.

EUT (IMEI: 35314805-000068-6) is used to perform WLAN conducted power measurements only.

2.4. Accessories

Description:	Personal Hands-Free Kit (PHF)
Brand Name:	Sony
Model Name or Number:	MH750
Serial Number:	12250C1900A7A50
Cable Length and Type:	~1.2 m
Country of Manufacture:	None Stated
Connected to Port	3.5mm Audio jack and custom type

Description:	Memory Card
Brand Name:	None Stated (Generic)
Model Name or Number:	None Stated
Serial Number:	None Stated
Cable Length and Type:	Not Applicable
Country of Manufacture:	China
Connected to Port	Dedicated Micro SD Slot

Description:	Battery
Brand Name:	Sony
Model Name or Number:	BA800
Serial Number:	001576SWSGNS
Cable Length and Type:	Not Applicable
Country of Manufacture:	China
Connected to Port	5-pin contact

2.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Wireless Communication Test Set
Brand Name:	Agilent
Model Name or Number:	8960 Series 10
Serial Number:	GB46311280
Cable Length and Type:	~4.0m Utiflex Cable
Connected to Port:	RF (Input / Output) Air Link

Description:	Wireless Communication Test Set
Brand Name:	Agilent
Model Name or Number:	8960 Series 10
Serial Number:	GB462000666
Cable Length and Type:	~4.0m Utiflex Cable
Connected to Port:	RF (Input / Output) Air Link

Description:	Radio Communication Analyzer
Brand Name:	Anritsu
Model Name or Number:	MT8820C
Serial Number:	6200938937
Cable Length and Type:	~4.0m Utiflex Cable
Connected to Port:	RF (Input / Output) Air Link

2.6. Additional Information Related to Testing

Equipment Category	GSM/GPRS850, PCS/GPRS1900, UMTS FDD 5, WiFi802.11 a/b/g/n	
Type of Unit	Portable Transceiver	
Intended Operating Environment:	Within GSM, UMTS and WiFi Coverage	
Transmitter Maximum Output Power Characteristics:	GSM850	Communication Test Set was configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 5.
	PCS1900	Communication Test Set was configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 0.
	UMTS Band 5	Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01.
	WiFi802.11b/g/n	Test Software was used to configure the EUT to transmit at a maximum power of up to 13.8dBm.
	5.0 GHz Wi-Fi 802.11a/n (HT20 / HT40)	:= 7.5 dBm
	Bluetooth	:=8.0 dBm
Transmitter Frequency Range:	GSM850	824 to 849 MHz
	PCS1900	1850 to 1910 MHz
	UMTS Band 5	826 to 847 MHz
	WiFi802.11b/g/n	2412 to 2462 MHz
	5.0 GHz Wi-Fi 802.11a/n (HT20 / HT40)	5180 to 5825 MHz

Additional Information Related to Testing (Continued):

Transmitter Frequency Allocation of EUT When Under Test:	Channel Number	Channel Description	Frequency (MHz)
	128	Low	824.2
	190	Middle	836.6
	251	High	848.8
	512	Low	1850.2
	661	Middle	1880.0
	810	High	1909.8
	4132	Low	826.4
	4183	Middle	836.6
	4233	High	846.6
	1	Low	2412.0
	6	Middle	2437.0
	11	High	2462.0

Additional Information Related to Testing (Continued)

Transmitter Frequency Allocation of EUT When Under Test:	Channel Number	Frequency (MHz)
	36	5180.0
	38	5190.0
	40	5200.0
	44	5220.0
	46	5230.0
	48	5240.0
	52	5260.0
	54	5270.0
	56	5280.0
	60	5300.0
	62	5310.0
	64	5320.0
	100	5500.0
	102	5510.0
	104	5520.0
	108	5540.0
	110	5550.0
	112	5560.0
	116	5580.0
	118	5590.0
	120	5600.0
	124	5620.0
	126	5630.0
	128	5640.0
	132	5660.0
	134	5670.0
	136	5680.0
	140	5700.0
	149	5745.0
	151	5755.0
	153	5765.0
	157	5785.0
	159	5795.0
	161	5805.0
	165	5825.0

Additional Information Related to Testing (Continued):	
Modulation(s):	GMSK (GSM/ GPRS): 217 Hz QPSK(UMTS / HSDPA/HSPA):0Hz DBPSK, CCK (Wi-Fi): 0 Hz
Modulation Scheme (Crest Factor):	GSMK (GSM): 8.3 GMSK (GPRS): 4 DBPSK, CCK (Wi-Fi): 1 QPSK(UMTS FDD / HSDPA): 1
Antenna Type:	Internal integral
Antenna Length:	Unknown
Number of Antenna Positions:	1 fixed (WWAN) 1 fixed (WLAN/Bluetooth) 1 fixed (NFC/FeliCa) 1 fixed (GPS)
Power Supply Requirement:	3.7V
Battery Type(s):	Li-ion

3. Test Specification, Methods and Procedures

3.1. Test Specification

Reference:	OET Bulletin 65 Supplement C: (2001-01)
Title:	Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
Purpose of Test:	To determine whether the equipment met the basic restrictions as defined in OET Bulletin 65 Supplement C: (2001-01) using the SAR averaging method as described in the test specification above.

3.2. Methods and Procedures Reference Documentation

The methods and procedures used were as detailed in:

Federal Communications Commission, “Evaluating compliance with FCC Guidelines for human exposure to radio frequency electromagnetic fields”, OET Bulletin 65 Supplement C, FCC, Washington, D.C, 20554, 2001.

Thomas Schmid, Oliver Egger and Neils Kuster, “Automated E-field scanning system for dosimetric assessments”, IEEE Transaction on microwave theory and techniques,
Vol. 44, pp. 105-113, January 1996.

Neils Kuster, Ralph Kastle and Thomas Schmid, “Dosimetric evaluation of mobile communications equipment with know precision”, IEICE Transactions of communications, Vol. E80-B, No.5, pp. 645-652, May 1997.

EN 62209-1: 2006
Title: Basic standard for the measurement of specific absorption rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz).

EN 62209-2:2010
Human exposure to radio frequency fields from handheld and body mounted wireless communication devices — Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz) (IEC 62209-2:2010)

KDB 248227 D01 "SAR measurements for 802.11a/b/g v01r02"

KDB 447498 D01 “Mobile Portable RF Exposure v04”

KDB 648474 D01 SAR Handsets Multi Xmiter and Ant v01r05”

KDB 648474 D02 SAR Polcy Handsts Multi Xmiter Ant v01r01

KDB 941225 D01 SAR test for 3G devices v02

KDB 941225 D03 ‘’ SAR Test Reduction GSM/GPRS/EDGE v01’’

KDB 941225 D06 "Hot Spot SAR v01"

Methods and Procedures Reference Documentation (Continued)

The version of DASY system used by RFI for SAR measurements is v4.7.

The SAR probe for the DASY v4.4 and higher has a validity of +/- 100 MHz from the spot frequency at which the system is calibrated.

The system validation performed at 900 MHz is valid for 800 MHz to 1000 MHz which covers the 850 MHz band. The probe calibration for SN3814 was performed at the spot frequencies of 750 MHz and 900 MHz. The SAR software selects the conversion factor based on the following attributes; 1. The operating frequency 2. The measured permittivity imported to the software and 3. The measured conductivity imported to the software.

The 900 MHz system check is applicable for the 850 band as this is within 100 MHz of the of the 850 MHz spot frequency.

As per FCC KDB pub 450824 for SAR probe calibration; The following procedures are recommended for DUT measurements at 150 MHz to 3 GHz to minimize probe calibration and tissue dielectric parameter discrepancies. Measurements exceeding 50 % of these intervals, in this case +/- 50 MHz, EUT frequency greater than or equal to 300 MHz, shall apply method 1 of the steps.
1) When the actual tissue dielectric parameters used for probe calibration are available the differences for relative permittivity and conductivity between probe calibration and routine measurements should each be less than or equal to 5 % while also satisfying the required +/- 5 % tolerances in target dielectric parameters.

The simulation liquid used satisfies both 835 MHz and 900 MHz target values for all channels in the GSM850 band. The SAR probe coverage and conversion factor has been calibrated to ensure this condition is met and the appropriate conversion factor is used in the frequency range for up to +/- 100 MHz.

3.3. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the methods & procedures section above. Appendix 1 contains a list of the test equipment used.

4. Deviations from the Test Specification

Test was performed as per KDB 648474 D01 “SAR Handsets Multi Xmiter and Ant v01r05”, KDB 941225 D01/D03 ‘’ SAR Test Reduction GSM/GPRS/EDGE v01’’, KDB 941225 D01 "SAR test for 3G v02", KDB 248227 D01 "SAR measurements for 802.11a/b/g v01r02" and KDB 941225 D06 "Hot Spot SAR v01" according to the handset procedures in IEEE Std 1528-2003 and OET Bulletin 65 Supplement C 01-01. The assessment for Personal Wireless Hotspot was also evaluated as per the FCC KDB 941225 D06 "Hot Spot SAR v01".

For technologies bands supporting personal hotspot mode, SAR was evaluated on all the sides and surfaces within 25mm of the transmitting antenna (WWAN or WLAN) as per FCC KDB 941225 D06 "Hot Spot SAR v01".

SAR test was performed in the middle channels for WWAN and WLAN. The worst case configuration for both Head and Body test was evaluated in the low and high channels.

The measured maximum conducted power for WLAN 2.45HGz 802.11g/n is 14.6dBm (equivalent to 29 mW) and for WLAN 5GHz is 7.5dBm (equivalent to 5.6mW).
As per FCC kdb pub. *SAR Handsets Multi Xmiter and Ant, v01r05;* when there is simultaneous transmission occuring, stand- alone SAR evaluation is not required when the output power measured is ≤ 2.Pref for the particular band and antenna separation is ≥5.0cm from other antenna.

Output power thresholds for Unlicensed Transmitters

Pref	2.45	5.15 – 5.35	5.47	GHz
	12	6	5	mW

As per table 1 above, since output power measured for;
5.15 to 5.35 GHz maximum output power =5.6 mW < 12mW (2*Pref)
5.47 to 5.85 GHz maximum output power =5.4mW < 10mW (2*Pref)

Stand Alone SAR evaluation is not required for 5.0 GHz WLAN802.11a/n modes.

GPRS class12 / uplink setup of 1-uplink, 2-uplink, 3-uplink and 4-uplink were all evaluated to find the setting with the highest power reference point (unit v/m) as per the DASY4 system. 2-uplink was found to give the highest power reference point measurement on the DASY4 system (unit v/m). All settings were performed with the device in a fixed position Back facing phantom at 0mm separation to ensure there were no positioning errors. The following values were measured relative to the uplink settings:

GPRS Mode	GPRS850 Power (v/m)	GPRS1900 Power (v/m)
1 uplink	20.29	6.89
2 uplink	**24.14**	**8.21**
3 uplink	23.55	7.96
4 uplink	23.46	7.99

Note: Power reference point measurements are from the DASY4 system and used to check the device power drift although the units are v/m. For informational purpose to ensure the worst case uplink time slot is also verified by the DASY4 SAR system, this was use as per above comment at a fixed point.

5. Operation and Configuration of the EUT during Testing

5.1. Operating Modes

The EUT was tested in the following operating mode(s) unless otherwise stated:

- GSM850 – Voice allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 5.
- GPRS850 – Data allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 5. Tested using 2 Uplink time slots with CS1 for GPRS.
- PCS1900 – Voice allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 0.
- GPRS1900 – Data allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 0. Tested using 2 Uplink time slots with CS1 for GPRS.

GSM850 – Power Table Settings used for Test Set	
Power Control Level PCL	Nominal Power (dBm)
0 … 2	39
3	37
4	35
5	**33**
6	31
7	29
8	27
9	25
10	23
11	21
12	19
13	17
14	15
15	13
16	11
17	9
18	7
19 ... 31	5

PCS1900 – Power Table Settings used for Test Set	
Power Control Level PCL	Nominal Power (dBm)
22 … 29	Reserved
30	33
31	32
0	**30**
1	28
2	26
3	24
4	22
5	20
6	18
7	16
8	14
9	12
10	10
11	8
12	6
13	4
14	2
15	0
16 … 21	Reserved

- UMTS FDD 5 Call allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum as per KDB 941225 D01.
- UMTS FDD 5 - RMC 12.2kbps + HSUPA With Test loop mode 1 and TPC bits configured to all "1's", Sub-test 5, AG Index set to 21 and E-TFCI set to 81 with Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01.
- UMTS FDD 5 - RMC 12.2kbps + HSDPA With Test loop mode 1 and TPC bits configured to all "1's", Sub-test 1 with Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01.

Operating Modes (Continued)

- 2.4 GHz WiFi802.11b/g/n Data allocated mode using 'HyperTerminal' software to excise mode ‘b’, ‘g’ and ‘n’, with maximum power of up to 14.6 dBm for ‘b’ mode and 13.8 dBm for ‘g’ and 12.6 dBm for ‘n’ modes.
- 5.0 GHz WiFi802.11a/n Data allocated mode using 'HyperTerminal' software to excise mode ‘a’ and ‘n’, with maximum power of up to 7.0 dBm for ‘a’ mode and 7.5 dBm for ‘n’ modes

5.2. Configuration and Peripherals

The EUT was tested in the following configuration(s) unless otherwise stated:

- Standalone fully charged battery powered.
- Head and Body-worn configurations were evaluated.
- The applied FCC body-worn Personal Hotspot orientations where the corresponding edge(s) closest to the user with the most conservative exposure condition were all evaluated at 10 mm from the body. For configuration that did not overlap with Personal hotspot, SAR evaluation was performed at 15mm separation.
- GPRS class 12: setup for 1-uplink, 2-uplink, 3-uplink and 4-uplink were evaluated to find the setting with the highest power reference measurements. 2-uplink was found to give the highest power reference measurement on the DASY4 system. All settings were performed with the device in a fixed position 'Back facing phantom' at 0mm separation to ensure there were no positioning errors.
- GSM, GPRS and EDGE power measurement were all measured as per FCC pubs. 941225 D03 and 941225 D04. Although power reduction was allowed SAR test was performed on GPRS using GMSK. Test reduction was applied to EDGE using GMSK and 8PSK modulation scheme.

Head Configuration

a) The EUT was placed in a normal operating position with the centre of the ear-piece aligned with the ear canal on the phantom.

b) With the ear-piece touching the phantom the centre line of the EUT was aligned with an imaginary plane (X and Y axis) consisting of three lines connecting both ears and the mouth.

c) For the cheek position the EUT was gradually moved towards the cheek until any point of the mouth-piece or keypad touched the cheek.

d) For the tilted position the EUT was positioned as for the cheek position, and then the horizontal angle was increased by fifteen degrees (the phone keypad was moved away from the cheek by fifteen degrees).

e) SAR measurements were evaluated at maximum power and the unit was operated for an appropriate period prior to the evaluation in order to minimise the drift.

f) The device was keyed to opete continuously in the transmit mode for the duration of the test.

g) The location of the maximum spatial SAR distribution (hot spot) was determined relative to the EUT and its antenna.

h) The EUT was transmitting at full power throughout the duration of the test powered by a fully charged battery.

Body Configuration

a) The EUT was placed in a normal operating position where the centre of EUT was aligned with the centre reference point on the flat section of the 'SAM' phantom.

b) With the EUT touching the phantom at an imaginary centre line. The EUT was aligned with a marked plane (X and Y axis) consisting of two lines.

c) For the touch-safe position the EUT was gradually moved towards the flat section of the 'SAM' phantom until any point of the EUT touched the phantom.

d) For position(s) greater then 0mm separation the EUT was positioned as per the touch-safe position, and then the vertical height was decreased/adjusted as required.

e) SAR measurements were evaluated at maximum power and the unit was operated for an appropriate period prior to the evaluation in order to minimise the drift.

f) The device was keyed to operate continuously in the transmit mode for the duration of the test.

g) The location of the maximum spatial SAR distribution (hot spot) was determined relative to the EUT and its antenna.

h) The EUT was transmitting at full power throughout the duration of the test powered by a fully charged battery.

6. Summary of Test Results

Test Name	Specification Reference	Result
Specific Absorption Rate-GSM 850 Head Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-GPRS 850 Hotspot Mode Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-GSM 850 Body-Worn Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-PCS 1900 Head Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-GPRS 1900 Hotspot Mode Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-PCS 1900 Body-Worn Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-UMTS-FDD 5 Head Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-UMTS-FDD 5 Hotspot Mode Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-UMTS-FDD 5 Body-Worn Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-Wi-Fi 2450 Head Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-Wi-Fi 2450 Hotspot Mode Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-Wi-Fi 2450 Body-Worn Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied

SAR Individual Transmitter Evaluation						
device, mode	Frequency, (MHz)	Phantom Configuration	P_x (mW)	P_{REF} (mW)	single SAR, W/kg	Remarks
WWAN, GSM	850	Left Hand Side	339	60/f	1.040	Routine Evaluation
WWAN, GSM	1900	Front	178	60/f	0.615	Routine Evaluation
WWAN, UMTS	850	Right Hand Side	302	60/f	1.350	Routine Evaluation
WLAN, WiFi802.11b	2450	Touch Right	29	60/f	0.652	Routine Evaluation
WLAN, WiFi802.11g/ n	2450	N/A	~24	12	:=0	{PBT ≤ 2PREF} {$d_{WWAN, WLAN}$ > 5cm
WLAN, WiFi802.11a/ n	5150 -5350	N/A	~6	6	:=0	{PBT ≤ 2PREF} {$d_{WWAN, WLAN}$ > 5cm
WLAN, WiFi802.11a/ n	5470 -5850	N/A	~5	5	:=0	{PBT ≤ 2PREF} {$d_{WWAN, WLAN}$ > 5cm
BT, *Bluetooth*	2400	N/A	~ 6.31	12	:=0	{PBT ≤ 2PREF} {$d_{WWAN, BT}$ > 5cm}

Note(s):

1. Simultaneous transmission was not evaluated as the sum of the individual SAR for WWAN and WLAN was < 1.6 W/kg.
2. *Bluetooth* transmitter thresholds output power "P_{Ref} = 12 mW as listed in KDB 648474.
3. Px: power level measured by RFI.
4. Single SAR value measured by RFI.
5. The "Antenna-to-Antenna distance and Antenna-to-User distance were provided by the customer.

SAR Simultaneous Transmitter Evaluation					
(x,y)	D(x,y) cm	L(x,y) cm	$SPLSR_{xy}$	Sim-Tx SAR	Remarks
(WWAN, BT)	>5	N/A	N/A	N/A	{no stand-alone SAR for BT}
(WWAN, Wi-Fi)	>5	N/A	N/A	N/A	{D(x,y) > 5 } & {$\Sigma_{WWAN, WLAN}$ < 1.6 W/kg}

6.1. Location of Tests

All the measurements described in this report were performed at the premises of
RFI Global Services Ltd, Pavilion A, Ashwood Park, Ashwood Way, Basingstoke, Hampshire, RG23 8BG United Kingdom

6.2. Simultaneous Transmission SAR Analysis

Head Configuration 1g – Worst cases measurements

	Measured SAR 1g (W/Kg)				
	WWAN			WLAN	Sum of WWAN & WLAN
EUT Position	GSM850	PCS1900	UMTS FDD 5	Wi-Fi	
Touch Left	0.684			0.308	0.992
Touch Right	0.767			0.652	1.419
Touch Left		0.585		0.308	0.893
Touch Right		0.582		0.652	1.234
Touch Left			0.705	0.308	1.013
Touch Right			0.940	0.652	1.592

Note(s):

1. Simultaneous transmission was not evaluated as the sum of the individual SAR for WWAN and WLAN was < 1.6 W/kg.

Simultaneous Transmission SAR Analysis (Continued)

Hotspot Mode Configuration 1g – Worst cases measurements

	Measured SAR 1g (W/Kg)				
	WWAN			WLAN	Sum of WWAN & WLAN
EUT Position	GSM850	PCS1900	UMTS FDD 5	Wi-Fi	
Front	0.992			0.132	1.124
Back	0.996			0.170	1.166
Left Hand Side	1.040			0.110	1.150
Right Hand Side	0.760			0.033	0.793
Bottom	0.176				0.176
Top				0.092	0.092
Front		0.615		0.132	0.747
Back		0.598		0.170	0.768
Left Hand Side		0.428		0.110	0.538
Right Hand Side		0.218		0.033	0.251
Bottom		0.198			0.198
Top				0.092	0.092
Front			1.030	0.132	1.162
Back			1.150	0.170	1.320
Left Hand Side			1.020	0.110	1.130
Right Hand Side			1.350	0.033	1.383
Bottom			0.278		0.278
Top				0.092	0.092

Note(s):

1. Simultaneous transmission was not evaluated as the sum of the individual SAR for WWAN and WLAN was < 1.6 W/kg.

7. Measurements, Examinations and Derived Results

7.1. General Comments

This section contains test results only.

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to section 8 for details of measurement uncertainties.

7.2. Test Results

For All SAR measurement in this report the SAR limit tested to is 1.6 W/kg

7.2.1.Specific Absorption Rate - GSM 850 Head Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.767

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.1 to 23.1

Results:

EUT Position	Phantom Configuration	Channel Number	Uplink Meas. Burst Avg. Power (dBm)	Power Back-off (dB)	Meas. Level (W/Kg)	Note(s)	Mod.
Touch	Left	190	24.3	N/A	0.684	1	GMSK
Tilt	Left	190	24.3	N/A	0.403	1	GMSK
Touch	Right	190	24.3	N/A	0.764	1	GMSK
Tilt	Right	190	24.3	N/A	0.489	1	GMSK
Touch	Right	128	24.5	N/A	0.718	1	GMSK
Touch	Right	251	24.6	N/A	0.767	1	GMSK

Note(s):

1. Voice

7.2.2.Specific Absorption Rate - GPRS 850 Hotspot Mode Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	1.040

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	22.8 to 22.8

Results:

EUT Position	Phantom Configuration	Channel Number	Uplink Meas. Burst Avg. Power (dBm)	Power Back-off (dB)	Meas. Level (W/Kg)	Note(s)	Mod.
Front of EUT Facing Phantom	Flat (SAM)	190	25.5	N/A	0.962	1, 2	GMSK
Front of EUT Facing Phantom	Flat (SAM)	128	25.4	N/A	0.903	1, 2	GMSK
Front of EUT Facing Phantom	Flat (SAM)	251	25.3	N/A	0.992	1, 2	GMSK
Back of EUT Facing Phantom	Flat (SAM)	190	25.5	N/A	0.985	1, 2	GMSK
Back of EUT Facing Phantom	Flat (SAM)	128	25.4	N/A	0.996	1, 2	GMSK
Back of EUT Facing Phantom	Flat (SAM)	251	25.3	N/A	0.974	1, 2	GMSK
Left Hand Side of EUT Facing Phantom	Flat (SAM)	190	25.5	N/A	0.997	1, 2	GMSK
Left Hand Side of EUT Facing Phantom	Flat (SAM)	128	25.4	N/A	0.983	1, 2	GMSK
Left Hand Side of EUT Facing Phantom	Flat (SAM)	251	25.3	N/A	1.040	1, 2	GMSK

Specific Absorption Rate - GPRS 850 Hotspot Mode Configuration 1g (Continued):							
EUT Position	**Phantom Configuration**	**Channel Number**	**Uplink Meas. Burst Avg. Power (dBm)**	**Power Back-off (dB)**	**Meas. Level (W/Kg)**	**Note(s)**	**Mod.**
Right Hand Side of EUT Facing Phantom	Flat (SAM)	190	25.5	N/A	0.760	1, 2	GMSK
Bottom of EUT Facing Phantom	Flat (SAM)	190	25.5	N/A	0.176	1, 2	GMSK
Note(s):							

1. Data - SAR measurements were performed using 2 uplink timeslots.
2. EUT supports Hotspot: As per FCC KDB procedure SAR measurements were performed with the EUT at a separation distance of 10mm from the 'SAM' phantom flat section.

*KDB 941225 - SAR is not required for EDGE technology when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding GPRS channels.

7.2.3.Specific Absorption Rate - GSM 850 Body-Worn Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.805
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	22.8 to 22.8

Results:

EUT Position	Phantom Configuration	Channel Number	Uplink Meas. Burst Avg. Power (dBm)	Power Back-off (dB)	Meas. Level (W/Kg)	Note(s)	Mod.
Back of EUT Facing Phantom	Flat (SAM)	190	24.3	N/A	0.789	1, 2	GMSK
Back of EUT Facing Phantom	Flat (SAM)	128	24.5	N/A	0.784	1, 2	GMSK
Back of EUT Facing Phantom	Flat (SAM)	251	24.6	N/A	0.711	1, 2	GMSK
Back of EUT Facing Phantom With PHF	Flat (SAM)	190	24.3	N/A	0.805	1, 2, 3	GMSK

Note(s):

1. Voice - Back of EUT is worst case and most conservative configuration of GPRS hotspot mode and is applied to GSM Body-worn.
2. SAR measurements were performed with the closest edge of the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.
3. Personal Hands-Free Kit attached, using the worst-case configuration acquired.

7.2.4.Specific Absorption Rate - PCS 1900 Head Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.585

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	22.0 to 22.0

Results:

EUT Position	Phantom Configuration	Channel Number	Uplink Meas. Burst Avg. Power (dBm)	Power Back-off (dB)	Meas. Level (W/Kg)	Note(s)	Mod.
Touch	Left	661	21.5	N/A	0.585	1	GMSK
Tilt	Left	661	21.5	N/A	0.385	1	GMSK
Touch	Right	661	21.5	N/A	0.582	1	GMSK
Tilt	Right	661	21.5	N/A	0.221	1	GMSK
Touch	Left	512	21.5	N/A	0.524	1	GMSK
Touch	Left	810	21.4	N/A	0.466	1	GMSK

Note(s):

1. Voice

7.2.5.Specific Absorption Rate - GPRS 1900 Hotspot Mode Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.615

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	22.0 to 22.0

Results:

EUT Position	Phantom Configuration	Channel Number	Uplink Meas. Burst Avg. Power (dBm)	Power Back-off (dB)	Meas. Level (W/Kg)	Note(s)	Mod.
Front of EUT Facing Phantom	Flat (SAM)	661	22.5	N/A	0.599	1, 2	Complied
Back of EUT Facing Phantom	Flat (SAM)	661	22.5	N/A	0.598	1, 2	Complied
Left Hand Side of EUT Facing Phantom	Flat (SAM)	661	22.5	N/A	0.428	1, 2	GMSK
Right Hand Side of EUT Facing Phantom	Flat (SAM)	661	22.5	N/A	0.218	1, 2	GMSK
Bottom of EUT Facing Phantom	Flat (SAM)	661	22.5	N/A	0.198	1, 2	GMSK
Front of EUT Facing Phantom	Flat (SAM)	512	22.5	N/A	0.615	1, 2	GMSK
Front of EUT Facing Phantom	Flat (SAM)	810	22.3	N/A	0.564	1, 2	GMSK

Note(s):

1. Data - SAR measurements were performed using 2 uplink timeslots.
2. EUT supports Hotspot: As per FCC KDB procedure SAR measurements were performed with the EUT at a separation distance of 10mm from the 'SAM' phantom flat section.

*KDB 941225 - SAR is not required for EDGE technology when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding GPRS channels.

7.2.6.Specific Absorption Rate - PCS 1900 Body-Worn Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.300
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	22.0 to 22.0

Results:

EUT Position	Phantom Configuration	Channel Number	Uplink Meas. Burst Avg. Power (dBm)	Power Back-off (dB)	Meas. Level (W/Kg)	Note(s)	Mod.
Front of EUT Facing Phantom	Flat (SAM)	661	21.5	N/A	0.282	1, 2	GMSK
Front of EUT Facing Phantom	Flat (SAM)	512	21.5	N/A	0.300	1, 2	GMSK
Front of EUT Facing Phantom	Flat (SAM)	810	21.4	N/A	0.275	1, 2	GMSK
Front of EUT Facing Phantom With PHF	Flat (SAM)	512	21.5	N/A	0.275	1, 2, 3	GMSK

Note(s):

1. Voice - Front of EUT is worst case and most conservative configuration of GPRS hotspot mode and is applied to GSM Body-worn.
2. SAR measurements were performed with the closest edge of the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.
3. Personal Hands-Free Kit attached, using the worst-case configuration acquired.

7.2.7.Specific Absorption Rate - UMTS-FDD 5 Head Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.940

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	22.0 to 22.0

Results:

EUT Position	Phantom Configuration	Channel Number	Meas. Avg. Power (dBm)	Power Back-off (dB)	Meas. Level (W/Kg)	Note(s)	Mod.
Touch	Left	4183	24.6	N/A	0.705	1	QPSK
Tilt	Left	4183	24.6	N/A	0.566	1	QPSK
Touch	Right	4183	24.6	N/A	0.810	1	QPSK
Touch	Right	4132	24.5	N/A	0.830	1	QPSK
Touch	Right	4233	24.6	N/A	0.940	1	QPSK
Tilt	Right	4183	24.6	N/A	0.426	1	QPSK

Note(s):

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"

*KDB 941225 - SAR is not required for RMC+HSPA (HSDPA/HSUPA) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding RMC channels.

7.2.8.Specific Absorption Rate - UMTS-FDD 5 Hotspot Mode Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	1.350

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	22.6 to 22.6

Results:

EUT Position	Phantom Configuration	Channel Number	Meas. Avg. Power (dBm)	Power Back-off (dB)	Meas. Level (W/Kg)	Note(s)	Mod.
Front of EUT Facing Phantom	Flat (SAM)	4183	24.6	N/A	0.937	1, 2	QPSK
Front of EUT Facing Phantom	Flat (SAM)	4132	24.5	N/A	0.962	1, 2	QPSK
Front of EUT Facing Phantom	Flat (SAM)	4233	24.6	N/A	1.030	1, 2	QPSK
Back of EUT Facing Phantom	Flat (SAM)	4183	24.6	N/A	1.150	1, 2	QPSK
Back of EUT Facing Phantom	Flat (SAM)	4132	24.5	N/A	1.090	1, 2	QPSK
Back of EUT Facing Phantom	Flat (SAM)	4233	24.6	N/A	1.070	1, 2	QPSK
Left Hand Side of EUT Facing Phantom	Flat (SAM)	4183	24.6	N/A	1.100	1, 2	QPSK
Left Hand Side of EUT Facing Phantom	Flat (SAM)	4132	24.5	N/A	1.020	1, 2	QPSK
Left Hand Side of EUT Facing Phantom	Flat (SAM)	4233	24.6	N/A	1.020	1, 2	QPSK

Specific Absorption Rate - UMTS-FDD 5 Hotspot Mode Configuration 1g (Continued):							
EUT Position	**Phantom Configuration**	**Channel Number**	**Meas. Avg. Power (dBm)**	**Power Back-off (dB)**	**Meas. Level (W/Kg)**	**Note(s)**	**Mod.**
Right Hand Side of EUT Facing Phantom	Flat (SAM)	4183	24.6	N/A	1.350	1, 2	QPSK
Right Hand Side of EUT Facing Phantom	Flat (SAM)	4132	24.5	N/A	1.150	1, 2	QPSK
Right Hand Side of EUT Facing Phantom	Flat (SAM)	4233	24.6	N/A	1.140	1, 2	QPSK
Bottom of EUT Facing Phantom	Flat (SAM)	4183	24.5	N/A	0.278	1, 2	QPSK

Note(s):

1. Packet Switch (PS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
2. SAR measurements were performed with the closest edge of the EUT at a separation distance of 10mm from the 'SAM' phantom flat section.

*KDB 941225 - SAR is not required for RMC+HSPA (HSDPA/HSUPA) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding RMC channels.

7.2.9.Specific Absorption Rate - UMTS-FDD 5 Body-Worn Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.915

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	22.6 to 22.6

Results:

EUT Position	Phantom Configuration	Channel Number	Meas. Avg. Power (dBm)	Power Back-off (dB)	Meas. Level (W/Kg)	Note(s)	Mod.
Back of EUT Facing Phantom	Flat (SAM)	4183	24.6	N/A	0.915	1, 2, 3, 5	QPSK
Back of EUT Facing Phantom	Flat (SAM)	4132	24.5	N/A	0.886	1, 2, 3, 5	QPSK
Back of EUT Facing Phantom	Flat (SAM)	4233	24.6	N/A	0.873	1, 2, 3, 5	QPSK
Back of EUT Facing Phantom With PHF	Flat (SAM)	4183	24.6	N/A	0.647	1, 2, 3, 4	QPSK

Note(s):

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
2. Back of EUT, is worst case and most conservative configuration from Hotspot mode and used for Body-worn Configuration.
3. SAR measurements were performed with the closest edge of the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.
4. Personal Hands-Free Kit attached, using the worst-case configuration acquired.
5. Although the above configuration for body-worn overlapped in hotspot mode at the customer request, assessment was performed at 15mm for body-worn configuration. This result can be considered as extra information.

*KDB 941225 - SAR is not required for RMC+HSPA (HSDPA/HSUPA) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding RMC channels.

7.2.10.Specific Absorption Rate - Wi-Fi 2450 Head Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.652

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	22.9 to 22.9

Results:

EUT Position	Phantom Configuration	Channel Number	Meas. Avg. Power (dBm)	Power Back-off (dB)	Meas. Level (W/Kg)	Note(s)	Mod.
Touch	Left	6	14.3	N/A	0.308	1	DBPSK
Tilt	Left	6	14.3	N/A	0.242	1	DBPSK
Touch	Right	6	14.3	N/A	0.649	1	DBPSK
Tilt	Right	6	14.3	N/A	0.455	1	DBPSK
Touch	Right	1	14.6	N/A	0.442	1	DBPSK
Touch	Right	11	14.6	N/A	0.652	1	DBPSK

Note(s):

1. WLAN 802.11b 1Mbps

*KDB 248227 - SAR is not required for 802.11g/n channels when the maximum average output power is less than ¼ dB higher than that measured on the corresponding 802.11b channels.

As per FCC kdb pub. *SAR Handsets Multi Xmiter and Ant, v01r05;* when there is simultaneous transmission occuring, stand- alone SAR evaluation is not required when the output power measured is ≤ 2.Pref for the particular band and antenna separation is ≥5.0cm from other antenna.

Output power thresholds for Unlicensed Transmitters

Pref	2.45	5.15 – 5.35	5.47	GHz
	12	6	5	mW

As per table 1 above, since output power measured for;
5.15 to 5.35 GHz maximum output power =5.6 mW < 12mW (2*Pref)
5.47 to 5.85 GHz maximum output power =5.4mW < 10mW (2*Pref)

Stand Alone SAR evaluation is not required for 5.0 GHz WLAN802.11a/n modes.

7.2.11.Specific Absorption Rate - Wi-Fi 2450 Hotspot Mode Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.170

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.8 to 23.8

Results:

EUT Position	Phantom Configuration	Channel Number	Meas. Avg. Power (dBm)	Power Back-off (dB)	Meas. Level (W/Kg)	Note(s)	Mod.
Front of EUT Facing Phantom	Flat (SAM)	6	14.3	N/A	0.132	1, 2	DBPSK
Back of EUT Facing Phantom	Flat (SAM)	6	14.3	N/A	0.151	1, 2	DBPSK
Left Hand Side of EUT Facing Phantom	Flat (SAM)	6	14.3	N/A	0.110	1, 2	DBPSK
Right Hand Side of EUT Facing Phantom	Flat (SAM)	6	14.3	N/A	0.033	1, 2	DBPSK
Top of EUT Facing Phantom	Flat (SAM)	6	14.3	N/A	0.092	1, 2	DBPSK
Back of EUT Facing Phantom	Flat (SAM)	1	14.6	N/A	0.110	1, 2	DBPSK
Back of EUT Facing Phantom	Flat (SAM)	11	14.6	N/A	0.170	1, 2	DBPSK

Note(s):

1. WLAN 802.11b 1Mbps
2. EUT Supports Hotspot; SAR measurements were performed with the closest edge of the EUT at a separation distance of 10mm from the 'SAM' phantom flat section.

*KDB 248227 - SAR is not required for 802.11g/n channels when the maximum average output power is less than ¼ dB higher than that measured on the corresponding 802.11b channels.

As per FCC kdb pub. *SAR Handsets Multi Xmiter and Ant, v01r05;* when there is simultaneous transmission occuring, stand- alone SAR evaluation is not required when the output power measured is ≤ 2.Pref for the particular band and antenna separation is ≥5.0cm from other antenna.

Output power thresholds for Unlicensed Transmitters

Pref	2.45	5.15 – 5.35	5.47	GHz
	12	6	5	mW

As per table 1 above, since output power measured for;
5.15 to 5.35 GHz maximum output power =5.6 mW < 12mW (2*Pref)
5.47 to 5.85 GHz maximum output power =5.4mW < 10mW (2*Pref)

Stand Alone SAR evaluation is not required for 5.0 GHz WLAN802.11a/n modes.

7.2.12.Specific Absorption Rate - Wi-Fi 2450 Body-Worn Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.075
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.8 to 23.8

Results:

EUT Position	Phantom Configuration	Channel Number	Meas. Avg. Power (dBm)	(dB)	Meas. Level (W/Kg)	Note(s)	Mod.
Back of EUT Facing Phantom	Flat (SAM)	6	14.3	N/A	0.064	1, 2, 3, 5	DBPSK
Back of EUT Facing Phantom	Flat (SAM)	1	14.6	N/A	0.045	1, 2, 3, 5	DBPSK
Back of EUT Facing Phantom	Flat (SAM)	11	14.6	N/A	0.073	1, 2, 3, 5	DBPSK
Back of EUT Facing Phantom With PHF	Flat (SAM)	11	14.6	N/A	0.075	1, 2, 3, 4	DBPSK

Note(s):

1. The Back of EUT, Worst case configuration of Wi-Fi Hotspot Mode is applied on Body-Worn configuration.
2. WLAN 802.11b 1Mbps
3. SAR measurements were performed with the closest edge of the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.
4. Personal Hands-Free Kit attached, using the worst-case configuration acquired.
5. Although the above configuration for body-worn overlapped in hotspot mode at the customer request, assessment was performed at 15mm for body-worn configuration. This result can be considered as extra information.

*KDB 248227 - SAR is not required for 802.11g/n channels when the maximum average output power is less than ¼ dB higher than that measured on the corresponding 802.11b channels.

As per FCC kdb pub. *SAR Handsets Multi Xmiter and Ant, v01r05;* when there is simultaneous transmission occuring, stand- alone SAR evaluation is not required when the output power measured is ≤ 2.Pref for the particular band and antenna separation is ≥5.0cm from other antenna.

Output power thresholds for Unlicensed Transmitters

Pref	2.45	5.15 – 5.35	5.47	GHz
	12	6	5	mW

As per table 1 above, since output power measured for;
5.15 to 5.35 GHz maximum output power =5.6 mW < 12mW (2*Pref)
5.47 to 5.85 GHz maximum output power =5.4mW < 10mW (2*Pref)

Stand Alone SAR evaluation is not required for 5.0 GHz WLAN802.11a/n modes.

7.2.13.Conducted Average Power Measurement 2G: GSM850

Channel Number	Frequency (MHZ)	Power (dBm)	Avg. Burst Power with consideration for uplink time slot (dBm)	Note
128	824.2	33.5	24.5	Conducted, GMSK
190	836.6	33.3	24.3	Conducted, GMSK
251	848.8	33.6	24.6	Conducted, GMSK

GPRS850 - Measured Average Power without consideration for Uplink time slots:

Channel Number	Frequency (MHZ)	Power (dBm) 1Uplink	Power (dBm) 2Uplink	Power (dBm) 3Uplink	Power (dBm) 4Uplink	Note
128	824.2	33.5	31.4	29.6	28.3	Conducted, GMSK
190	836.6	33.5	31.5	29.4	28.4	Conducted, GMSK
251	848.8	33.5	31.3	29.4	28.4	Conducted, GMSK

GPRS850 - Calculated Value with consideration for Uplink time slots:

Channel Number	Frequency (MHZ)	Power (dBm) 1Uplink	Power (dBm) 2Uplink	Power (dBm) 3Uplink	Power (dBm) 4Uplink	Note
128	824.2	24.5	25.4	25.3	25.3	Conducted, GMSK
190	836.6	24.5	25.5	25.1	25.4	Conducted, GMSK
251	848.8	24.5	25.3	25.1	25.4	Conducted, GMSK

EDGE850 - Measured Average Power without consideration for Uplink time slots:

Channel Number	Frequency (MHZ)	Power (dBm) 1Uplink	Power (dBm) 2Uplink	Power (dBm) 3Uplink	Power (dBm) 4Uplink	Note
128	824.2	33.5	31.4	29.6	28.3	Conducted, GMSK
190	836.6	33.5	31.5	29.4	28.4	Conducted, GMSK
251	848.8	33.5	31.3	29.4	28.4	Conducted, GMSK

EDGE850 - Calculated Value with consideration for Uplink time slots:

Channel Number	Frequency (MHZ)	Power (dBm) 1Uplink	Power (dBm) 2Uplink	Power (dBm) 3Uplink	Power (dBm) 4Uplink	Note
128	824.2	24.5	25.4	25.3	25.3	Conducted, GMSK
190	836.6	24.5	25.5	25.1	25.4	Conducted, GMSK
251	848.8	24.5	25.3	25.1	25.4	Conducted, GMSK

Note:

Scale factor for uplink time slot:

1. 1 Uplink: time slot ratio = 8:1 => 10*log(8/1) = **9.03 dB**
2. 2 Uplink: time slot ratio = 8:2 => 10*log(8/2) = **6.02 dB**
3. 3 Uplink: time slot ratio = 8:3 => 10*log(8/3) = **4.26 dB**
4. 4 Uplink: time slot ratio = 8:4 => 10*log(8/4) = **3.01 dB**

EDGE (MCS9 ~ 8PSK)
EDGE850 - Measured Average Power without consideration for Uplink time slots:

Channel Number	Frequency (MHZ)	Power (dBm) 1Uplink	Power (dBm) 2Uplink	Power (dBm) 3Uplink	Power (dBm) 4Uplink	Note
128	824.2	28.0	26.5	25.4	24.4	Conducted, 8PSK
190	836.6	27.8	26.5	25.4	24.4	Conducted, 8PSK
251	848.8	27.9	26.5	25.4	24.4	Conducted, 8PSK

EDGE850 - Calculated Value with consideration for Uplink time slots:

Channel Number	Frequency (MHZ)	Power (dBm) 1Uplink	Power (dBm) 2Uplink	Power (dBm) 3Uplink	Power (dBm) 4Uplink	Note
128	824.2	19.0	20.5	21.1	21.4	Conducted, 8PSK
190	836.6	18.8	20.5	21.1	21.4	Conducted, 8PSK
251	848.8	18.9	20.5	21.1	21.4	Conducted, 8PSK

Note:

Scale factor for uplink time slot:

1. 1 Uplink: time slot ratio = 8:1 => 10*log(8/1) = **9.03 dB**
2. 2 Uplink: time slot ratio = 8:2 => 10*log(8/2) = **6.02 dB**
3. 3 Uplink: time slot ratio = 8:3 => 10*log(8/3) = **4.26 dB**
4. 4 Uplink: time slot ratio = 8:4 => 10*log(8/4) = **3.01 dB**

7.2.14.Conducted Average Power Measurement 2G: PCS1900

Channel Number	Frequency (MHZ)	Power (dBm)	Avg. Burst Power with consideration for uplink time slot (dBm)	Note
512	1850.2	30.5	21.5	Conducted, GMSK
661	1880.0	30.5	21.5	Conducted, GMSK
810	1909.8	30.4	21.4	Conducted, GMSK

GPRS1900 - Measured Average Power without consideration for Uplink time slots:

Channel Number	Frequency (MHZ)	Power (dBm) 1Uplink	Power (dBm) 2Uplink	Power (dBm) 3Uplink	Power (dBm) 4Uplink	Note
512	1850.2	30.5	28.5	26.7	25.4	Conducted, GMSK
661	1880.0	30.5	28.5	26.5	25.3	Conducted, GMSK
810	1909.8	30.4	28.3	26.6	25.4	Conducted, GMSK

GPRS1900 - Calculated Value with consideration for Uplink time slots:

Channel Number	Frequency (MHZ)	Power (dBm) 1Uplink	Power (dBm) 2Uplink	Power (dBm) 3Uplink	Power (dBm) 4Uplink	Note
512	1850.2	21.5	22.5	22.4	22.4	Conducted, GMSK
661	1880.0	21.5	22.5	22.2	22.3	Conducted, GMSK
810	1909.8	21.4	22.3	22.3	22.4	Conducted, GMSK

EDGE1900 - Measured Average Power without consideration for Uplink time slots:

Channel Number	Frequency (MHZ)	Power (dBm) 1Uplink	Power (dBm) 2Uplink	Power (dBm) 3Uplink	Power (dBm) 4Uplink	Note
512	1850.2	30.5	28.5	26.7	25.4	Conducted, GMSK
661	1880.0	30.5	28.5	26.5	25.3	Conducted, GMSK
810	1909.8	30.4	28.3	26.6	25.4	Conducted, GMSK

EDGE1900 - Calculated Value with consideration for Uplink time slots:

Channel Number	Frequency (MHZ)	Power (dBm) 1Uplink	Power (dBm) 2Uplink	Power (dBm) 3Uplink	Power (dBm) 4Uplink	Note
512	1850.2	21.5	22.5	22.4	22.4	Conducted, GMSK
661	1880.0	21.5	22.5	22.2	22.3	Conducted, GMSK
810	1909.8	21.4	22.3	22.3	22.4	Conducted, GMSK

Note:

Scale factor for uplink time slot:

1. 1 Uplink: time slot ratio = 8:1 => 10*log(8/1) = **9.03 dB**
2. 2 Uplink: time slot ratio = 8:2 => 10*log(8/2) = **6.02 dB**
3. 3 Uplink: time slot ratio = 8:3 => 10*log(8/3) = **4.26 dB**
4. 4 Uplink: time slot ratio = 8:4 => 10*log(8/4) = **3.01 dB**

EDGE (MCS9 ~ 8PSK):
EDGE1900 - Measured Average Power without consideration for Uplink time slots:

Channel Number	Frequency (MHZ)	Power (dBm) 1Uplink	Power (dBm) 2Uplink	Power (dBm) 3Uplink	Power (dBm) 4Uplink	Note
512	1850.2	27.0	25.5	24.6	23.5	Conducted, 8PSK
661	1880.0	27.0	25.5	24.5	23.6	Conducted, 8PSK
810	1909.8	27.0	25.5	24.4	23.6	Conducted, 8PSK

EDGE1900 - Calculated Value with consideration for Uplink time slots:

Channel Number	Frequency (MHZ)	Power (dBm) 1Uplink	Power (dBm) 2Uplink	Power (dBm) 3Uplink	Power (dBm) 4Uplink	Note
512	1850.2	18.0	19.5	20.3	20.5	Conducted, 8PSK
661	1880.0	18.0	19.5	20.2	20.6	Conducted, 8PSK
810	1909.8	18.0	19.5	20.1	20.6	Conducted, 8PSK

Note:

Scale factor for uplink time slot:

1. 1 Uplink: time slot ratio = 8:1 => 10*log(8/1) = **9.03 dB**
2. 2 Uplink: time slot ratio = 8:2 => 10*log(8/2) = **6.02 dB**
3. 3 Uplink: time slot ratio = 8:3 => 10*log(8/3) = **4.26 dB**
4. 4 Uplink: time slot ratio = 8:4 => 10*log(8/4) = **3.01 dB**

7.2.15.Conducted Average Power Measurement 3G:

Modes		HSDPA				HSPA					WCDMA
Sets		1	2	3	4	1	2	3	4	5	Voice / RMC 12.2kbps
Band	Channel	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]	Power [dBm]
850 (Band 5)	4132 4357	24.2	22.0	21.4	21.2	22.4	23.6	22.1	24.2	22.2	24.5
	4183 4408	24.5	22.4	21.5	21.3	22.6	23.7	22.2	24.2	22.1	24.6
	4233 4458	24.4	22.2	21.5	21.1	22.5	23.7	22.0	24.1	22.1	24.6
Modes		HSDPA				HSPA					WCDMA
Sets		1	2	3	4	1	2	3	4	5	Voice / RMC 12.2kbps
ßc		2	12	15	15	11	6	15	2	15	
ßd		15	15	8	4	15	15	9	15	15	
∆ACK, ∆NACK, ∆CQI		8	8	8	8	8	8	8	8	8	
AGV		-	-	-	-	20	12	15	17	21	

The module power levels were measured in both HSPA and 3G RMC 12.2kbps modes and compared to ensure the correct mode of operation had been established.

The following tables taken from FCC 3G SAR procedures (KDB 941225 D01 SAR test for 3G devices v02) below were applied using an Agilent 8960 series 10 wireless communications test set which supports 3G / HSDPA release 5 / HSPA release 6.

Sub-test Setup for Release 5 HSDPA

Sub-test	β_c	β_d	B_d *(SF)*	β_c/β_d	β_{hs} (1)	SM (dB) (2)
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 (3)	15/15 (3)	64	12/15 (3)	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $B_{hs}/\beta_c = 24/15$

Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$

Sub-test Setup for Release 6 HSPA

Sub-test	β_c	β_d	B_d *(SF)*	β_c/β_d	β_{hs} (1)	B_{oc}	B_{od}	B_{od} *(SF)*	B_{od} *(codes)*	CM (2) (dB)	Power Back-off (dB)	AG (4) Index	E-TFCI
1	11/15 (3)	15/15 (3)	64	11/15 (3)	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	31/15	B_{al1}: 47/15 B_{al2}: 47/15	4	1	2.0	1.0	15	92
4	2/15	15/15	64	2/15	2/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (4)	15/15 (4)	64	15/15 (4)	24/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $B_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH AND E-DPCCH for the Power Back-off is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Tavle 5.1g.

Note 6: B_{od} cannot be set directly; it is set by Absolute Grant Value.

7.2.16.Conducted Power Measurements Wi-Fi802.11b/g/n

802.11b/g

Channel Number	Frequency (MHZ)	TX Power (dBm)	Note
1	2412.0	14.6	**2.4GHz 802.11b** (1Mbps)
6	2437.0	14.3	
11	2462.0	14.6	
1	2412.0	14.3	**2.4GHz 802.11b** (11Mbps)
6	2437.0	14.0	
11	2462.0	14.3	
1	2412.0	12.0	**2.4GHz 802.11g** (6Mbps)
6	2437.0	12.9	
11	2462.0	13.6	
1	2412.0	12.1	**2.4GHz 802.11g** (54Mbps)
6	2437.0	13.1	
11	2462.0	13.8	

802.11n

Channel Number	Frequency (MHZ)	TX Power (dBm)	Note
1	2412.0	11.0	**2.4GHz 802.11n** (MCS0 6.5Mbps)
6	2437.0	11.9	
11	2462.0	12.6	
1	2412.0	11.4	**2.4GHz 802.11n** (MCS7 65Mbps)
6	2437.0	12.2	
11	2462.0	13.0	

7.2.17.Conducted Power Measurements Wi-Fi802.11a/n (5.0 GHz)
802.11a (5.0 GHz)

Channel Number	Frequency (MHZ)	TX Power (dBm) 6 Mbps	TX Power (dBm) 54 Mbps	Note
36*	5180.0	5.5	5.2	**5.2 GHz**
40	5200.0	6.3	5.6	
44	5220.0	6.0	5.7	
48*	5240.0	6.2	5.3	
52*	5260.0	6.6	6.3	**5.3 GHz**
56	5280.0	6.0	5.6	
60	5300.0	6.7	6.0	
64*	5320.0	6.2	6.4	
100	5500.0	6.6	6.4	**5.6 GHz**
104*	5520.0	6.5	6.1	
108	5540.0	6.2	6.3	
112	5560.0	7.0	6.9	
116*	5580.0	6.2	6.6	
120	5600.0	6.2	6.0	
124*	5620.0	5.8	5.5	
128	5640.0	6.2	5.8	
132	5660.0	6.0	5.7	
136*	5680.0	5.9	5.0	
140	5700.0	5.9	5.5	
149*	5745.0	5.4	5.1	**5.8 GHz**
153	5765.0	6.9	5.7	
157*	5785.0	5.3	5.1	
161	5805.0	6.0	5.6	
165*	5825.0	7.0	6.9	

***Default Test Channels**

802.11n (5.0 GHz) (HT20)

Channel Number	Frequency (MHZ)	TX Power (dBm) 6.5 Mbps	TX Power (dBm) 65 Mbps	Note
36*	5180.0	5.6	6.2	**5.2 GHz**
40	5200.0	5.5	7.1	
44	5220.0	6.1	6.1	
48*	5240.0	5.9	7.2	
52*	5260.0	6.7	6.2	**5.3 GHz**
56	5280.0	6.6	6.1	
60	5300.0	7.5	6.3	
64*	5320.0	6.6	6.8	
100	5500.0	6.5	6.9	**5.6 GHz**
104*	5520.0	6.7	6.5	
108	5540.0	6.3	6.3	
112	5560.0	6.3	6.1	
116*	5580.0	6.1	6.0	
120	5600.0	6.4	5.8	
124*	5620.0	5.9	6.8	
128	5640.0	5.8	6.3	
132	5660.0	6.0	6.0	
136*	5680.0	6.8	5.5	
140	5700.0	5.5	5.3	
149*	5745.0	6.0	5.4	**5.8 GHz**
153	5765.0	6.0	6.1	
157*	5785.0	5.5	5.5	
161	5805.0	5.9	6.0	
165*	5825.0	7.3	6.3	

***Default Test Channels**

802.11n (5.0 GHz) (HT40)

Channel Number	Frequency (MHZ)	TX Power (dBm) 13.5 Mbps	TX Power (dBm) 135 Mbps	Note
38	5190.0	6.6	2.9	**5.2 GHz**
46	5230.0	6.9	3.5	
54	5270.0	7.2	3.9	**5.3 GHz**
62	5310.0	7.3	3.9	
102	5510.0	6.4	3.6	**5.6 GHz**
110	5550.0	6.1	3.2	
118	5590.0	5.9	2.9	
126	5630.0	6.0	2.9	
134	5670.0	5.1	2.1	
151	5755.0	6.5	4.0	**5.8 GHz**
159	5795.0	6.6	3.8	

Note:

The measured maximum conducted power for WLAN 5GHz is 7.5dBm (equivalent to 5.6mW).
As per FCC kdb pub. *SAR Handsets Multi Xmiter and Ant, v01r05;* when there is simultaneous transmission occuring, stand- alone SAR evaluation is not required when the output power measured is ≤ 2.Pref for the particular band and antenna separation is ≥5.0cm from other antenna.

Output power thresholds for Unlicensed Transmitters

Pref	2.45	5.15 – 5.35	5.47	GHz
	12	6	5	mW

As per table 1 above, since output power measured for;
5.15 to 5.35 GHz maximum output power =5.6 mW < 12mW (2*Pref)
5.47 to 5.85 GHz maximum output power =5.4mW < 10mW (2*Pref)

Stand Alone SAR evaluation is not required for 5.0 GHz WLAN802.11a/n modes.

8. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently, the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor, such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Test Name	Confidence Level	Calculated Uncertainty
Specific Absorption Rate-GSM 850/ UMTS FDD 5 Head Configuration 1g	95%	±19.94%
Specific Absorption Rate-GSM / GPRS / EDGE 850 / UMTS FDD 5 Body Configurations 1g	95%	±20.07%
Specific Absorption Rate-PCS 1900 Head Configuration 1g	95%	±20.72%
Specific Absorption Rate-GSM / GPRS / EDGE 1900 Body Configuration 1g	95%	±20.00%
Specific Absorption Rate-Wi-Fi 2450 MHz Head Configuration 1g	95%	±19.47%
Specific Absorption Rate-Wi-Fi 2450 MHz Body Configuration 1g	95%	±19.90%

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty, the published guidance of the appropriate accreditation body is followed.

8.1. Specific Absorption Rate Uncertainty -GSM 850 / UMTS FDD 5 Head Configuration 1g

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (1g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	6.000	6.000	normal (k=1)	1.0000	1.0000	6.000	6.000	∞
B	Axial Isotropy	0.250	0.250	normal (k=1)	1.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	1.300	1.300	normal (k=1)	1.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.160	0.160	normal (k=1)	1.0000	1.0000	0.160	0.160	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration / Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	2.400	2.400	normal (k=1)	1.0000	1.0000	2.400	2.400	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	4.920	4.920	normal (k=1)	1.0000	0.6400	3.149	3.149	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.970	4.970	normal (k=1)	1.0000	0.6000	2.982	2.982	5
	Combined standard uncertainty			t-distribution			10.17	10.17	>250
	Expanded uncertainty			k = 1.96			19.94	19.94	>250

8.2. Specific Absorption Rate-GSM / GPRS / EDGE 850 / UMTS FDD 5 Body Configuration 1g

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (1g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	6.000	6.000	normal (k=1)	1.0000	1.0000	6.000	6.000	∞
B	Axial Isotropy	0.250	0.250	normal (k=1)	1.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	1.300	1.300	normal (k=1)	1.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.160	0.160	normal (k=1)	1.0000	1.0000	0.160	0.160	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration /Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	2.900	2.900	normal (k=1)	1.0000	1.0000	2.900	2.900	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	4.690	4.690	normal (k=1)	1.0000	0.6400	3.002	3.002	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.860	4.860	normal (k=1)	1.0000	0.6000	2.916	2.916	5
	Combined standard uncertainty			t-distribution			10.24	10.24	>250
	Expanded uncertainty			k = 1.96			20.07	20.07	>250

8.3. Specific Absorption Rate-PCS 1900 Head Configuration 1g

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (1g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	6.000	6.000	normal (k=1)	1.0000	1.0000	6.000	6.000	∞
B	Axial Isotropy	0.250	0.250	normal (k=1)	1.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	1.300	1.300	normal (k=1)	1.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.160	0.160	normal (k=1)	1.0000	1.0000	0.160	0.160	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with Regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration / Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	3.800	3.800	normal (k=1)	1.0000	1.0000	3.800	3.800	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	4.900	4.900	normal (k=1)	1.0000	0.6400	3.136	3.136	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.880	4.880	normal (k=1)	1.0000	0.6000	2.928	2.928	5
	Combined standard uncertainty			t-distribution			10.57	10.57	>200
	Expanded uncertainty			k = 1.96			20.72	20.72	>200

8.4. Specific Absorption Rate-PCS / GPRS / EDGE 1900 Body Configuration 1g

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (1g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	6.000	6.000	normal (k=1)	1.0000	1.0000	6.000	6.000	∞
B	Axial Isotropy	0.250	0.250	normal (k=1)	1.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	1.300	1.300	normal (k=1)	1.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.160	0.160	normal (k=1)	1.0000	1.0000	0.160	0.160	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration / Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	2.500	2.500	normal (k=1)	1.0000	1.0000	2.500	2.500	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	4.940	4.940	normal (k=1)	1.0000	0.6400	3.162	3.162	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.980	4.980	normal (k=1)	1.0000	0.6000	2.988	2.988	5
	Combined standard uncertainty			t-distribution			10.20	10.20	>250
	Expanded uncertainty			k = 1.96			20.00	20.00	>250

8.5. Specific Absorption Rate-Wi-Fi 2450 MHz Head Configuration 1g

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (1g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	6.000	6.000	normal (k=1)	1.0000	1.0000	6.000	6.000	∞
B	Axial Isotropy	0.250	0.250	normal (k=1)	1.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	1.300	1.300	normal (k=1)	1.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.160	0.160	normal (k=1)	1.0000	1.0000	0.160	0.160	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration / Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	2.000	2.000	normal (k=1)	1.0000	1.0000	2.000	2.000	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	4.410	4.410	normal (k=1)	1.0000	0.6400	2.822	2.822	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.930	4.930	normal (k=1)	1.0000	0.6000	2.958	2.958	5
	Combined standard uncertainty			t-distribution			9.93	9.93	>300
	Expanded uncertainty			k = 1.96			19.47	19.47	>300

8.6. Specific Absorption Rate-Wi-Fi 2450 MHz Body Configuration 1g

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (1g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	6.000	6.000	normal (k=1)	1.0000	1.0000	6.000	6.000	∞
B	Axial Isotropy	0.250	0.250	normal (k=1)	1.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	1.300	1.300	normal (k=1)	1.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.160	0.160	normal (k=1)	1.0000	1.0000	0.160	0.160	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration / Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	2.570	2.570	normal (k=1)	1.0000	1.0000	2.570	2.570	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	4.900	4.900	normal (k=1)	1.0000	0.6400	3.136	3.136	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.920	4.920	normal (k=1)	1.0000	0.6000	2.952	2.952	5
	Combined standard uncertainty			t-distribution			10.15	10.15	>250
	Expanded uncertainty			k = 1.96			19.90	19.90	>250

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A034	Narda 20W Termination	Narda	374BNM	8706	Calibrated as part of system	-
A1097	SMA Directional Coupler	MiDISCO	MDC6223-30	None	Calibrated as part of system	-
A1137	3dB Attenuator	Narda	779	04690	Calibrated as part of system	-
A1174	Dielectric Probe Kit	Agilent Technologies	85070C	Us99360072	Calibrated before use	-
A1328	Handset Positioner	Schmid & Partner Engineering AG	Modification	SD 000 H01 DA	-	-
A1182	Handset Positioner	Schmid & Partner Engineering AG	V3.0	None	-	-
A1184	Data Acquisition Electronics	Schmid & Partner Engineering AG	DAE3	394	26 Jan 2012	12
A2111	Data Acquisition Electronics	Schmid & Partner Engineering AG	DAE3	432	02 May 2012	12
A2077	Probe	Schmid & Partner Engineering AG	EX3 DV4	3814	22 Sep 2011	12
A1185	Probe	Schmid & Partner Engineering AG	ET3 DV6	1528	26 Jul 2012	12
A1235	900 MHz Dipole Kit	Schmid & Partner Engineering AG	D900V2	124	09 Feb 2011	24
A1237	1900 MHz Dipole Kit	Schmid & Partner Engineering AG	D1900V2	540	08 Feb 2011	24
A1322	2450 MHz Dipole Kit	Schmid & Partner Engineering AG	D2450V2	725	08 Feb 2011	24
A1497	Amplifier	Mini-Circuits	zhl-42w (sma)	e020105	Calibrated as part of system	-
A1566	SAM Phantom	Schmid & Partner Engineering AG	SAM a (Site 56)	002	Calibrated before use	-
A1238	SAM Phantom	Schmid & Partner Engineering AG	SAM b (Site 56)	001	Calibrated before use	-
A2125	SAM Phantom	Schmid & Partner Engineering AG	SAM b (Site 57)	TP-1031	Calibrated before use	-
A2124	SAM Phantom	Schmid & Partner Engineering AG	SAM a (Site 57)	TP-1030	Calibrated before use	-

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A215	20 dB Attenuator	Narda	766-20	9402	Calibrated as part of system	-
A1531	Antenna	AARONIA AG	7025	02458	-	-
M1015	Network Analyser	Agilent Technologies	8753ES	US39172406	27 Sept 2011	12
C1145	Cable	Rosenberger MICRO-COAX	FA147A F003003030	41843-1	Calibrated as part of system	-
C1146	Cable	Rosenberger MICRO-COAX	FA147A F030003030	41752-1	Calibrated as part of system	-
G0528	Robot Power Supply	Schmid & Partner Engineering AG	DASY4	None	Calibrated before use	-
GO591	Robot Power Supply	Schmid & Partner Engineering AG	DASY4	None	Calibrated before use	-
G087	PSU	Thurlby Thandar	CPX200	100701	Calibrated before use	-
M1047	Robot Arm	Staubli	RX908 L	F00/SD8 9A1/A/01	Calibrated before use	-
M1653	Robot Arm	Staubli	RX908 L	F01/5J8 6A1/C/01	Calibrated before use	-
M1159	Signal Generator	Agilent Technologies	E8241A	US42110332	Internal Checked 14 Apr 2012/ 10 Aug 2012	4
M1071	Spectrum Analyzer	Agilent	HP8590E	3647U00514	(Monitoring use only)	-
M1270	Digital Thermometer	RS	N/A	N/A	Internal Checked 13 May 2012	12
M1023	Dual Channel Power Meter	R & S	NRVD	863715/030	18 July 2012	12
S256	SAR Lab	RFI	Site 56	N/A	Calibrated before use	-
S512	SAR Lab	RFI	Site 57	N/A	Calibrated before use	-

Note: All the assets were in calibration during the course of testing.

A.1.1. Calibration Certificates

This section contains the calibration certificates and data for the Probe(s) and Dipole(s) used, which are not included in the total number of pages for this report.

The following information is justification to why the listed dipoles calibration period has been extended. This address FCC KDB 450824 D02

Cal Date	Dipole Calibration History									
	Dipole SN: 124, Frequency 900 MHz									
	Head Parameters					Body Parameters				
	1g (W/Kg)	10g (W/Kg)	Return loss (dB)	Real (Ω)	Imaginary (Ω)	1g (W/Kg)	10g (W/Kg)	Return loss (dB)	Real (Ω)	Imaginary (Ω)
27-Jun-12	Lab Annual Check of dipole		-24.73	49.56	-7.40	Lab Annual Check of dipole		-21.92	48.18	-8.03
09-Feb-11	11.00	7.01	-21.60	48.90	-8.20	11.10	7.14	-20.20	46.10	-8.60
23-Aug-07	10.20	6.56	-21.20	48.60	-8.50	10.50	6.89	-20.20	45.40	-8.10
31-Aug-05	10.60	6.78	-24.70	49.10	-5.70	10.50	6.77	-18.90	44.90	-8.90
13-May-03	10.60	6.76	-24.00	50.30	-6.40	11.00	7.12	-20.60	46.20	-8.20
03-Aug-01	11.28	7.16	-25.40	50.80	-5.60	Dipole calibrated for Head only				
Standard Deviation	**0.42**	**0.23**	**1.77**	**0.85**	**1.25**	**0.32**	**0.18**	**1.08**	**1.25**	**0.37**
|Mean Value|	**10.74**	**6.85**	**23.61**			**10.78**	**6.98**	**20.36**		
Relative standard deviation %	**3.87%**	**3.41%**	**7.49%**			**2.97%**	**2.58%**	**5.31%**		

Calibration Certificates (Continued)

Cal Date	Dipole Calibration History									
	Dipole SN: 540, Frequency 1900 MHz									
	Head Parameters					Body Parameters				
	1g (W/Kg)	10g (W/Kg)	Return loss (dB)	Real (Ω)	Imaginary (Ω)	1g (W/Kg)	10g (W/Kg)	Return loss (dB)	Real (Ω)	Imaginary (Ω)
27-Jun-12	Lab Annual Check of dipole		-30.57	49.54	1.41	Lab Annual Check of dipole		-29.80	50.34	2.37
08-Feb-11	40.30	21.00	-27.60	50.50	4.20	40.70	21.60	-23.10	45.60	5.00
26-Jun-09	40.30	21.10	-30.00	48.50	2.70	40.90	21.50	-24.30	44.90	2.80
11-Jun-07	36.10	19.30	-25.40	51.90	5.10	38.00	20.70	-25.30	47.70	4.80
14-Jun-05	38.1	19.90	-25.40	51.90	5.20	39.10	20.70	-24.00	48.10	5.90
04-Jun-03	41.20	21.20	-28.50	50.30	3.80	Dipole calibrated for Head only				
Standard Deviation	**2.08**	**0.85**	**2.21**	**1.33**	**1.46**	**1.38**	**0.49**	**2.64**	**2.16**	**1.52**
|Mean Value|	**39.20**	**20.50**	**27.91**			**39.68**	**21.13**	**25.30**		
Relative standard deviation %	**5.30%**	**4.15%**	**7.93%**			**3.47%**	**2.33%**	**10.42%**		

Cal Date	Dipole Calibration History									
	Dipole SN: 725, Frequency 2450 MHz									
	Head Parameters					Body Parameters				
	1g (W/Kg)	10g (W/Kg)	Return loss (dB)	Real (Ω)	Imaginary (Ω)	1g (W/Kg)	10g (W/Kg)	Return loss (dB)	Real (Ω)	Imaginary (Ω)
02-July-12	Lab Annual Check of dipole		-20.37	47.27	8.65	Lab Annual Check of dipole		-21.04	48.52	8.72
08-Feb-11	52.90	24.70	-20.50	45.60	7.90	51.90	24.10	-20.20	49.50	9.70
08-Jan-09	52.10	24.30	-23.70	54.40	5.30	52.20	24.70	-23.40	49.00	6.70
17-Jan-07	53.30	24.80	-22.10	52.40	7.70	53.30	24.50	-21.80	47.80	7.70
04-Jan-05	54.5	24.70	-22.30	53.50	7.20	52.90	24.50	-22.20	48.50	7.50
17-Jan-03	54.70	24.50	-22.60	53.00	7.00	52.10	24.10	-21.70	49.00	8.10
Standard Deviation	**1.10**	**0.20**	**1.28**	**3.66**	**1.14**	**0.59**	**0.27**	**1.08**	**0.58**	**1.04**
|Mean Value|	**53.50**	**24.60**	**21.93**			**52.48**	**24.38**	**21.72**		
Relative standard deviation %	**2.05%**	**0.81%**	**5.85%**			**1.13%**	**1.10%**	**4.97%**		

Note:

1. SAR lab has more than one dipole, the 900 MHz calibration gap is 24 months from 2007 and a second dipole was use after this period.
2. The dipole history shows that the measured SAR relative standard deviation was all less than 10% for the calibration period. The return loss relative standard deviation was all less than 10 %. And the real and imaginary impedance standard deviation is within 5 **(Ω).**

27-SEPT-2011
Checked by R. [illegible]

ASSET: A2077

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
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 RFI

Certificate No: EX3-3814_Sep11

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3814
Calibration procedure(s)	QA CAL-01.v8, QA CAL-12.v7, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4 Calibration procedure for dosimetric E-field probes
Calibration date	September 22, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

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

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Fin Bomholt	R&D Director	

Issued: September 22, 2011

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

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 affect 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.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *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 EX3DV4

SN:3814

Manufactured: September 2, 2011
Calibrated: September 22, 2011

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3814

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.52	0.51	0.44	± 10.1 %
DCP (mV)[B]	100.8	96.5	101.1	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	121.7	±2.7 %
			Y	0.00	0.00	1.00	115.0	
			Z	0.00	0.00	1.00	105.3	

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3814

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	43.5	0.87	9.55	9.55	9.55	0.12	1.00	± 13.4 %
750	41.9	0.89	9.26	9.26	9.26	0.80	0.67	± 12.0 %
900	41.5	0.97	8.75	8.75	8.75	0.71	0.73	± 12.0 %
1750	40.1	1.37	8.13	8.13	8.13	0.80	0.62	± 12.0 %
1900	40.0	1.40	7.78	7.78	7.78	0.80	0.61	± 12.0 %
2450	39.2	1.80	7.02	7.02	7.02	0.80	0.60	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3814

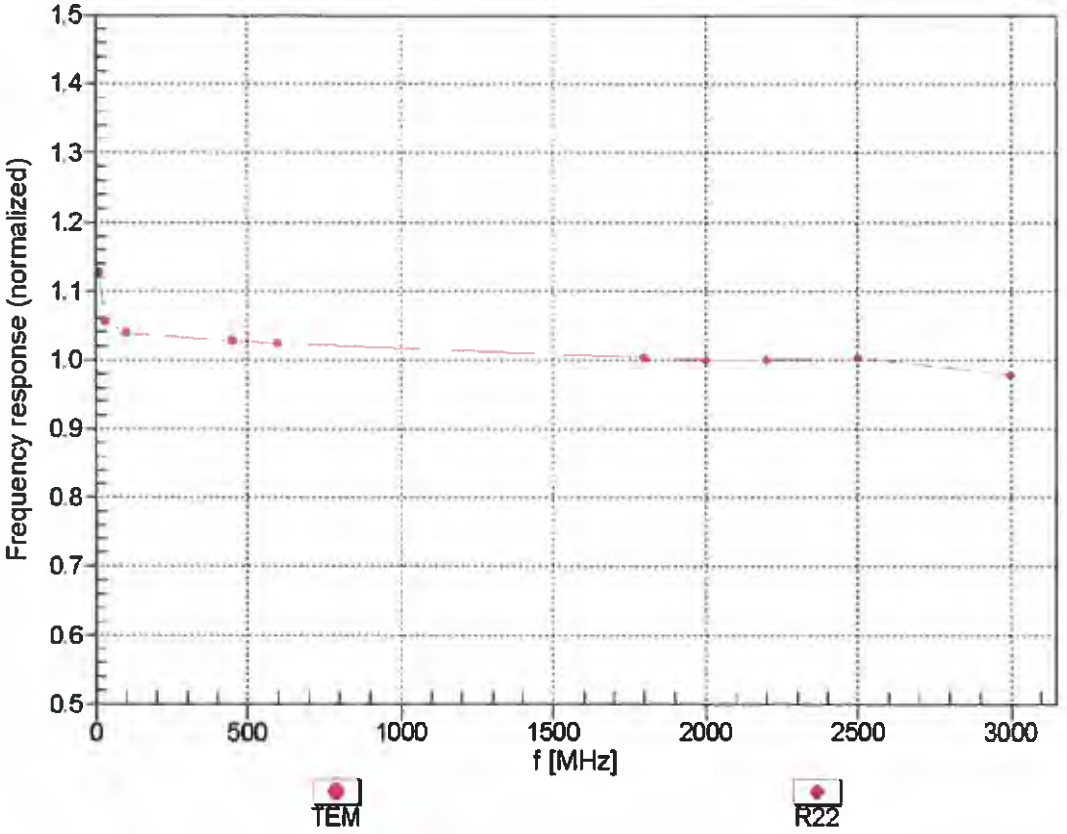
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	56.7	0.94	10.39	10.39	10.39	0.04	1.00	± 13.4 %
750	55.5	0.96	9.28	9.28	9.28	0.80	0.65	± 12.0 %
900	55.0	1.05	8.92	8.92	8.92	0.80	0.65	± 12.0 %
1750	53.4	1.49	7.58	7.58	7.58	0.80	0.67	± 12.0 %
1900	53.3	1.52	7.31	7.31	7.31	0.80	0.68	± 12.0 %
2150	53.1	1.66	7.38	7.38	7.38	0.80	0.65	± 12.0 %
2450	52.7	1.95	7.15	7.15	7.15	0.80	0.50	± 12.0 %
2600	52.5	2.16	7.02	7.02	7.02	0.80	0.50	± 12.0 %
3700	51.0	3.55	6.35	6.35	6.35	0.26	1.68	± 13.1 %
5200	49.0	5.30	4.19	4.19	4.19	0.60	1.95	± 13.1 %
5500	48.6	5.65	3.86	3.86	3.86	0.60	1.95	± 13.1 %
5800	48.2	6.00	3.94	3.94	3.94	0.60	1.95	± 13.1 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

Frequency Response of E-Field

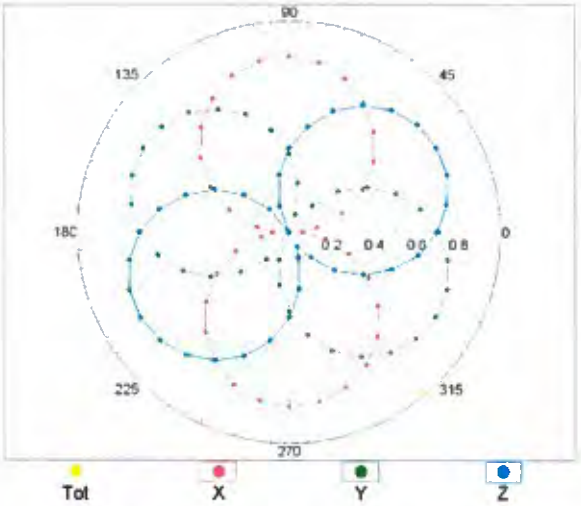
(TEM-Cell:ifi110 EXX, Waveguide: R22)



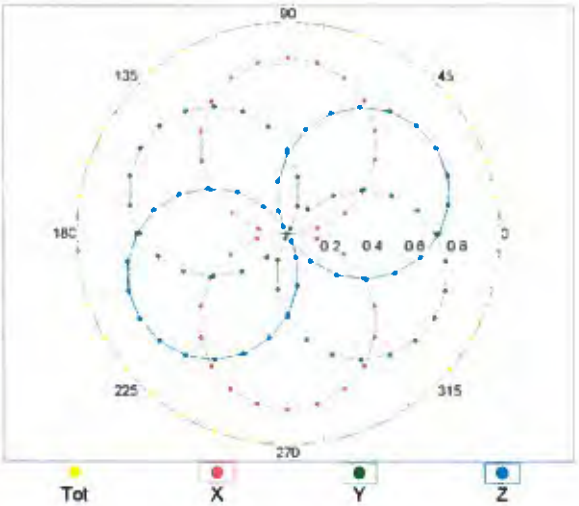
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

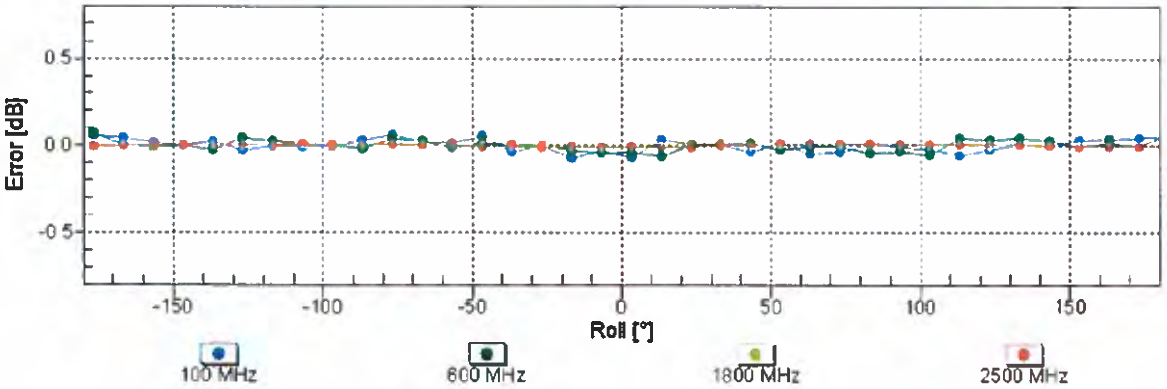
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



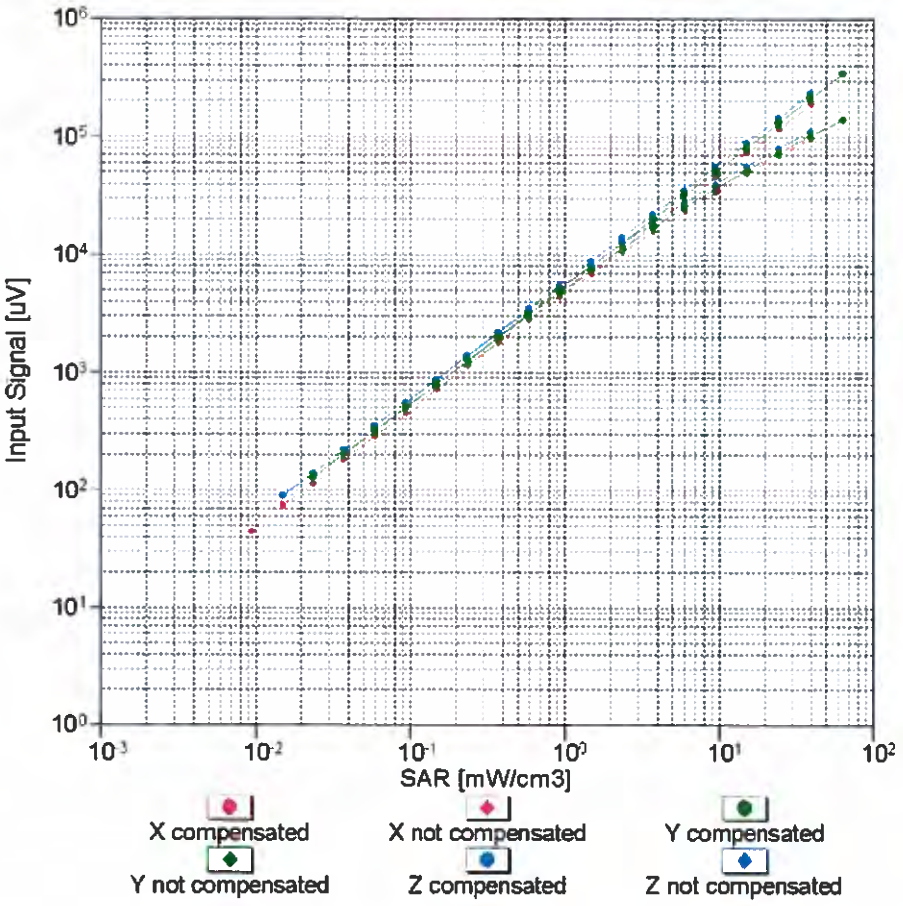
f=1800 MHz,R22

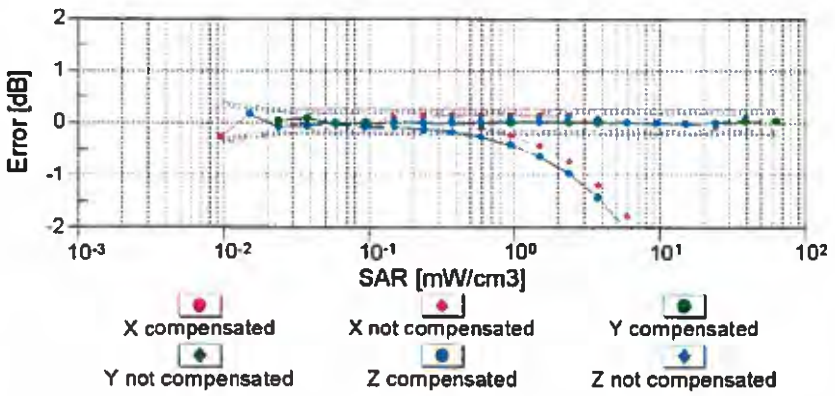




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

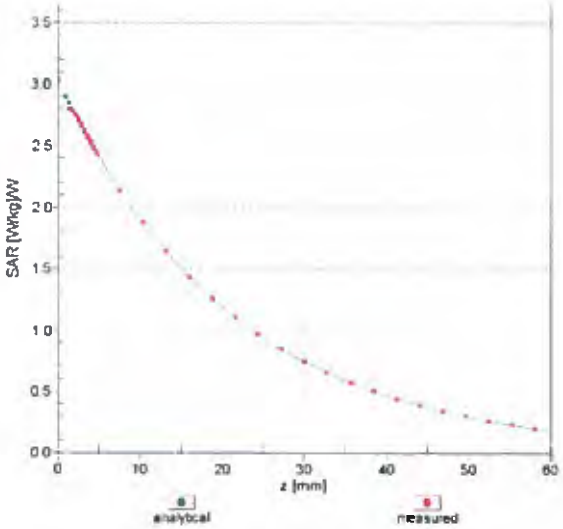




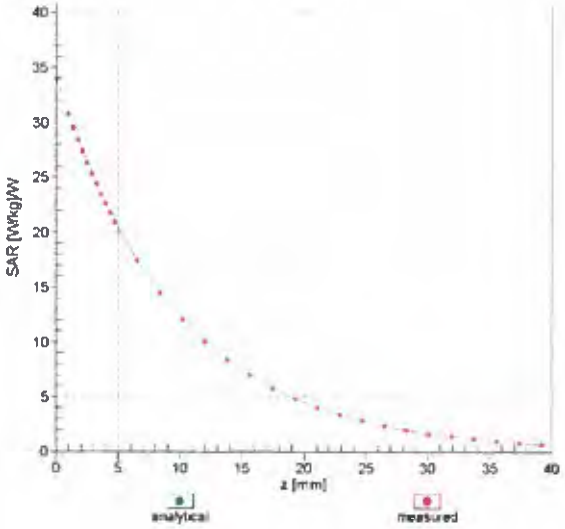
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 750 MHz,WGLS R9 (H_convF)

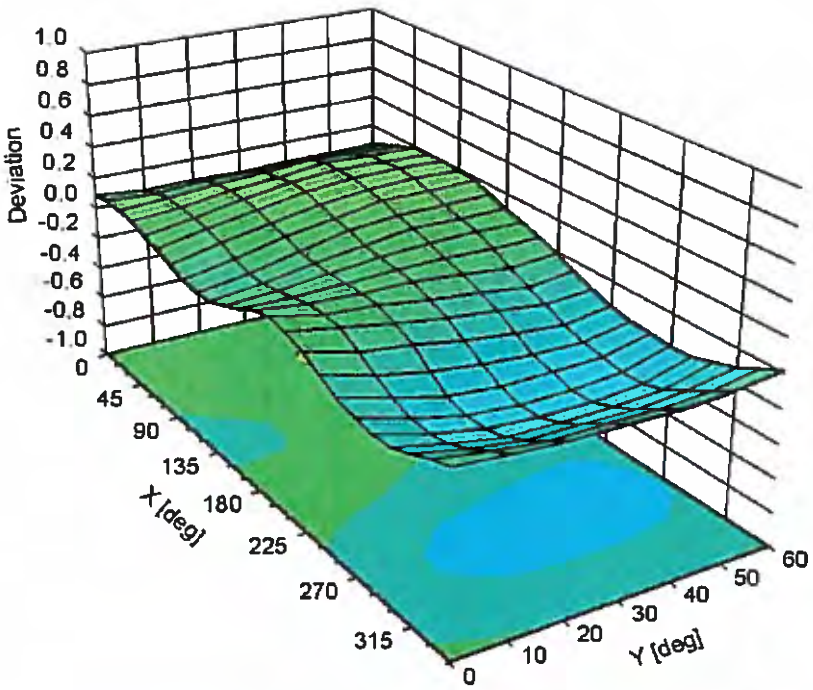


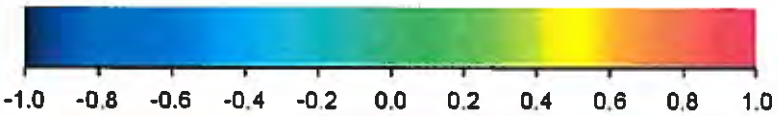
f = 2450 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3814

Other Probe Parameters

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

Checked by RB 16 Aug 2012
ASSET: A1185

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
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 RFI

Certificate No: ET3-1528_Jul12

CALIBRATION CERTIFICATE

Object	ET3DV6 - SN:1528
Calibration procedure(s)	QA CAL-01.v8, QA CAL-12.v7, QA CAL-23.v4, QA CAL-25.v4 Calibration procedure for dosimetric E-field probes
Calibration date:	July 26, 2012

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	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 660	20-Jun-12 (No. DAE4-660_Jun12)	Jun-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: July 26, 2012

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

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 affect 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.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *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 ET3DV6

SN:1528

Manufactured: March 21, 2000
Calibrated: July 26, 2012

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

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1528

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.45	1.86	1.61	± 10.1 %
DCP (mV)[B]	95.5	97.5	100.3	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
0	CW	0.00	X	0.00	0.00	1.00	166.6	±1.9 %
			Y	0.00	0.00	1.00	160.4	
			Z	0.00	0.00	1.00	170.5	

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

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1528

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	43.5	0.87	7.01	7.01	7.01	0.23	2.32	± 13.4 %
750	41.9	0.89	6.37	6.37	6.37	0.49	2.16	± 12.0 %
835	41.5	0.90	6.06	6.06	6.06	0.61	1.95	± 12.0 %
900	41.5	0.97	5.95	5.95	5.95	0.30	3.00	± 12.0 %
1450	40.5	1.20	5.22	5.22	5.22	0.49	2.80	± 12.0 %
1750	40.1	1.37	5.12	5.12	5.12	0.80	2.07	± 12.0 %
1900	40.0	1.40	4.92	4.92	4.92	0.80	2.10	± 12.0 %
2150	39.7	1.53	4.65	4.65	4.65	0.80	2.00	± 12.0 %
2450	39.2	1.80	4.31	4.31	4.31	0.80	1.74	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1528

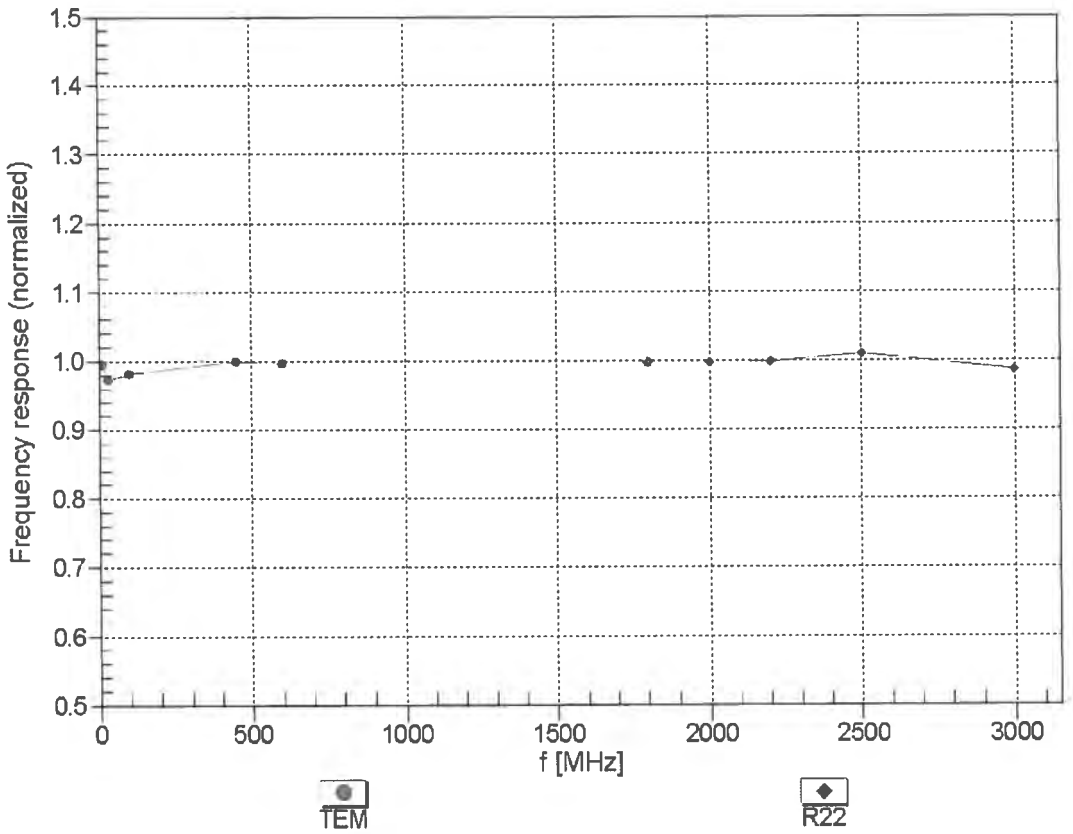
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	56.7	0.94	7.47	7.47	7.47	0.16	2.32	± 13.4 %
750	55.5	0.96	6.17	6.17	6.17	0.33	2.75	± 12.0 %
835	55.2	0.97	5.99	5.99	5.99	0.33	3.00	± 12.0 %
900	55.0	1.05	5.92	5.92	5.92	0.55	2.18	± 12.0 %
1450	54.0	1.30	5.11	5.11	5.11	0.76	2.07	± 12.0 %
1750	53.4	1.49	4.64	4.64	4.64	0.80	2.45	± 12.0 %
1900	53.3	1.52	4.42	4.42	4.42	0.80	2.33	± 12.0 %
2150	53.1	1.66	4.37	4.37	4.37	0.80	1.93	± 12.0 %
2450	52.7	1.95	3.99	3.99	3.99	0.56	0.98	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

Frequency Response of E-Field

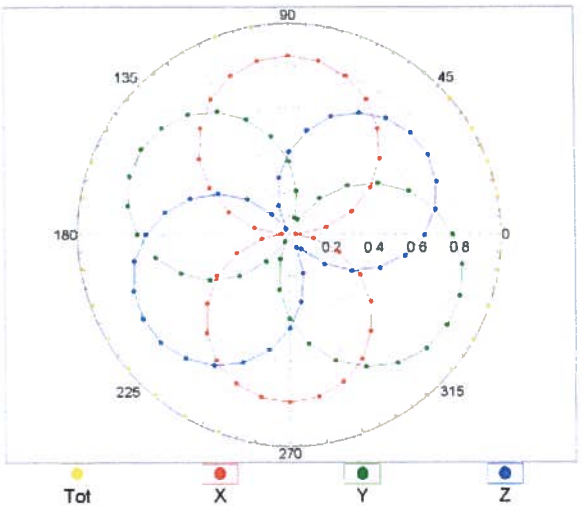
(TEM-Cell:ifi110 EXX, Waveguide: R22)



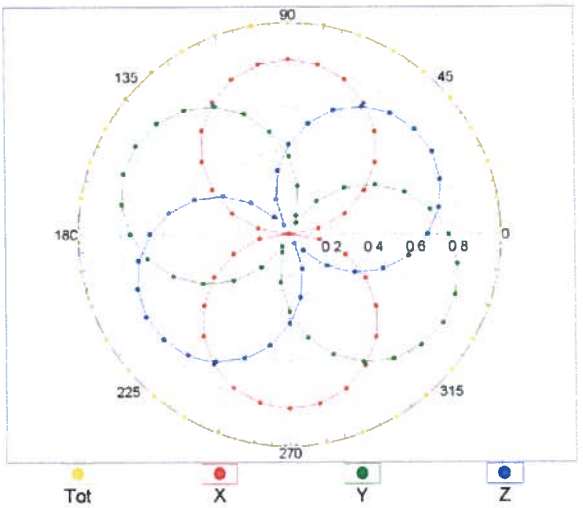
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

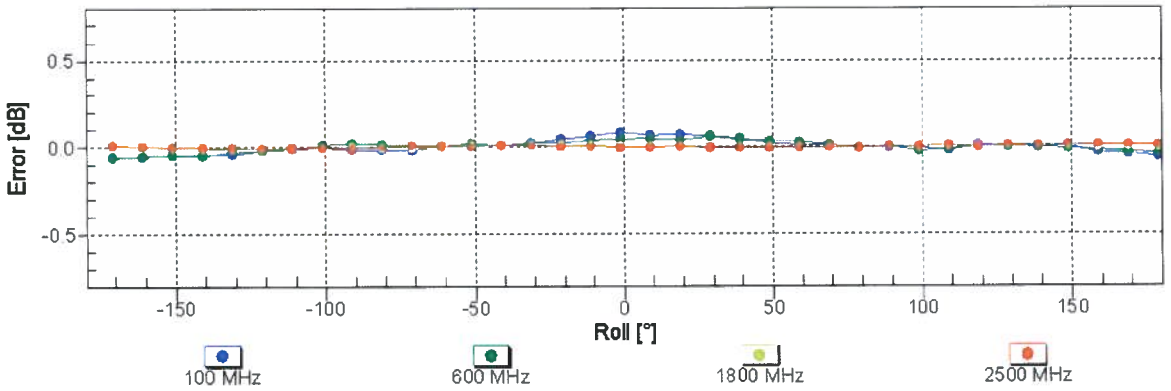
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



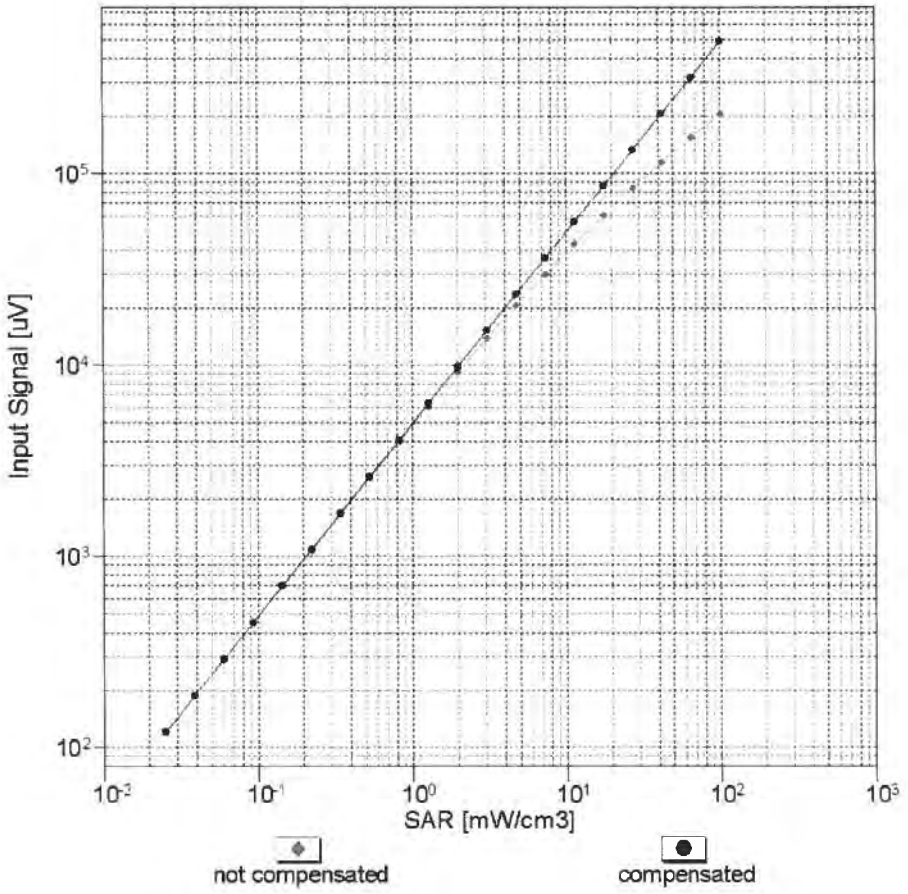
f=1800 MHz,R22

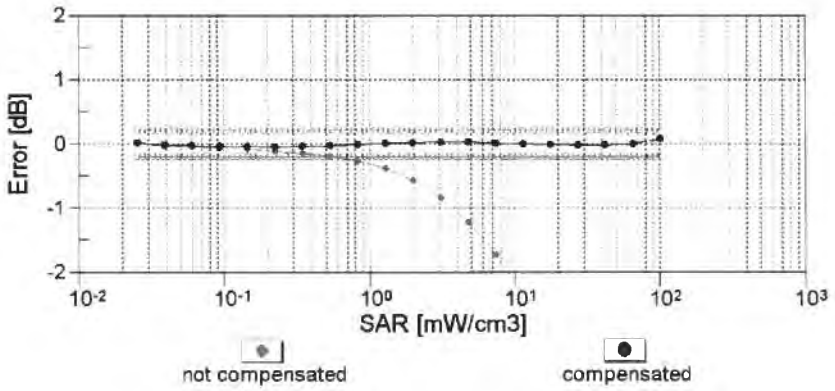




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

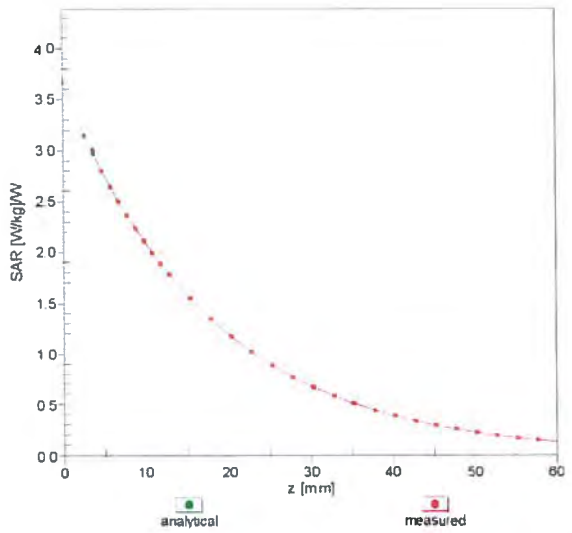




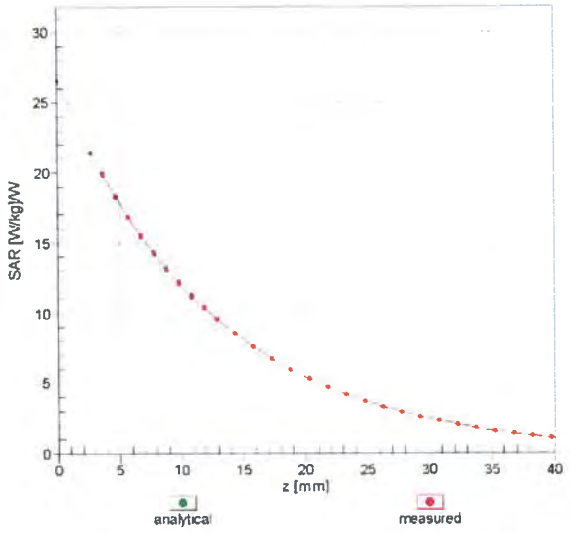
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 900 MHz,WGLS R9 (H_convF)

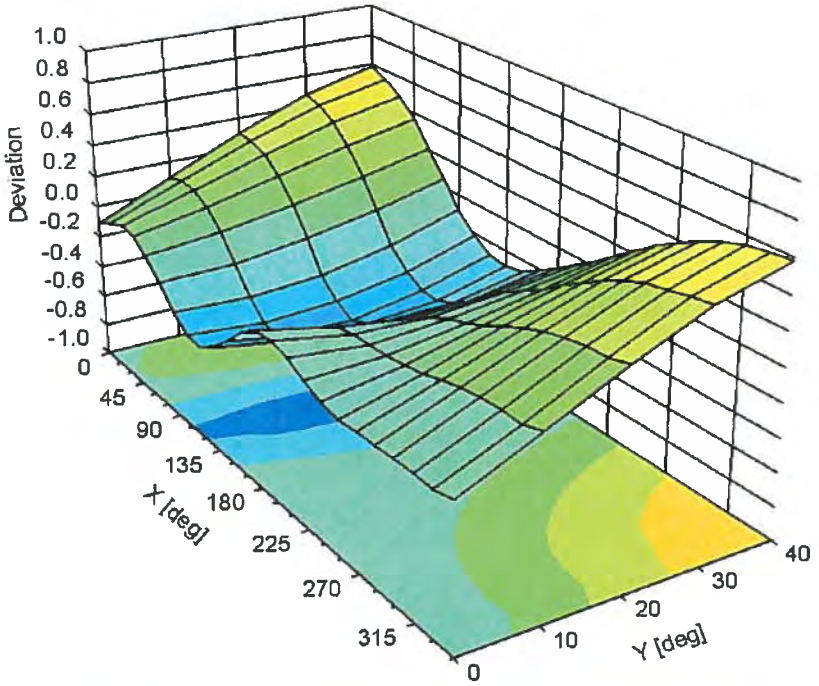


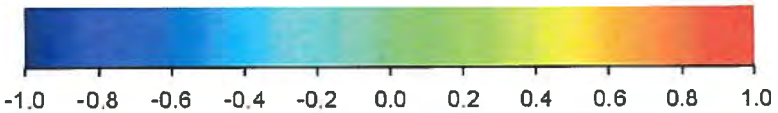
f = 1750 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1528

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	18.9
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	enabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	4 mm

ASSET: A1235 Checked by KD 21/02/2011

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
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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 RFI

Certificate No: D900V2-124_Feb11

CALIBRATION CERTIFICATE

Object	D900V2 - SN: 124
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits
Calibration date:	February 09, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

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

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	D. Iliev
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 9, 2011

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

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

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
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

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

DASY Version	DASY5	V52.6
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	900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.2 °C	41.5	0.97 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.3 ± 6 %	0.95 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	2.72 mW / g
SAR normalized	normalized to 1W	10.9 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**11.0 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.74 mW / g
SAR normalized	normalized to 1W	6.96 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**7.01 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	55.0	1.05 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.6 ± 6 %	1.05 mho/m ± 6 %
Body TSL temperature during test	(21.8 ± 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	2.79 mW / g
SAR normalized	normalized to 1W	11.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**11.1 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.79 mW / g
SAR normalized	normalized to 1W	7.16 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**7.14 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.9 Ω - 8.2 jΩ
Return Loss	- 21.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.1 Ω - 8.6 jΩ
Return Loss	- 20.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.409 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 04, 2001

DASY5 Validation Report for Head TSL

Date/Time: 09.02.2011 11:44:15

Test Laboratory: SPEAG, Zurich, Switzerland

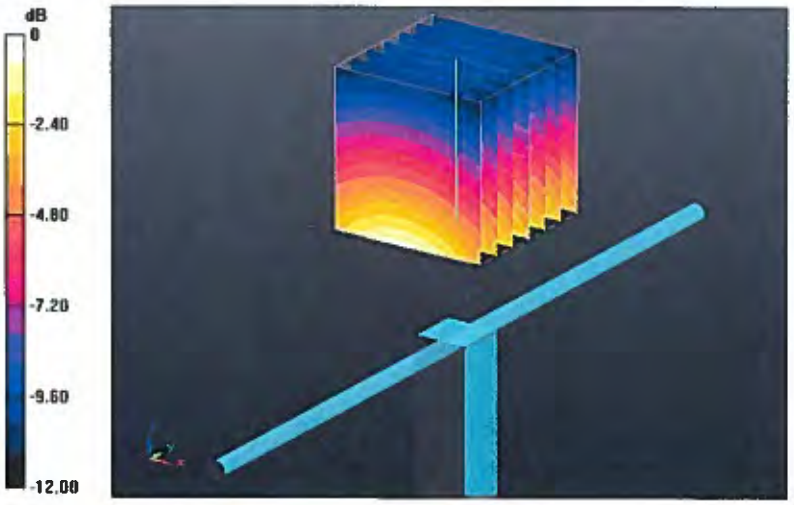
DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:124

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1
Medium: HSL900
Medium parameters used: f = 900 MHz; σ = 0.95 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

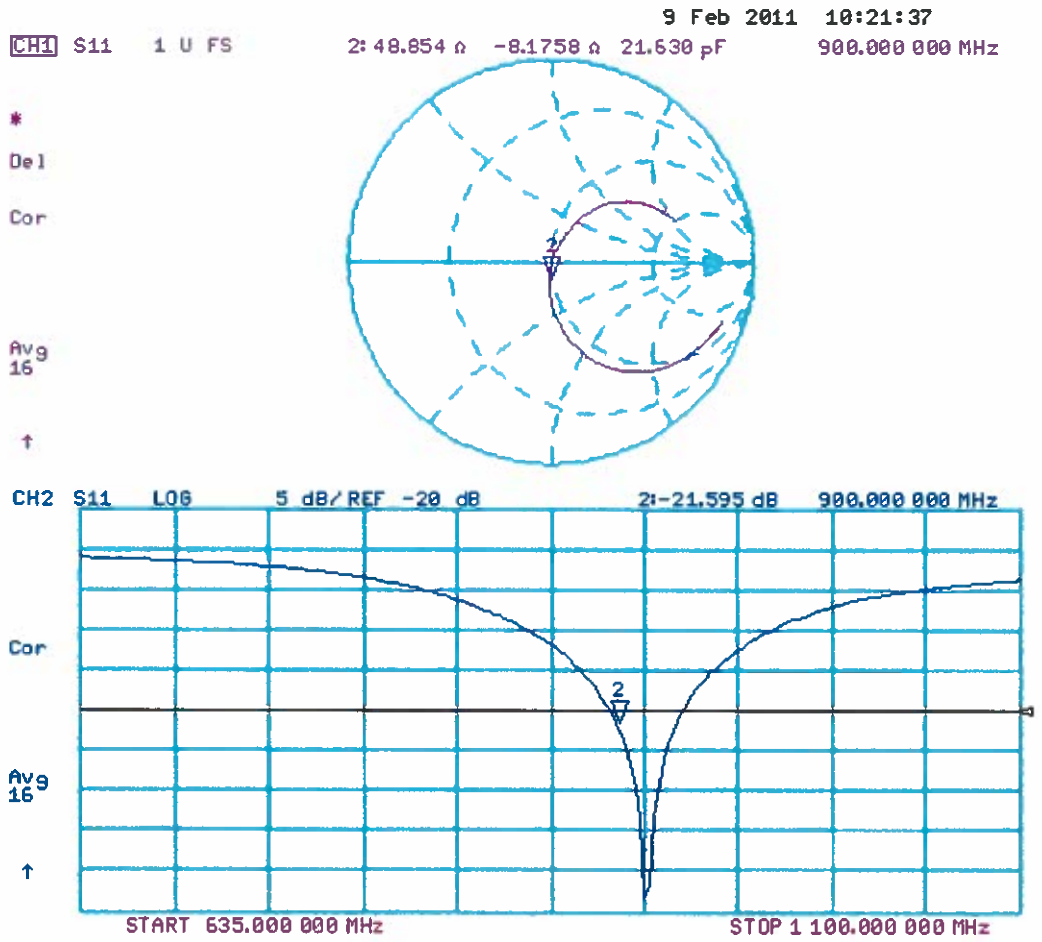
- Probe: ES3DV3 - SN3205; ConvF(5.88, 5.88, 5.88); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.1 Build (408)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2595)

Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 59.560 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 4.135 W/kg
SAR(1 g) = 2.72 mW/g; SAR(10 g) = 1.74 mW/g
Maximum value of SAR (measured) = 3.183 mW/g



0 dB = 3.180mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date/Time: 09.02.2011 14:54:48

Test Laboratory: SPEAG, Zurich, Switzerland

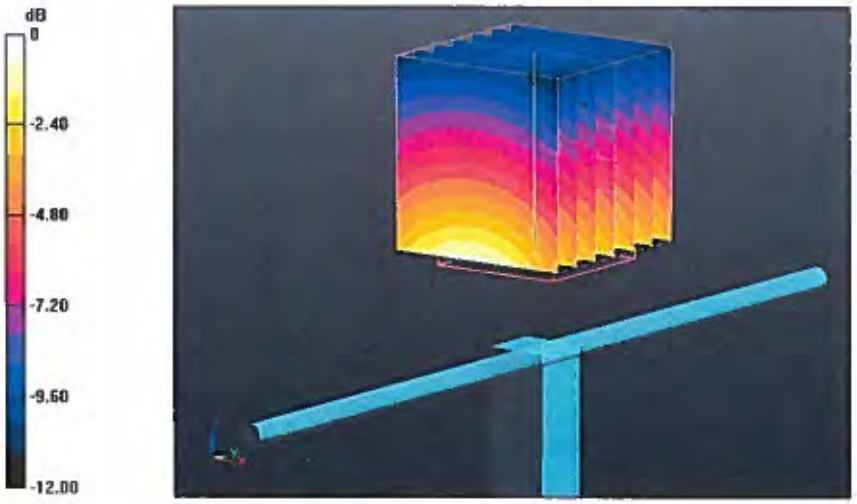
DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:124

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1
Medium: M900
Medium parameters used: f = 900 MHz; σ = 1.05 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:

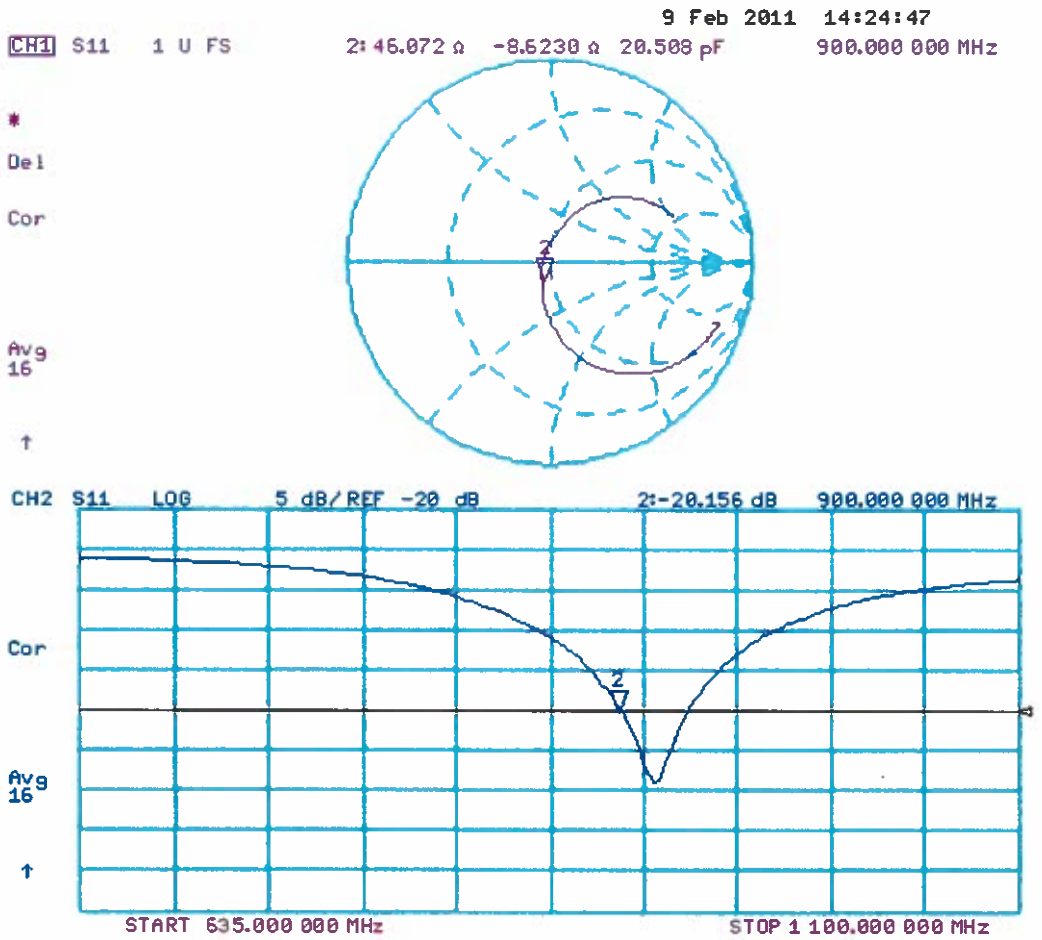
- Probe: ES3DV3 - SN3205; ConvF(5.81, 5.81, 5.81); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.1 Build (408)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2595)

Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.520 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 4.203 W/kg
SAR(1 g) = 2.79 mW/g; SAR(10 g) = 1.79 mW/g
Maximum value of SAR (measured) = 3.271 mW/g



0 dB = 3.270mW/g

Impedance Measurement Plot for Body TSL



ASSET: A1237 — Checked by KB 21/02/2011

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

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S Swiss Calibration Service

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

Accreditation No.: SCS 108

Client RFI

Certificate No: D1900V2-540_Feb11

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 540
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits
Calibration date:	February 08, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

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

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 8, 2011

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

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

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
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

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

DASY Version	DASY5	V52.6
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 %	1.41 mho/m ± 6 %
Head TSL temperature during test	(21.0 ± 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	10.1 mW / g
SAR normalized	normalized to 1W	40.4 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**40.3 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.25 mW / g
SAR normalized	normalized to 1W	21.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**21.0 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	52.8 ± 6 %	1.55 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	**40.7 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.43 mW / g
SAR normalized	normalized to 1W	21.7 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.6 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.5 Ω + 4.2 jΩ
Return Loss	- 27.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	45.6 Ω + 5.0 jΩ
Return Loss	- 23.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.195 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 26, 2001

DASY5 Validation Report for Head TSL

Date/Time: 07.02.2011 15:18:47

Test Laboratory: SPEAG, Zurich, Switzerland

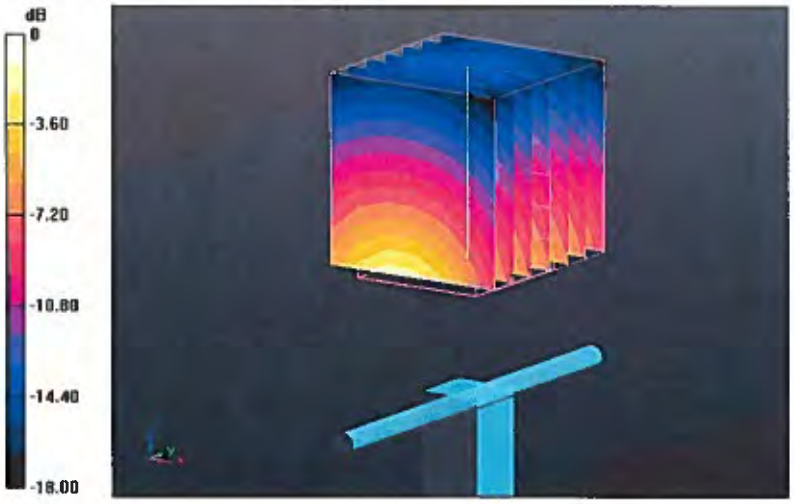
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:540

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL U12 BB
Medium parameters used: f = 1900 MHz; σ = 1.41 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:

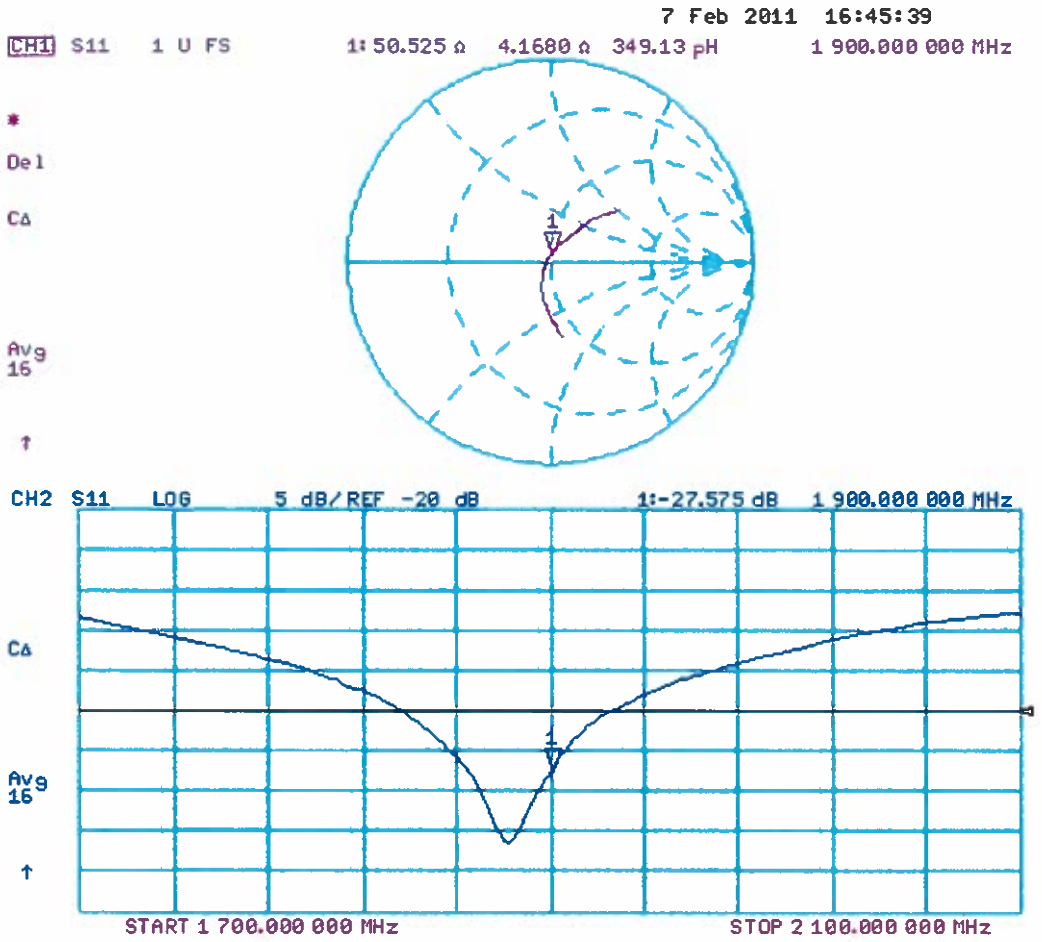
- Probe: ES3DV3 - SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.1 Build (408)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2595)

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 = 96.936 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 18.544 W/kg
SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.25 mW/g
Maximum value of SAR (measured) = 12.384 mW/g



0 dB = 12.380mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date/Time: 08.02.2011 12:04:35

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:540

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: MSL U12 BB
Medium parameters used: f = 1900 MHz; σ = 1.55 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

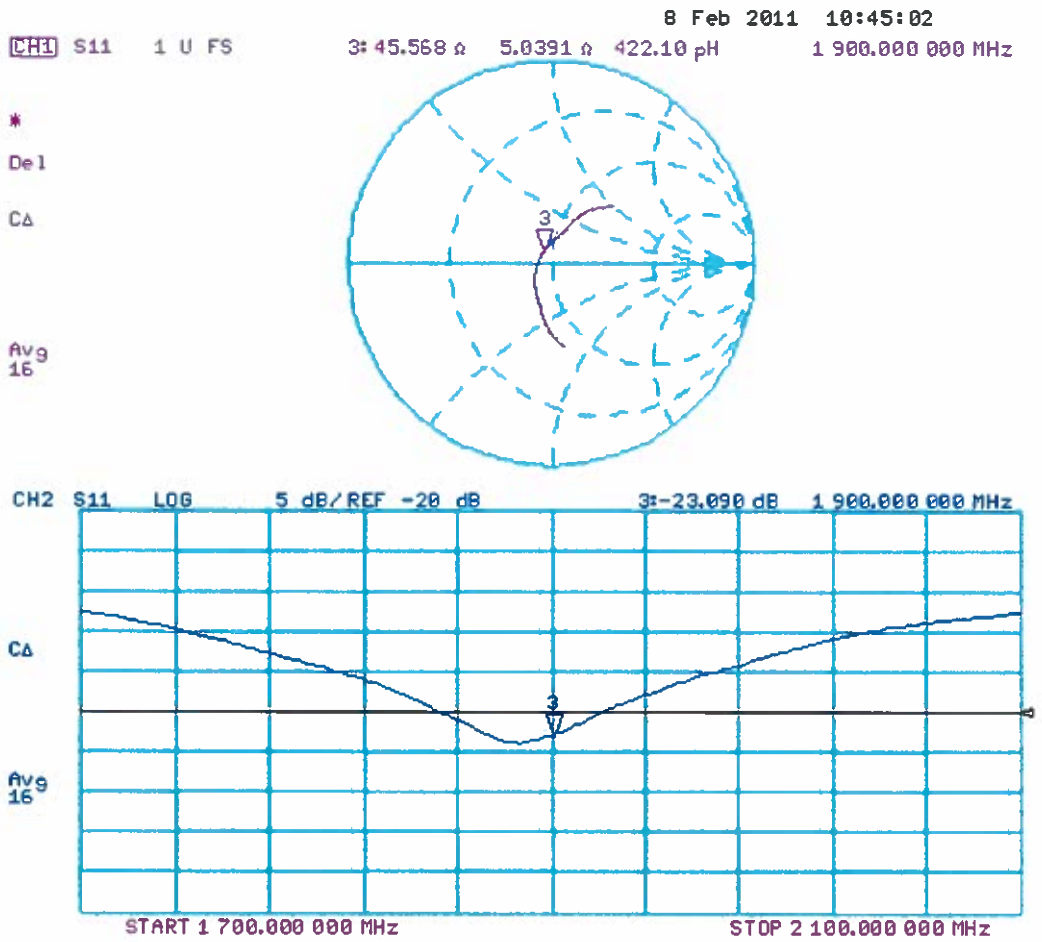
DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.59, 4.59, 4.59); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.1 Build (408)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2595)

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 = 96.899 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 17.597 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.43 mW/g
Maximum value of SAR (measured) = 13.038 mW/g

0 dB = 13.040mW/g

Impedance Measurement Plot for Body TSL



Asset: A1322 - Checked by AB
21/02/2011

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
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S Swiss Calibration Service

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Accreditation No.: SCS 108

Client RFI

Certificate No: D2450V2-725_Feb11

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 725
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits
Calibration date:	February 08, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

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

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	D. Iliev
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 8, 2011

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

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

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
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

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

DASY Version	DASY5	V52.6
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	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.1 ± 6 %	1.73 mho/m ± 6 %
Head TSL temperature during test	(21.0 ± 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	13.0 mW / g
SAR normalized	normalized to 1W	52.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**52.9 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.13 mW / g
SAR normalized	normalized to 1W	24.5 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**24.7 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	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.2 ± 6 %	1.94 mho/m ± 6 %
Body TSL temperature during test	(21.0 ± 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	13.0 mW / g
SAR normalized	normalized to 1W	52.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**51.9 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.04 mW / g
SAR normalized	normalized to 1W	24.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**24.1 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	45.6 Ω + 7.9 jΩ
Return Loss	- 20.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.5 Ω + 9.7 jΩ
Return Loss	- 20.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.152 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	October 16, 2002

DASY5 Validation Report for Head TSL

Date/Time: 07.02.2011 14:34:55

Test Laboratory: SPEAG, Zurich, Switzerland

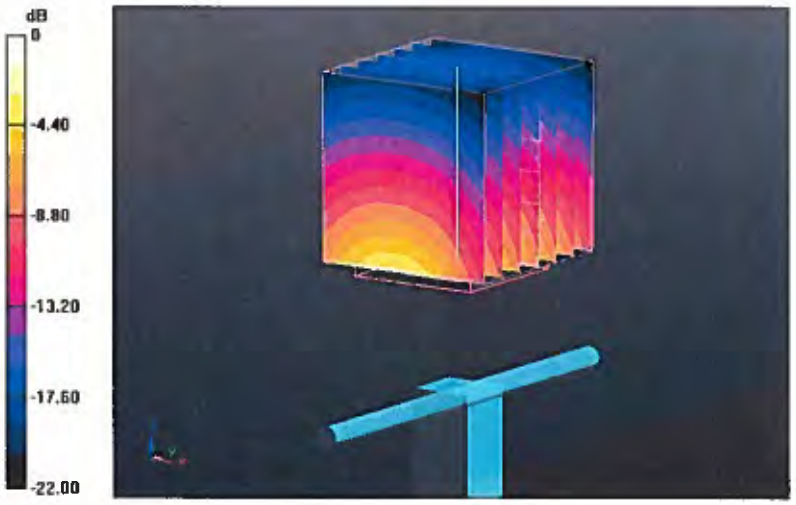
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:725

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL U12 BB
Medium parameters used: f = 2450 MHz; σ = 1.74 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

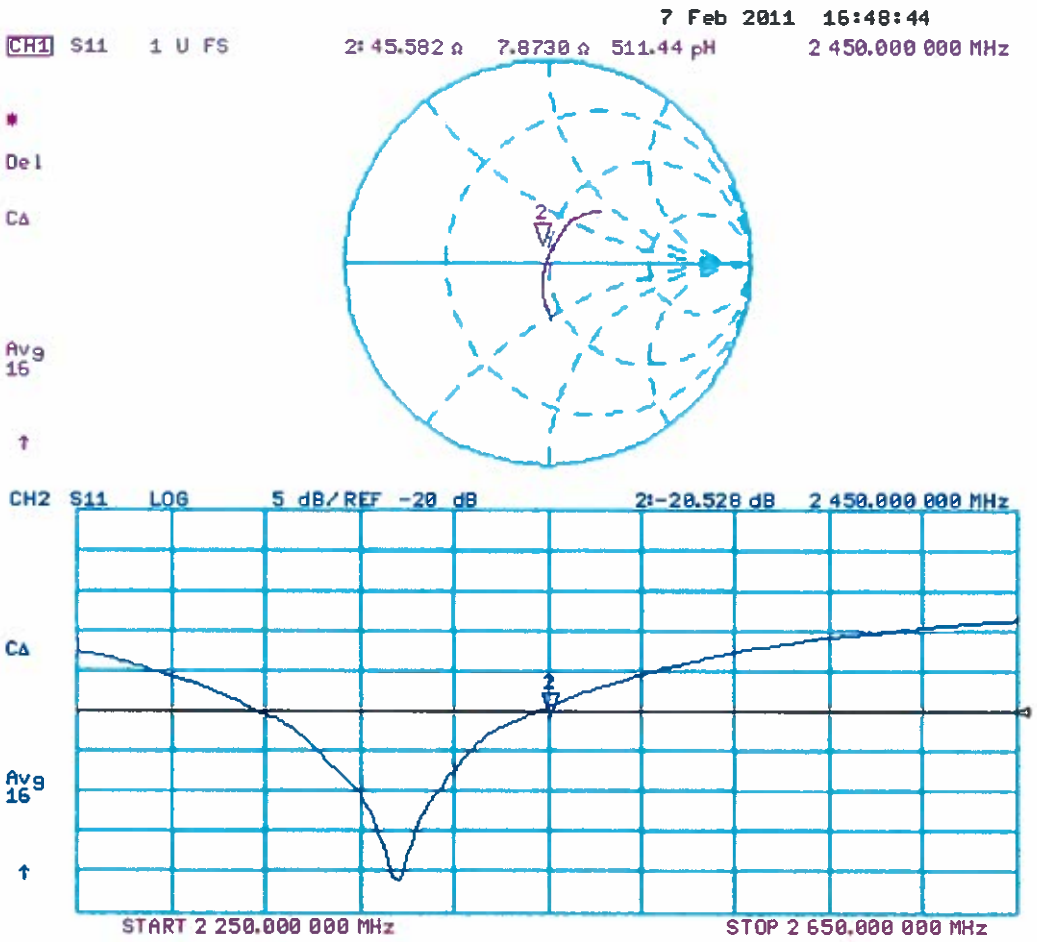
- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.1 Build (408)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2595)

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 = 101.3 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 26.701 W/kg
SAR(1 g) = 13 mW/g; SAR(10 g) = 6.13 mW/g
Maximum value of SAR (measured) = 16.608 mW/g



0 dB = 16.610mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date/Time: 08.02.2011 12:48:13

Test Laboratory: SPEAG, Zurich, Switzerland

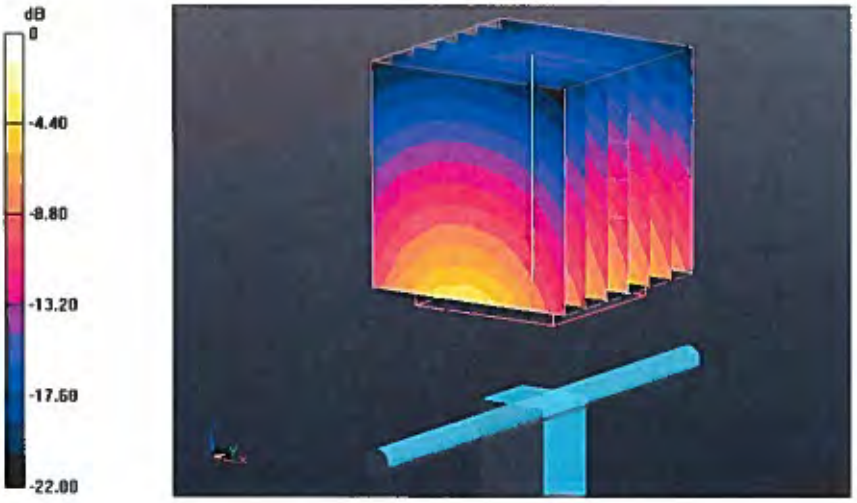
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:725

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: MSL U12 BB
Medium parameters used: f = 2450 MHz; σ = 1.95 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

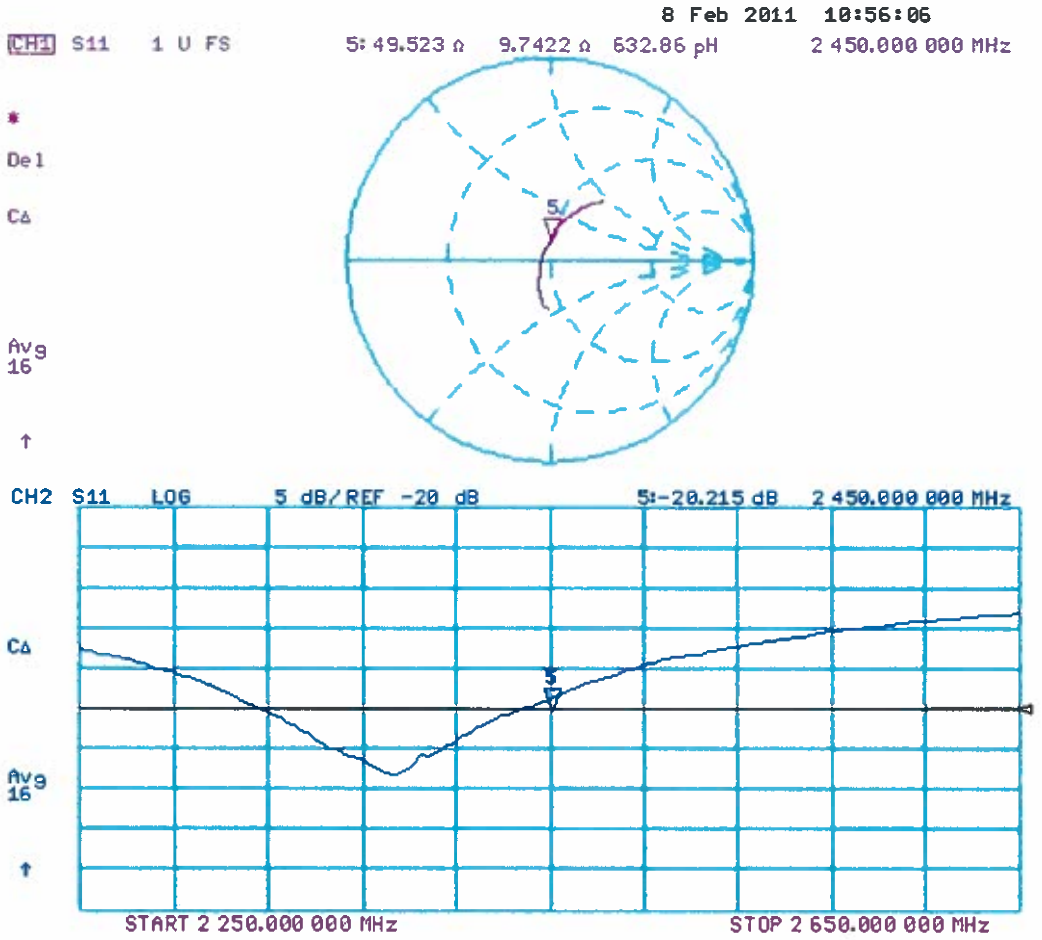
- Probe: ES3DV3 - SN3205; ConvF(4.31, 4.31, 4.31); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.1 Build (408)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2595)

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 = 96.406 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 27.401 W/kg
SAR(1 g) = 13 mW/g; SAR(10 g) = 6.04 mW/g
Maximum value of SAR (measured) = 17.121 mW/g



0 dB = 17.120mW/g

Impedance Measurement Plot for Body TSL



Appendix 2. Measurement Methods

A.2.1. Evaluation Procedure

The Specific Absorption Rate (SAR) evaluation was performed in the following manner:

a) (i) The evaluation was performed in an applicable area of the phantom depending on the type of device being tested. For devices worn about the ear during normal operation, both the left and right ear positions were evaluated at the centre frequency of the band at maximum power. The side, which produced the greatest SAR, determined which side of the phantom would be used for the entire evaluation. The positioning of the head worn device relative to the phantom was dictated by the test specification identified in section 3.1 of this report.

   (ii) For body worn devices or devices which can be operated within 20 cm of the body, the flat section of the SAM phantom was used were the size of the device(s) is normal. for bigger devices and base station the 2mm Oval phantom is used for evaluation. The type of device being evaluated dictated the distance of the EUT to the outer surface of the phantom flat section.

b) The SAR was determined by a pre-defined procedure within the DASY4 software. The exposed region of the phantom was scanned near the inner surface with a grid spacing of 20mm x 20mm or appropriate resolution.

c) A 5x5x7 matrix for measurement < 4.5 GHz and 7x7x9 for > 4.5 GHz was performed around the greatest spatial SAR distribution found during the area scan of the applicable exposed region. SAR values were then calculated using a 3-D spline interpolation algorithm and averaged over spatial volumes of 1 and 10 grams.

d) If the EUT had any appreciable drift over the course of the evaluation, then the EUT was re-evaluated. Any unusual anomalies over the course of the test also warranted a re-evaluation.

A.2.2. Specific Absorption Rate (SAR) Measurements to OET Bulletin 65 Supplement C: (2001-01)

Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields

SAR measurements were performed in accordance with Appendix D of the standard FCC OET Bulletin 65 Supplement C: 2001, IEEE 1528 and FCC KDB procedures, against appropriate limits for each measurement position in accordance with the standard. In some cases the FCC was contacted using a PBA or KDB process to ensure test is performed correctly.

The test was performed in a shielded enclosure with the temperature controlled to remain between +18.0ºC and +25.0ºC. The tissue equivalent material fluid temperature was controlled to give a maximum variation of ± 2.0ºC

Prior to any SAR measurements on the EUT, system Check and material dielectric property measurements were conducted. In the absence of a detailed procedure within the specification, system Check and material dielectric property measurements were performed in accordance with Appendix C and Appendix D of FCC OET Bulletin 65 Supplement C: 2001 and FCC KDB publication 450824.

Following the successful system Check and material dielectric property measurements, a SAR versus time sweep shall be performed within 10 mm of the phantom inner surface. If the EUT power output is stable after three minutes then the measurement probe will perform a coarse surface level scan at each test position in order to ascertain the location of the maximum local SAR level. Once this area had been established, a 5x5x7 cube of 175 points below 4.5 GHz and above 4.5GHz 7x7x9 cube of 441 points (5 mm spacing in each axis ≈ 27g) will be centred at the area of concern. Extrapolation and interpolation will then be carried out on the 27g of tissue and the highest averaged SAR over a 1g cube determined.

Once the maximum interpolated SAR measurement is complete; the coarse scan is visually assessed to check for secondary peaks within 50% of the maximum SAR level. If there are any further SAR measurements required, extra 5x5x7 or 7x7x9 cubes shall be centred on each of these extra local SAR maxima.

At the end of each position test case a second time sweep shall be performed to check whether the EUT has remained stable throughout the test.

Appendix 3. SAR Distribution Scans

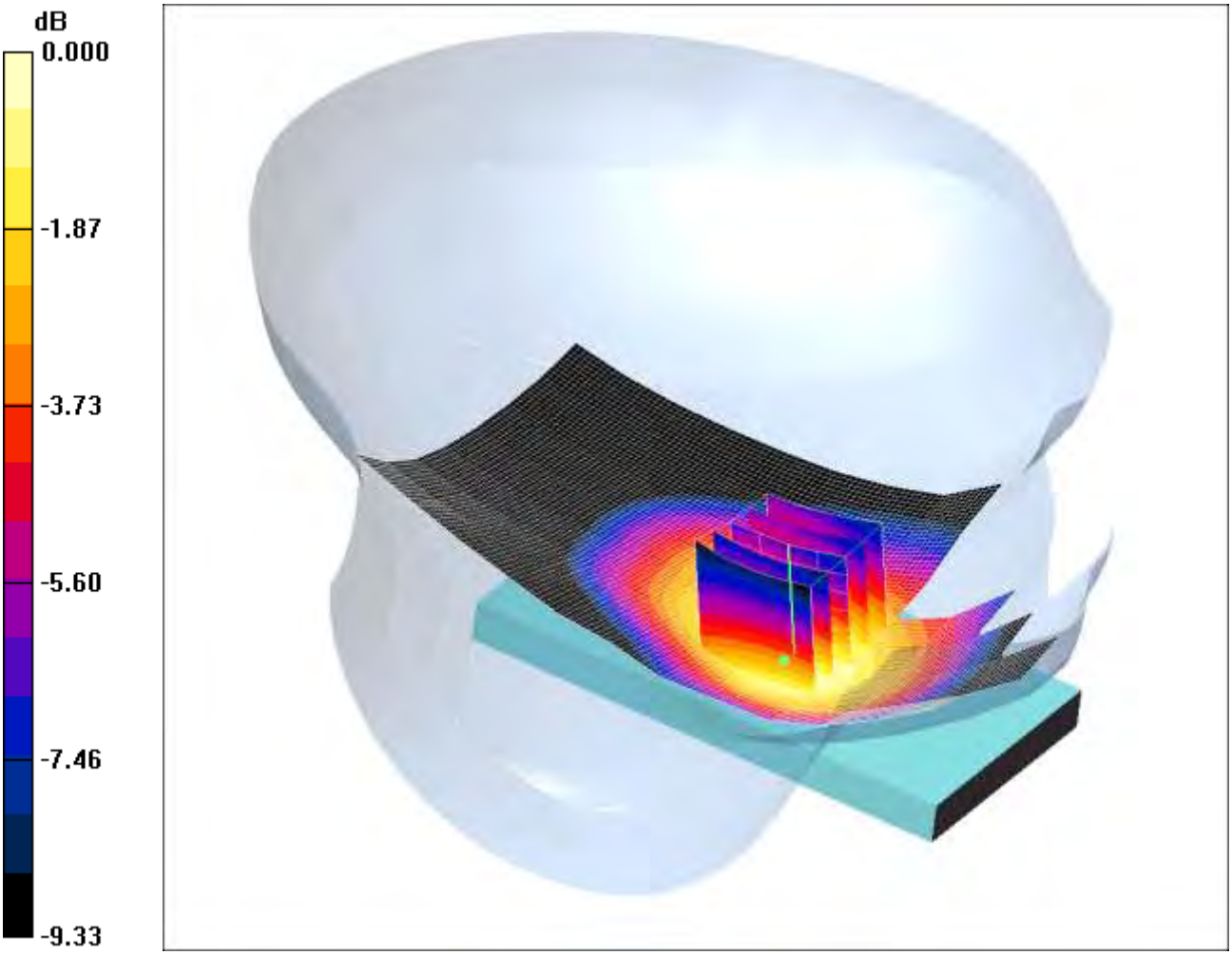
This appendix contains SAR distribution scans which are not included in the total number of pages for this report.

Scan Reference Number	Title
SCN/87208JD02/001	Touch Left GSM CH190
SCN/87208JD02/002	Tilt Left GSM CH190
SCN/87208JD02/003	Touch Right GSM CH190
SCN/87208JD02/004	Tilt Right GSM CH190
SCN/87208JD02/005	Touch Right GSM CH128
SCN/87208JD02/006	Touch Right GSM CH251
SCN/87208JD02/007	Front of EUT Facing Phantom GPRS CH190
SCN/87208JD02/008	Front of EUT Facing Phantom GPRS CH128
SCN/87208JD02/009	Front of EUT Facing Phantom GPRS CH251
SCN/87208JD02/010	Back of EUT Facing Phantom GPRS CH190
SCN/87208JD02/011	Back of EUT Facing Phantom GPRS CH128
SCN/87208JD02/012	Back of EUT Facing Phantom GPRS CH251
SCN/87208JD02/013	Left Hand Side of EUT Facing Phantom GPRS CH190
SCN/87208JD02/014	Left Hand Side of EUT Facing Phantom GPRS CH128
SCN/87208JD02/015	Left Hand Side of EUT Facing Phantom GPRS CH251
SCN/87208JD02/016	Right Hand Side of EUT Facing Phantom GPRS CH190
SCN/87208JD02/017	Bottom of EUT Facing Phantom GPRS CH190
SCN/87208JD02/018	Back of EUT Facing Phantom GSM CH190
SCN/87208JD02/019	Back of EUT Facing Phantom GSM CH128
SCN/87208JD02/020	Back of EUT Facing Phantom GSM CH251
SCN/87208JD02/021	Back of EUT Facing Phantom with PHF GSM CH190
SCN/87208JD02/022	Touch Left PCS1900 CH661
SCN/87208JD02/023	Tilt Left PCS1900 CH661
SCN/87208JD02/024	Touch Right PCS1900 CH661
SCN/87208JD02/025	Tilt Right PCS1900 CH661
SCN/87208JD02/026	Touch Left PCS1900 CH512
SCN/87208JD02/027	Touch Left PCS1900 CH810
SCN/87208JD02/028	Front of EUT Facing Phantom GPRS CH661
SCN/87208JD02/029	Back of EUT Facing Phantom GPRS CH661
SCN/87208JD02/030	Left Hand Side of EUT Facing Phantom GPRS CH661
SCN/87208JD02/031	Right Hand Side of EUT Facing Phantom GPRS CH661
SCN/87208JD02/032	Bottom of EUT Facing Phantom GPRS CH661
SCN/87208JD02/033	Front of EUT Facing Phantom GPRS CH512

SAR Distribution Scans (Continued):	
Scan Reference Number	**Title**
SCN/87208JD02/034	Front of EUT Facing Phantom GPRS CH810
SCN/87208JD02/035	Front of EUT Facing Phantom PCS CH661
SCN/87208JD02/036	Front of EUT Facing Phantom PCS CH512
SCN/87208JD02/037	Front of EUT Facing Phantom PCS CH810
SCN/87208JD02/038	Front of EUT Facing Phantom with PHF PCS CH512
SCN/87208JD02/039	Touch Left UMTS FDD 5 CH4183
SCN/87208JD02/040	Tilt Left UMTS FDD 5 CH4183
SCN/87208JD02/041	Touch Right UMTS FDD 5 CH4183
SCN/87208JD02/042	Touch Right UMTS FDD 5 CH4132
SCN/87208JD02/043	Touch Right UMTS FDD 5 CH4233
SCN/87208JD02/044	Tilt Right UMTS FDD 5 CH4183
SCN/87208JD02/045	Front of EUT Facing Phantom UMTS FDD 5 CH4183
SCN/87208JD02/046	Front of EUT Facing Phantom UMTS FDD 5 CH4132
SCN/87208JD02/047	Front of EUT Facing Phantom UMTS FDD 5 CH4233
SCN/87208JD02/048	Back of EUT Facing Phantom UMTS FDD 5 CH4183
SCN/87208JD02/049	Back of EUT Facing Phantom UMTS FDD 5 CH4132
SCN/87208JD02/050	Back of EUT Facing Phantom UMTS FDD 5 CH4233
SCN/87208JD02/051	Left Hand Side of EUT Facing Phantom UMTS FDD 5 CH4183
SCN/87208JD02/052	Left Hand Side of EUT Facing Phantom UMTS FDD 5 CH4132
SCN/87208JD02/053	Left Hand Side of EUT Facing Phantom UMTS FDD 5 CH4233
SCN/87208JD02/054	Right Hand Side of EUT Facing Phantom UMTS FDD 5 CH4183
SCN/87208JD02/055	Right Hand Side of EUT Facing Phantom UMTS FDD 5 CH4132
SCN/87208JD02/056	Right Hand Side of EUT Facing Phantom UMTS FDD 5 CH4233
SCN/87208JD02/057	Bottom of EUT Facing Phantom UMTS FDD 5 CH4183
SCN/87208JD02/058	Back of EUT Facing Phantom at 15mm UMTS FDD 5 CH4183
SCN/87208JD02/059	Back of EUT Facing Phantom at 15mm UMTS FDD 5 CH4132
SCN/87208JD02/060	Back of EUT Facing Phantom at 15mm UMTS FDD 5 CH4233
SCN/87208JD02/061	Back of EUT Facing Phantom with PHF at 15mm UMTS FDD 5 CH4183
SCN/87208JD02/062	Touch Left WLAN802.11b 1Mbps CH6
SCN/87208JD02/063	Tilt Left WLAN802.11b 1Mbps CH6
SCN/87208JD02/064	Touch Right WLAN802.11b 1Mbps CH6
SCN/87208JD02/065	Tilt Right WLAN802.11b 1Mbps CH6
SCN/87208JD02/066	Touch Right WLAN802.11b 1Mbps CH1
SCN/87208JD02/067	Touch Right WLAN802.11b 1Mbps CH11
SCN/87208JD02/068	Front of EUT Facing Phantom WLAN802.11b 1Mbps CH6
SCN/87208JD02/069	Back of EUT Facing Phantom WLAN802.11b 1Mbps CH6

SAR Distribution Scans (Continued):	
Scan Reference Number	**Title**
SCN/87208JD02/070	Left Hand Side of EUT Facing Phantom WLAN802.11b 1Mbps CH6
SCN/87208JD02/071	Right Hand Side of EUT Facing Phantom WLAN802.11b 1Mbps CH6
SCN/87208JD02/072	Top of EUT Facing Phantom WLAN802.11b 1Mbps CH6
SCN/87208JD02/073	Back of EUT Facing Phantom WLAN802.11b 1Mbps CH1
SCN/87208JD02/074	Back of EUT Facing Phantom WLAN802.11b 1Mbps CH11
SCN/87208JD02/075	Back of EUT Facing Phantom at 15mm WLAN802.11b 1Mbps CH6
SCN/87208JD02/076	Back of EUT Facing Phantom at 15mm WLAN802.11b 1Mbps CH1
SCN/87208JD02/077	Back of EUT Facing Phantom at 15mm WLAN802.11b 1Mbps CH11
SCN/87208JD02/078	Back of EUT Facing Phantom with PHF at 15mm WLAN802.11b 1Mbps CH11
SCN/87208JD02/079	System Performance Check 900MHz Head 31 07 12
SCN/87208JD02/080	System Performance Check 900MHz Head 10 08 12
SCN/87208JD02/081	System Performance Check 900MHz Body 02 08 12
SCN/87208JD02/082	System Performance Check 900MHz Body 03 08 12
SCN/87208JD02/083	System Performance Check 900MHz Body 17 08 12
SCN/87208JD02/084	System Performance Check 900MHz Body 20 08 12
SCN/87208JD02/085	System Performance Check 1900MHz Head 14 08 12
SCN/87208JD02/086	System Performance Check 1900MHz Head 13 08 12
SCN/87208JD02/087	System Performance Check 2450MHz Head 05 09 12
SCN/87208JD02/088	System Performance Check 2450MHz Body 05 09 12

SCN/87208JD02/001: Touch Left GSM CH190
Date: 10/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

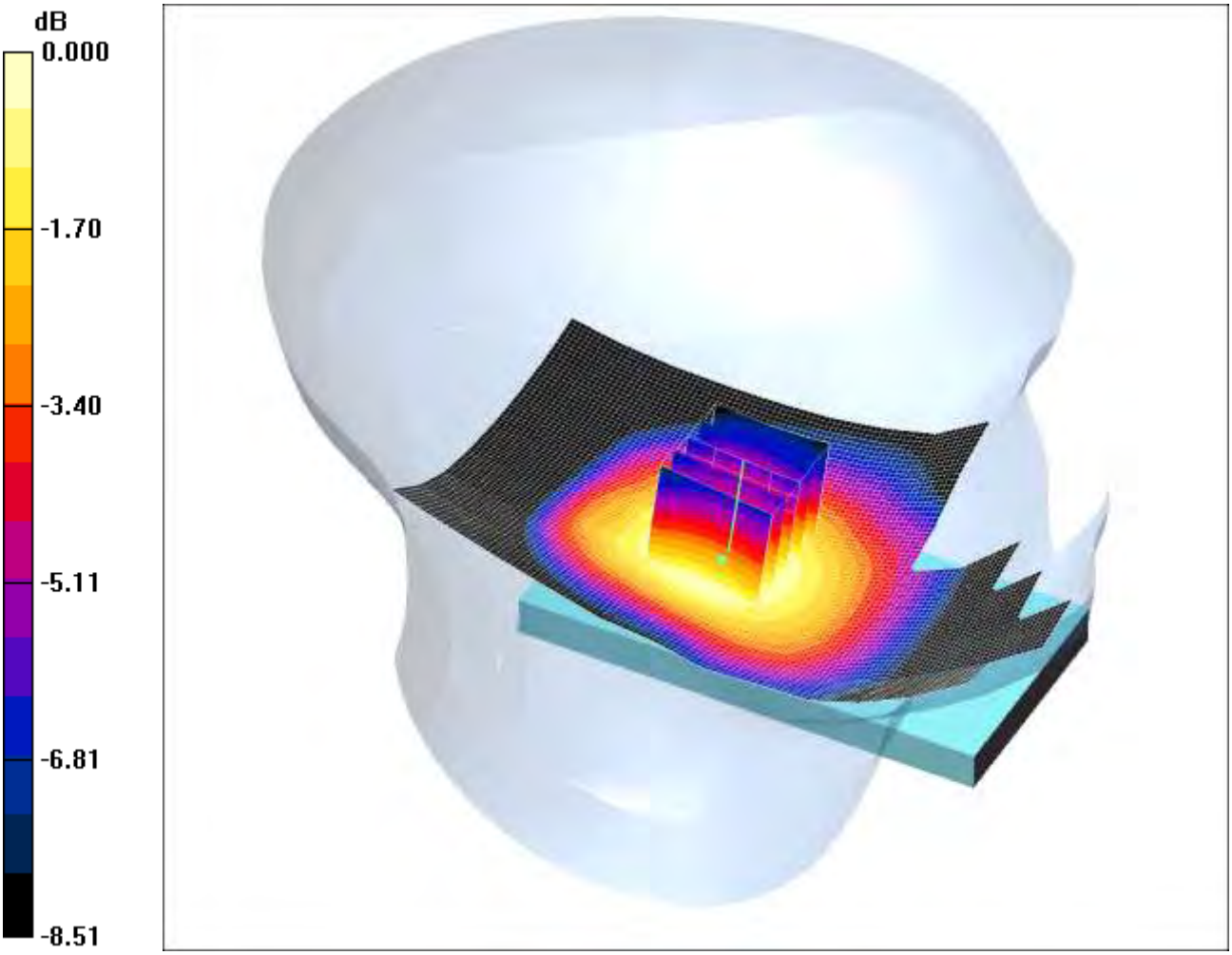


0 dB = 0.719mW/g

Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.904 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Left - Middle 2/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.731 mW/g
Touch Left - Middle 2/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.2 V/m; Power Drift = 0.070 dB
Peak SAR (extrapolated) = 0.883 W/kg
SAR(1 g) = 0.684 mW/g; SAR(10 g) = 0.516 mW/g
Maximum value of SAR (measured) = 0.719 mW/g

SCN/87208JD02/002: Tilt Left GSM CH190
Date: 10/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

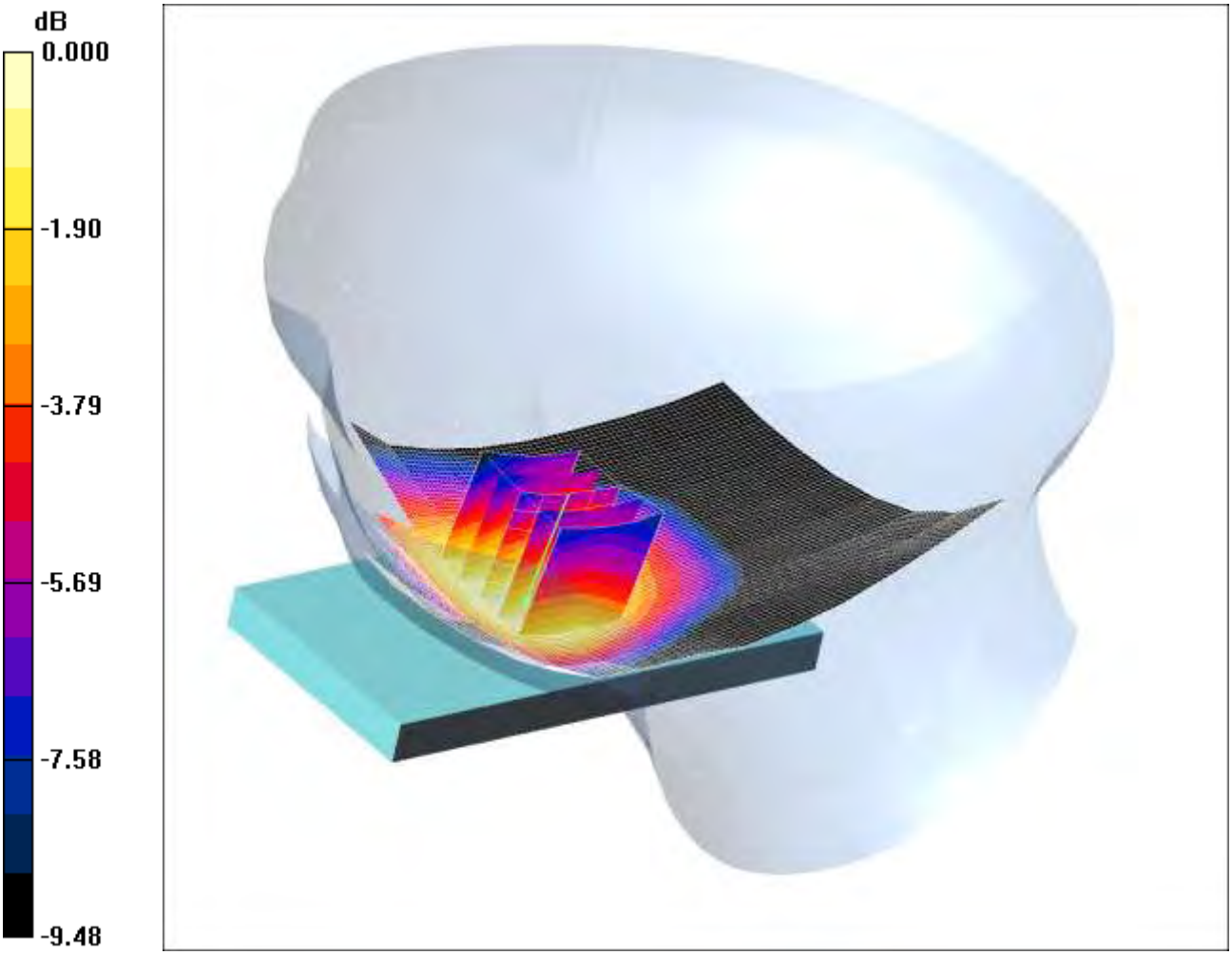


0 dB = 0.423mW/g

Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.904 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.426 mW/g
Tilt Left - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.6 V/m; Power Drift = 0.001 dB
Peak SAR (extrapolated) = 0.502 W/kg
SAR(1 g) = 0.403 mW/g; SAR(10 g) = 0.306 mW/g
Maximum value of SAR (measured) = 0.423 mW/g

SCN/87208JD02/003: Touch Right GSM CH190
Date: 10/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

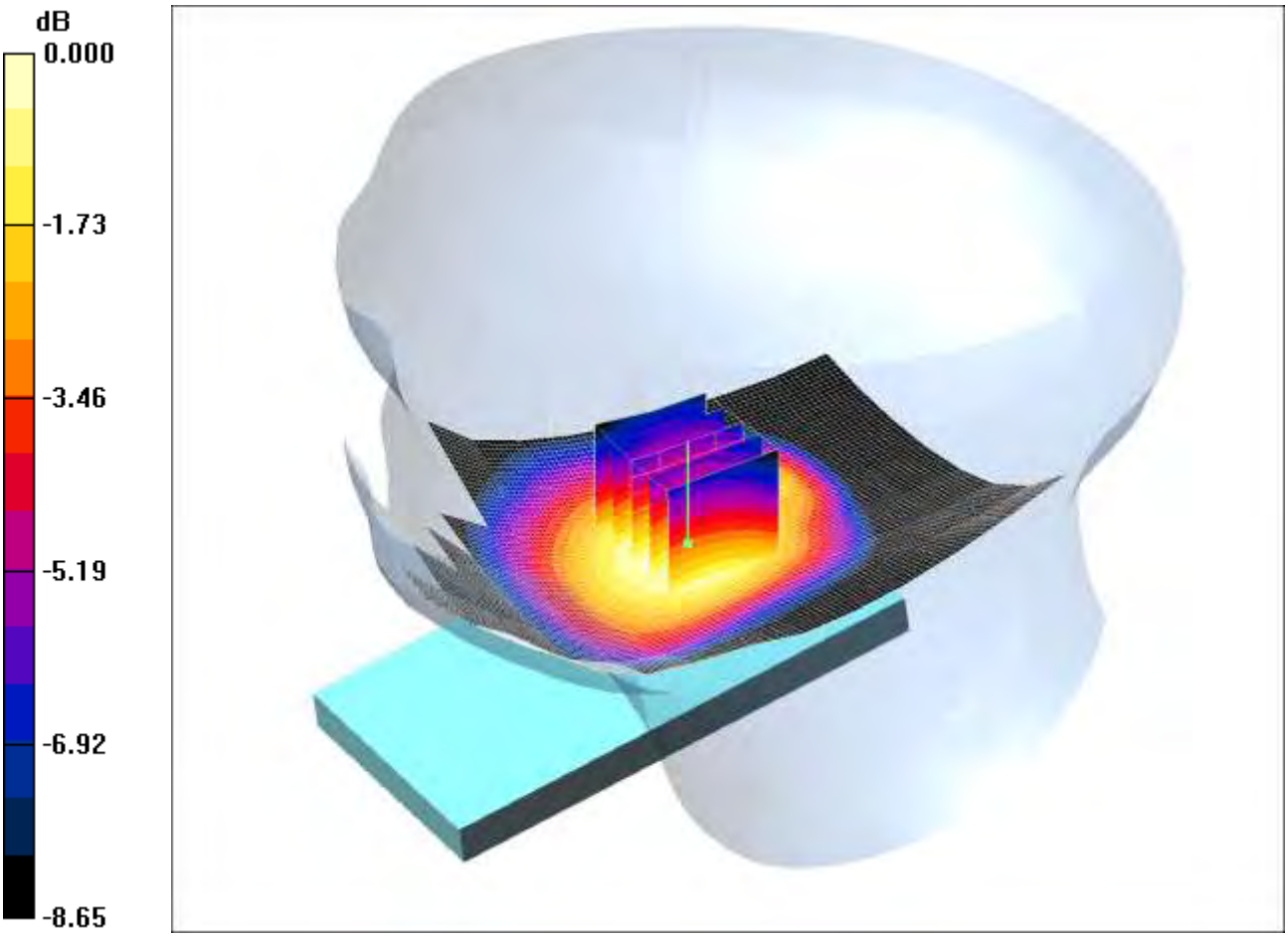


0 dB = 0.794mW/g

Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.904 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Right - Middle 2/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.796 mW/g
Touch Right - Middle 2/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = 0.080 dB
Peak SAR (extrapolated) = 0.941 W/kg
SAR(1 g) = 0.764 mW/g; SAR(10 g) = 0.582 mW/g
Maximum value of SAR (measured) = 0.794 mW/g

SCN/87208JD02/004: Tilt Right GSM CH190
Date: 10/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

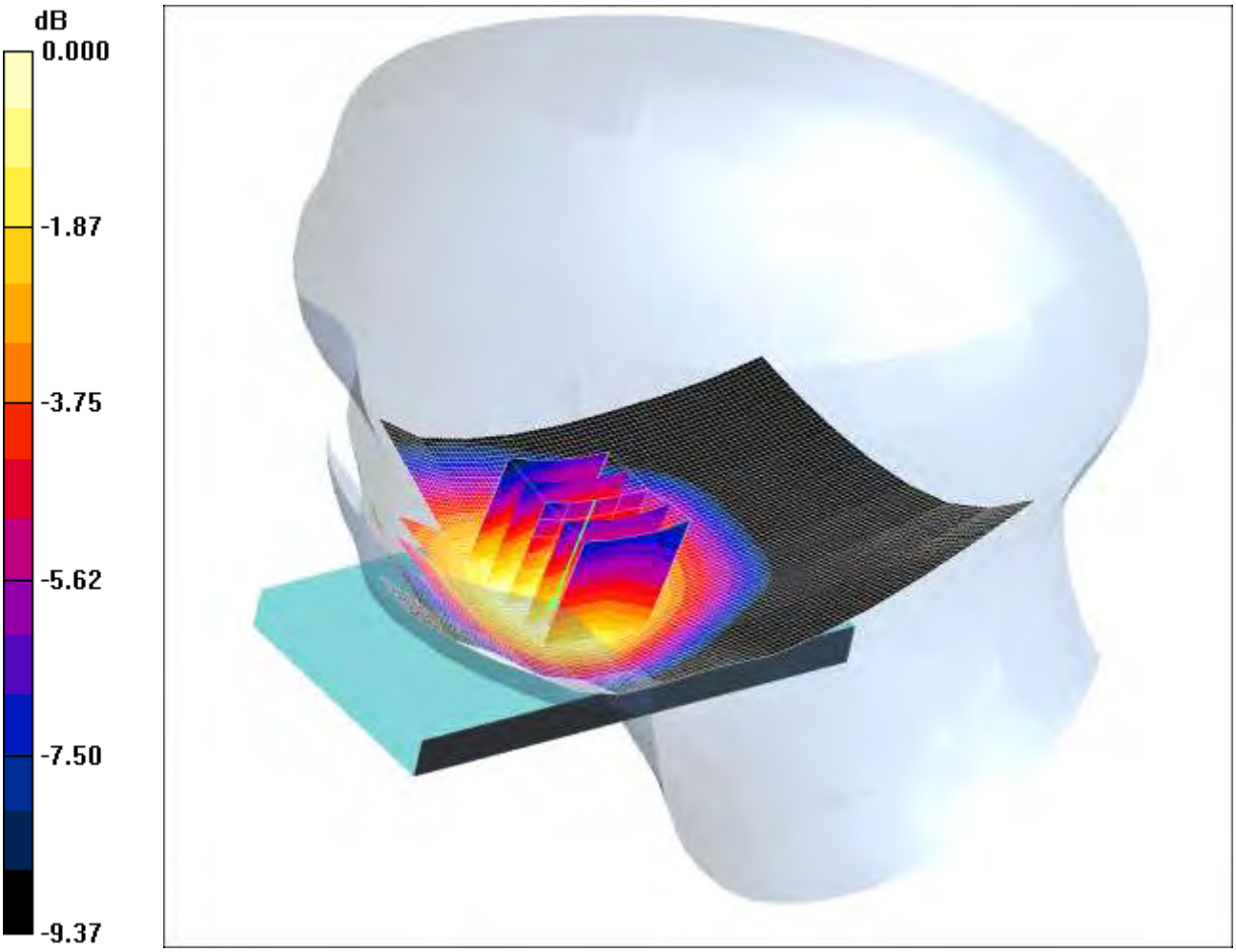


0 dB = 0.516mW/g

Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.904 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt Right - Middle 2/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.512 mW/g
Tilt Right - Middle 2/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.1 V/m; Power Drift = 0.007 dB
Peak SAR (extrapolated) = 0.606 W/kg
SAR(1 g) = 0.489 mW/g; SAR(10 g) = 0.371 mW/g
Maximum value of SAR (measured) = 0.516 mW/g

SCN/87208JD02/005: Touch Right GSM CH128
Date: 10/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

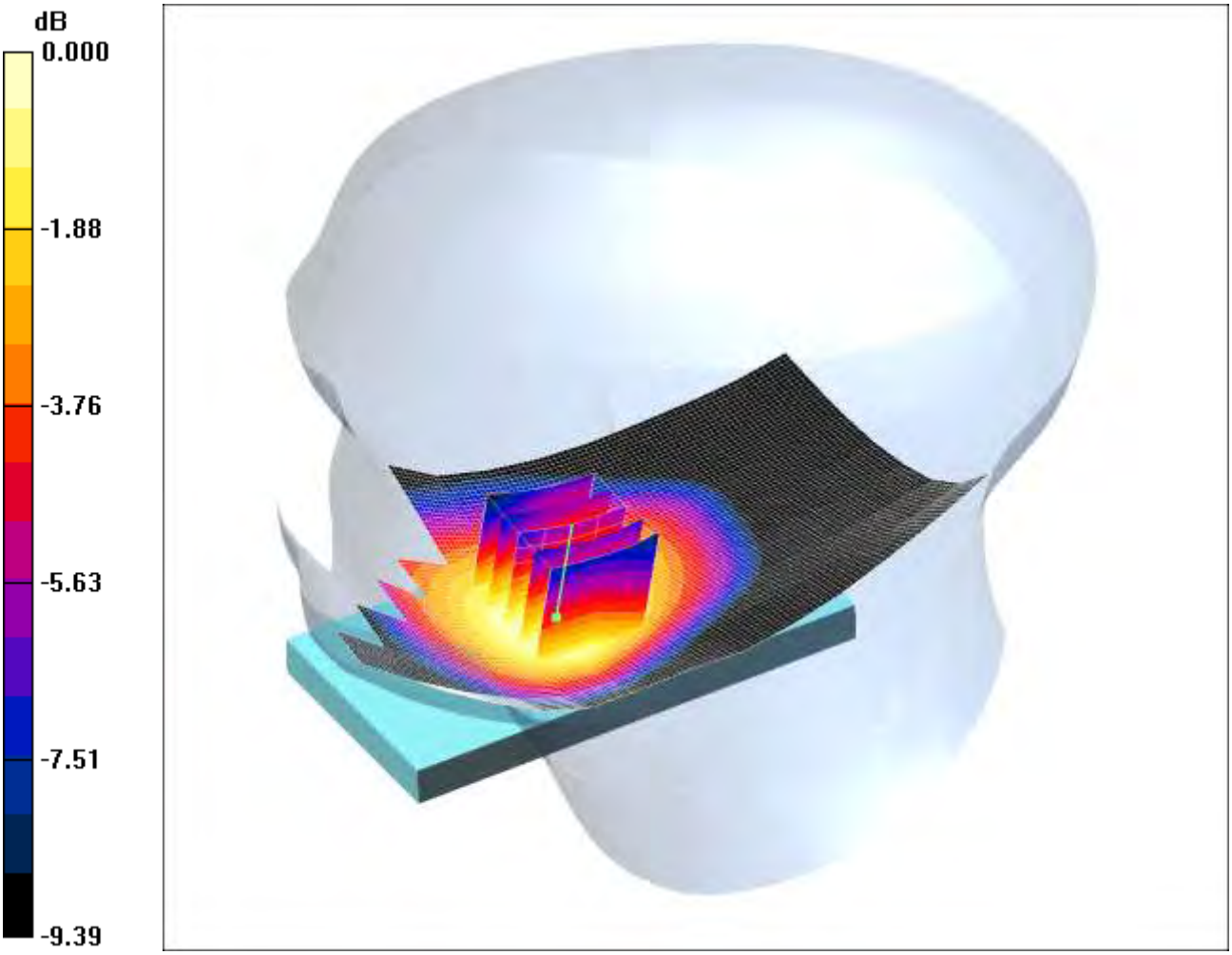


0 dB = 0.748mW/g

Communication System: GSM 850 MHz; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.896 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Right - Low/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.752 mW/g
Touch Right - Low/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.93 V/m; Power Drift = 0.050 dB
Peak SAR (extrapolated) = 0.885 W/kg
SAR(1 g) = 0.718 mW/g; SAR(10 g) = 0.548 mW/g
Maximum value of SAR (measured) = 0.748 mW/g

SCN/87208JD02/006: Touch Right GSM CH251
Date: 10/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

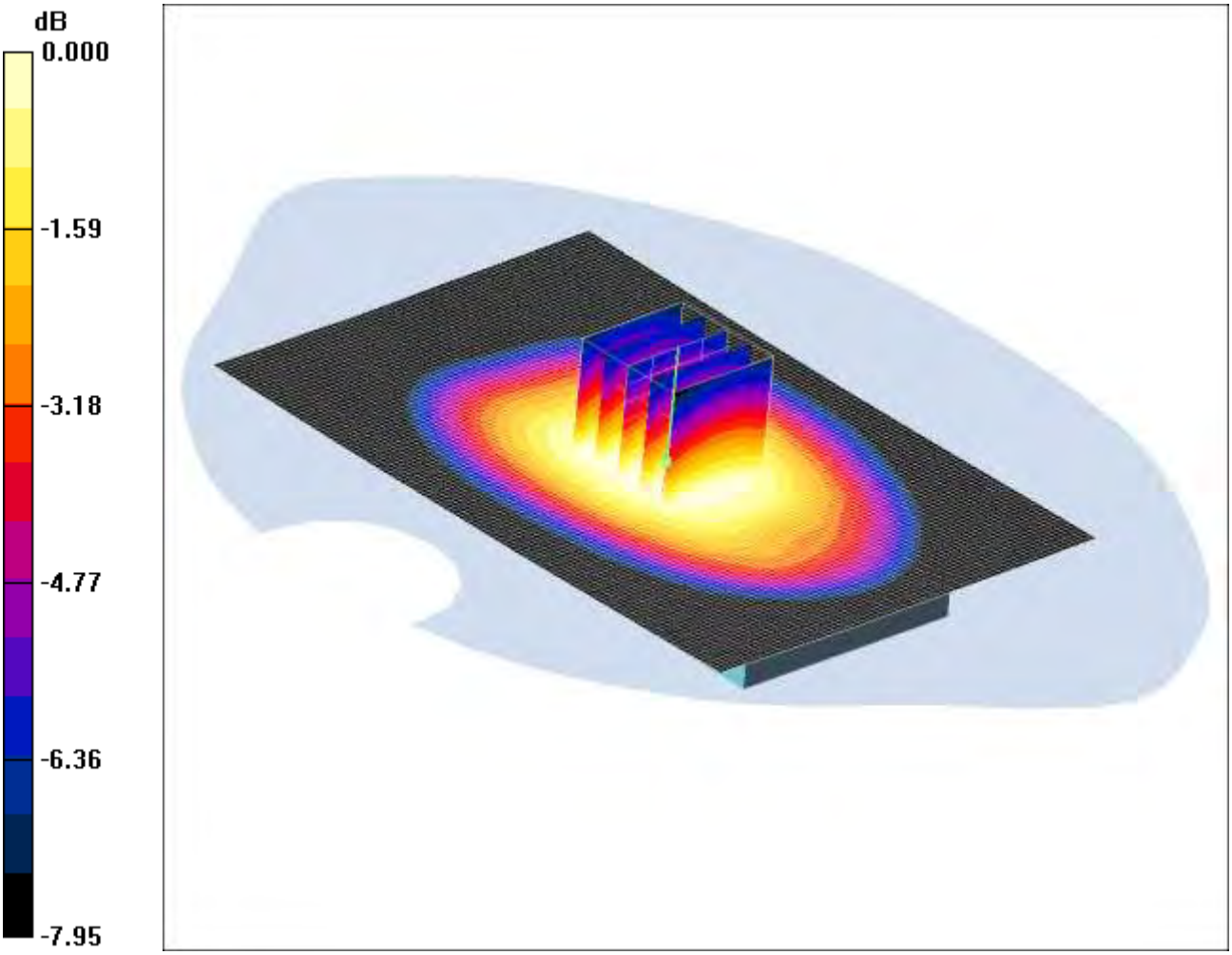


0 dB = 0.797mW/g

Communication System: GSM 850 MHz; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.913 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Right - High/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.800 mW/g
Touch Right - High/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 0.940 W/kg
SAR(1 g) = 0.767 mW/g; SAR(10 g) = 0.586 mW/g
Maximum value of SAR (measured) = 0.797 mW/g

SCN/87208JD02/007: Front of EUT Facing Phantom GPRS CH190
Date: 17/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

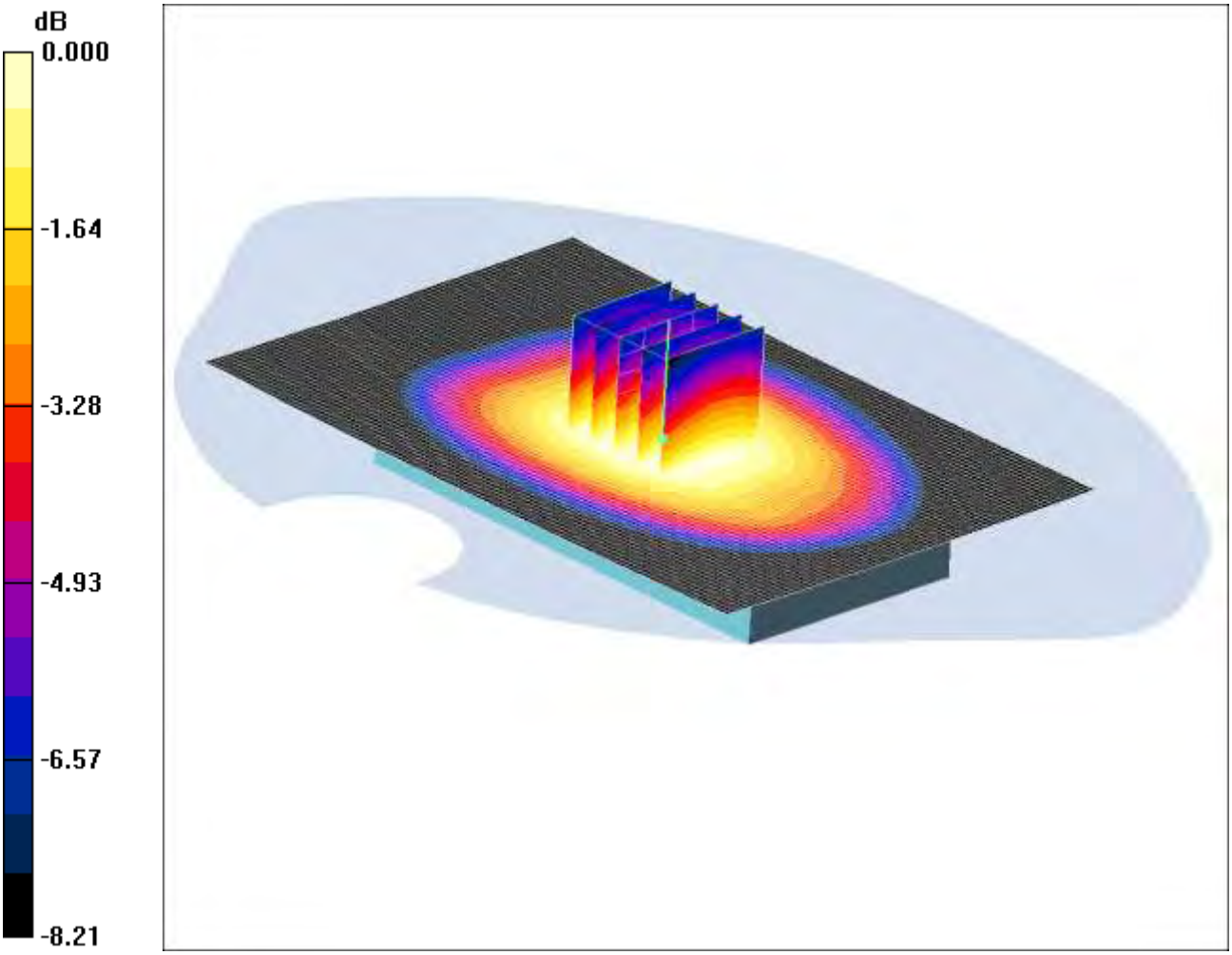


0 dB = 1.07mW/g

Communication System: GPRS 850 MHz 2TX; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.996 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.12 mW/g
Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.6 V/m; Power Drift = -0.050 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.962 mW/g; SAR(10 g) = 0.742 mW/g
Maximum value of SAR (measured) = 1.07 mW/g

SCN/87208JD02/008: Front of EUT Facing Phantom GPRS CH128
Date: 17/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

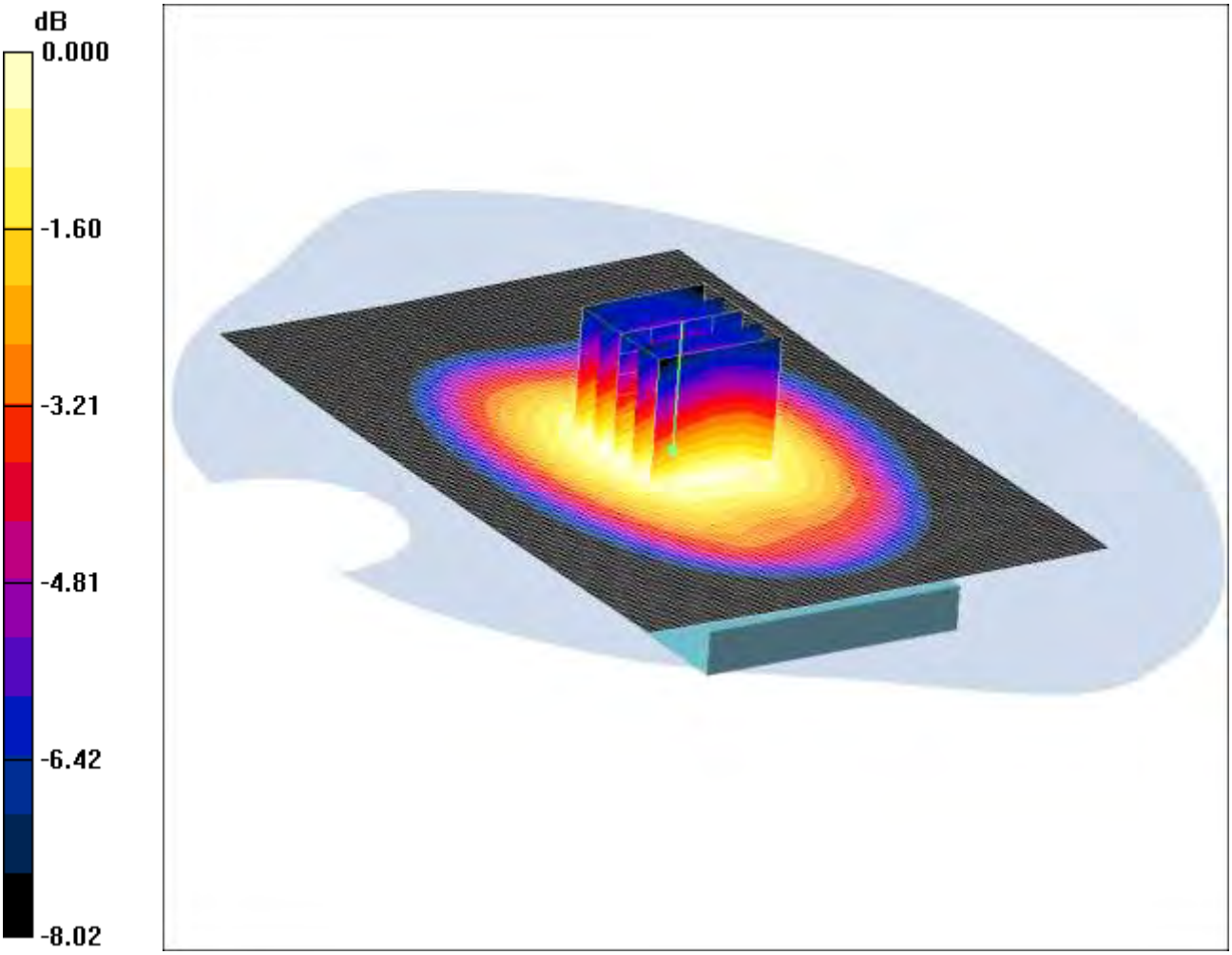


0 dB = 1.01mW/g

Communication System: GPRS 850 MHz 2TX; Frequency: 824.2 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.988 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front of EUT Facing Phantom - Low/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.02 mW/g
Front of EUT Facing Phantom - Low/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.5 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.903 mW/g; SAR(10 g) = 0.693 mW/g
Maximum value of SAR (measured) = 1.01 mW/g

SCN/87208JD02/009: Front of EUT Facing Phantom GPRS CH251
Date: 17/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

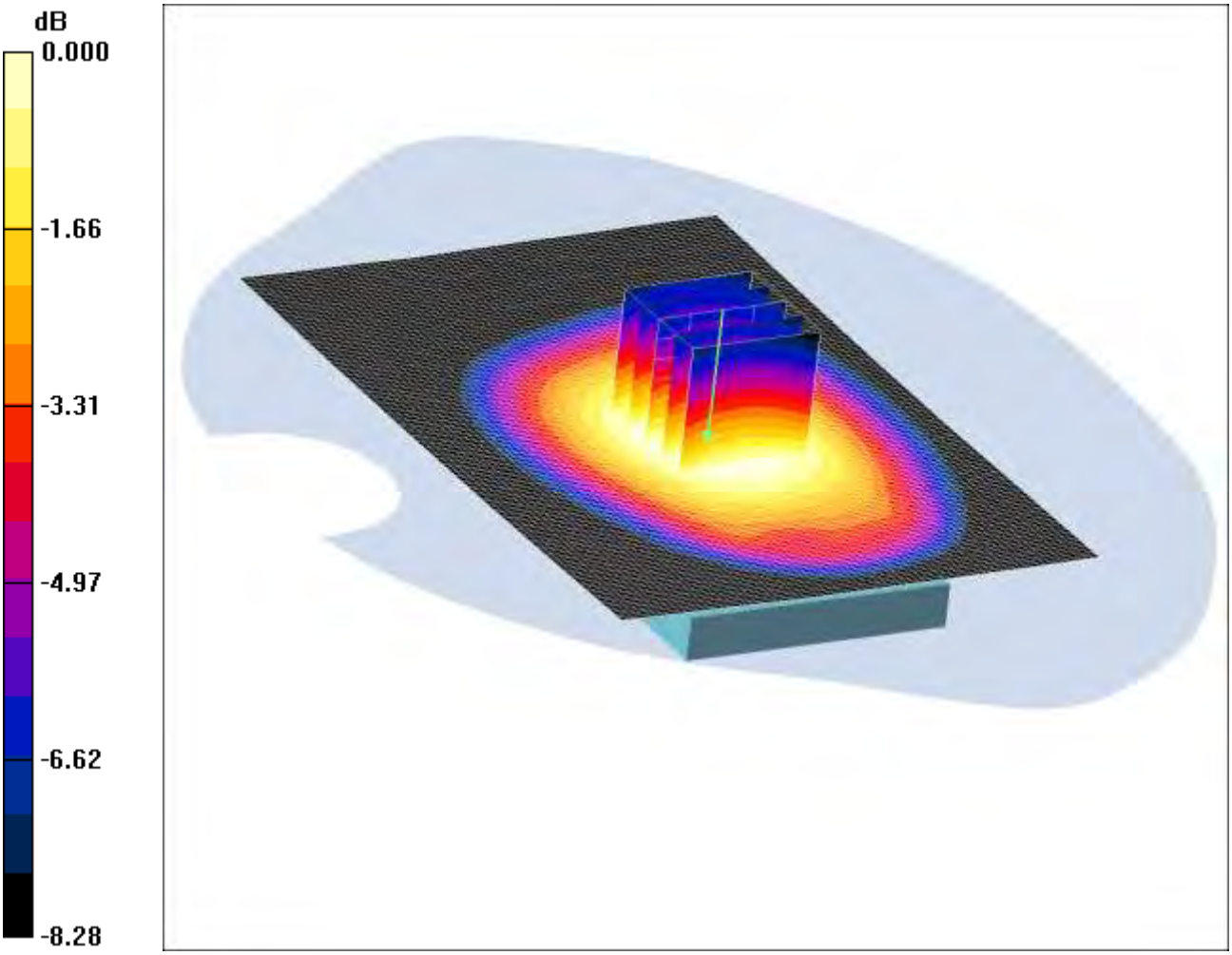


0 dB = 1.12mW/g

Communication System: GPRS 850 MHz 2TX; Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 848.8 MHz; σ = 1 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front of EUT Facing Phantom - High/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.11 mW/g
Front of EUT Facing Phantom - High/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.8 V/m; Power Drift = 0.057 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.992 mW/g; SAR(10 g) = 0.757 mW/g
Maximum value of SAR (measured) = 1.12 mW/g

SCN/87208JD02/010: Back of EUT Facing Phantom GPRS CH190
Date: 17/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

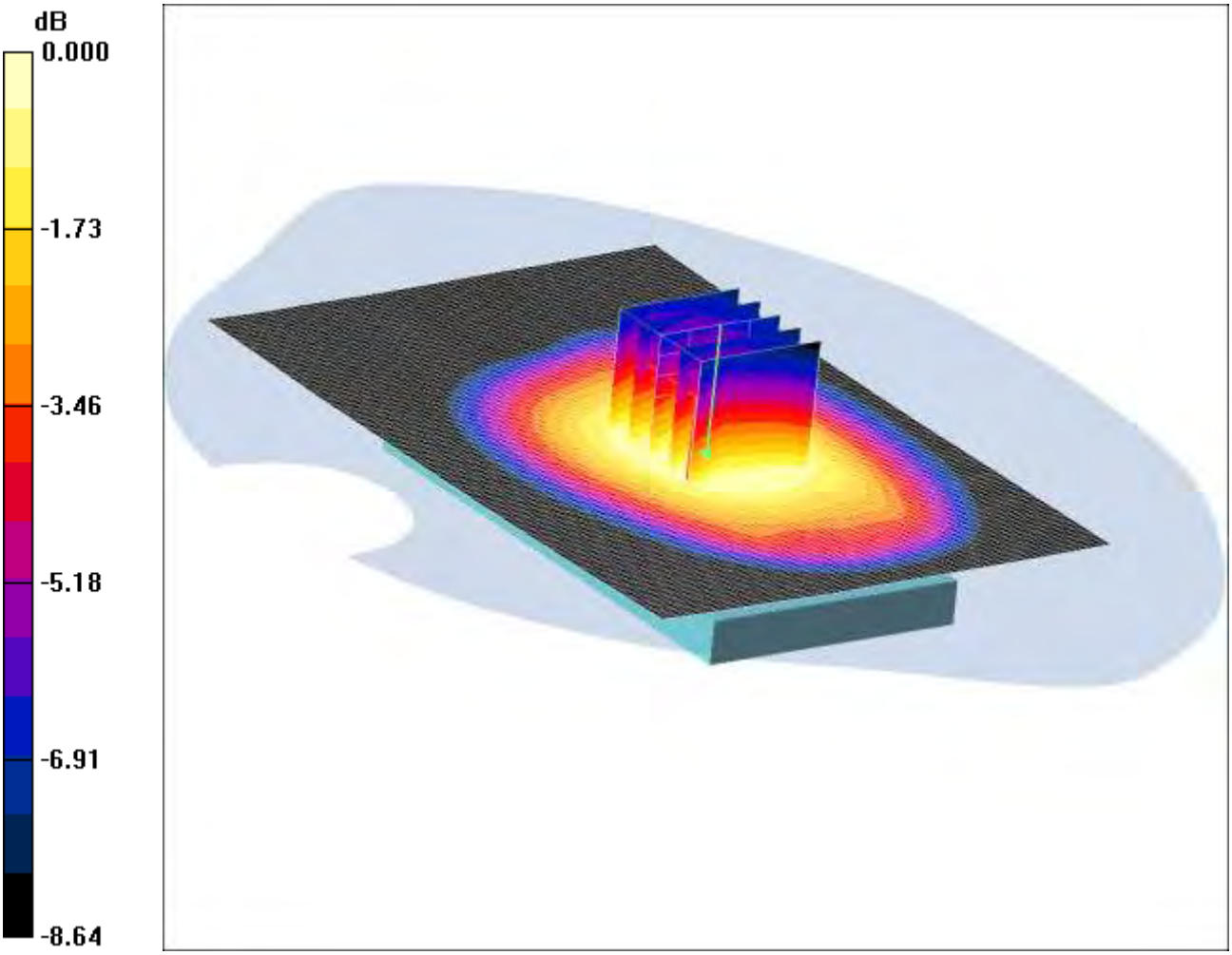


0 dB = 1.11mW/g

Communication System: GPRS 850 MHz 2TX; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.996 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.15 mW/g
Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.3 V/m; Power Drift = 0.142 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.985 mW/g; SAR(10 g) = 0.748 mW/g
Maximum value of SAR (measured) = 1.11 mW/g

SCN/87208JD02/011: Back of EUT Facing Phantom GPRS CH128
Date: 17/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

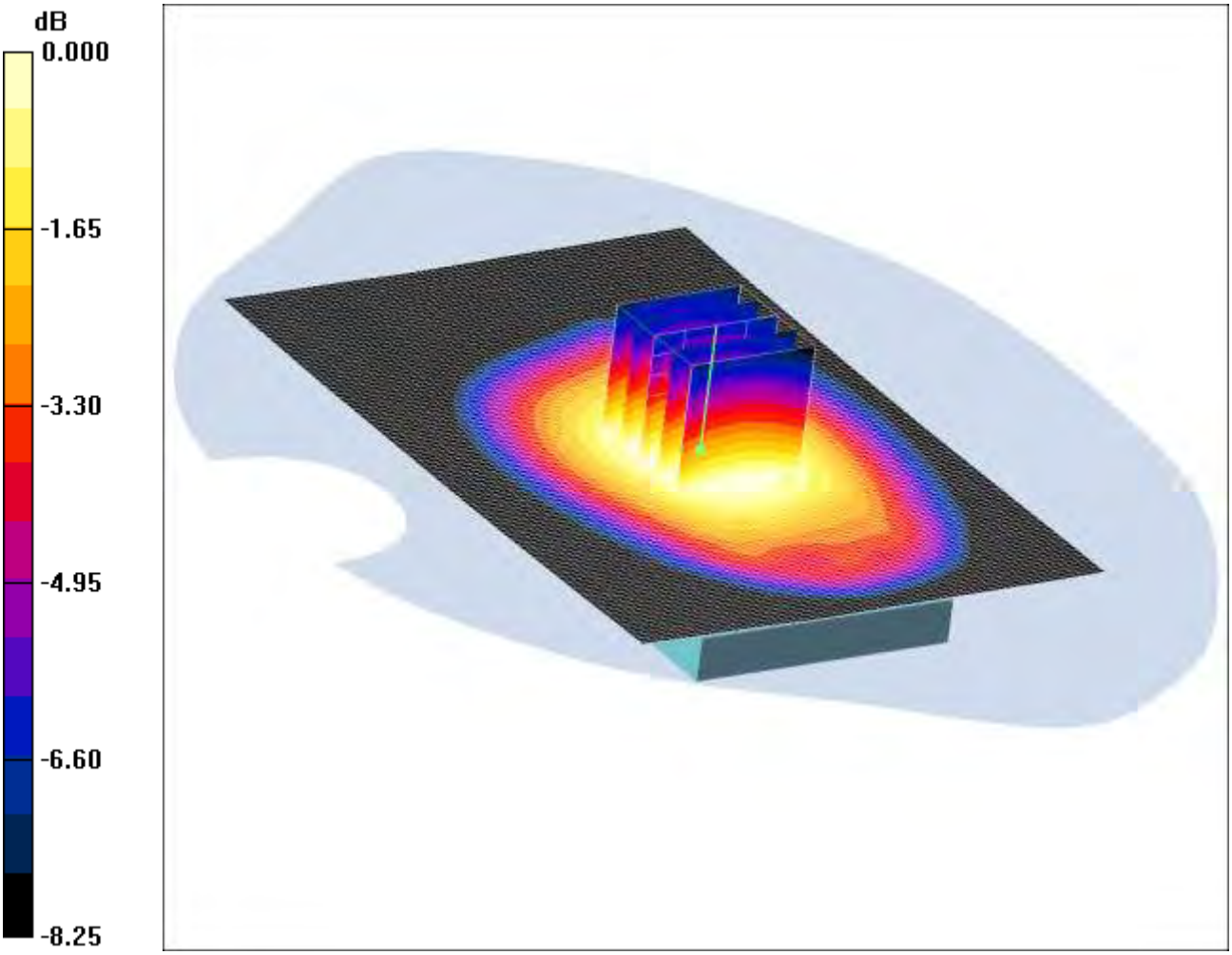


0 dB = 1.12mW/g

Communication System: GPRS 850 MHz 2TX; Frequency: 824.2 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.988 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom - Low/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.06 mW/g
Back of EUT Facing Phantom - Low/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.9 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.996 mW/g; SAR(10 g) = 0.744 mW/g
Maximum value of SAR (measured) = 1.12 mW/g

SCN/87208JD02/012: Back of EUT Facing Phantom GPRS CH251
Date: 17/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

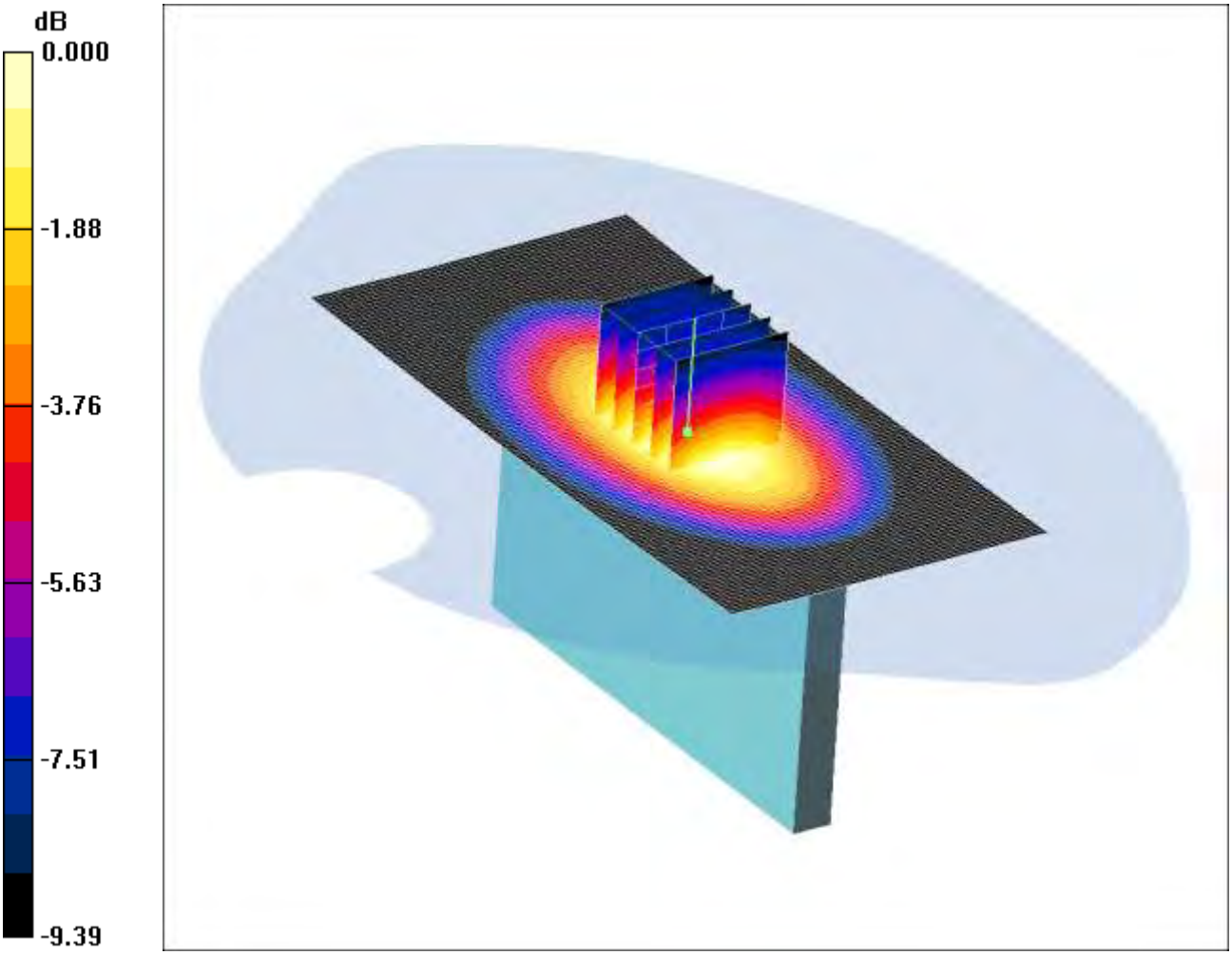


0 dB = 1.09mW/g

Communication System: GPRS 850 MHz 2TX; Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 848.8 MHz; σ = 1 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom -High/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.11 mW/g
Back of EUT Facing Phantom -High/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.0 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.974 mW/g; SAR(10 g) = 0.740 mW/g
Maximum value of SAR (measured) = 1.09 mW/g

SCN/87208JD02/013: Left Hand Side of EUT Facing Phantom GPRS CH190
Date: 17/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

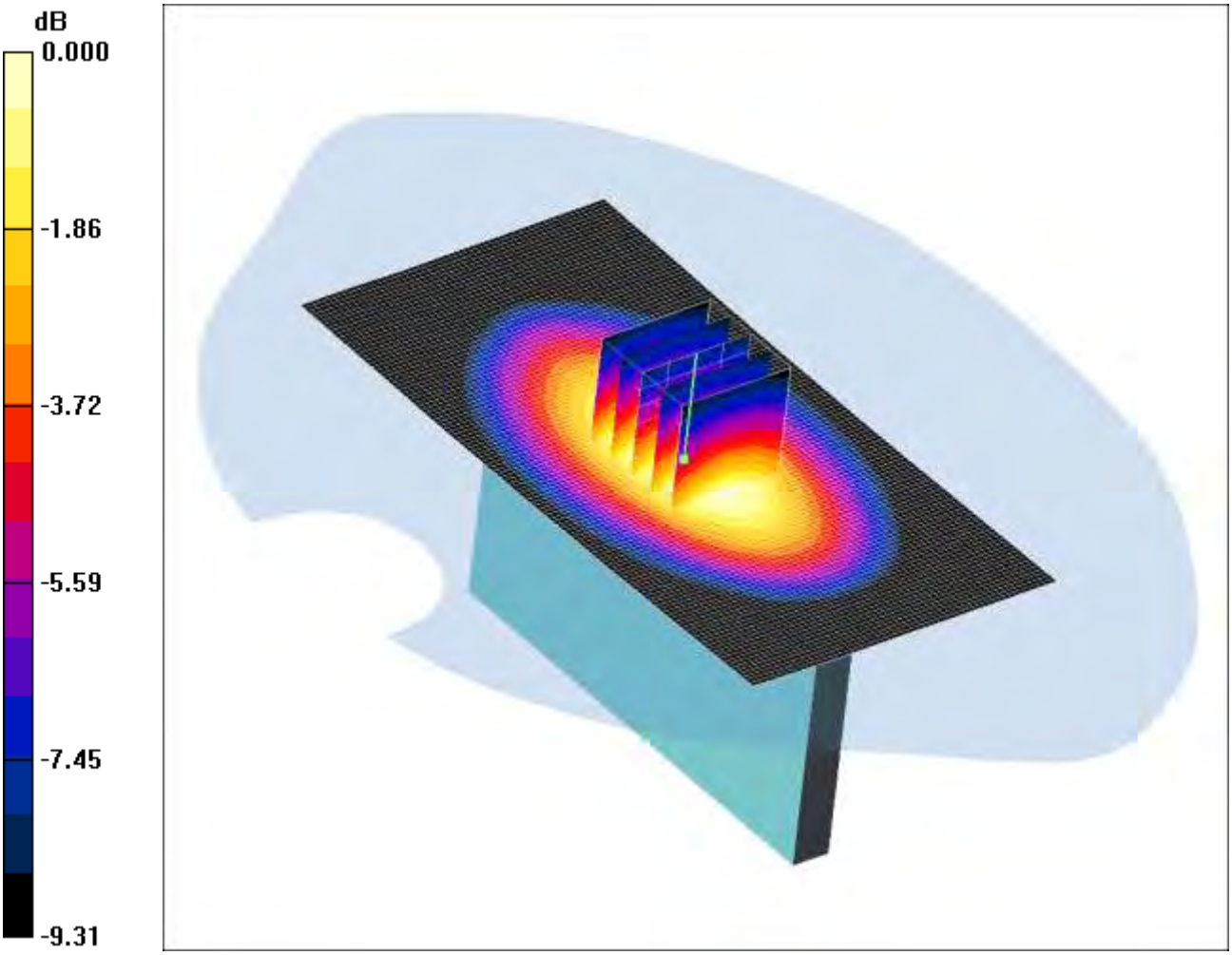


0 dB = 1.18mW/g

Communication System: GPRS 850 MHz 2TX; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.996 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Left Hand Side of EUT Facing Phantom-Middle/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.22 mW/g
Left Hand Side of EUT Facing Phantom-Middle/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.3 V/m; Power Drift = 0.146 dB
Peak SAR (extrapolated) = 1.40 W/kg
SAR(1 g) = 0.997 mW/g; SAR(10 g) = 0.689 mW/g
Maximum value of SAR (measured) = 1.18 mW/g

SCN/87208JD02/014: Left Hand Side of EUT Facing Phantom GPRS CH128
Date: 17/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

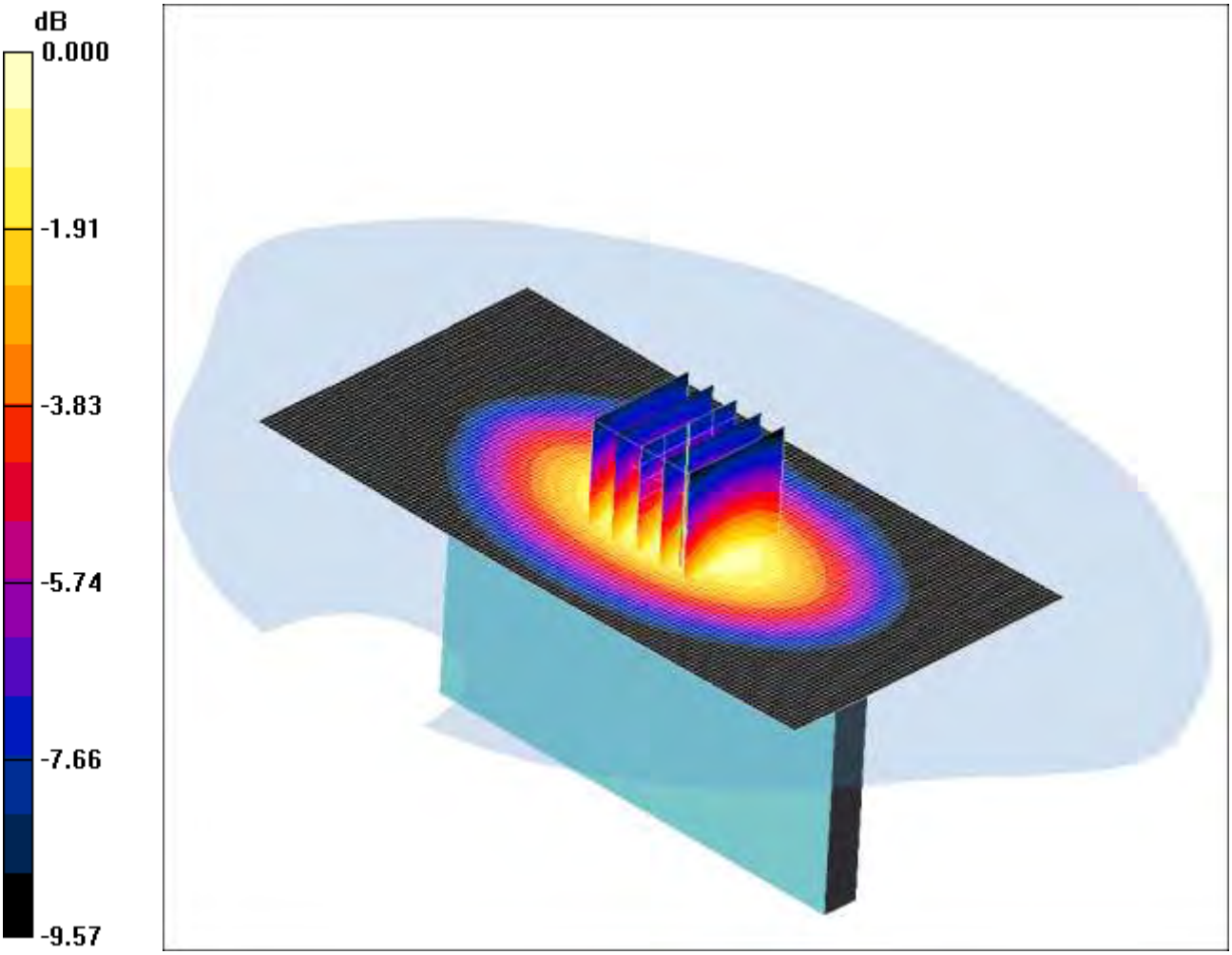


0 dB = 1.16mW/g

Communication System: GPRS 850 MHz 2TX; Frequency: 824.2 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.988 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Left Hand Side of EUT Facing Phantom-Low/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.17 mW/g
Left Hand Side of EUT Facing Phantom-Low/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.3 V/m; Power Drift = 0.074 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.983 mW/g; SAR(10 g) = 0.682 mW/g
Maximum value of SAR (measured) = 1.16 mW/g

SCN/87208JD02/015: Left Hand Side of EUT Facing Phantom GPRS CH251
Date: 17/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

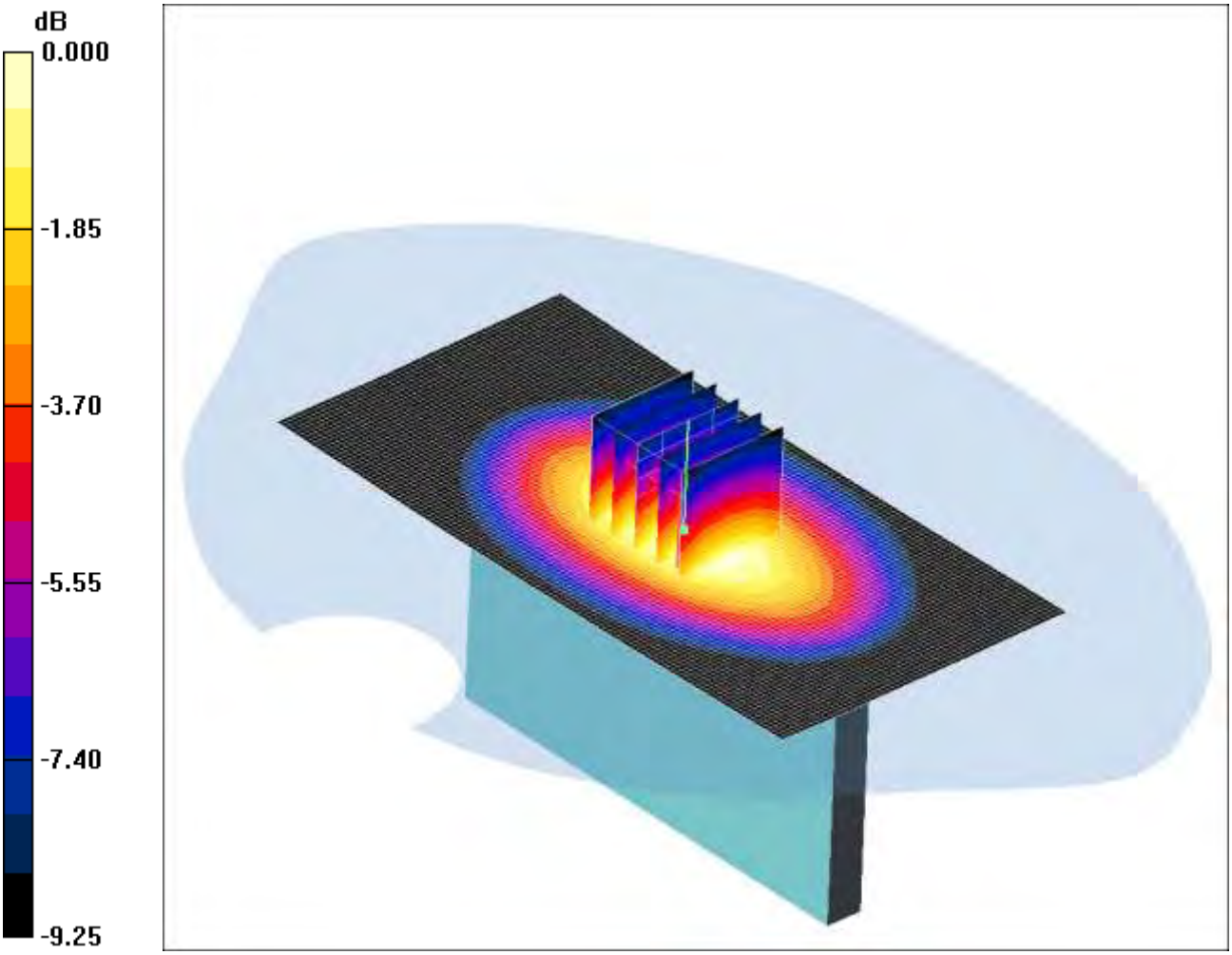


0 dB = 1.25mW/g

Communication System: GPRS 850 MHz 2TX; Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 848.8 MHz; σ = 1 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Left Hand Side of EUT Facing Phantom-High/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.21 mW/g
Left Hand Side of EUT Facing Phantom-High/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.2 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.720 mW/g
Maximum value of SAR (measured) = 1.25 mW/g

SCN/87208JD02/016: Right Hand Side of EUT Facing Phantom GPRS CH190
Date: 20/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

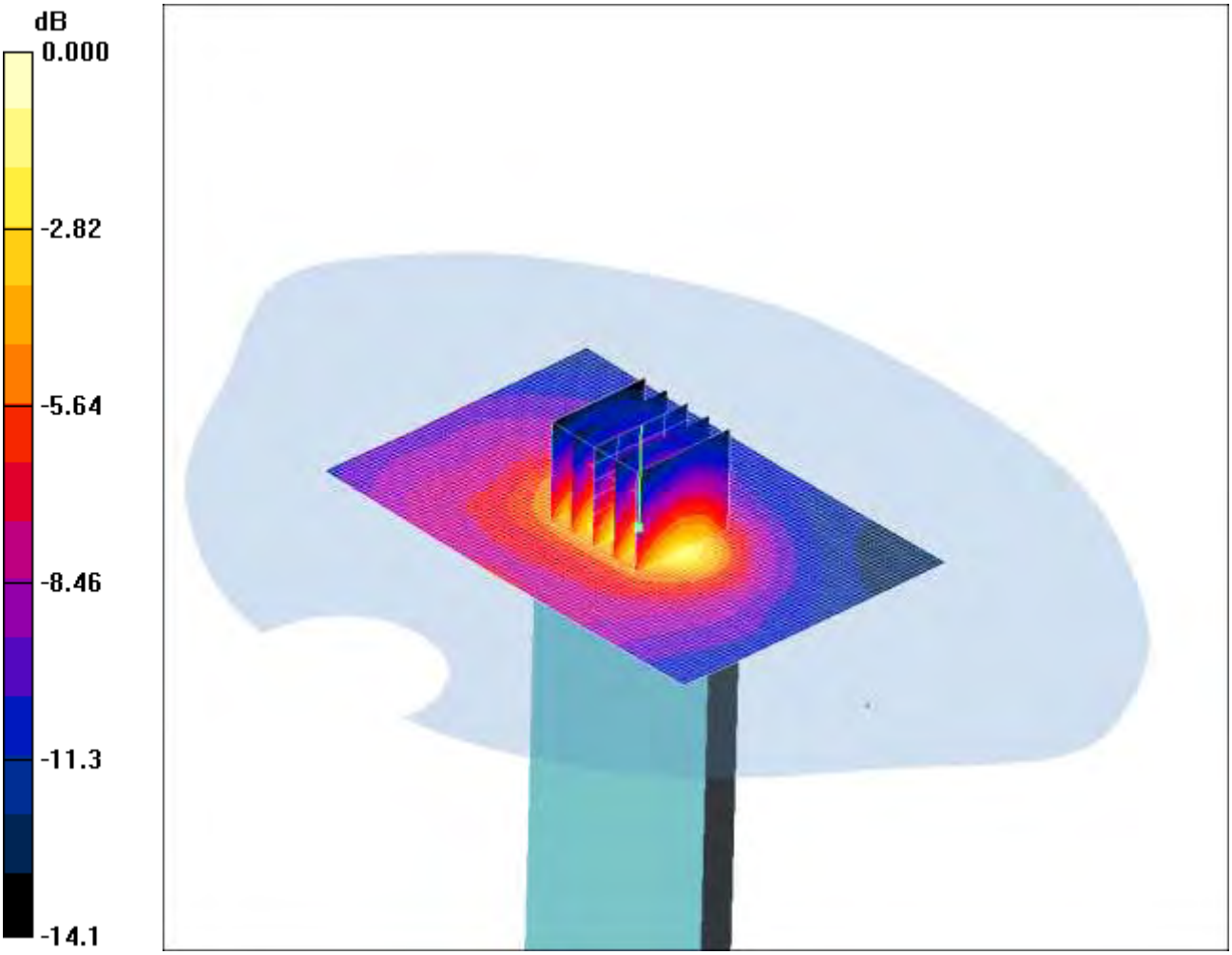


0 dB = 0.895mW/g

Communication System: GPRS 850 MHz 2TX; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.993 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Right Hand Side of EUT Facing Phantom- Middle/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.915 mW/g
Right Hand Side of EUT Facing Phantom- Middle/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.1 V/m; Power Drift = -0.108 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.760 mW/g; SAR(10 g) = 0.531 mW/g
Maximum value of SAR (measured) = 0.895 mW/g

SCN/87208JD02/017: Bottom of EUT Facing Phantom GPRS CH190
Date: 20/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

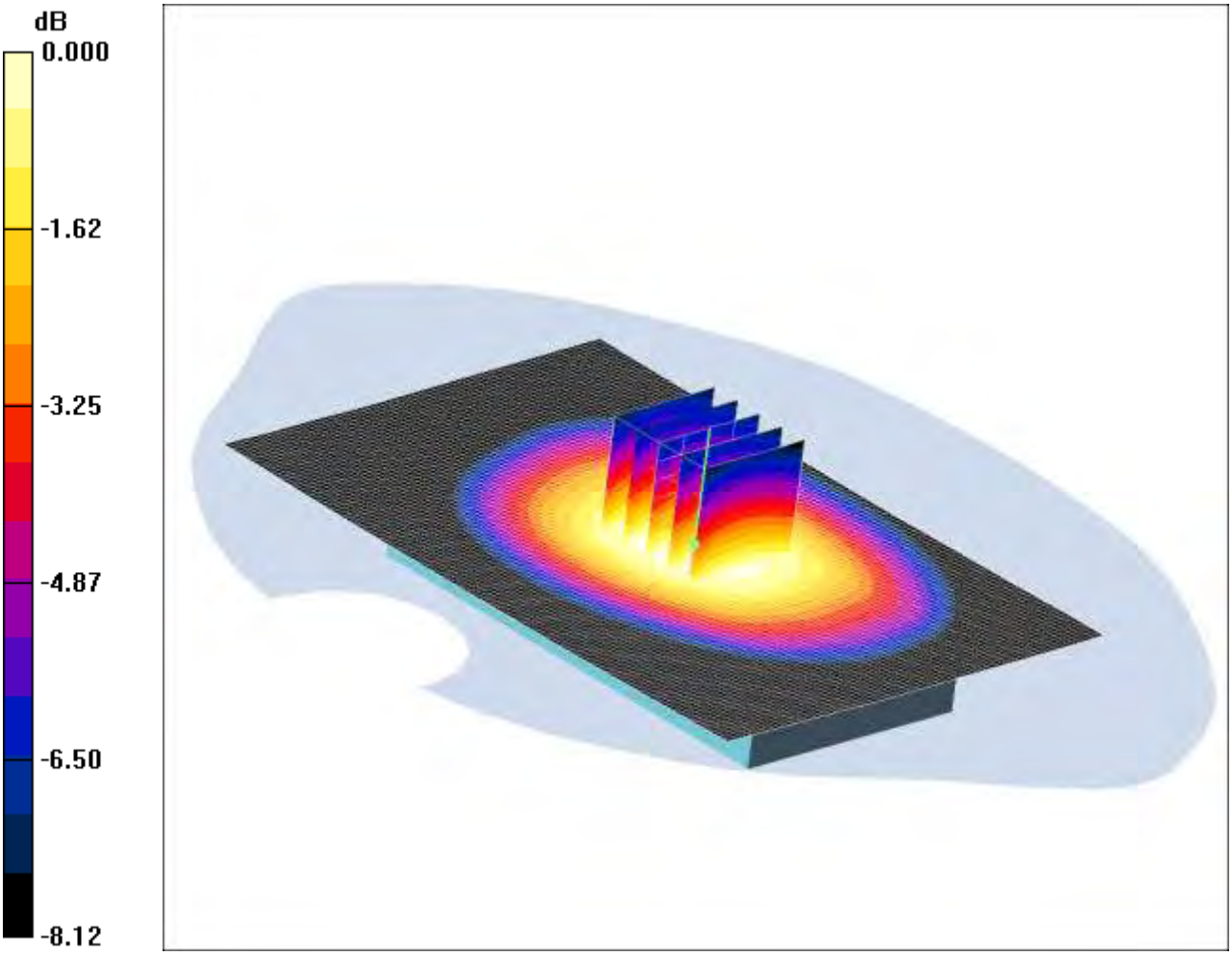


0 dB = 0.236mW/g

Communication System: GPRS 850 MHz 2TX; Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.993 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Bottom of EUT Facing Phantom- Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.229 mW/g
Bottom of EUT Facing Phantom- Middle/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.0 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 0.318 W/kg
SAR(1 g) = 0.176 mW/g; SAR(10 g) = 0.097 mW/g
Maximum value of SAR (measured) = 0.236 mW/g

SCN/87208JD02/018: Back of EUT Facing Phantom GSM CH190
Date: 20/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

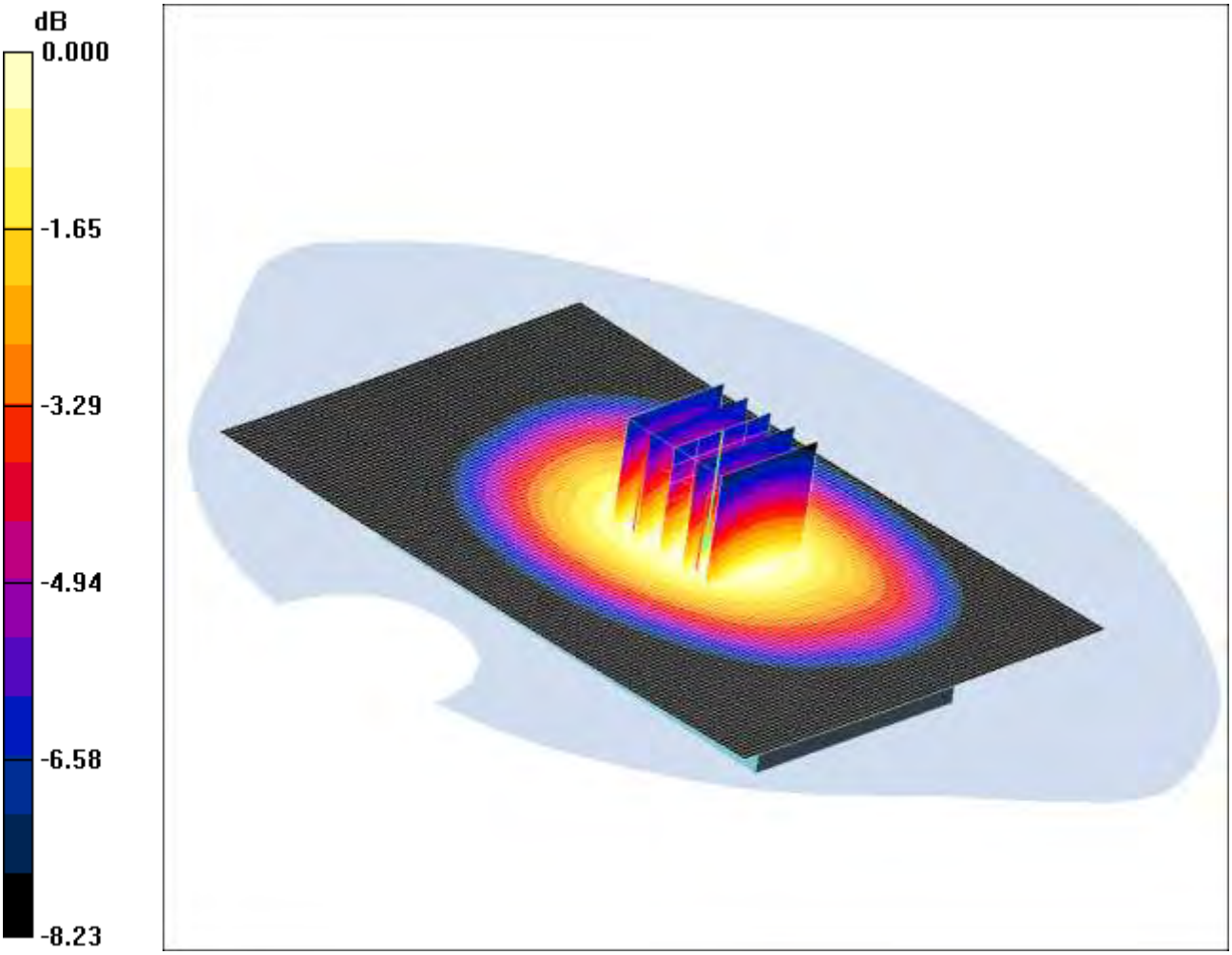


0 dB = 0.890mW/g

Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.993 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.902 mW/g
Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.3 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.789 mW/g; SAR(10 g) = 0.599 mW/g
Maximum value of SAR (measured) = 0.890 mW/g

SCN/87208JD02/019: Back of EUT Facing Phantom GSM CH128
Date: 20/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

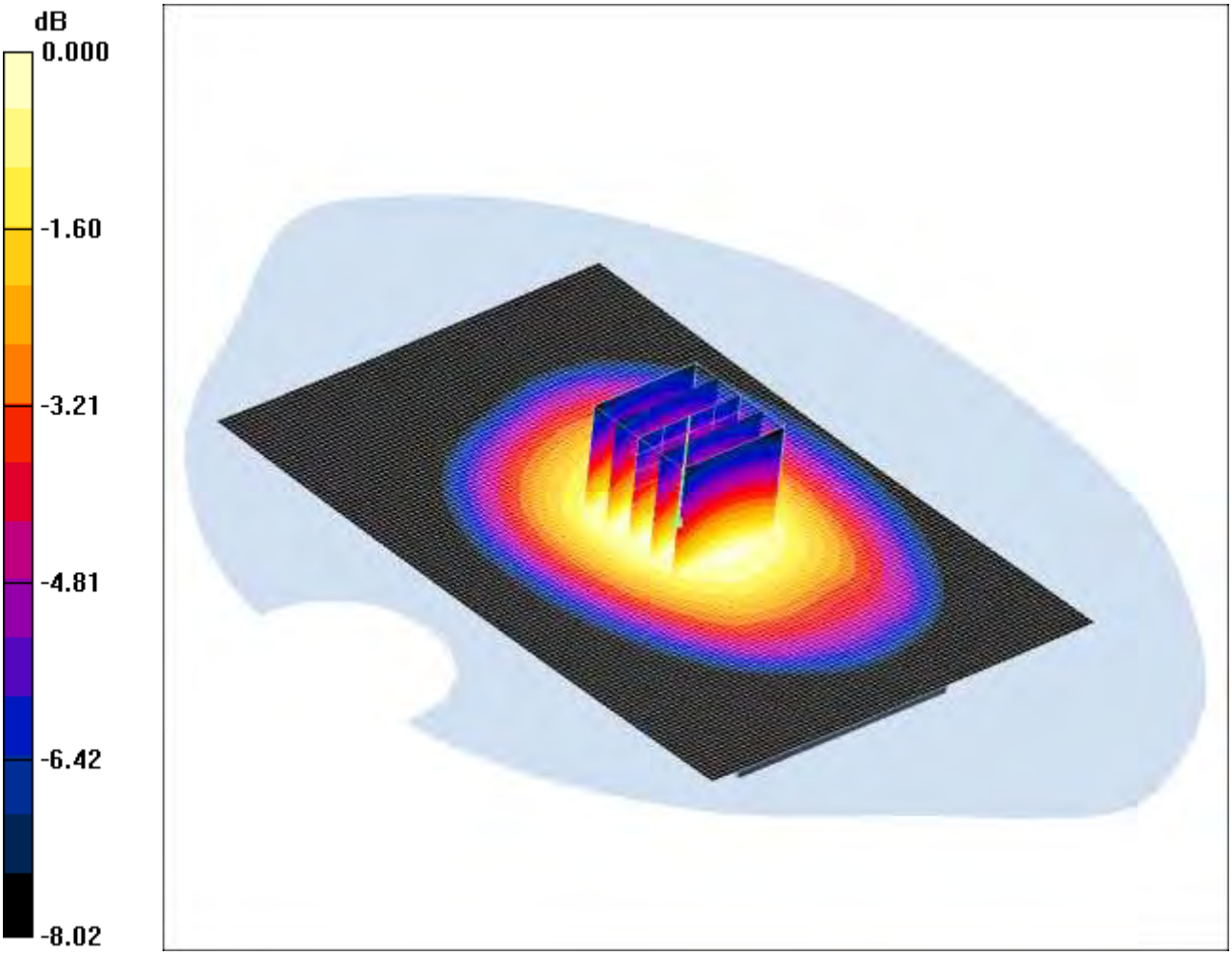


0 dB = 0.883mW/g

Communication System: GSM 850 MHz; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.985 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom - Low/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.899 mW/g
Back of EUT Facing Phantom - Low/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.0 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 0.995 W/kg
SAR(1 g) = 0.784 mW/g; SAR(10 g) = 0.594 mW/g
Maximum value of SAR (measured) = 0.883 mW/g

SCN/87208JD02/020: Back of EUT Facing Phantom GSM CH251
Date: 20/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

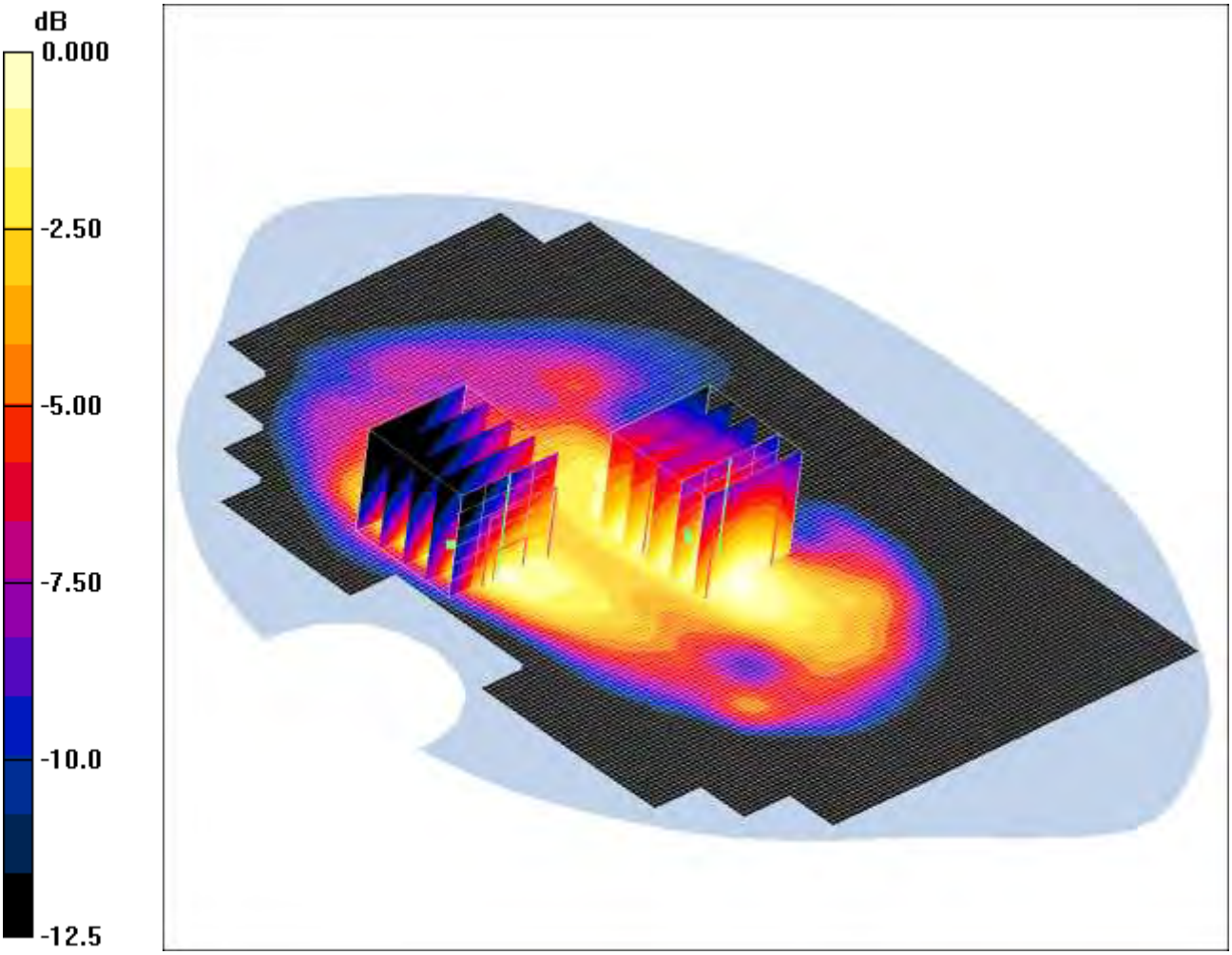


0 dB = 0.799mW/g

Communication System: GSM 850 MHz; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 848.8 MHz; σ = 1 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom - High/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.812 mW/g
Back of EUT Facing Phantom - High/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.6 V/m; Power Drift = 0.002 dB
Peak SAR (extrapolated) = 0.901 W/kg
SAR(1 g) = 0.711 mW/g; SAR(10 g) = 0.539 mW/g
Maximum value of SAR (measured) = 0.799 mW/g

SCN/87208JD02/021: Back of EUT Facing Phantom with PHF GSM CH190
Date: 20/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9



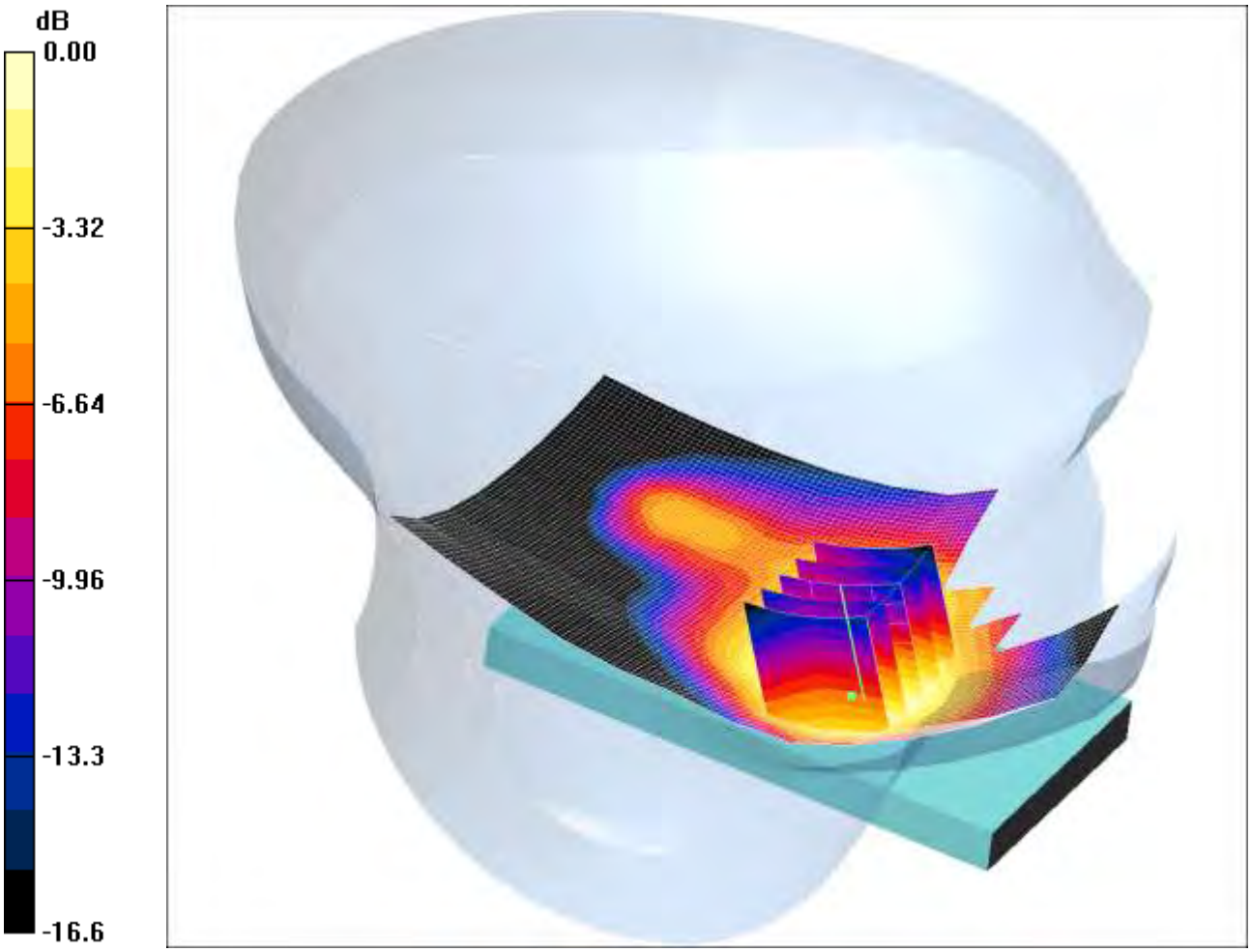
0 dB = 0.916mW/g

Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.993 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom - Middle/Area Scan (101x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.04 mW/g
Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.1 V/m; Power Drift = 0.026 dB; Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.687 mW/g; SAR(10 g) = 0.434 mW/g
Maximum value of SAR (measured) = 0.886 mW/g
Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.1 V/m; Power Drift = 0.026 dB; Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.805 mW/g; SAR(10 g) = 0.565 mW/g
Maximum value of SAR (measured) = 0.916 mW/g

Note: DASY system is configured to measure any secondary maxima that are within 2dB of the measured SAR level.

SCN/87208JD02/022: Touch Left PCS1900 CH661
Date: 14/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

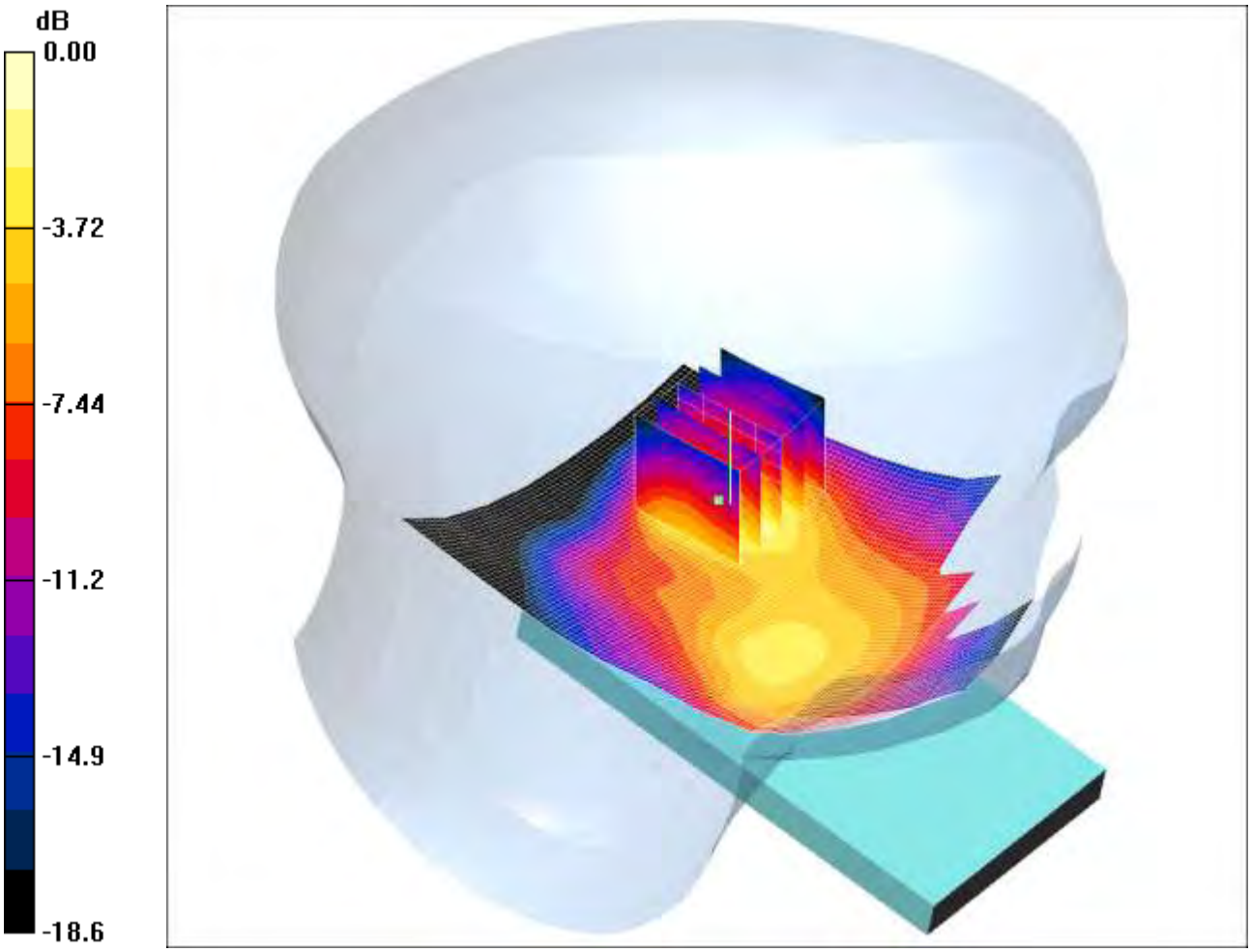


0 dB = 0.617mW/g

Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.92, 4.92, 4.92); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12a (Site 57); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Touch Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.627 mW/g
Touch Left - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.55 V/m; Power Drift = -0.075 dB
Peak SAR (extrapolated) = 0.868 W/kg
SAR(1 g) = 0.585 mW/g; SAR(10 g) = 0.359 mW/g
Maximum value of SAR (measured) = 0.617 mW/g

SCN/87208JD02/023: Tilt Left PCS1900 CH661
Date: 14/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

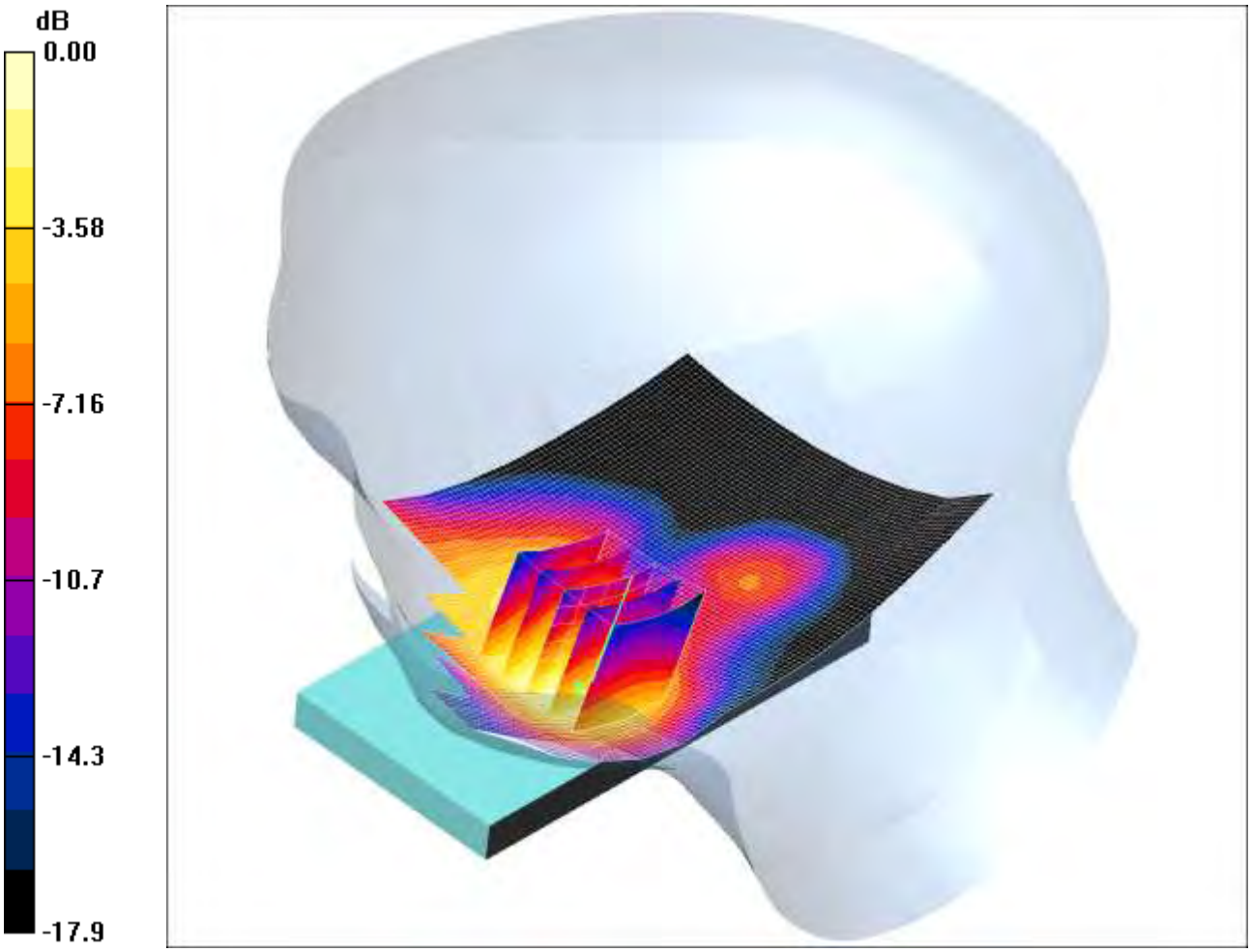


0 dB = 0.413mW/g

Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.92, 4.92, 4.92); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12a (Site 57); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Tilt Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.499 mW/g
Tilt Left - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.40 V/m; Power Drift = 0.063 dB
Peak SAR (extrapolated) = 0.598 W/kg
SAR(1 g) = 0.385 mW/g; SAR(10 g) = 0.209 mW/g
Maximum value of SAR (measured) = 0.413 mW/g

SCN/87208JD02/024: Touch Right PCS1900 CH661
Date: 14/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

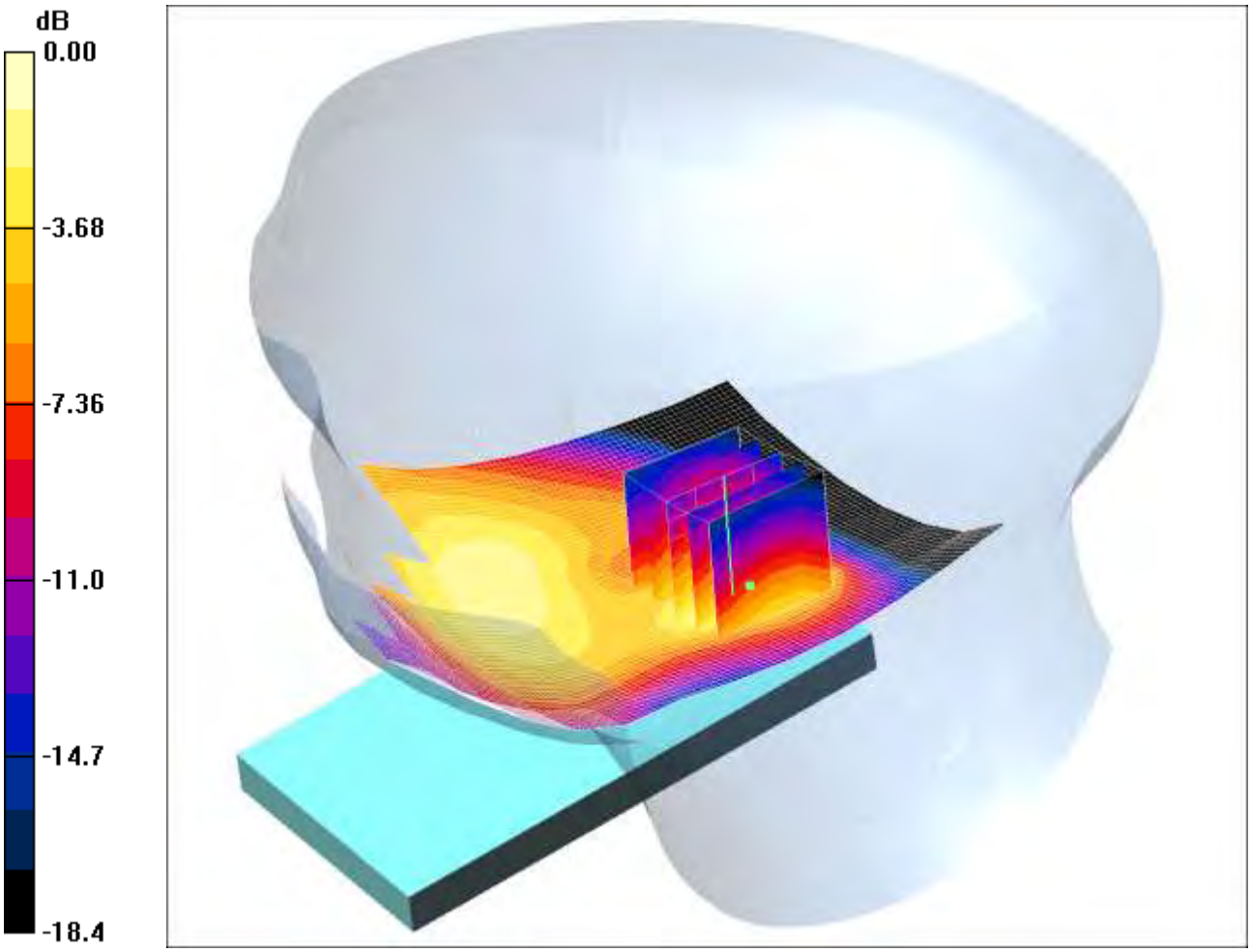


0 dB = 0.637mW/g

Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.92, 4.92, 4.92); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12a (Site 57); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Touch Right - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.660 mW/g
Touch Right - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.14 V/m; Power Drift = -0.181 dB
Peak SAR (extrapolated) = 0.777 W/kg
SAR(1 g) = 0.582 mW/g; SAR(10 g) = 0.367 mW/g
Maximum value of SAR (measured) = 0.637 mW/g

SCN/87208JD02/025: Tilt Right PCS1900 CH661
Date: 14/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

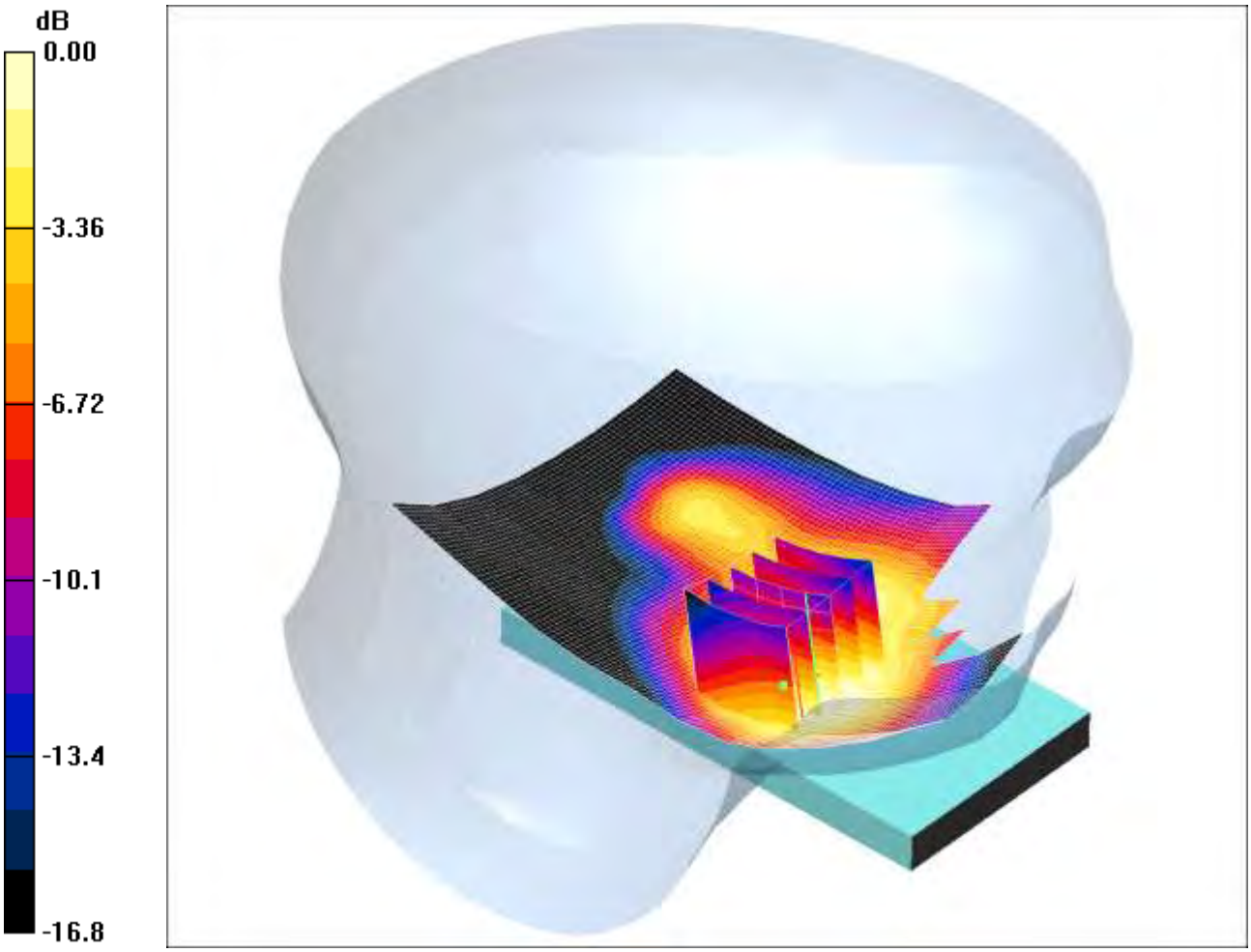


0 dB = 0.233mW/g

Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.92, 4.92, 4.92); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12a (Site 57); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Tilt Right - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.255 mW/g
Tilt Right - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.16 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.346 W/kg
SAR(1 g) = 0.221 mW/g; SAR(10 g) = 0.122 mW/g
Maximum value of SAR (measured) = 0.233 mW/g

SCN/87208JD02/026: Touch Left PCS1900 CH512
Date: 14/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

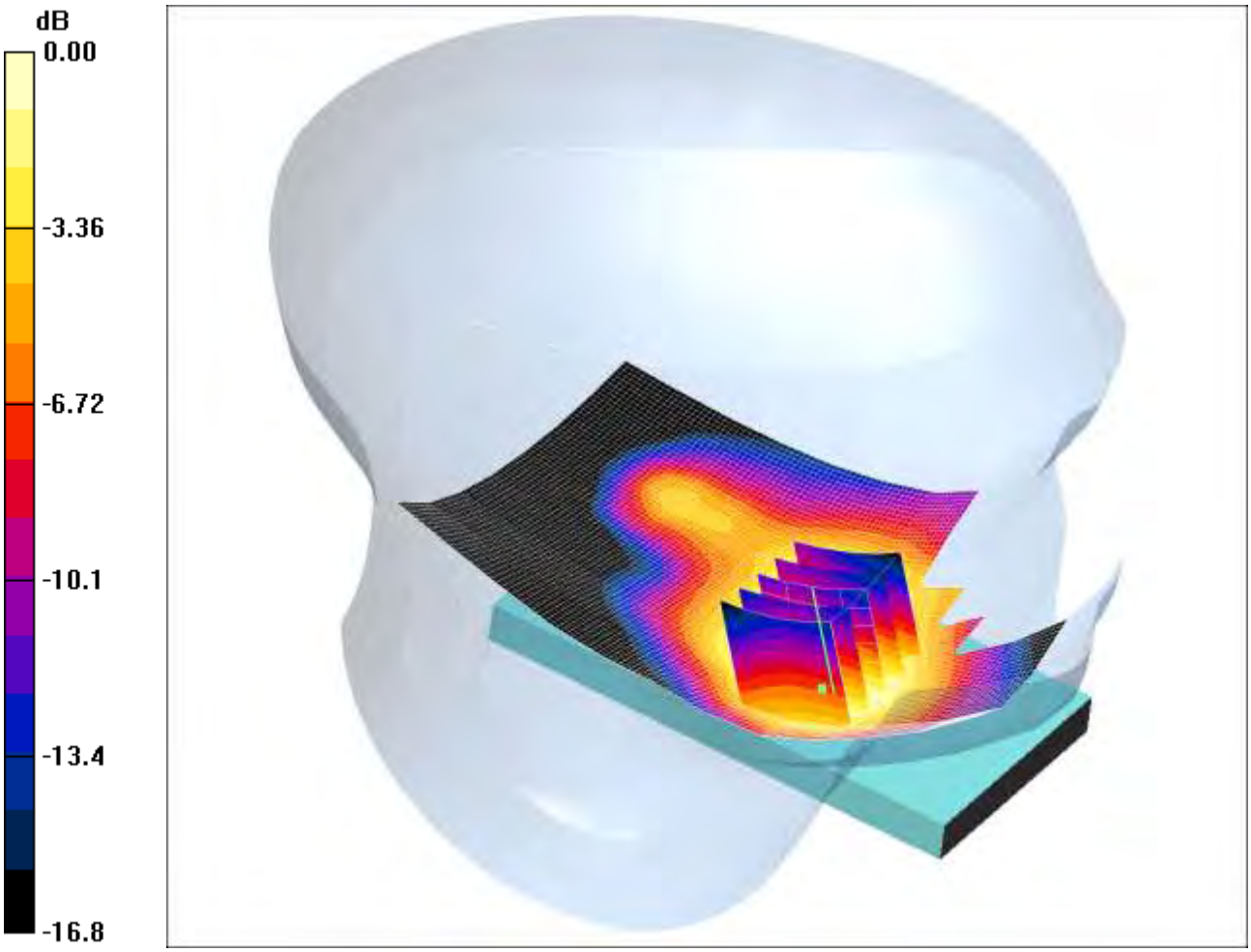


0 dB = 0.542mW/g

Communication System: PCS 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.4 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.92, 4.92, 4.92); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12a (Site 57); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Touch Left - Low/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.557 mW/g
Touch Left - Low/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.90 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.748 W/kg
SAR(1 g) = 0.524 mW/g; SAR(10 g) = 0.331 mW/g
Maximum value of SAR (measured) = 0.542 mW/g

SCN/87208JD02/027: Touch Left PCS1900 CH810
Date: 14/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

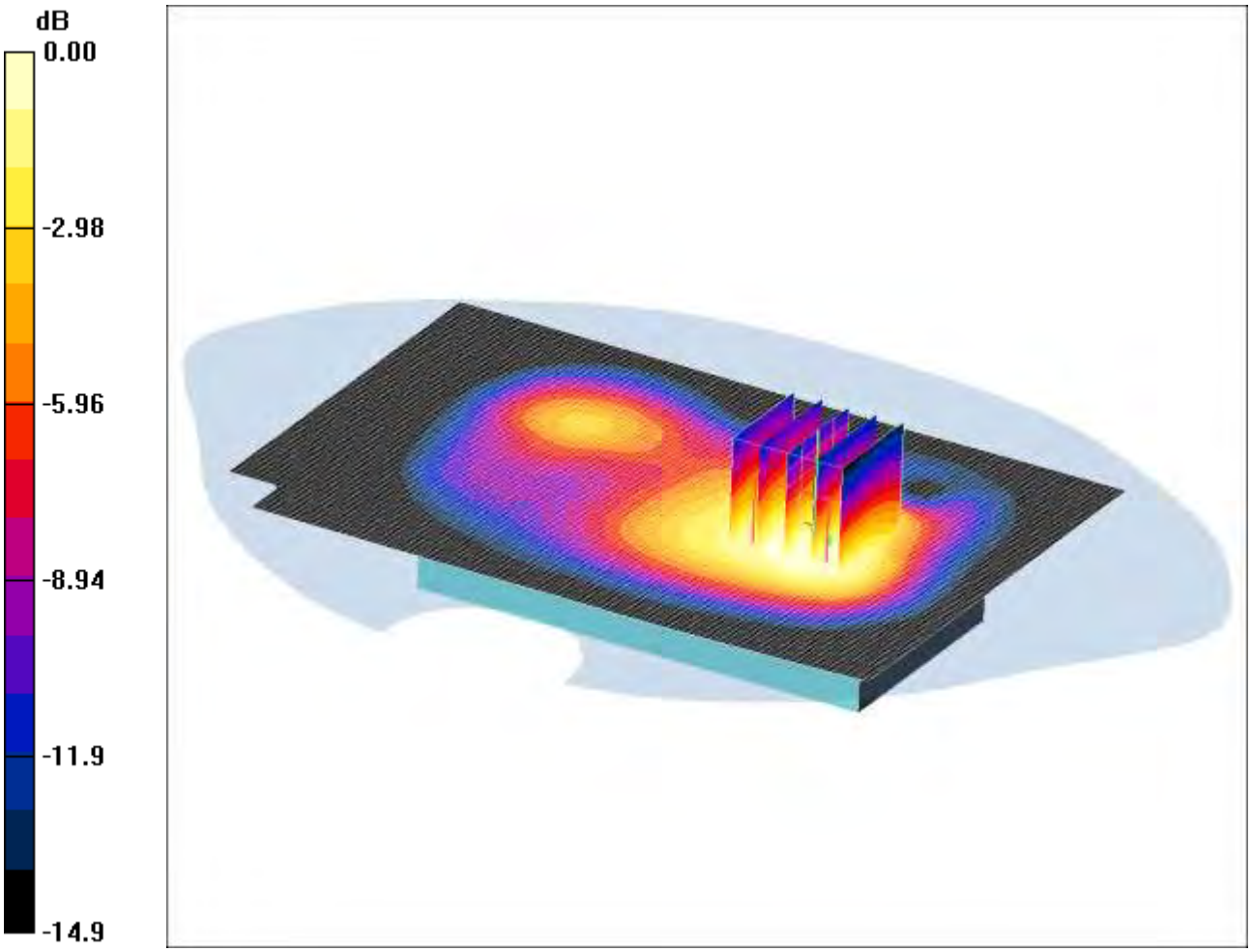


0 dB = 0.497mW/g

Communication System: PCS 1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1909.8 MHz; σ = 1.46 mho/m; ε_r = 38.6; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.92, 4.92, 4.92); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12a (Site 57); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Touch Left - High/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.508 mW/g
Touch Left - High/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.07 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 0.690 W/kg
SAR(1 g) = 0.466 mW/g; SAR(10 g) = 0.284 mW/g
Maximum value of SAR (measured) = 0.497 mW/g

SCN/87208JD02/028: Front of EUT Facing Phantom GPRS CH661
Date: 13/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

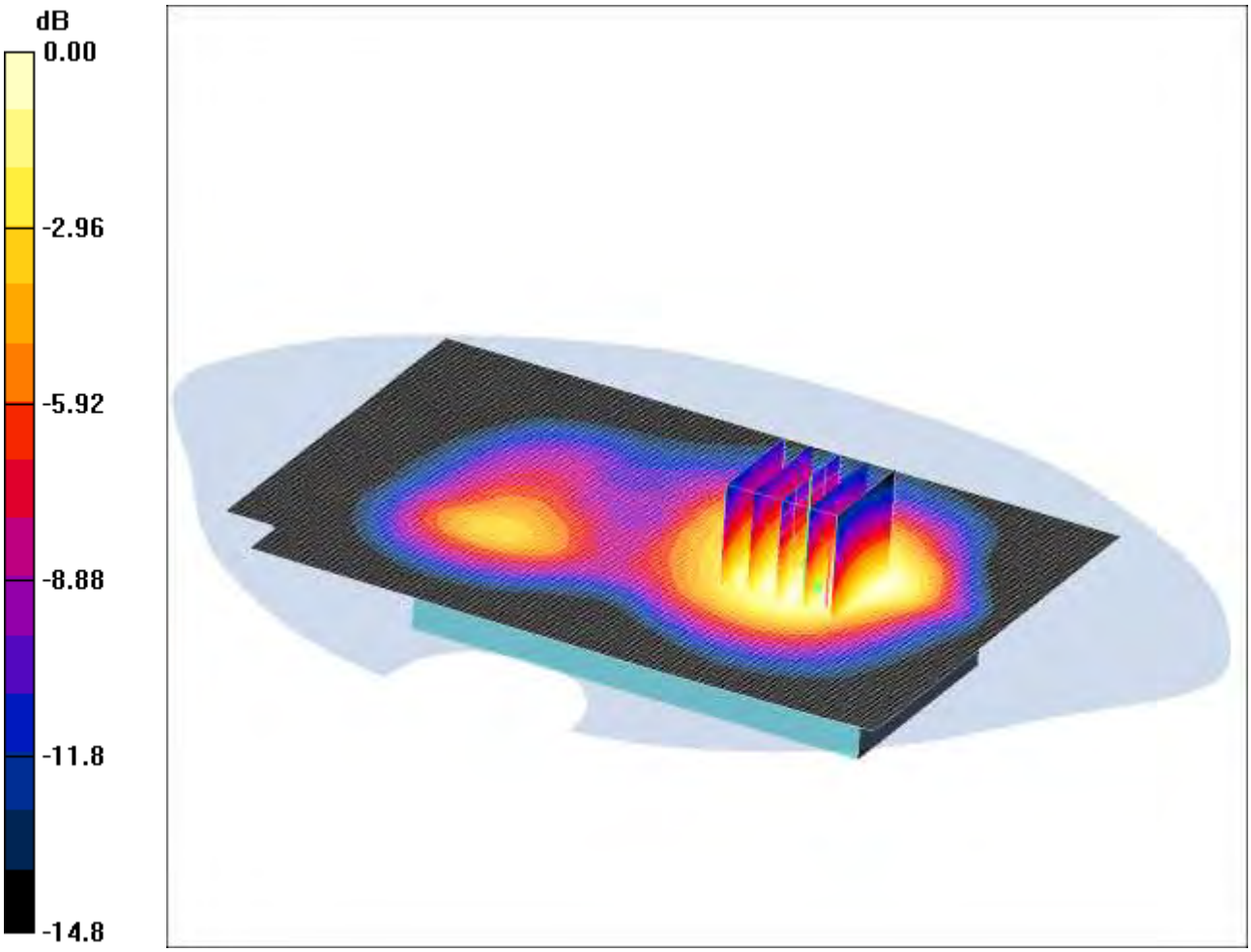


0 dB = 0.638mW/g

Communication System: GPRS 1900 2Tx; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.42, 4.42, 4.42); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12b (Site 57); Type: SAM 4.0; Serial: TP:1031
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Front of EUT Facing Phantom - Middle 2/Area Scan 2 (91x131x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.674 mW/g
Front of EUT Facing Phantom - Middle 2/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.0 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 0.873 W/kg
SAR(1 g) = 0.599 mW/g; SAR(10 g) = 0.390 mW/g
Maximum value of SAR (measured) = 0.638 mW/g

SCN/87208JD02/029: Back of EUT Facing Phantom GPRS CH661
Date: 13/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

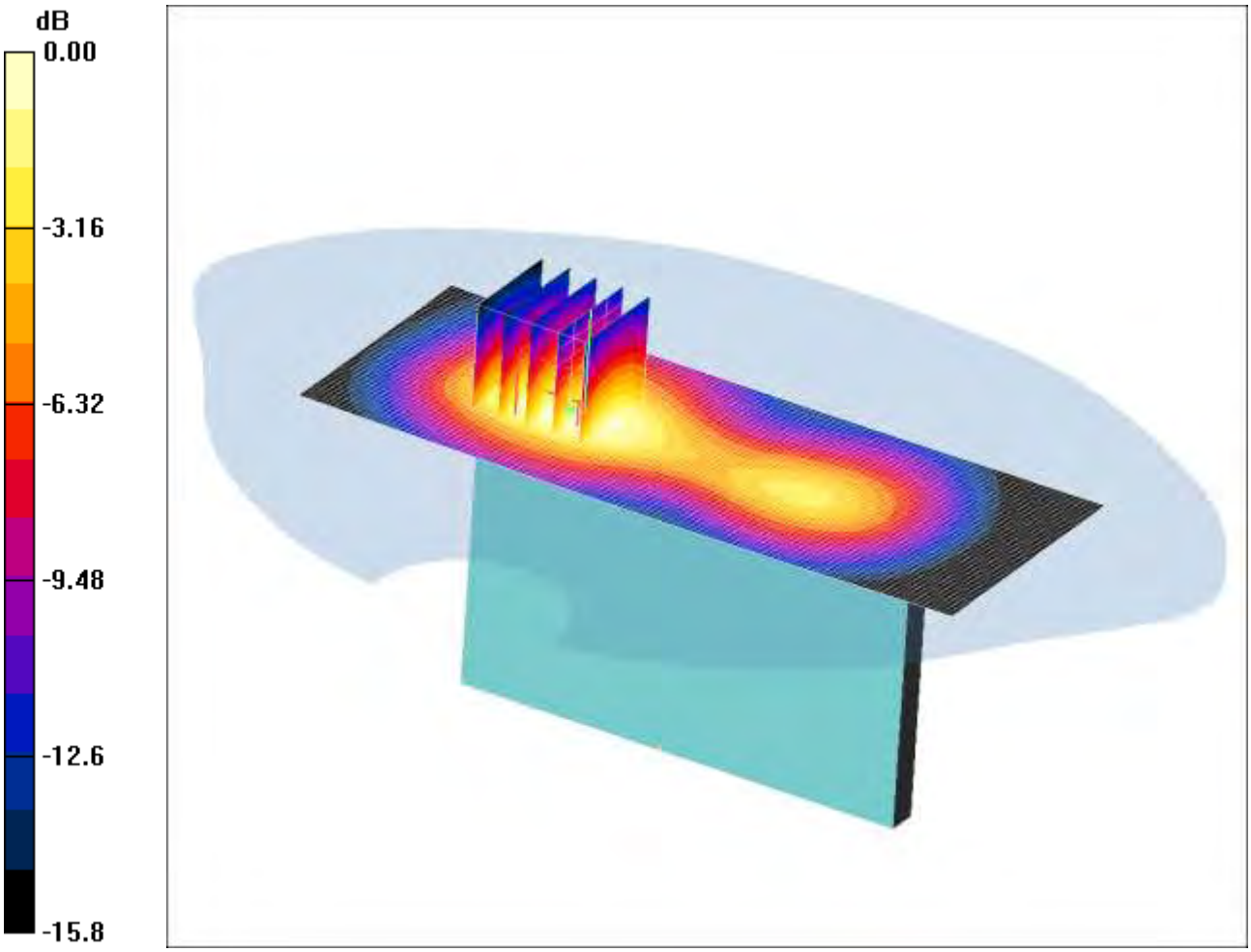


0 dB = 0.637mW/g

Communication System: GPRS 1900 2Tx; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.42, 4.42, 4.42); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12b (Site 57); Type: SAM 4.0; Serial: TP:1031
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Back of EUT Facing Phantom - Middle/Area Scan 2 (91x131x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.668 mW/g
Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.5 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.862 W/kg
SAR(1 g) = 0.598 mW/g; SAR(10 g) = 0.392 mW/g
Maximum value of SAR (measured) = 0.637 mW/g

SCN/87208JD02/030: Left Hand Side of EUT Facing Phantom GPRS CH661
Date: 13/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

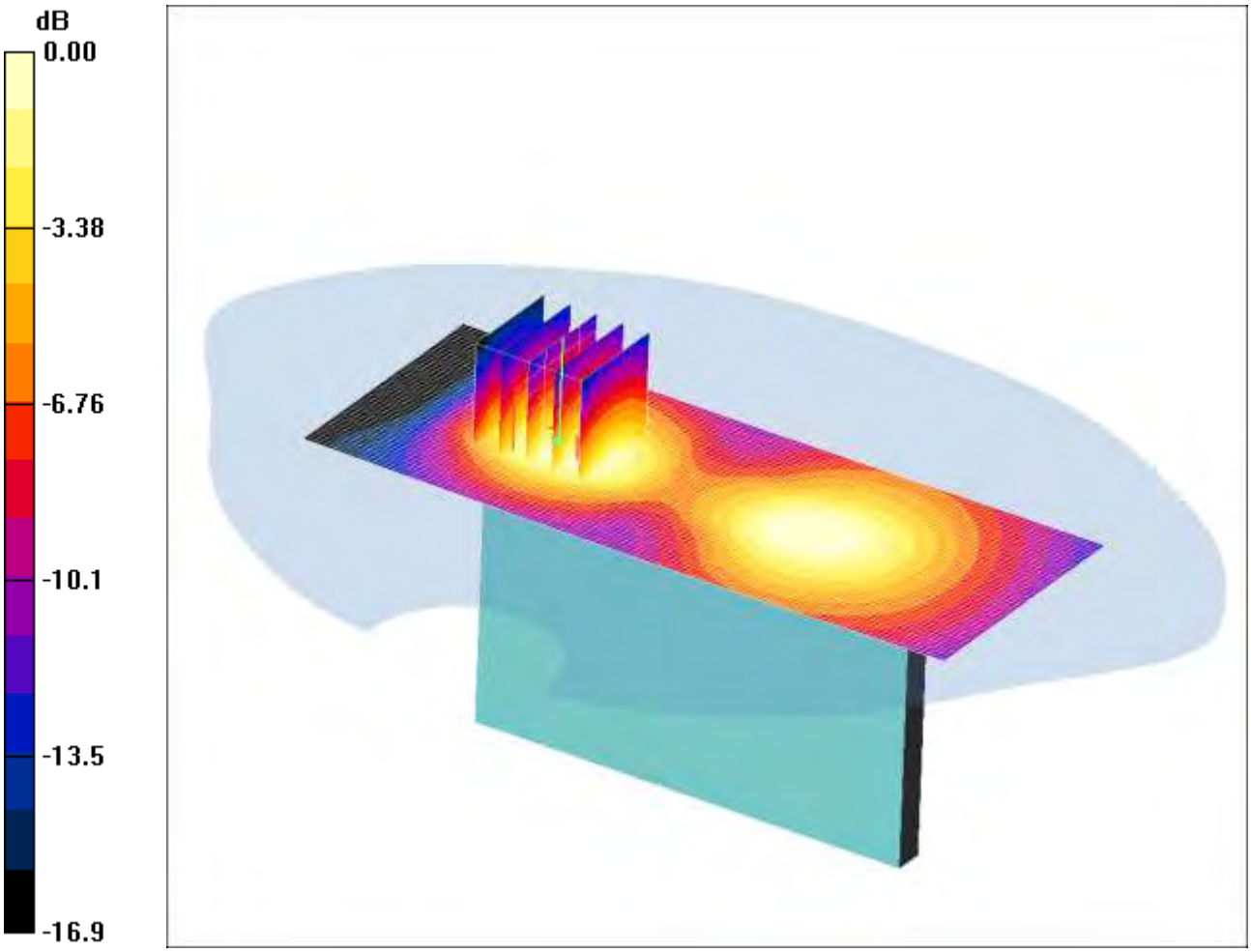


0 dB = 0.465mW/g

Communication System: GPRS 1900 2Tx; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.42, 4.42, 4.42); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12b (Site 57); Type: SAM 4.0; Serial: TP:1031
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Left Hand Side of EUT Facing Phantom - Middle/Area Scan 2 (51x131x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.460 mW/g
Left Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.055 dB
Peak SAR (extrapolated) = 0.661 W/kg
SAR(1 g) = 0.428 mW/g; SAR(10 g) = 0.261 mW/g
Maximum value of SAR (measured) = 0.465 mW/g

SCN/87208JD02/031: Right Hand Side of EUT Facing Phantom GPRS CH661
Date: 13/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

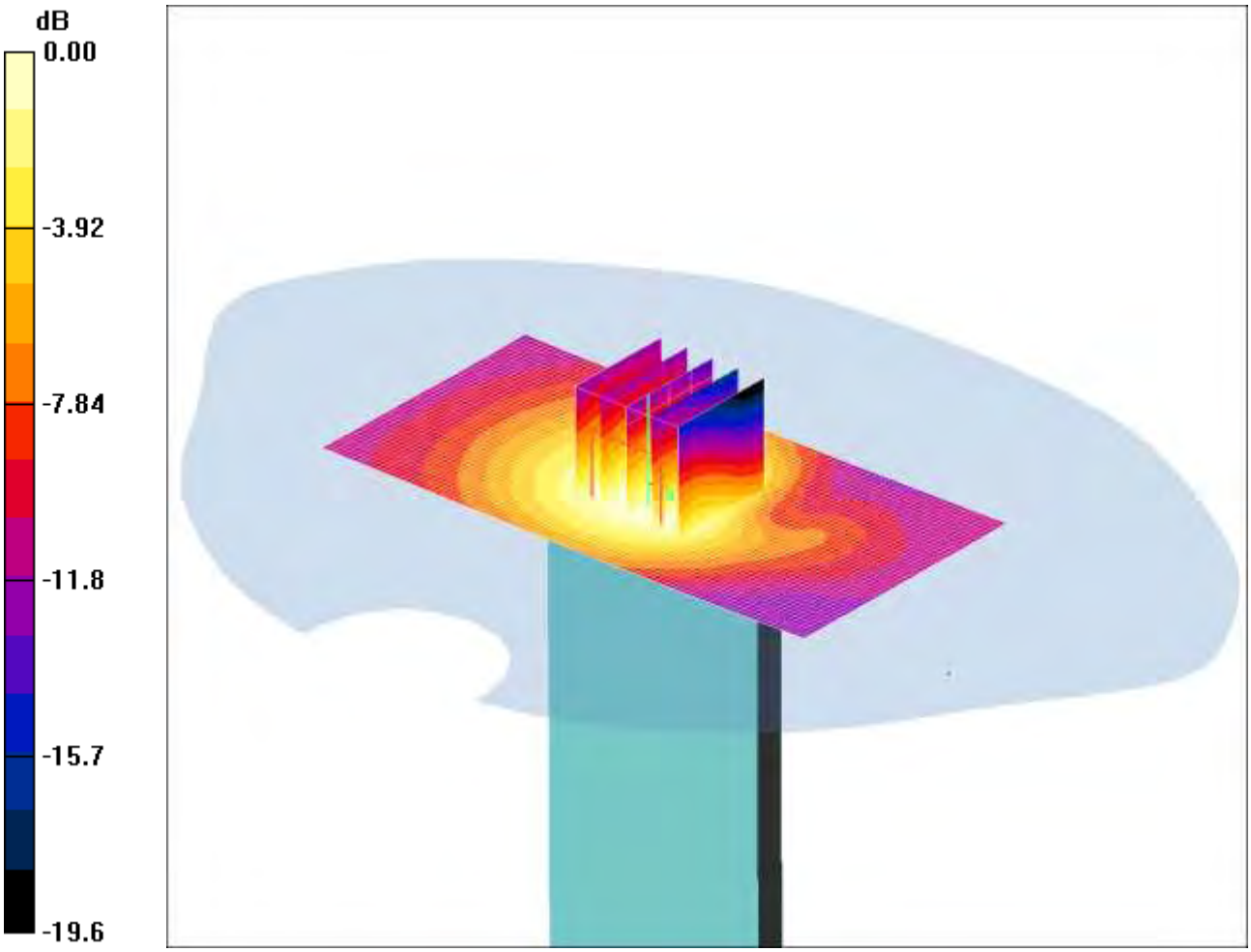


0 dB = 0.234mW/g

Communication System: GPRS 1900 2Tx; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.42, 4.42, 4.42); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12b (Site 57); Type: SAM 4.0; Serial: TP:1031
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Right Hand Side of EUT Facing Phantom - Middle/Area Scan 2 (51x131x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.254 mW/g
Right Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.85 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 0.327 W/kg
SAR(1 g) = 0.218 mW/g; SAR(10 g) = 0.133 mW/g
Maximum value of SAR (measured) = 0.234 mW/g

SCN/87208JD02/032: Bottom of EUT Facing Phantom GPRS CH661
Date: 13/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

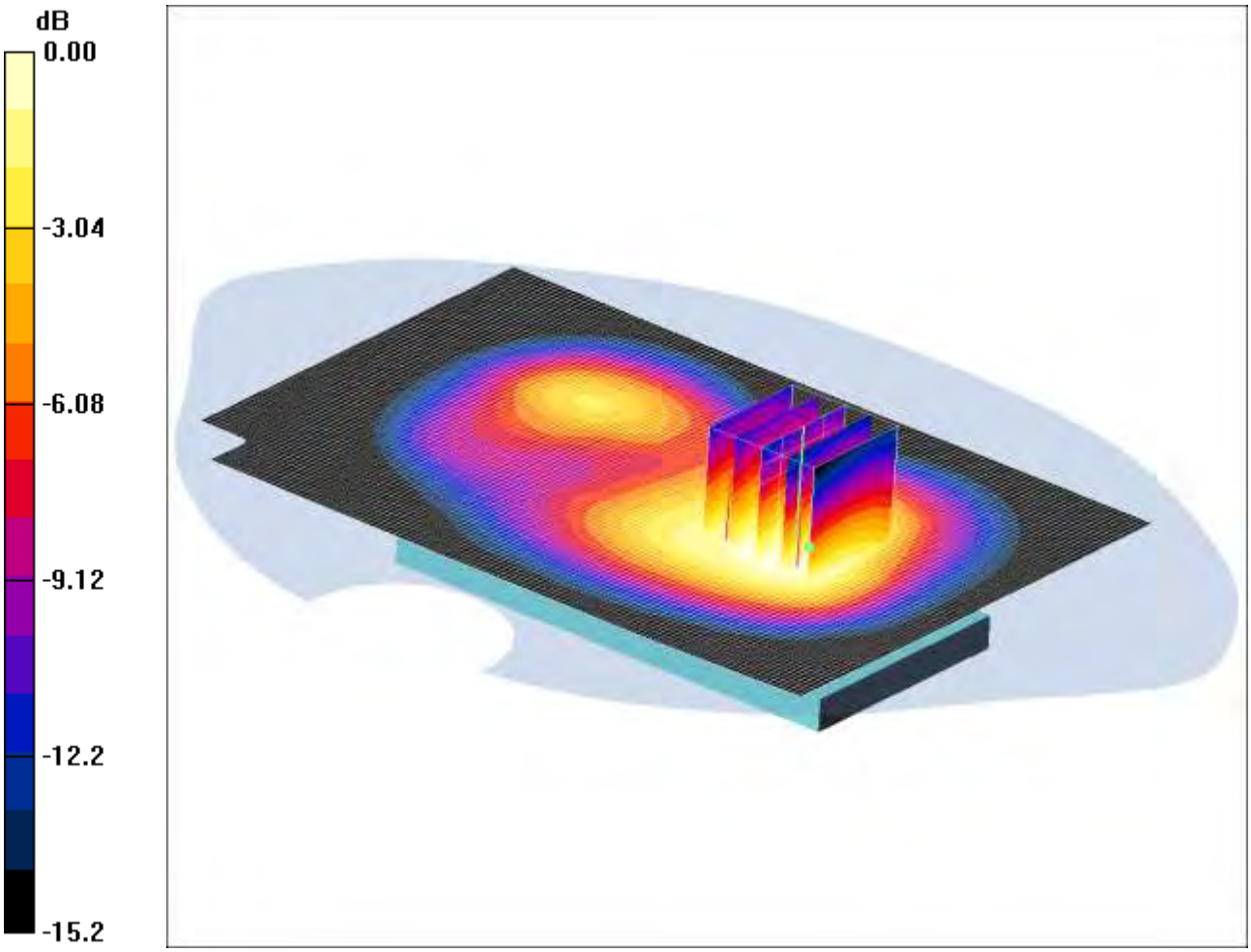


0 dB = 0.208mW/g

Communication System: GPRS 1900 2Tx; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.42, 4.42, 4.42); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12b (Site 57); Type: SAM 4.0; Serial: TP:1031
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Bottom of EUT Facing Phantom - Middle/Area Scan 2 (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.220 mW/g
Bottom of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 0.324 W/kg
SAR(1 g) = 0.198 mW/g; SAR(10 g) = 0.124 mW/g
Maximum value of SAR (measured) = 0.208 mW/g

SCN/87208JD02/033: Front of EUT Facing Phantom GPRS CH512
Date: 13/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

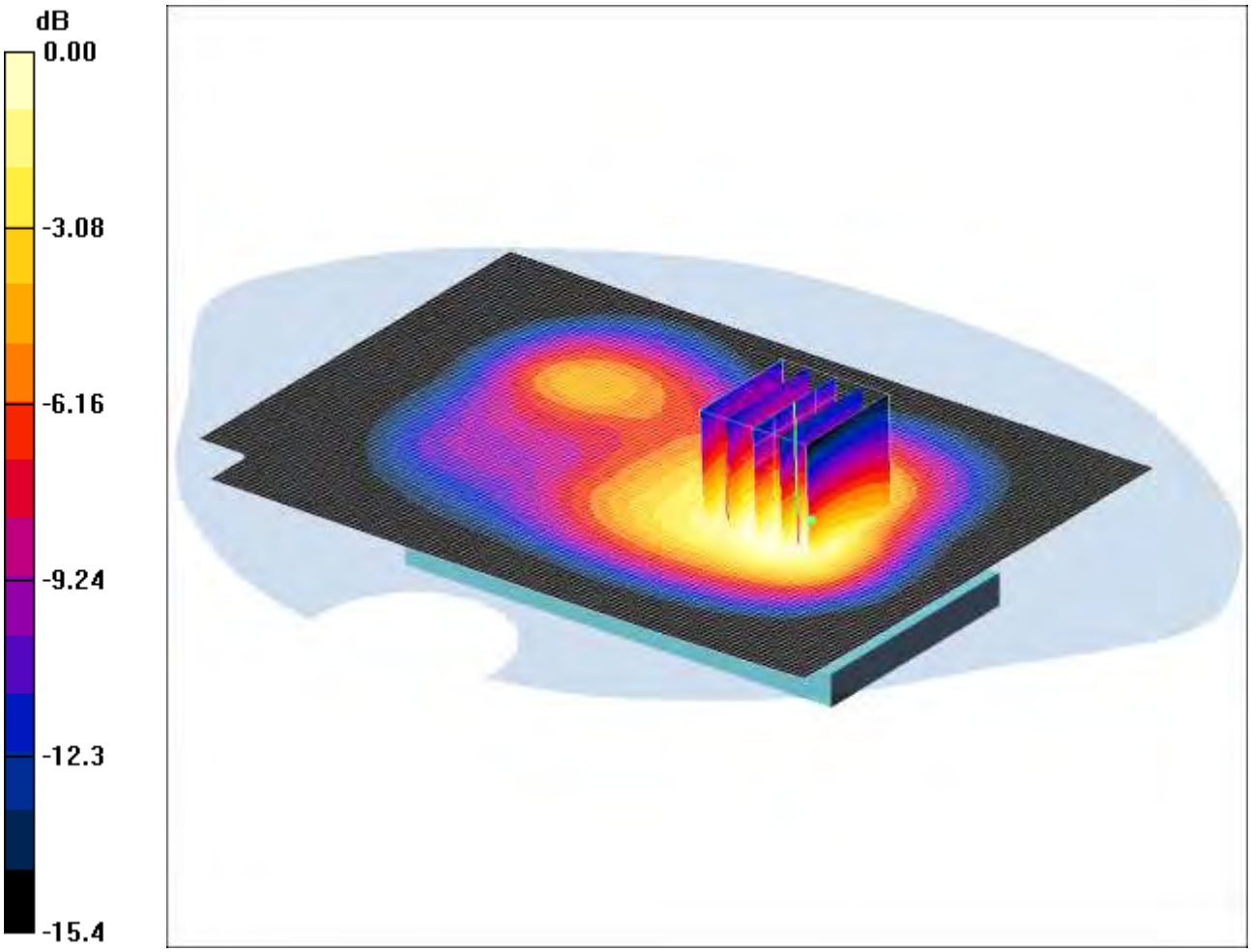


0 dB = 0.661mW/g

Communication System: GPRS 1900 2Tx; Frequency: 1850.2 MHz;Duty Cycle: 1:4
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.5 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.42, 4.42, 4.42); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12b (Site 57); Type: SAM 4.0; Serial: TP:1031
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Front of EUT Facing Phantom - Low/Area Scan 2 (91x131x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.680 mW/g
Front of EUT Facing Phantom - Low/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 0.878 W/kg
SAR(1 g) = 0.615 mW/g; SAR(10 g) = 0.403 mW/g
Maximum value of SAR (measured) = 0.661 mW/g

SCN/87208JD02/034: Front of EUT Facing Phantom GPRS CH810
Date: 13/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

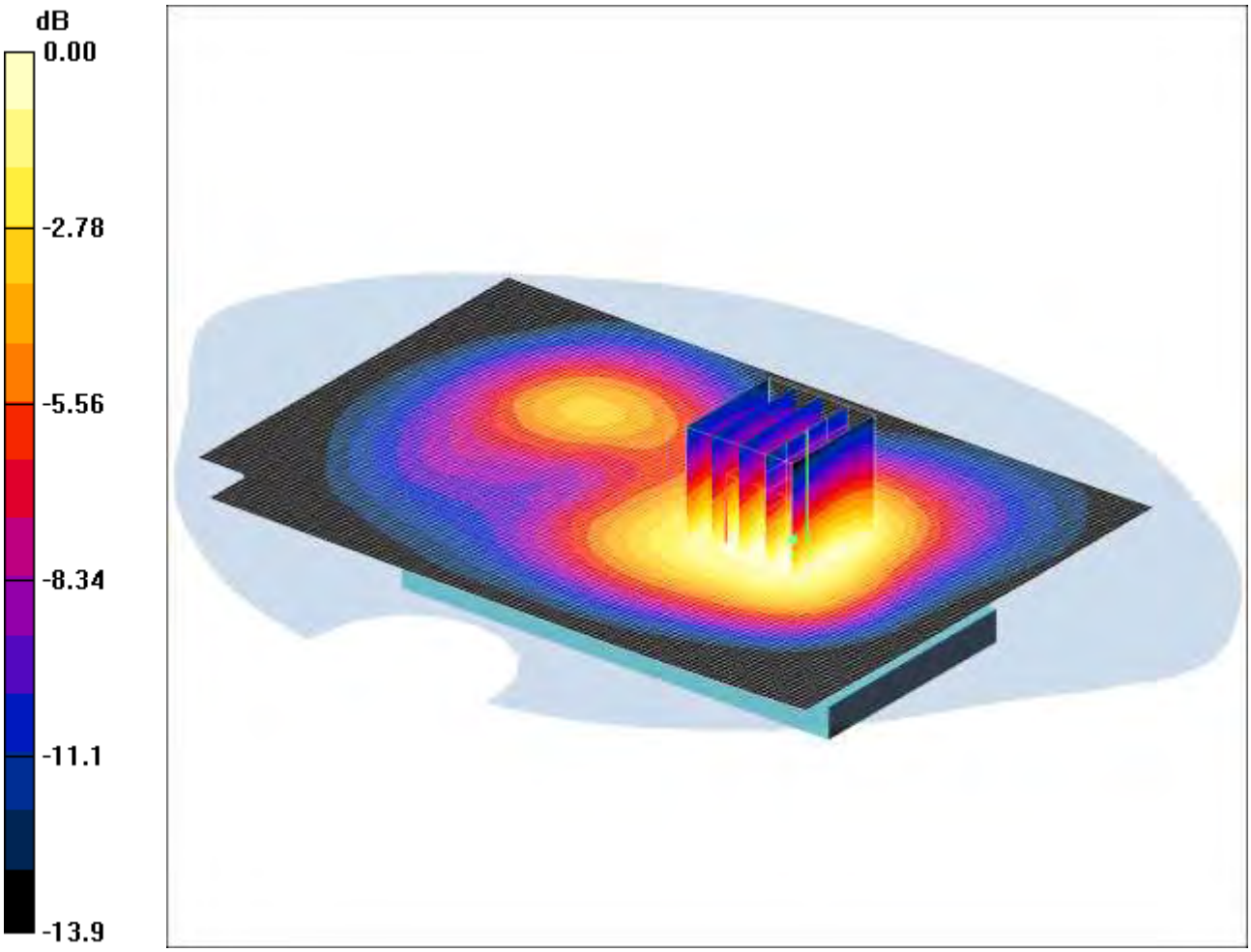


0 dB = 0.608mW/g

Communication System: GPRS 1900 2Tx; Frequency: 1909.8 MHz;Duty Cycle: 1:4
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1909.8 MHz; σ = 1.57 mho/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.42, 4.42, 4.42); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12b (Site 57); Type: SAM 4.0; Serial: TP:1031
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Front of EUT Facing Phantom - High/Area Scan 2 (91x131x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.617 mW/g
Front of EUT Facing Phantom - High/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = 0.045 dB
Peak SAR (extrapolated) = 0.844 W/kg
SAR(1 g) = 0.564 mW/g; SAR(10 g) = 0.361 mW/g
Maximum value of SAR (measured) = 0.608 mW/g

SCN/87208JD02/035: Front of EUT Facing Phantom PCS CH661
Date: 13/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

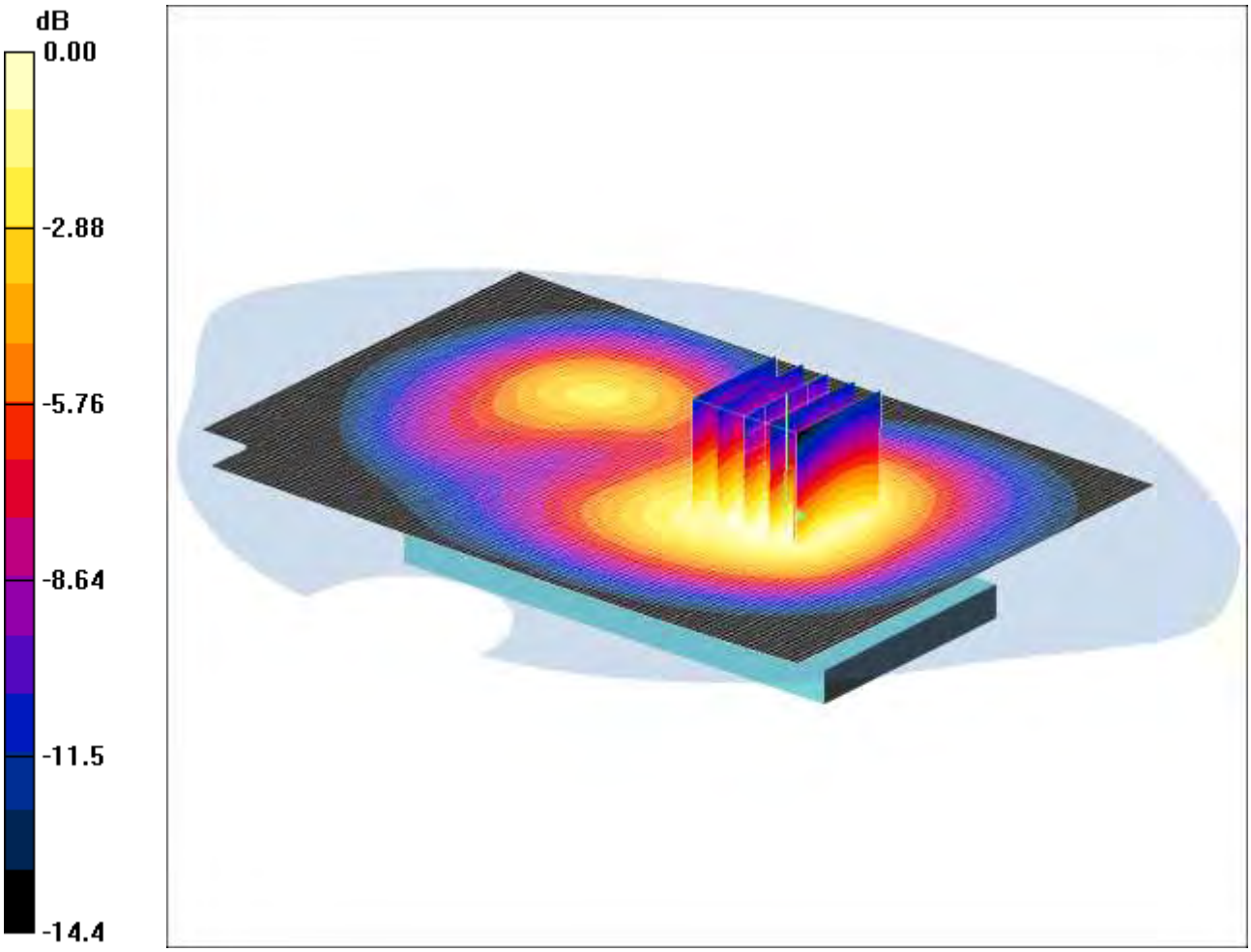


0 dB = 0.302mW/g

Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.42, 4.42, 4.42); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12b (Site 57); Type: SAM 4.0; Serial: TP:1031
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Front of EUT Facing Phantom - Middle 2/Area Scan 2 (91x131x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.303 mW/g
Front of EUT Facing Phantom - Middle 2/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.45 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 0.406 W/kg
SAR(1 g) = 0.282 mW/g; SAR(10 g) = 0.185 mW/g
Maximum value of SAR (measured) = 0.302 mW/g

SCN/87208JD02/036: Front of EUT Facing Phantom PCS CH512
Date: 13/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

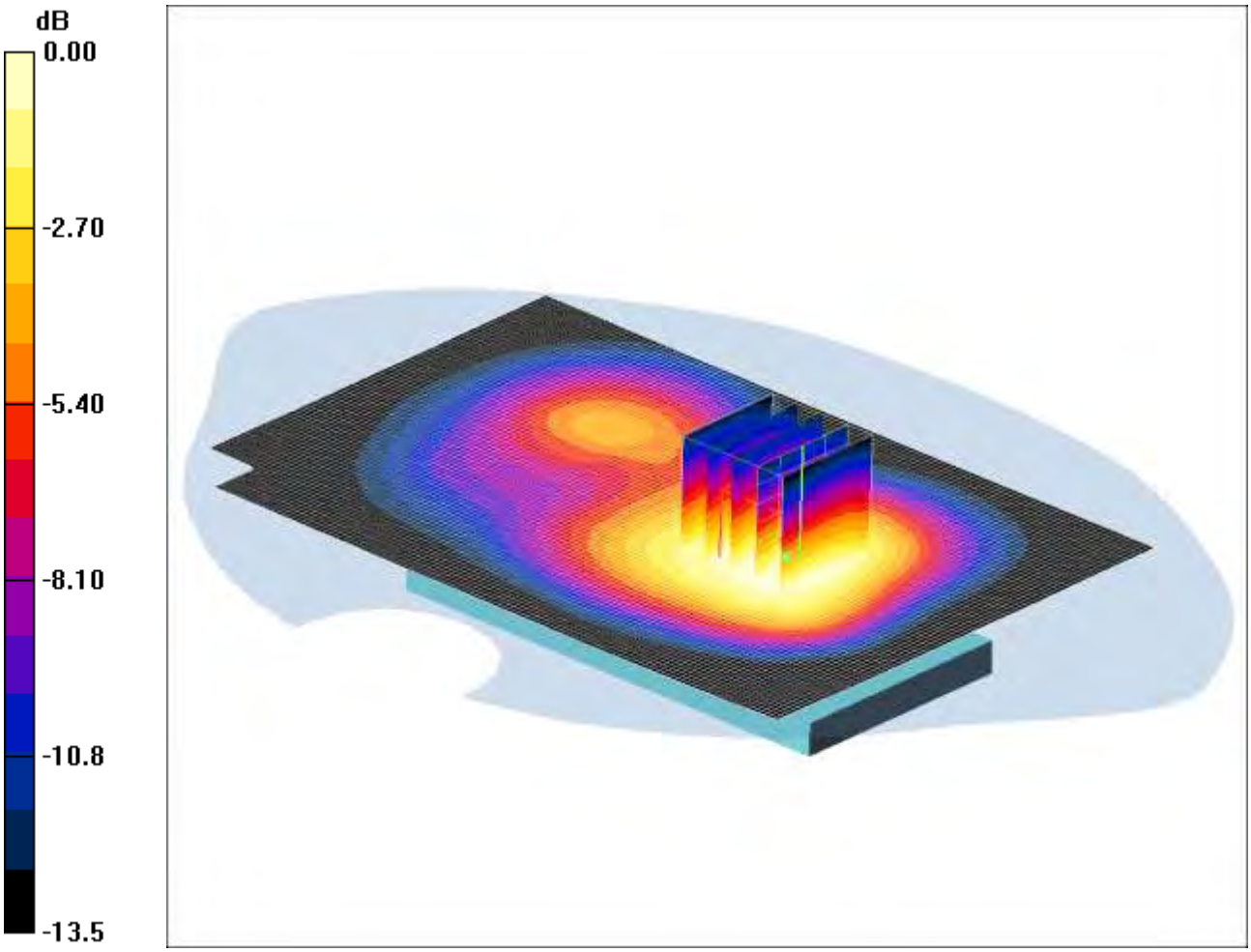


0 dB = 0.323mW/g

Communication System: PCS 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.5 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.42, 4.42, 4.42); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12b (Site 57); Type: SAM 4.0; Serial: TP:1031
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Front of EUT Facing Phantom - Low/Area Scan 2 (91x131x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.325 mW/g
Front of EUT Facing Phantom - Low/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.94 V/m; Power Drift = -0.022 dB
Peak SAR (extrapolated) = 0.426 W/kg
SAR(1 g) = 0.300 mW/g; SAR(10 g) = 0.198 mW/g
Maximum value of SAR (measured) = 0.323 mW/g

SCN/87208JD02/037: Front of EUT Facing Phantom PCS CH810
Date: 13/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

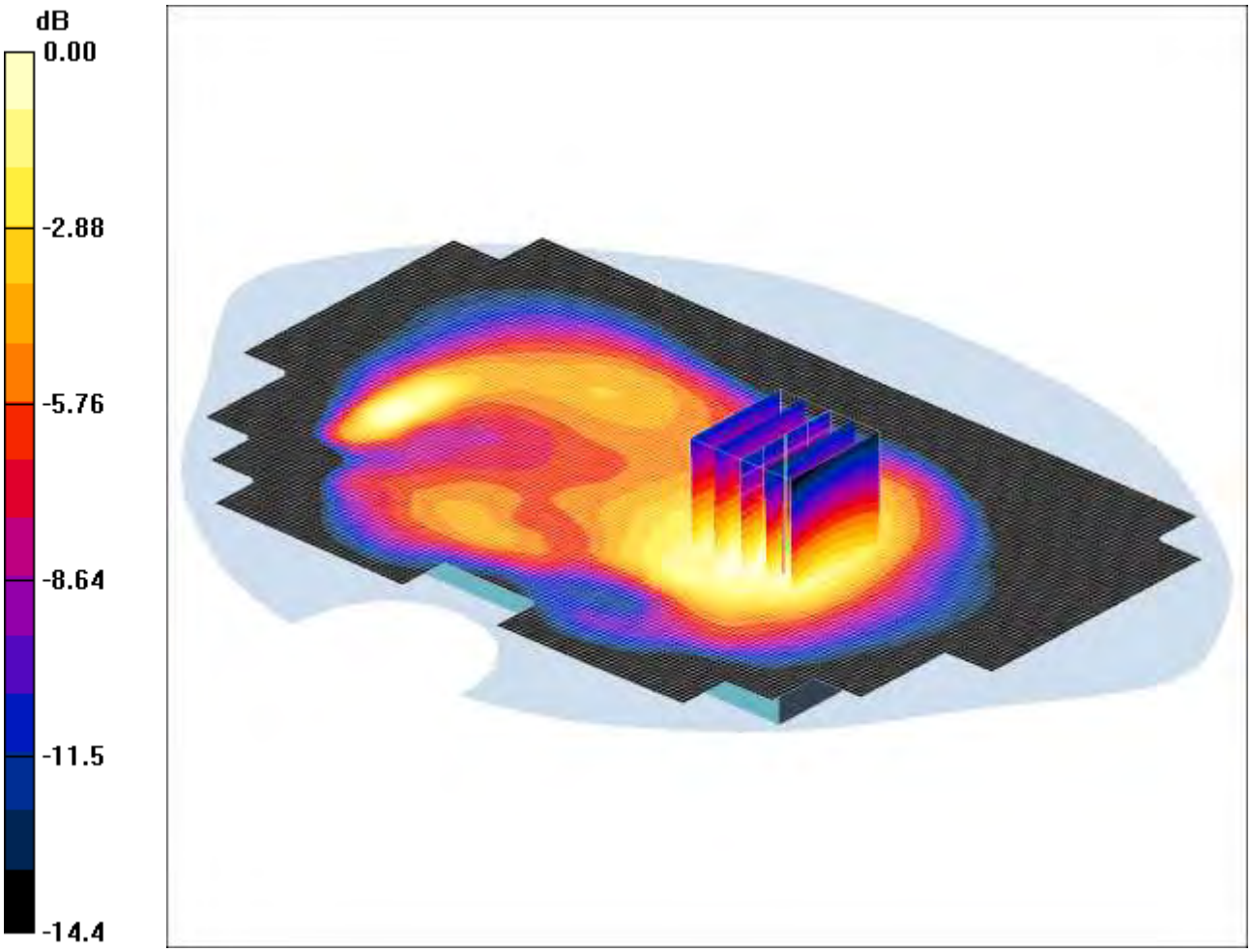


0 dB = 0.295mW/g

Communication System: PCS 1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1909.8 MHz; σ = 1.57 mho/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.42, 4.42, 4.42); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12b (Site 57); Type: SAM 4.0; Serial: TP:1031
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Front of EUT Facing Phantom - High/Area Scan 2 (91x131x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.300 mW/g
Front of EUT Facing Phantom - High/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.90 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.402 W/kg
SAR(1 g) = 0.275 mW/g; SAR(10 g) = 0.179 mW/g
Maximum value of SAR (measured) = 0.295 mW/g

SCN/87208JD02/038: Front of EUT Facing Phantom with PHF PCS CH512
Date: 13/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HPR

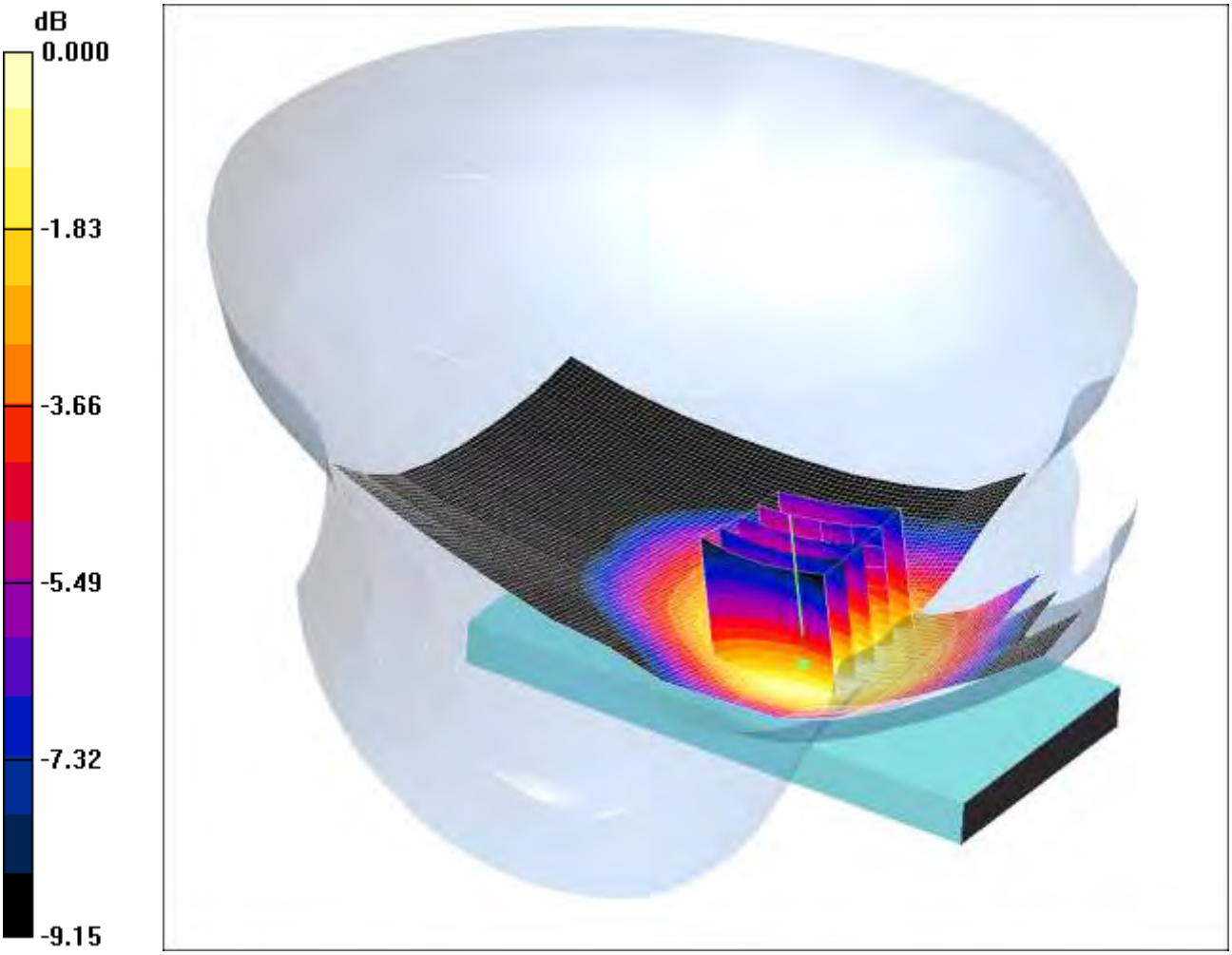


0 dB = 0.295mW/g

Communication System: PCS 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.5 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.42, 4.42, 4.42); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12b (Site 57); Type: SAM 4.0; Serial: TP:1031
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Front of EUT Facing Phantom with PHF - Low/Area Scan (101x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.295 mW/g
Front of EUT Facing Phantom with PHF - Low/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.24 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.404 W/kg
SAR(1 g) = 0.275 mW/g; SAR(10 g) = 0.179 mW/g
Maximum value of SAR (measured) = 0.295 mW/g

SCN/87208JD02/039: Touch Left UMTS FDD 5 CH4183
Date: 31/07/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

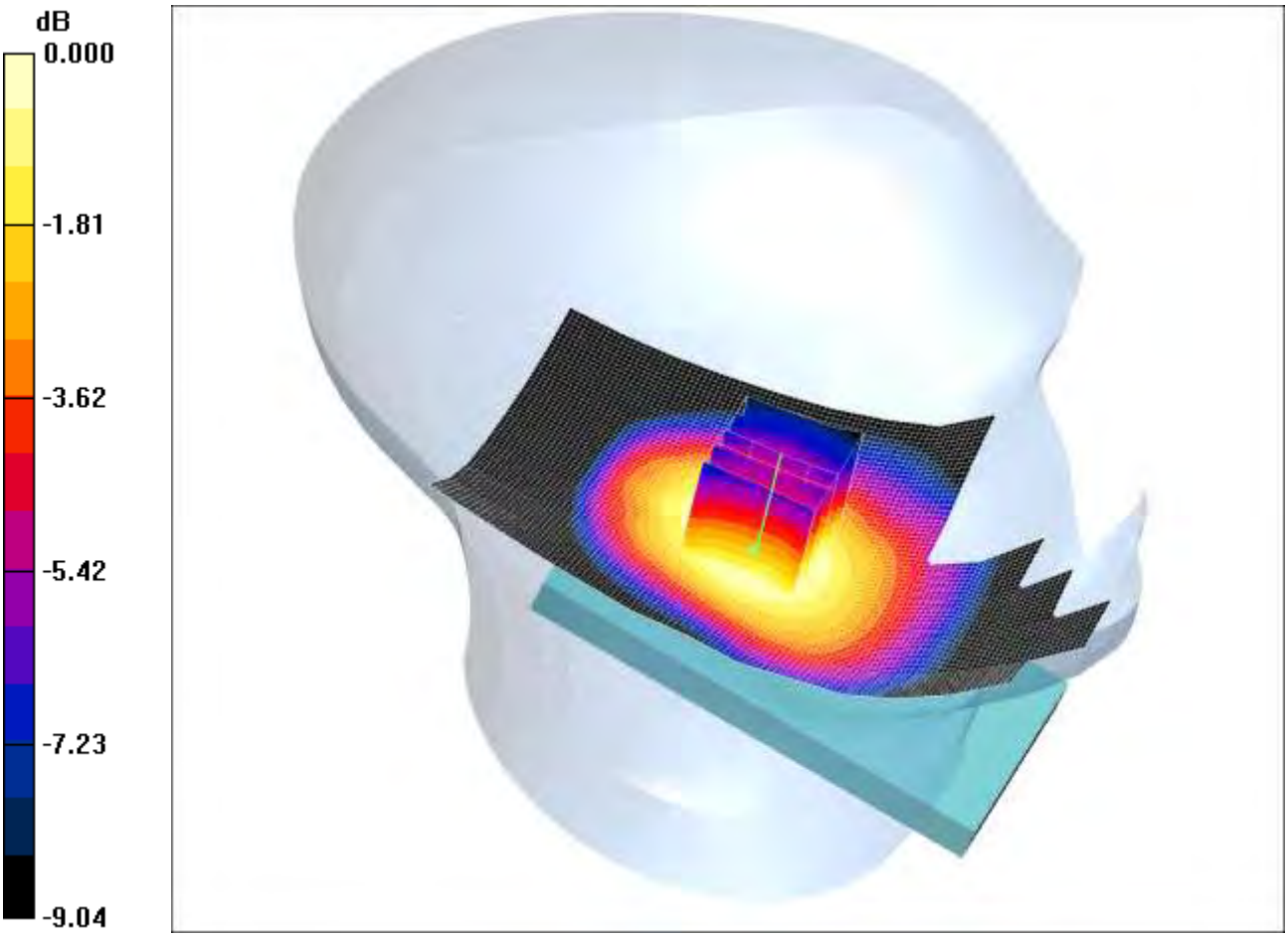


0 dB = 0.735mW/g

Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.917 mho/m; ε_r = 43.8; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.772 mW/g
Touch Left - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.42 V/m; Power Drift = -0.055 dB
Peak SAR (extrapolated) = 0.905 W/kg
SAR(1 g) = 0.705 mW/g; SAR(10 g) = 0.533 mW/g
Maximum value of SAR (measured) = 0.735 mW/g

SCN/87208JD02/040: Tilt Left UMTS FDD 5 CH4183
Date: 31/07/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

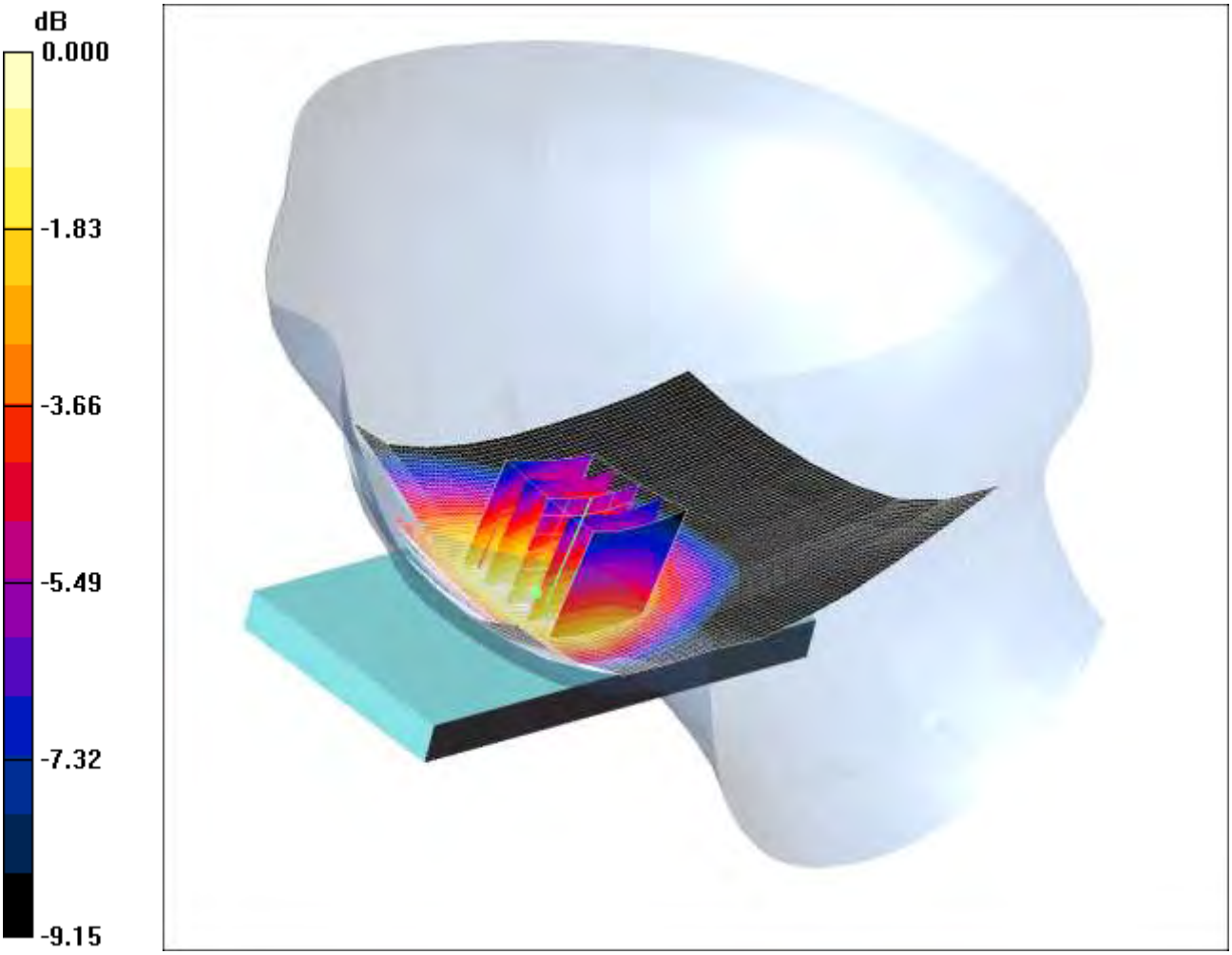


0 dB = 0.592mW/g

Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.917 mho/m; ε_r = 43.8; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.594 mW/g
Tilt Left - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = -0.016 dB
Peak SAR (extrapolated) = 0.707 W/kg
SAR(1 g) = 0.566 mW/g; SAR(10 g) = 0.428 mW/g
Maximum value of SAR (measured) = 0.592 mW/g

SCN/87208JD02/041: Touch Right UMTS FDD 5 CH4183
Date: 31/07/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

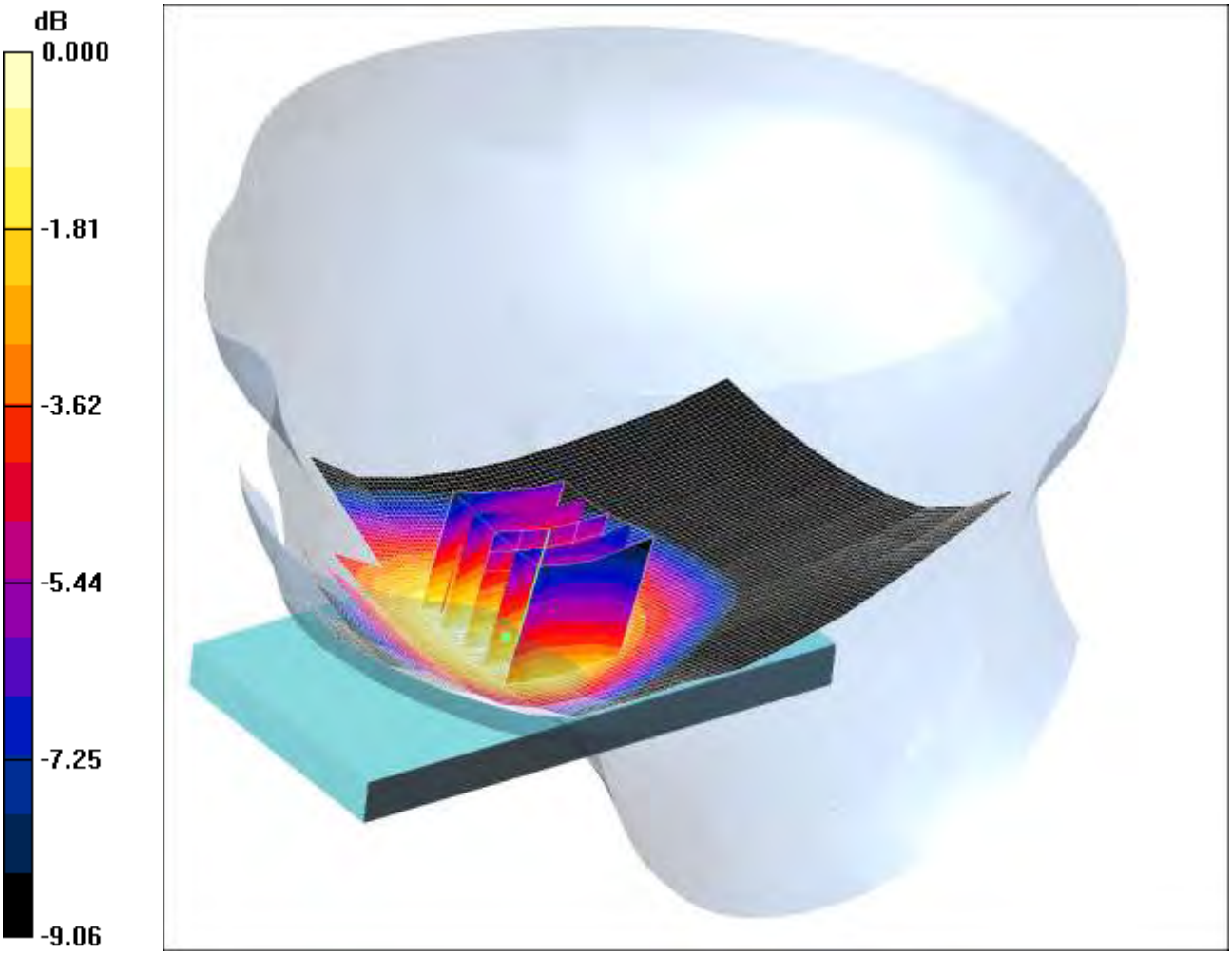


0 dB = 0.844mW/g

Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.917 mho/m; ε_r = 43.8; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Right - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.846 mW/g
Touch Right - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.79 V/m; Power Drift = 0.011 dB
Peak SAR (extrapolated) = 0.995 W/kg
SAR(1 g) = 0.810 mW/g; SAR(10 g) = 0.619 mW/g
Maximum value of SAR (measured) = 0.844 mW/g

SCN/87208JD02/042: Touch Right UMTS FDD 5 CH4132
Date: 01/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

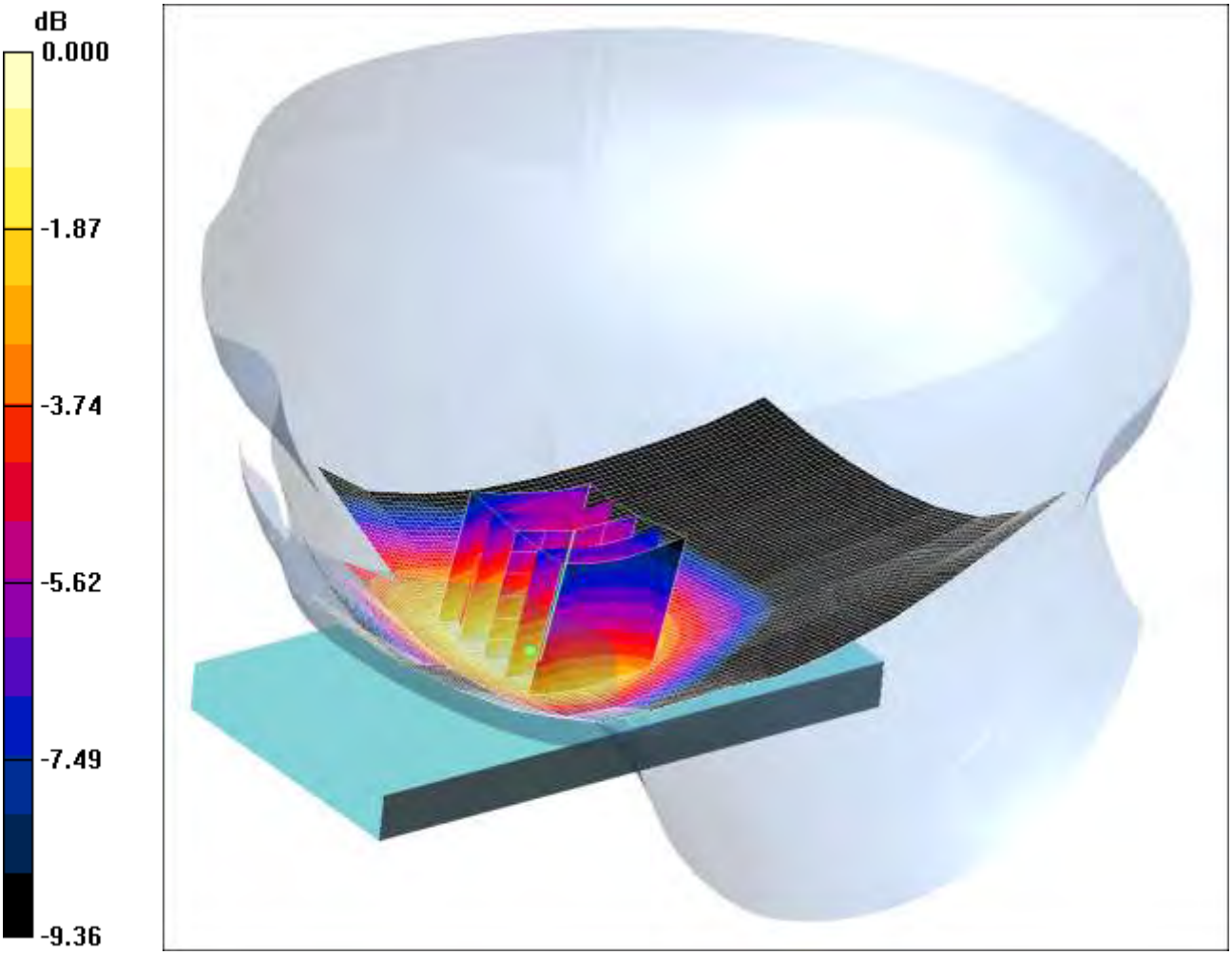


0 dB = 0.865mW/g

Communication System: UMTS-FDD 5; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.915 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Right - Low/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.894 mW/g
Touch Right - Low/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.81 V/m; Power Drift = 0.157 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.830 mW/g; SAR(10 g) = 0.636 mW/g
Maximum value of SAR (measured) = 0.865 mW/g

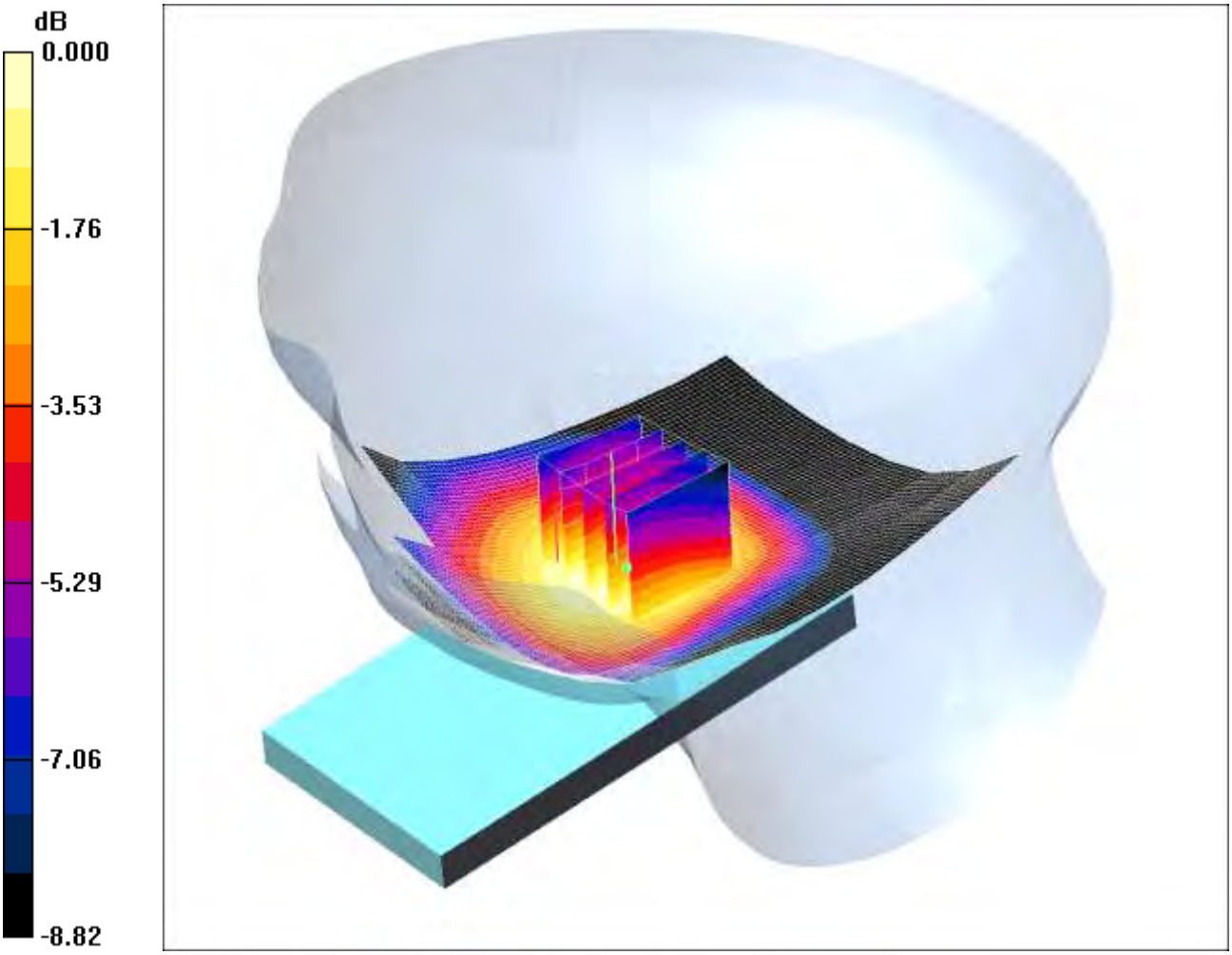
SCN/87208JD02/043: Touch Right UMTS FDD 5 CH4233
Date: 01/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9



0 dB = 0.981mW/g
Communication System: UMTS-FDD 5; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.929 mho/m; ε_r = 42.2; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Right - High/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.998 mW/g
Touch Right - High/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.90 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.940 mW/g; SAR(10 g) = 0.715 mW/g
Maximum value of SAR (measured) = 0.981 mW/g

SCN/87208JD02/044: Tilt Right UMTS FDD 5 CH4183
Date: 01/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

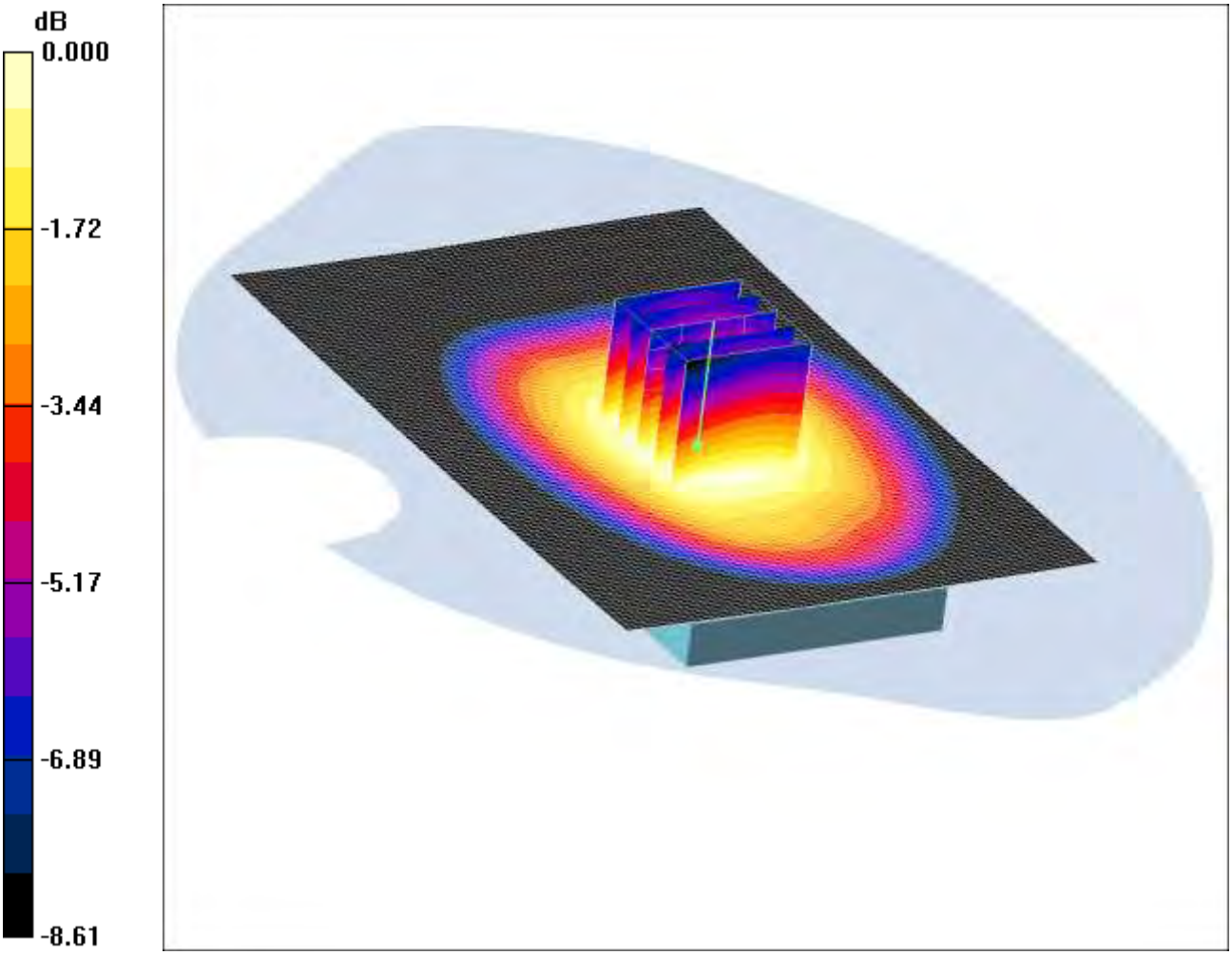


0 dB = 0.443mW/g

Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.922 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt Right - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.453 mW/g
Tilt Right - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.4 V/m; Power Drift = -0.071 dB
Peak SAR (extrapolated) = 0.527 W/kg
SAR(1 g) = 0.426 mW/g; SAR(10 g) = 0.325 mW/g
Maximum value of SAR (measured) = 0.443 mW/g

SCN/87208JD02/045: Front of EUT Facing Phantom UMTS FDD 5 CH4183
Date: 02/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

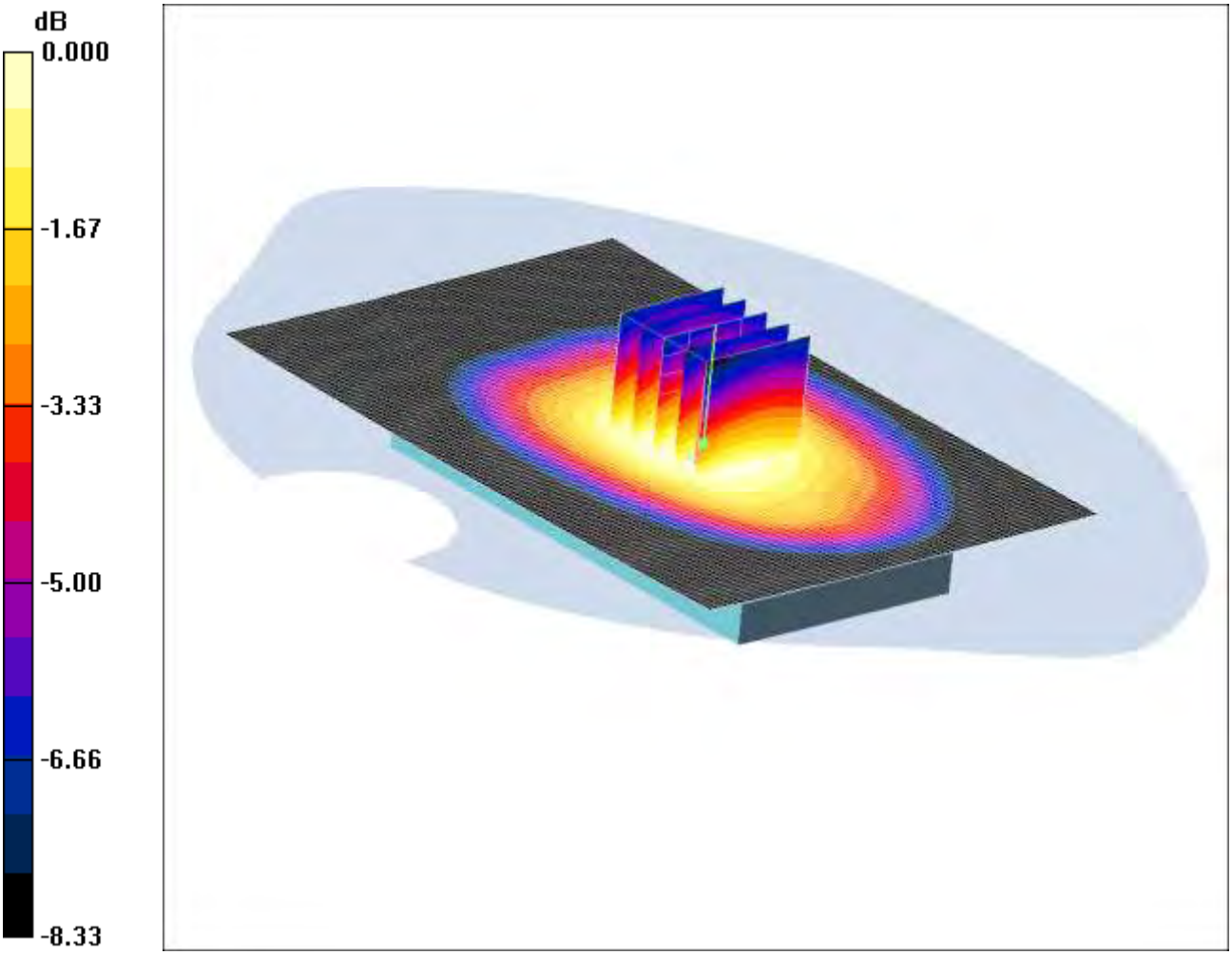


0 dB = 1.05mW/g

Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.07 mW/g
Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.6 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.937 mW/g; SAR(10 g) = 0.720 mW/g
Maximum value of SAR (measured) = 1.05 mW/g

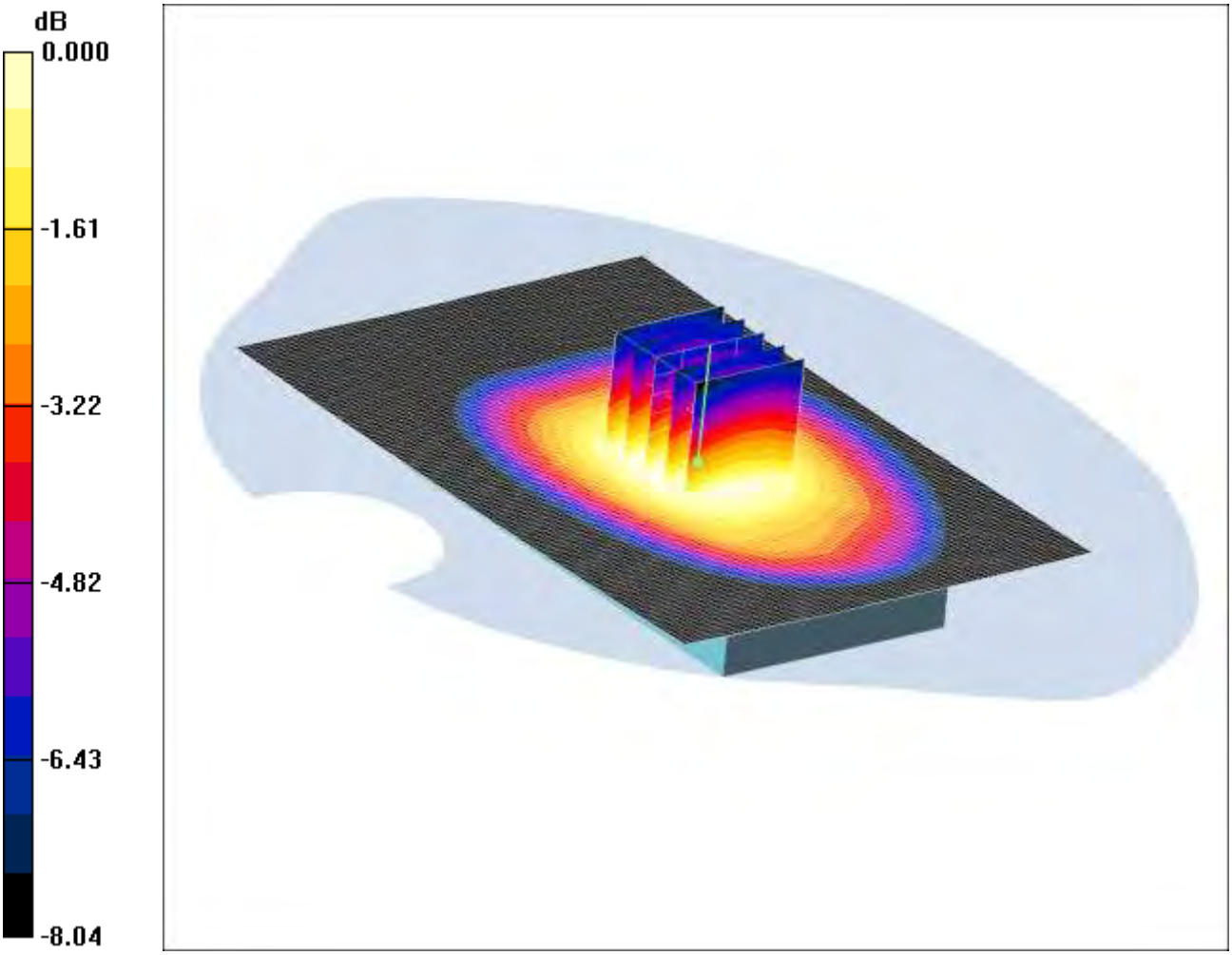
SCN/87208JD02/046: Front of EUT Facing Phantom UMTS FDD 5 CH4132
Date: 02/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9



0 dB = 1.08mW/g
Communication System: UMTS-FDD 5; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 826.4 MHz; σ = 1 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front of EUT Facing Phantom - Low/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.08 mW/g
Front of EUT Facing Phantom - Low/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.4 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.962 mW/g; SAR(10 g) = 0.739 mW/g
Maximum value of SAR (measured) = 1.08 mW/g

SCN/87208JD02/047: Front of EUT Facing Phantom UMTS FDD 5 CH4233
Date: 02/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

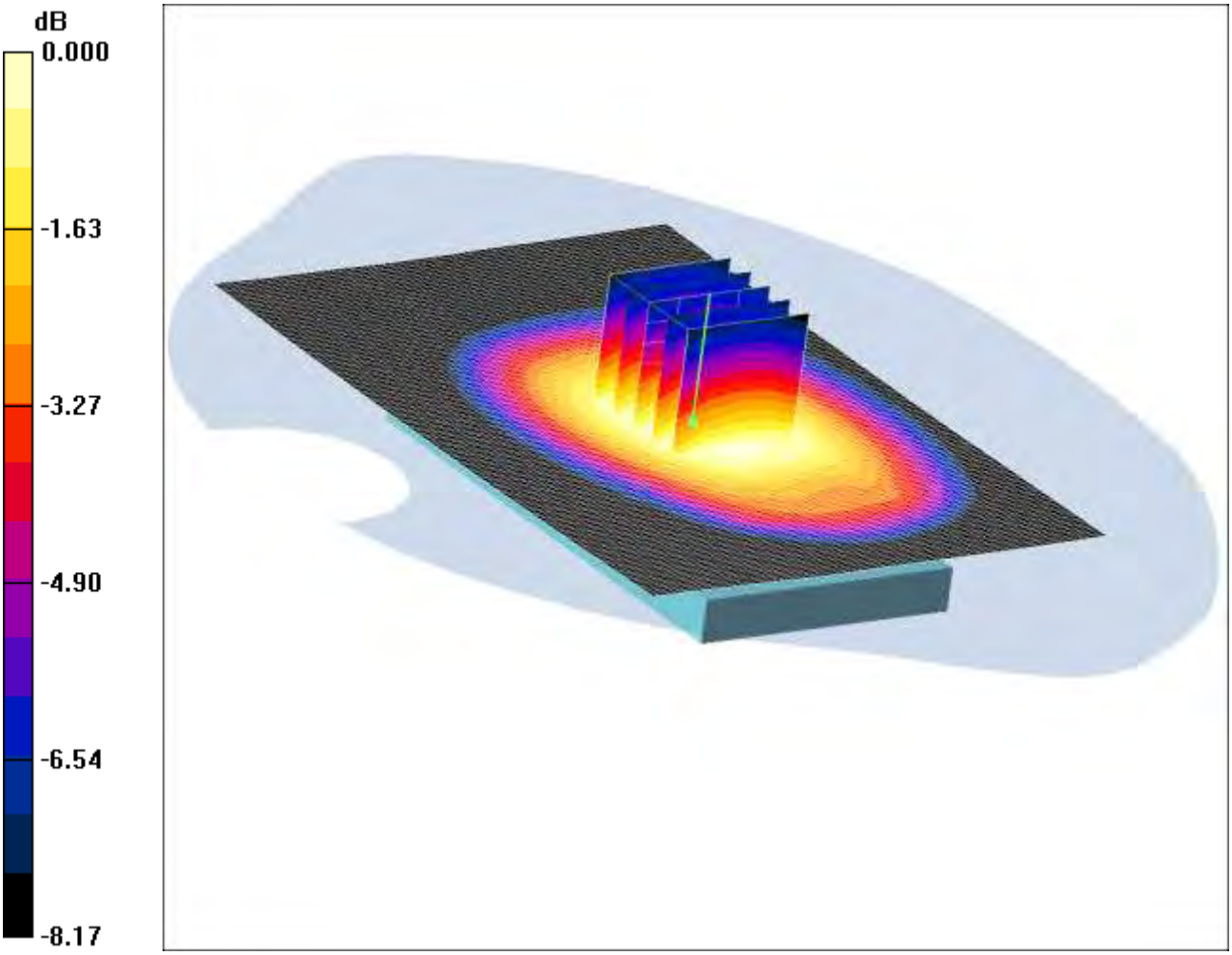


0 dB = 1.15mW/g

Communication System: UMTS-FDD 5; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 846.6 MHz; σ = 1.02 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front of EUT Facing Phantom - High/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.15 mW/g
Front of EUT Facing Phantom - High/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.3 V/m; Power Drift = 0.071 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.787 mW/g
Maximum value of SAR (measured) = 1.15 mW/g

SCN/87208JD02/048: Back of EUT Facing Phantom UMTS FDD 5 CH4183
Date: 02/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

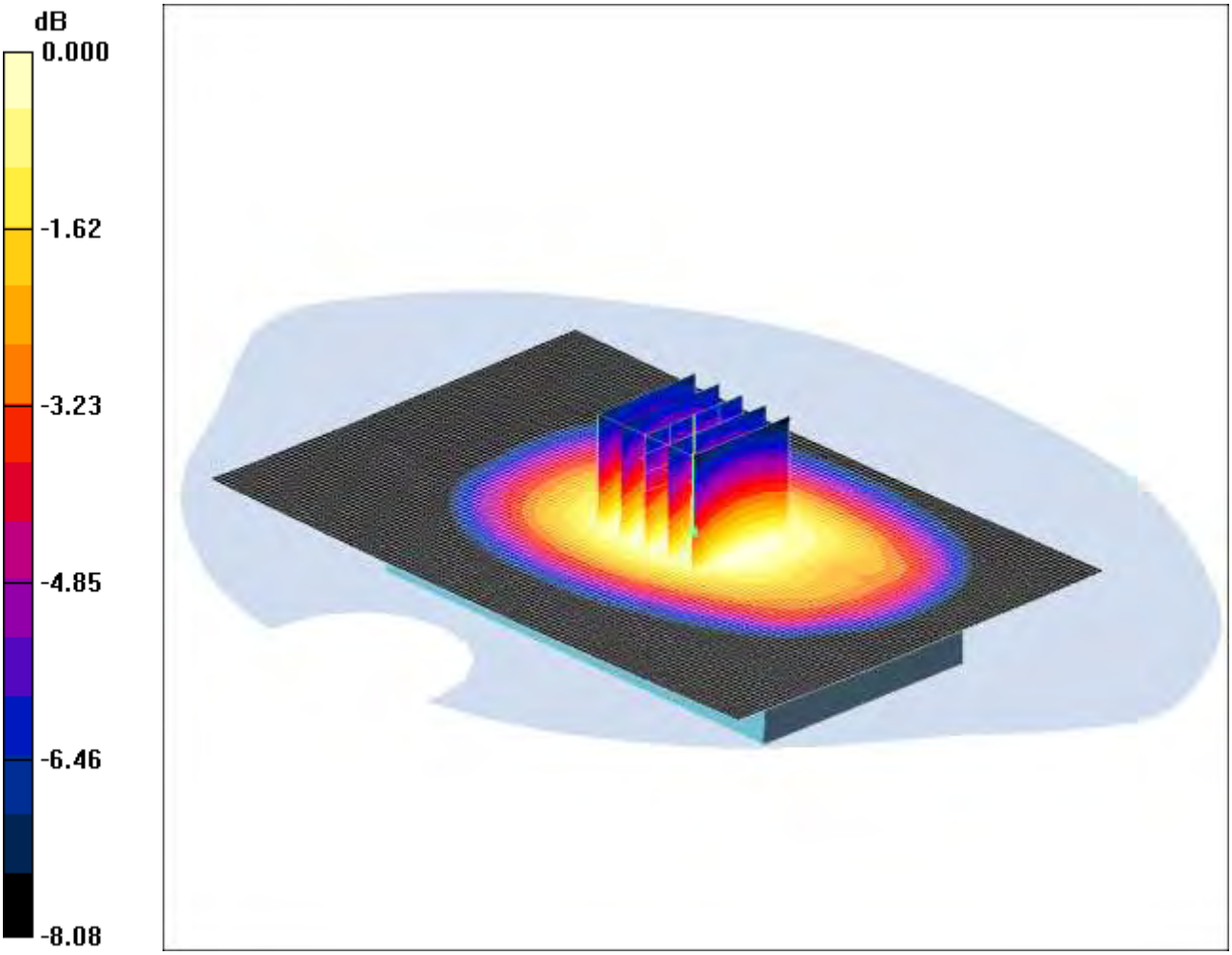


0 dB = 1.31mW/g

Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.29 mW/g
Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.9 V/m; Power Drift = -0.043 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.867 mW/g
Maximum value of SAR (measured) = 1.31 mW/g

SCN/87208JD02/049: Back of EUT Facing Phantom UMTS FDD 5 CH4132
Date: 02/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

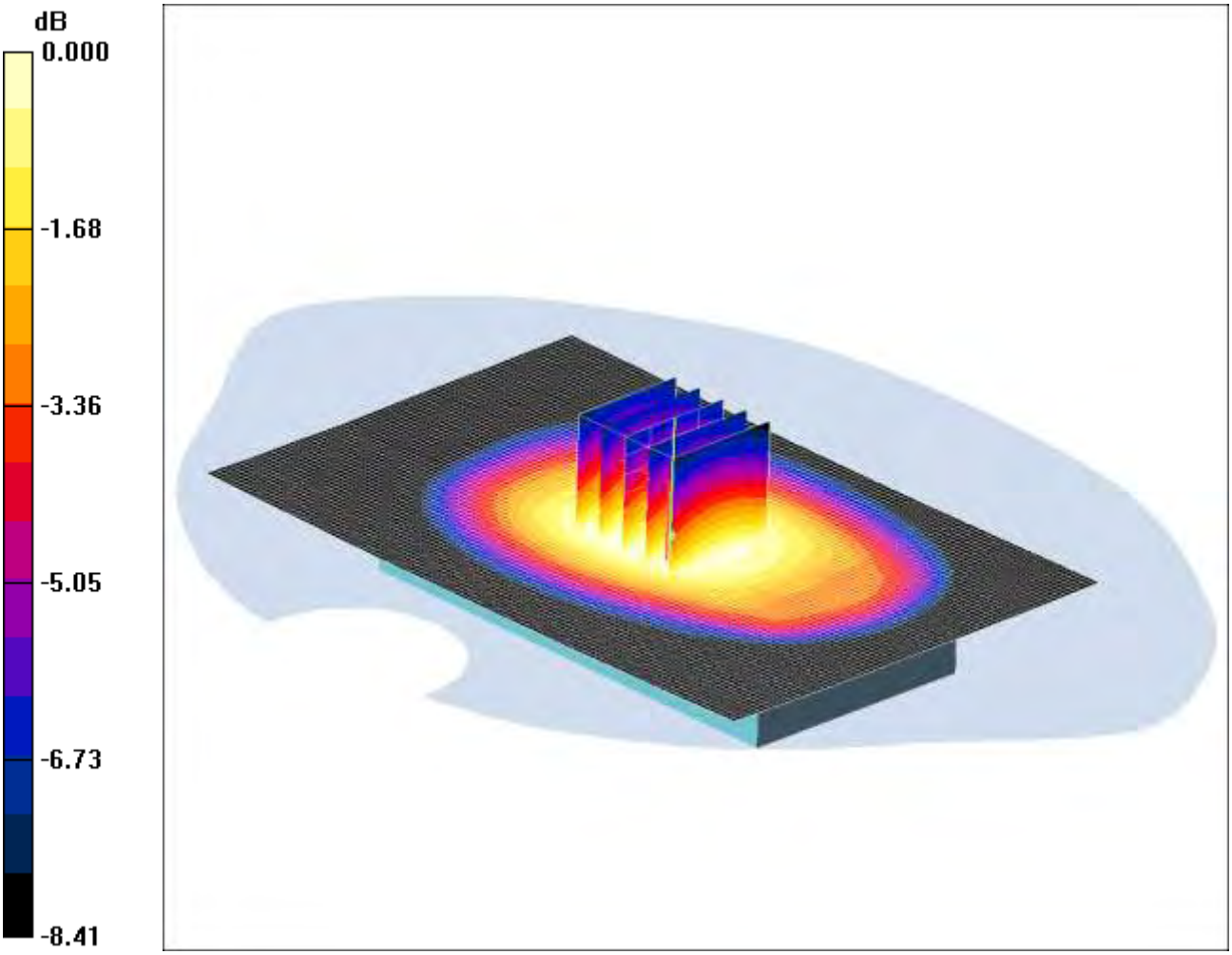


0 dB = 1.23mW/g

Communication System: UMTS-FDD 5; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 826.4 MHz; σ = 1 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom - Low/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.25 mW/g
Back of EUT Facing Phantom - Low/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.1 V/m; Power Drift = -0.114 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.830 mW/g
Maximum value of SAR (measured) = 1.23 mW/g

SCN/87208JD02/050: Back of EUT Facing Phantom UMTS FDD 5 CH4233
Date: 03/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

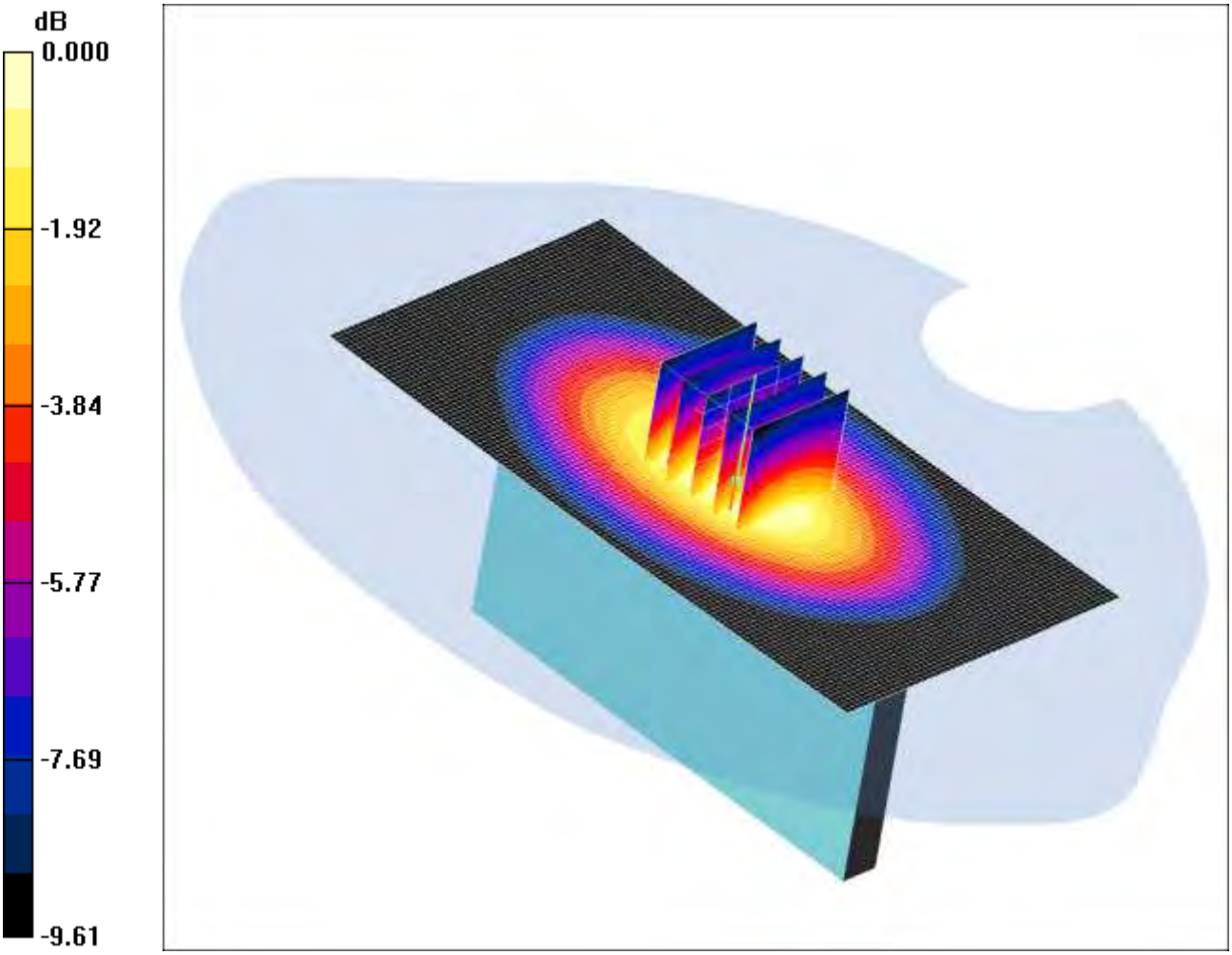


0 dB = 1.20mW/g

Communication System: UMTS-FDD 5; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 846.6 MHz; σ = 1.02 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom - High/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.22 mW/g
Back of EUT Facing Phantom - High/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.8 V/m; Power Drift = 0.057 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.807 mW/g
Maximum value of SAR (measured) = 1.20 mW/g

SCN/87208JD02/051: Left Hand Side of EUT Facing Phantom UMTS FDD 5 CH4183
Date: 03/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

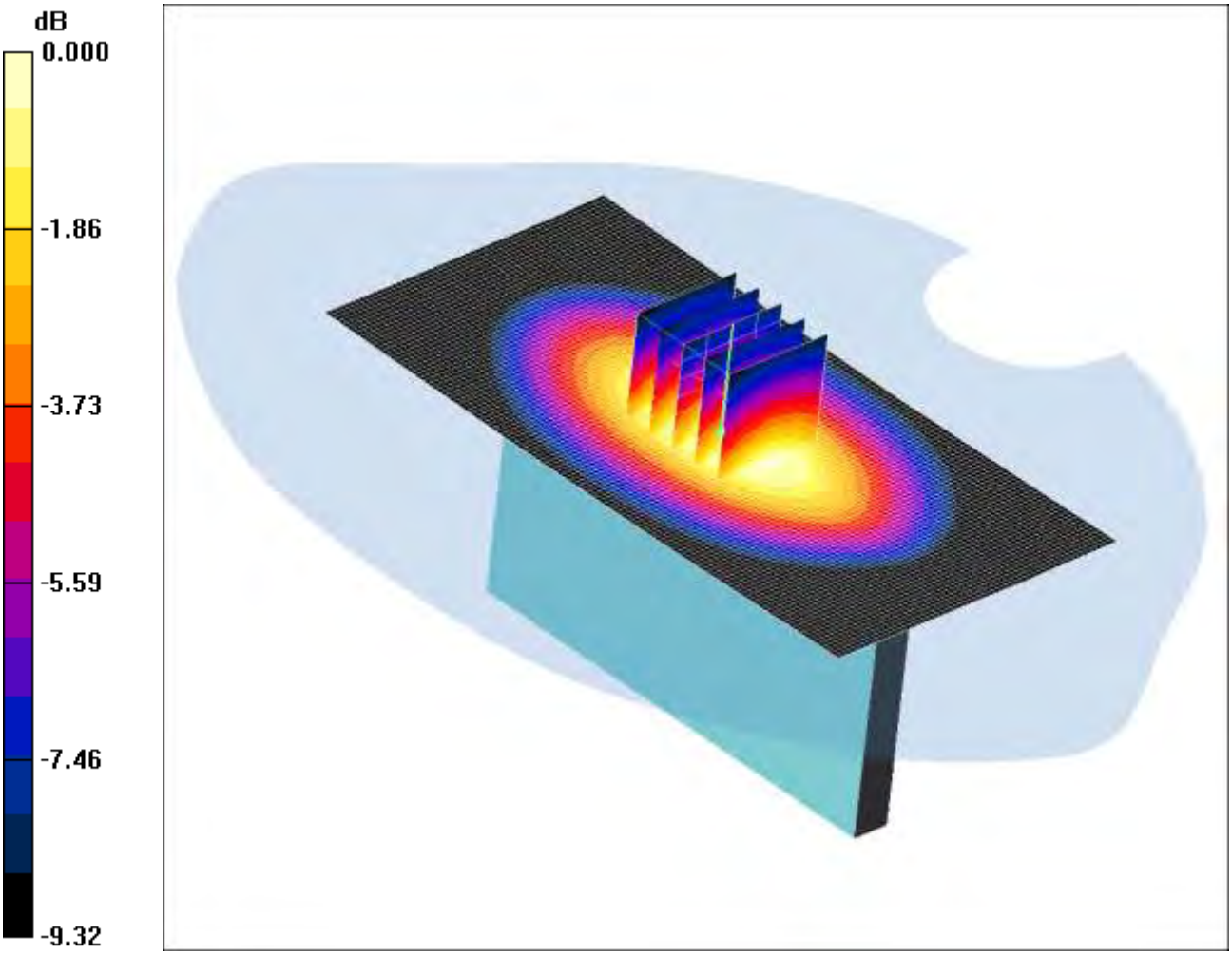


0 dB = 1.31mW/g

Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Left Hand Side of EUT Facing Phantom - Middle/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.32 mW/g
Left Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.9 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.757 mW/g
Maximum value of SAR (measured) = 1.31 mW/g

SCN/87208JD02/052: Left Hand Side of EUT Facing Phantom UMTS FDD 5 CH4132
Date: 03/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

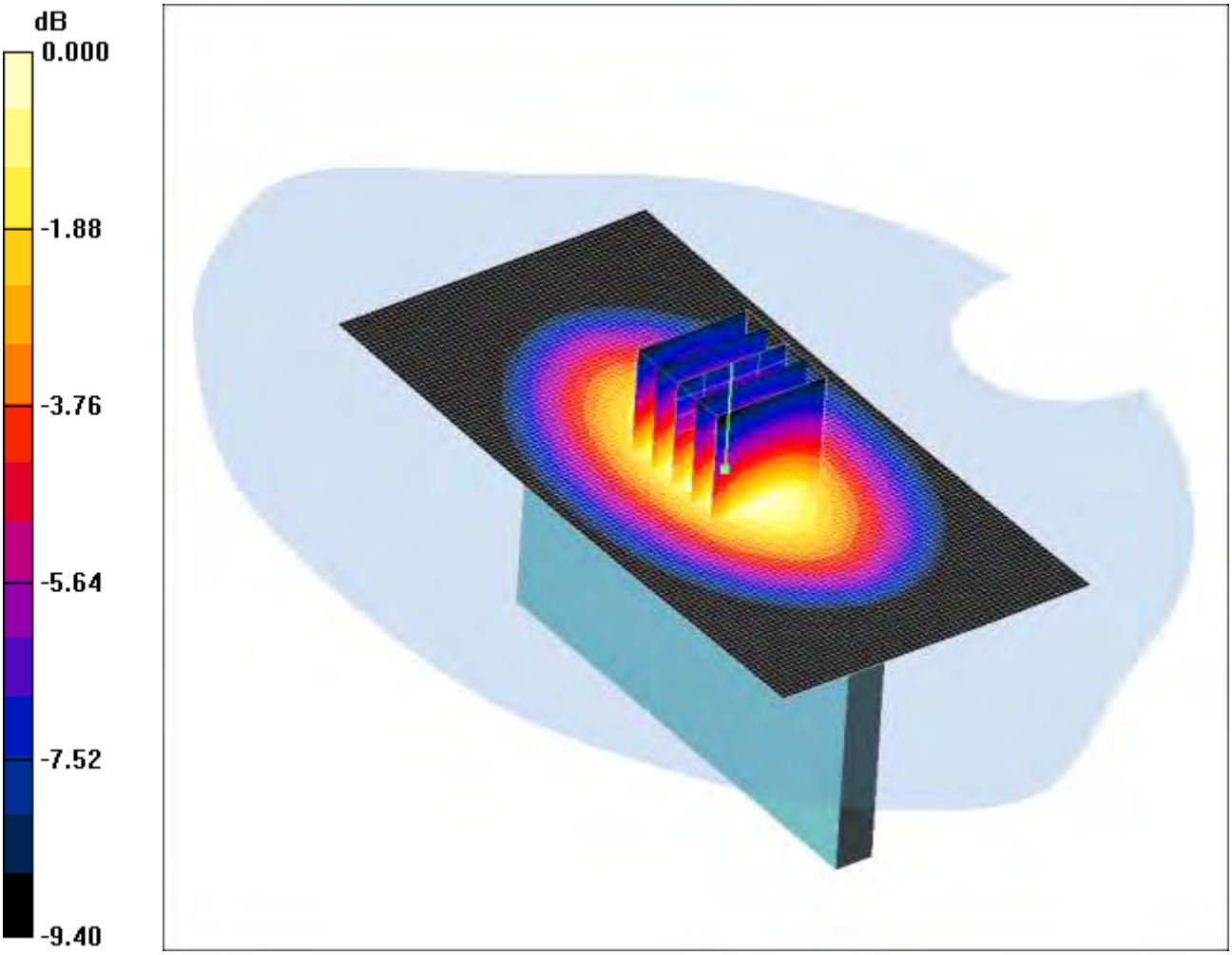


0 dB = 1.20mW/g

Communication System: UMTS-FDD 5; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 826.4 MHz; σ = 1 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Left Hand Side of EUT Facing Phantom - Low/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.23 mW/g
Left Hand Side of EUT Facing Phantom - Low/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.1 V/m; Power Drift = -0.084 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.712 mW/g
Maximum value of SAR (measured) = 1.20 mW/g

SCN/87208JD02/053: Left Hand Side of EUT Facing Phantom UMTS FDD 5 CH4233
Date: 03/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

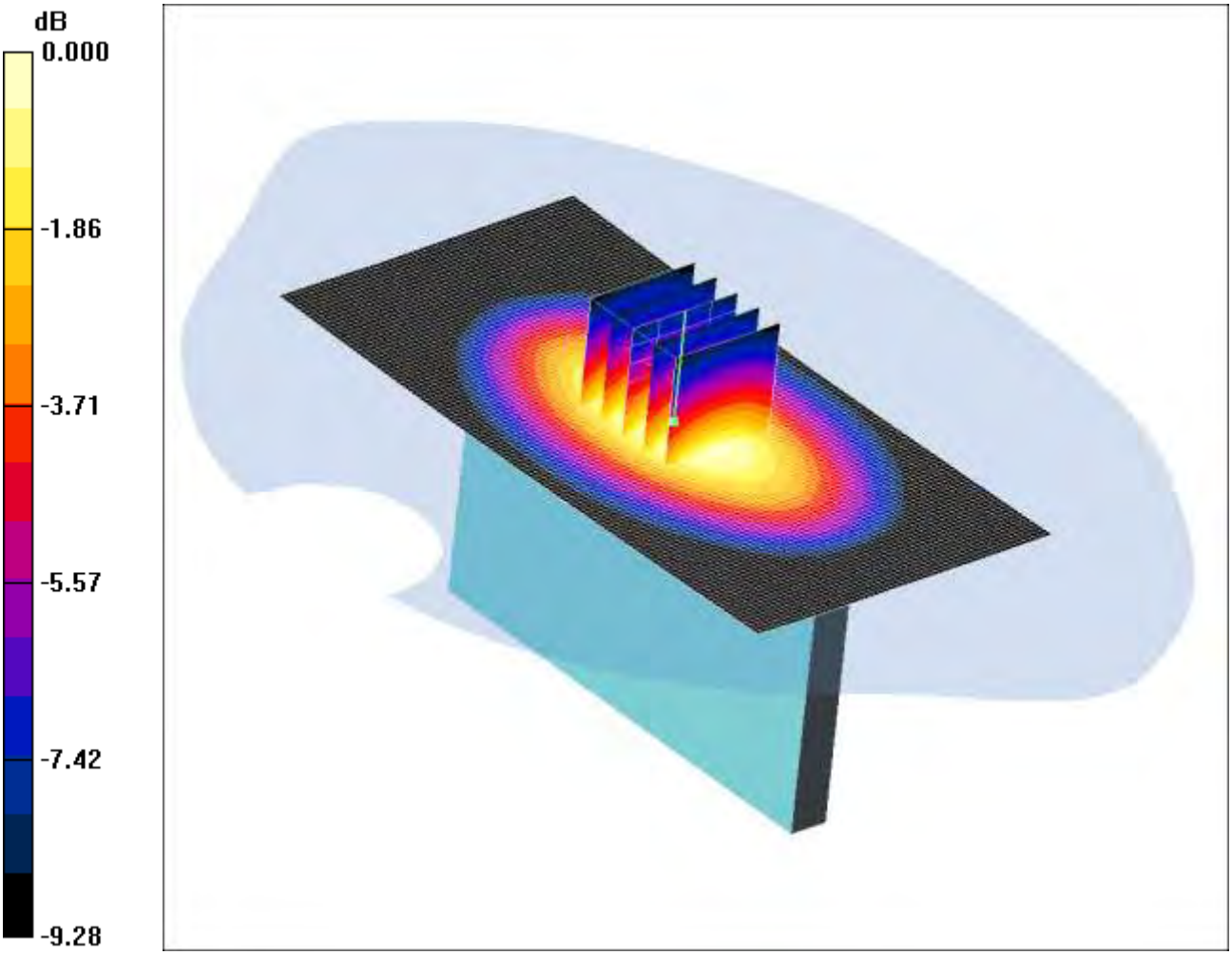


0 dB = 1.21mW/g

Communication System: UMTS-FDD 5; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 846.6 MHz; σ = 1.02 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Left Hand Side of EUT Facing Phantom - High/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.23 mW/g
Left Hand Side of EUT Facing Phantom - High/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.3 V/m; Power Drift = 0.116 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.716 mW/g
Maximum value of SAR (measured) = 1.21 mW/g

SCN/87208JD02/054: Right Hand Side of EUT Facing Phantom UMTS FDD 5 CH4183
Date: 03/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

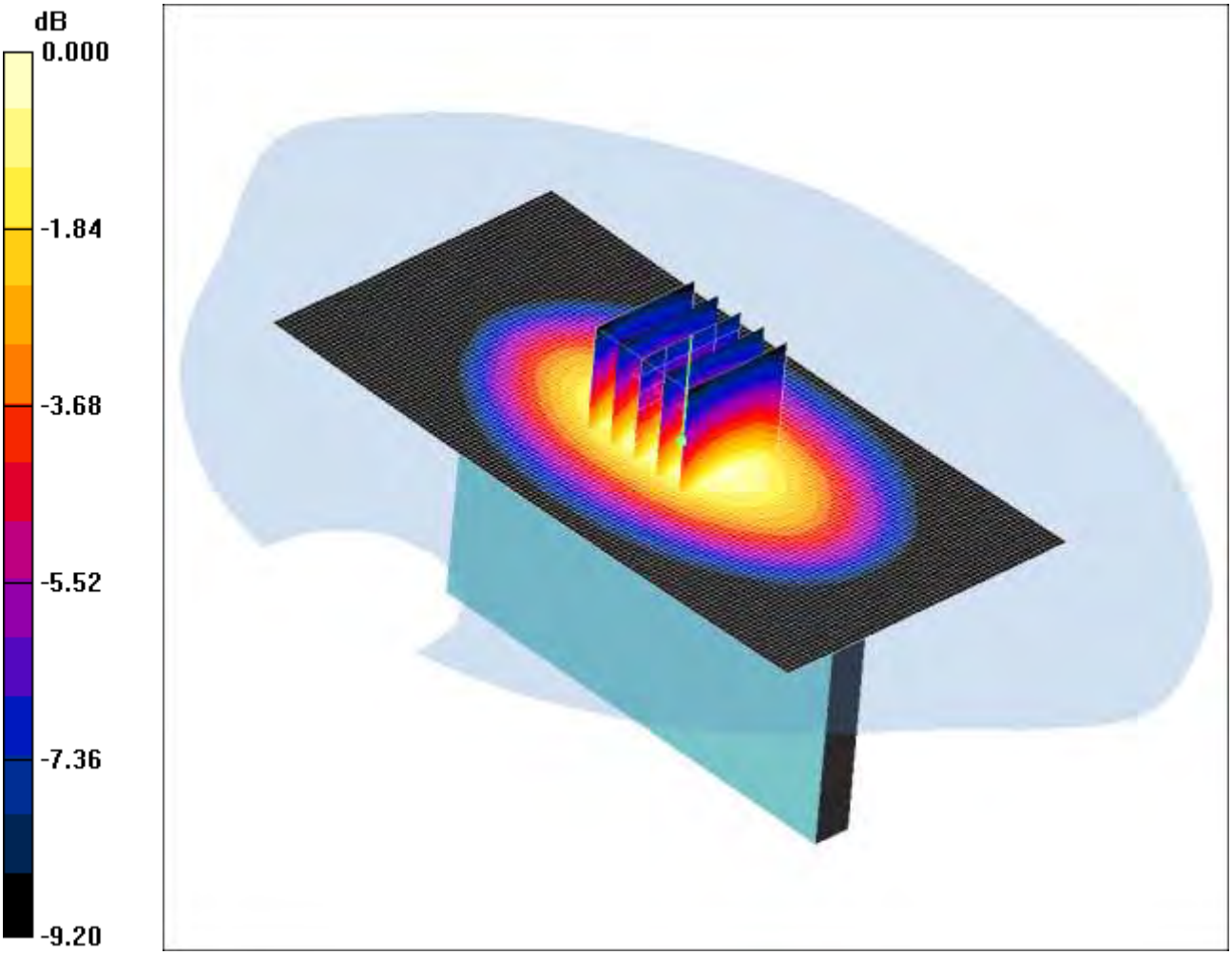


0 dB = 1.59mW/g

Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Right Hand Side of EUT Facing Phantom - Middle 2/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.62 mW/g
Right Hand Side of EUT Facing Phantom - Middle 2/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 40.2 V/m; Power Drift = -0.067 dB
Peak SAR (extrapolated) = 1.90 W/kg
SAR(1 g) = 1.35 mW/g; SAR(10 g) = 0.943 mW/g
Maximum value of SAR (measured) = 1.59 mW/g

SCN/87208JD02/055: Right Hand Side of EUT Facing Phantom UMTS FDD 5 CH4132
Date: 03/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

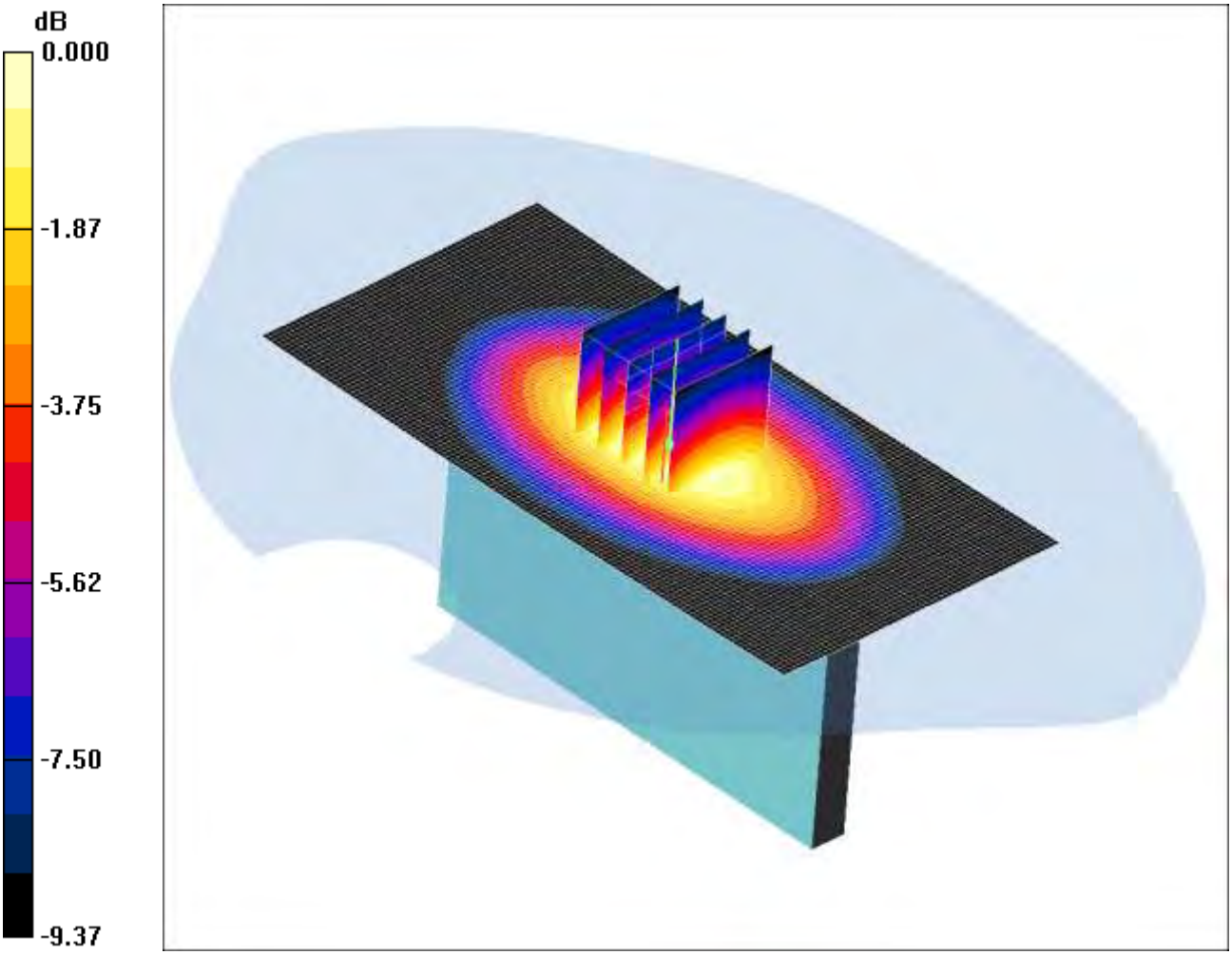


0 dB = 1.37mW/g

Communication System: UMTS-FDD 5; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 826.4 MHz; σ = 1 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Right Hand Side of EUT Facing Phantom - Low/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.37 mW/g
Right Hand Side of EUT Facing Phantom - Low/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 36.8 V/m; Power Drift = 0.101 dB
Peak SAR (extrapolated) = 1.63 W/kg
SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.801 mW/g
Maximum value of SAR (measured) = 1.37 mW/g

SCN/87208JD02/056: Right Hand Side of EUT Facing Phantom UMTS FDD 5 CH4233
Date: 03/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

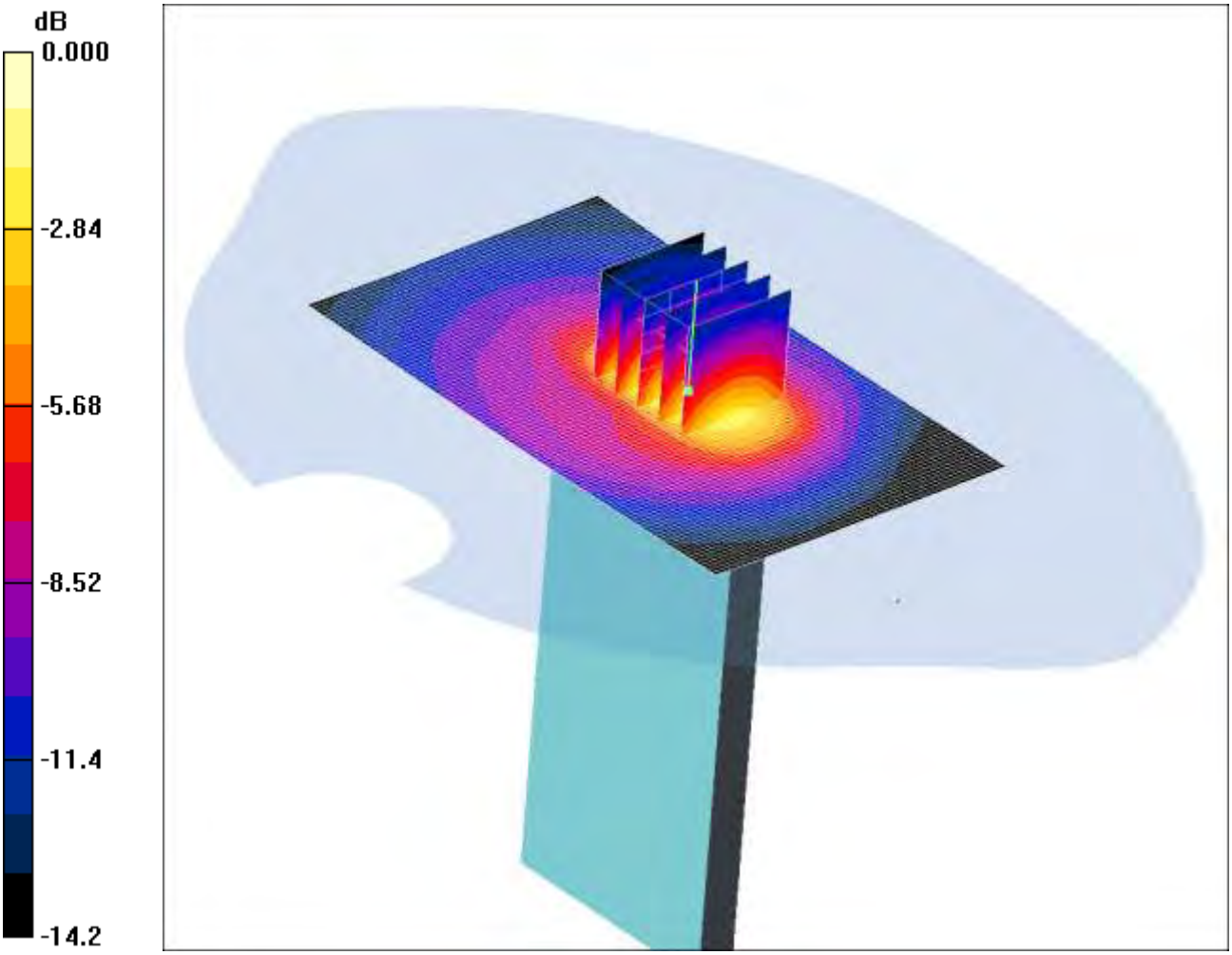


0 dB = 1.35mW/g

Communication System: UMTS-FDD 5; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 846.6 MHz; σ = 1.02 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Right Hand Side of EUT Facing Phantom - High/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.34 mW/g
Right Hand Side of EUT Facing Phantom - High/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 36.6 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 1.60 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.788 mW/g
Maximum value of SAR (measured) = 1.35 mW/g

SCN/87208JD02/057: Bottom of EUT Facing Phantom UMTS FDD 5 CH4183
Date: 03/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

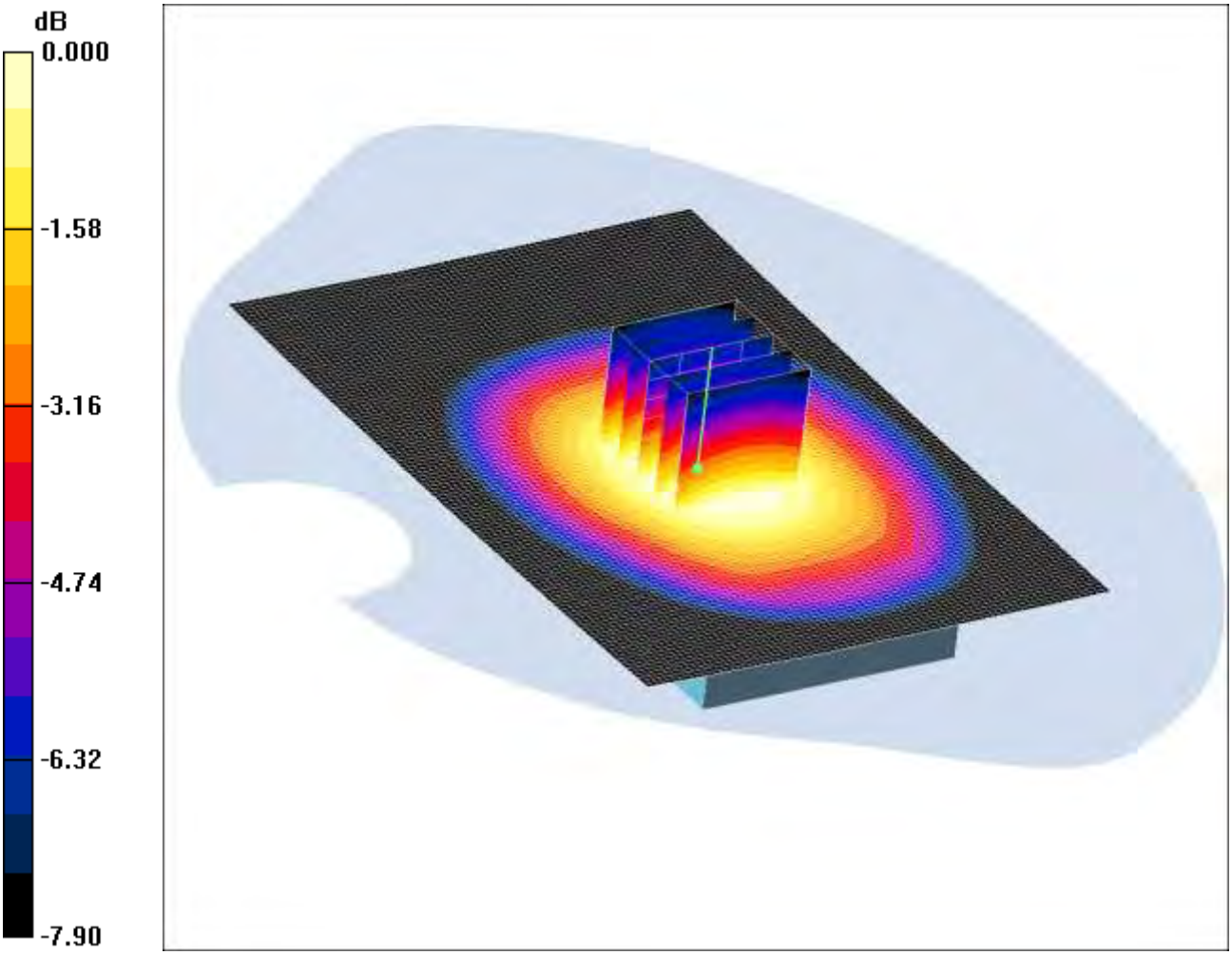


0 dB = 0.377mW/g

Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Bottom of EUT Facing Phantom - Middle 2/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.352 mW/g
Bottom of EUT Facing Phantom - Middle 2/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.1 V/m; Power Drift = 0.076 dB
Peak SAR (extrapolated) = 0.506 W/kg
SAR(1 g) = 0.278 mW/g; SAR(10 g) = 0.155 mW/g
Maximum value of SAR (measured) = 0.377 mW/g

SCN/87208JD02/058: Back of EUT Facing Phantom at 15mm UMTS FDD 5 CH4183
Date: 03/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

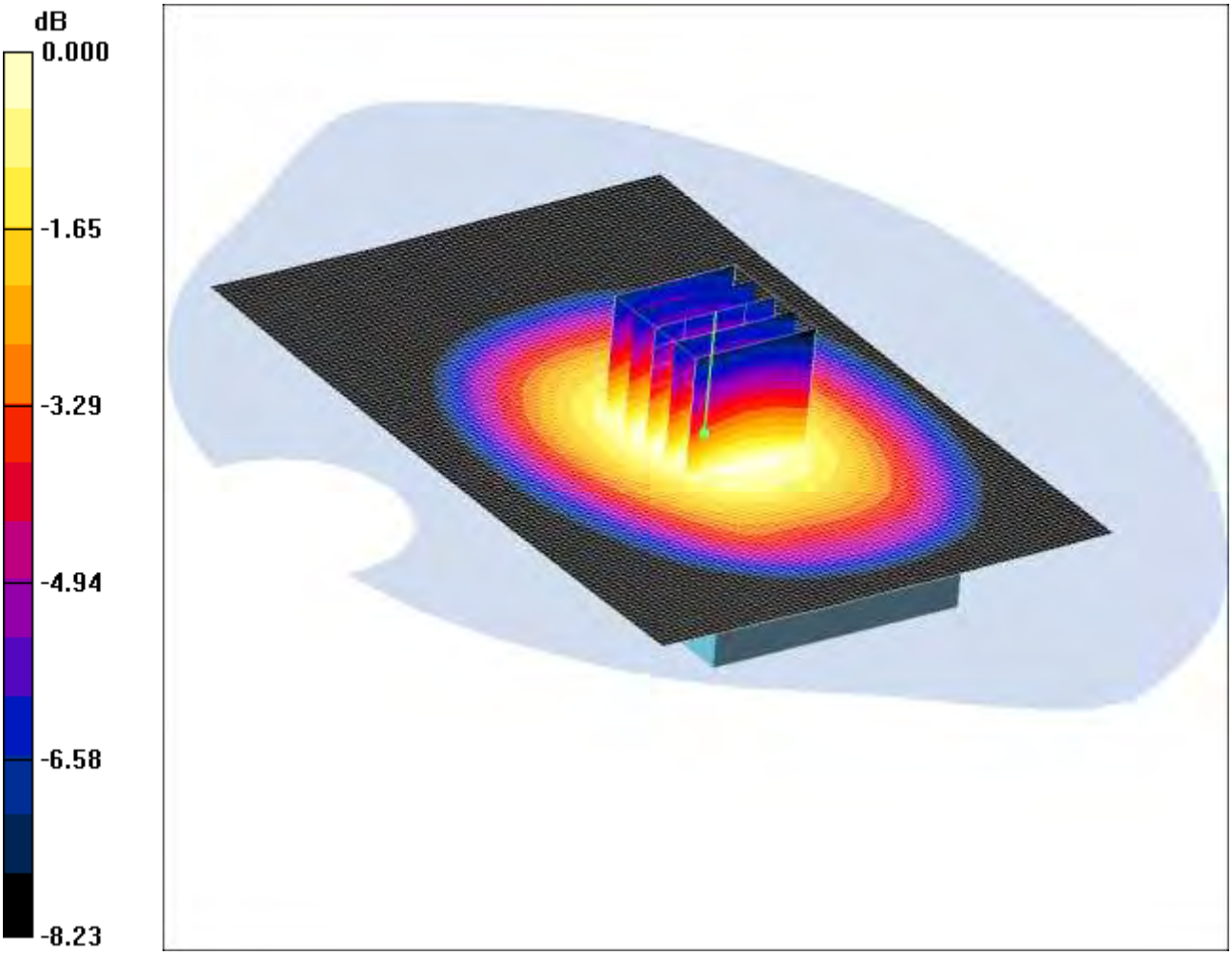


0 dB = 1.04mW/g

Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom at 15mm - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.05 mW/g
Back of EUT Facing Phantom at 15mm - Middle/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.9 V/m; Power Drift = -0.008 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.915 mW/g; SAR(10 g) = 0.693 mW/g
Maximum value of SAR (measured) = 1.04 mW/g

SCN/87208JD02/059: Back of EUT Facing Phantom at 15mm UMTS FDD 5 CH4132
Date: 03/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

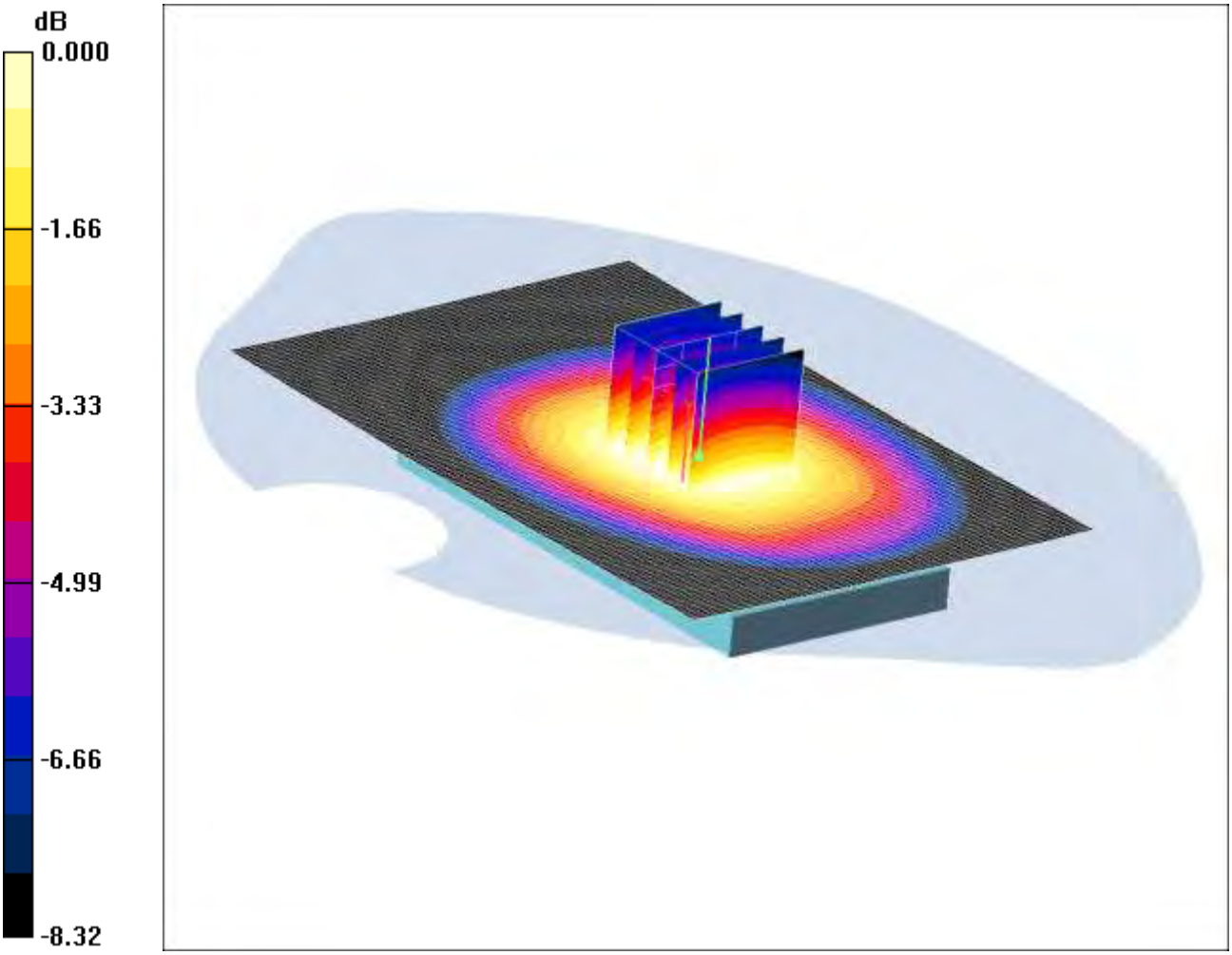


0 dB = 1.00mW/g

Communication System: UMTS-FDD 5; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 826.4 MHz; σ = 1 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom at 15mm - Low/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.01 mW/g
Back of EUT Facing Phantom at 15mm - Low/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.0 V/m; Power Drift = -0.019 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.886 mW/g; SAR(10 g) = 0.670 mW/g
Maximum value of SAR (measured) = 1.00 mW/g

SCN/87208JD02/060: Back of EUT Facing Phantom at 15mm UMTS FDD 5 CH4233
Date: 03/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9

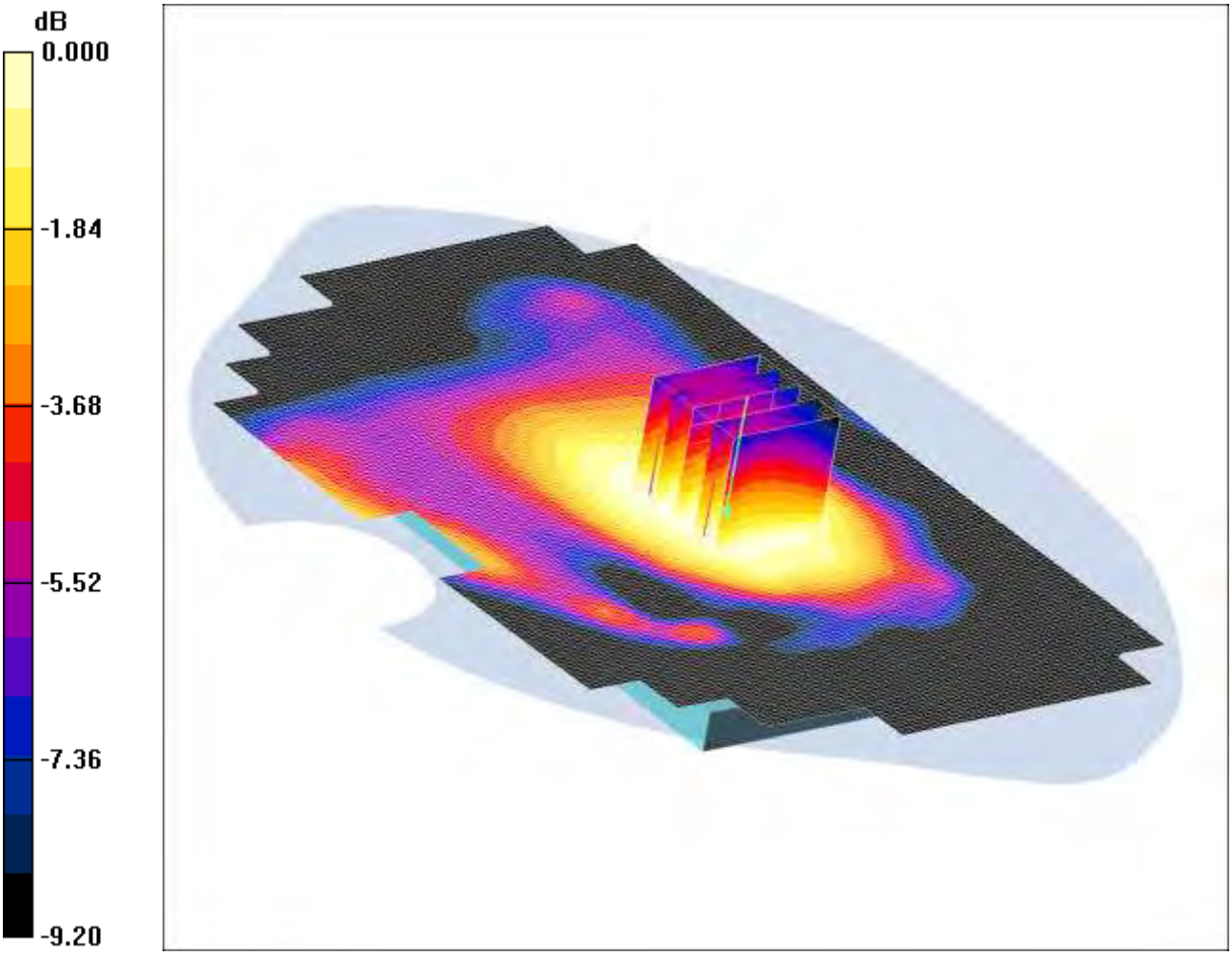


0 dB = 0.979mW/g

Communication System: UMTS-FDD 5; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 846.6 MHz; σ = 1.02 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom at 15mm - High/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.999 mW/g
Back of EUT Facing Phantom at 15mm - High/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.4 V/m; Power Drift = 0.026 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.873 mW/g; SAR(10 g) = 0.660 mW/g
Maximum value of SAR (measured) = 0.979 mW/g

SCN/87208JD02/061: Back of EUT Facing Phantom with PHF at 15mm UMTS FDD 5 CH4183
Date 03/08/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HB9



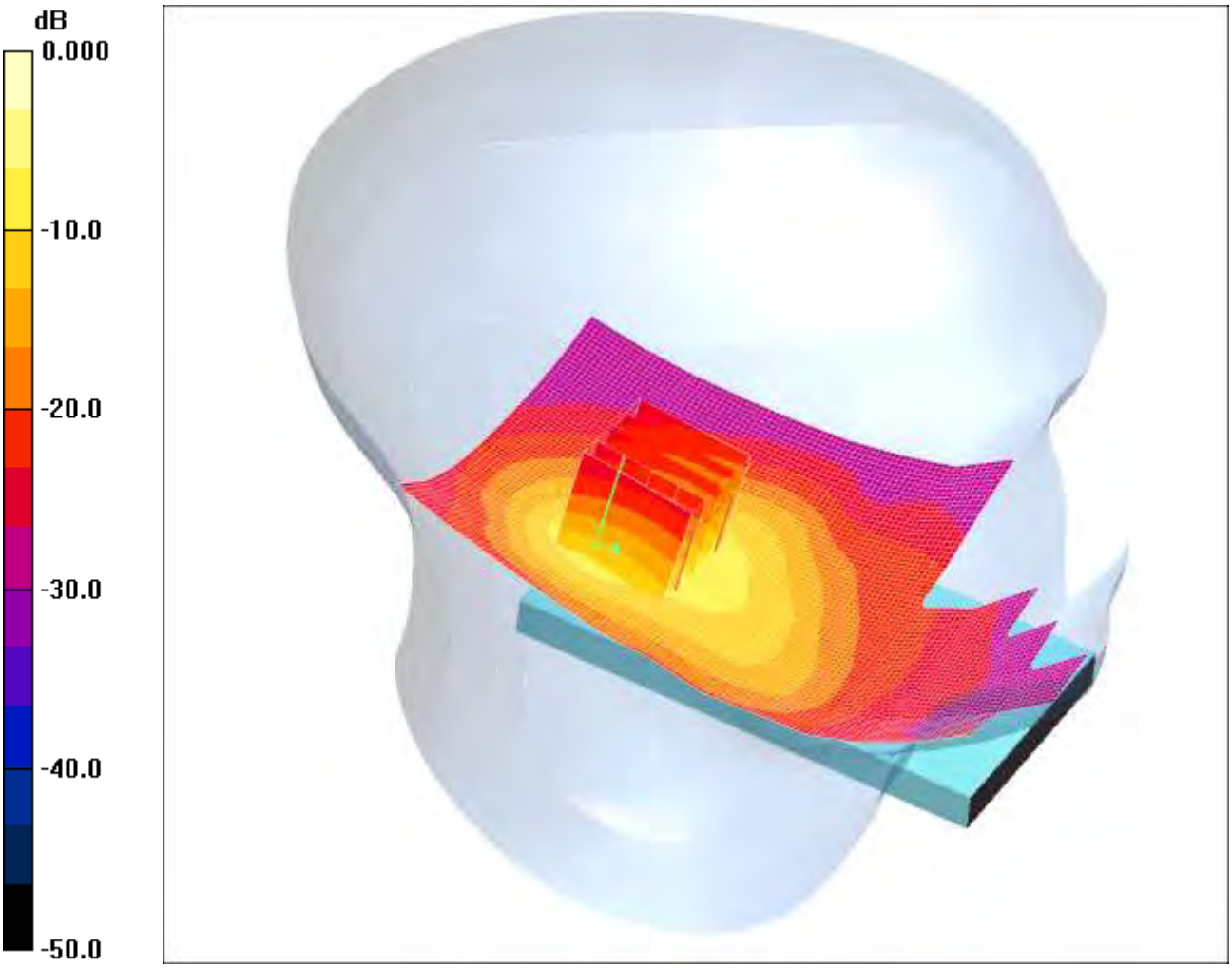
0 dB = 0.729mW/g

Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom with PHF at 15mm - Middle 2/Area Scan (101x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.733 mW/g

Back of EUT Facing Phantom with PHF at 15mm - Middle 2/Zoom Scan (5x5x7) 2 2 (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.7 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 0.832 W/kg
SAR(1 g) = 0.647 mW/g; SAR(10 g) = 0.502 mW/g
Maximum value of SAR (measured) = 0.729 mW/g

SCN/87208JD02/062: Touch Left WLAN802.11b 1Mbps CH6
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

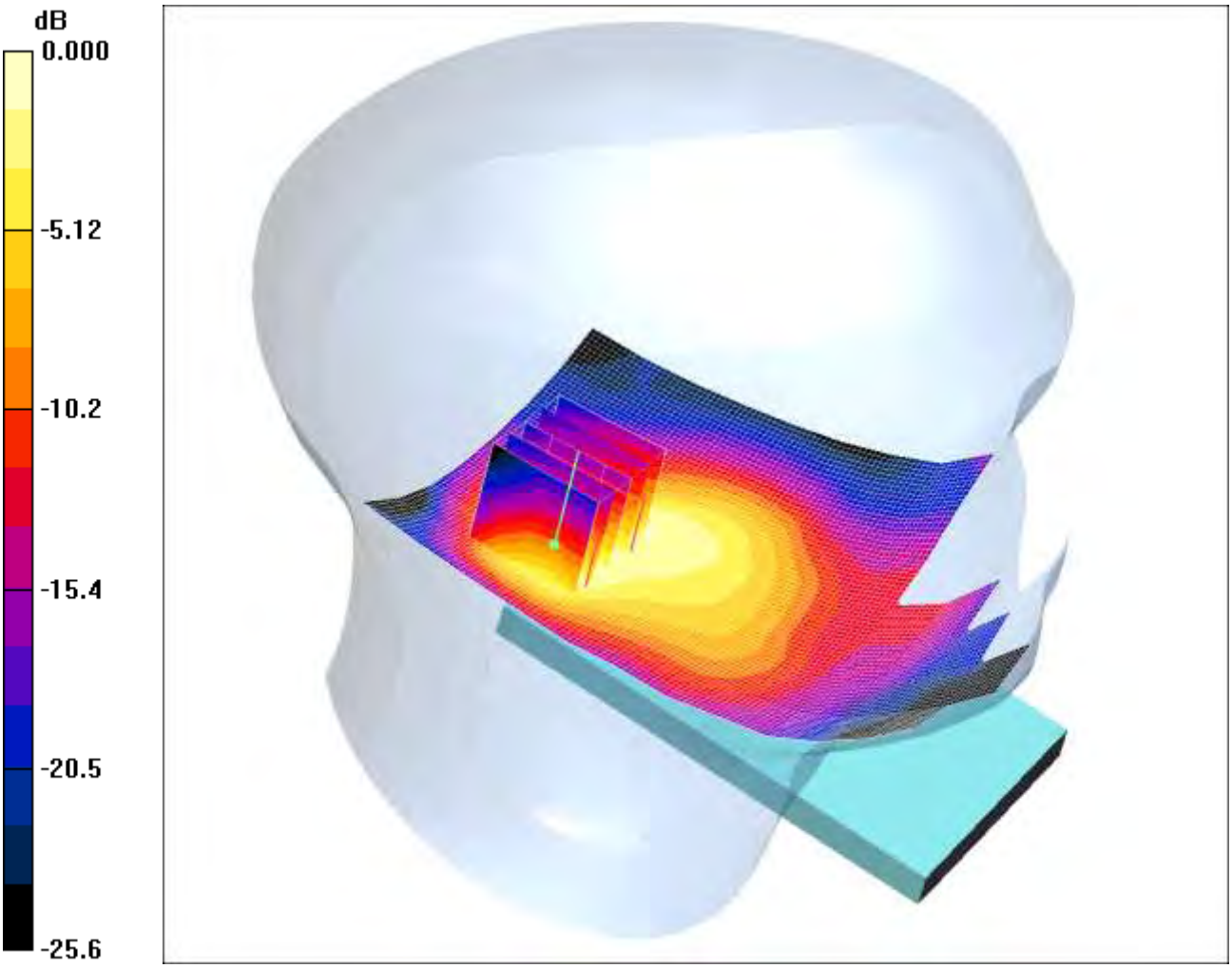


0 dB = 2.50mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.81 mho/m; ε_r = 41; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.02, 7.02, 7.02); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Left - Middle/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 0.569 W/kg
SAR(1 g) = 0.308 mW/g; SAR(10 g) = 0.187 mW/g
Maximum value of SAR (measured) = 0.404 mW/g
Touch Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.435 mW/g

SCN/87208JD02/063: Tilt Left WLAN802.11b 1Mbps CH6
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

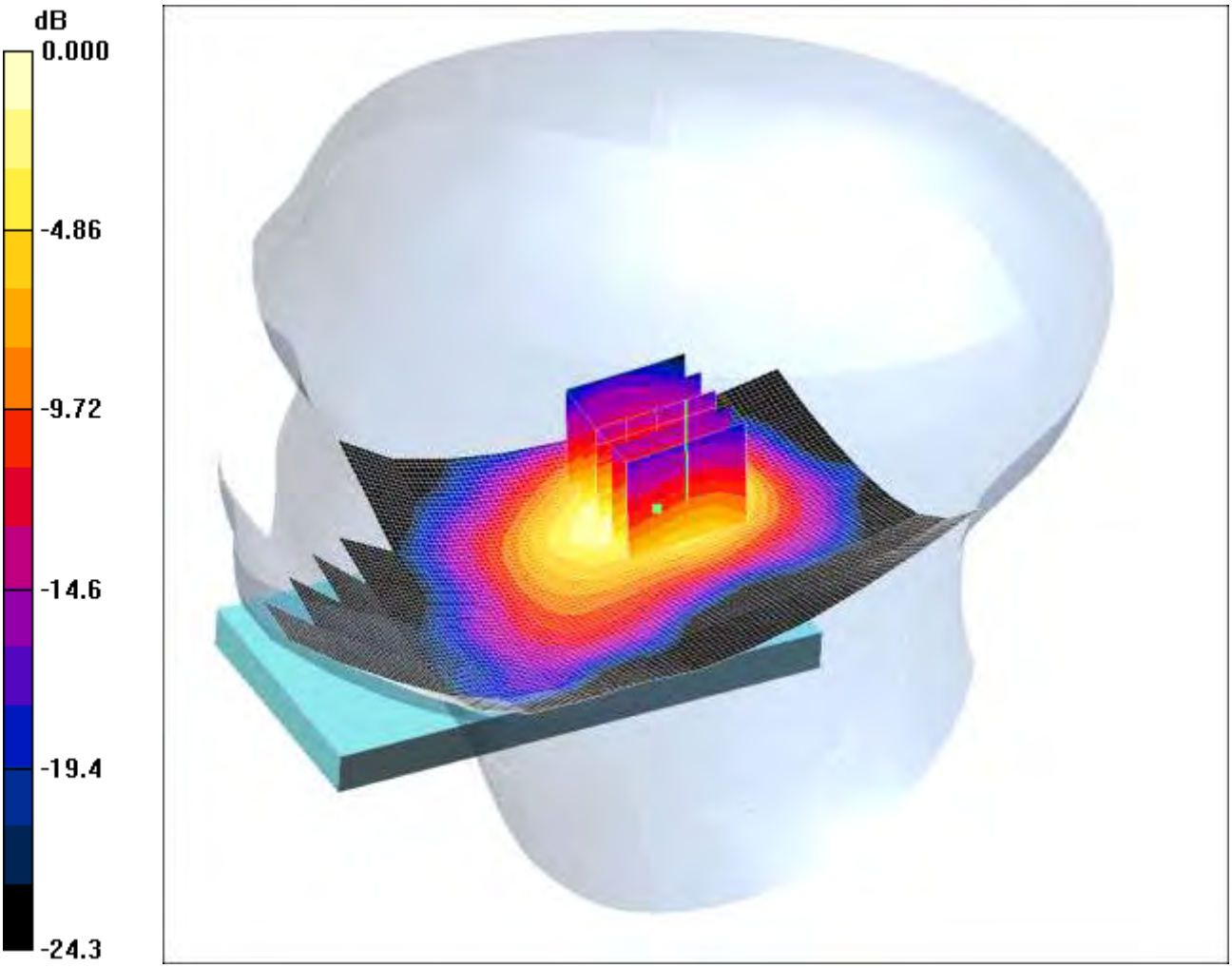


0 dB = 0.325mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.81 mho/m; ε_r = 41; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.02, 7.02, 7.02); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.367 mW/g
Tilt Left - Middle/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = 0.050 dB
Peak SAR (extrapolated) = 0.482 W/kg
SAR(1 g) = 0.242 mW/g; SAR(10 g) = 0.124 mW/g
Maximum value of SAR (measured) = 0.325 mW/g

SCN/87208JD02/064: Touch Right WLAN802.11b 1Mbps CH6
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

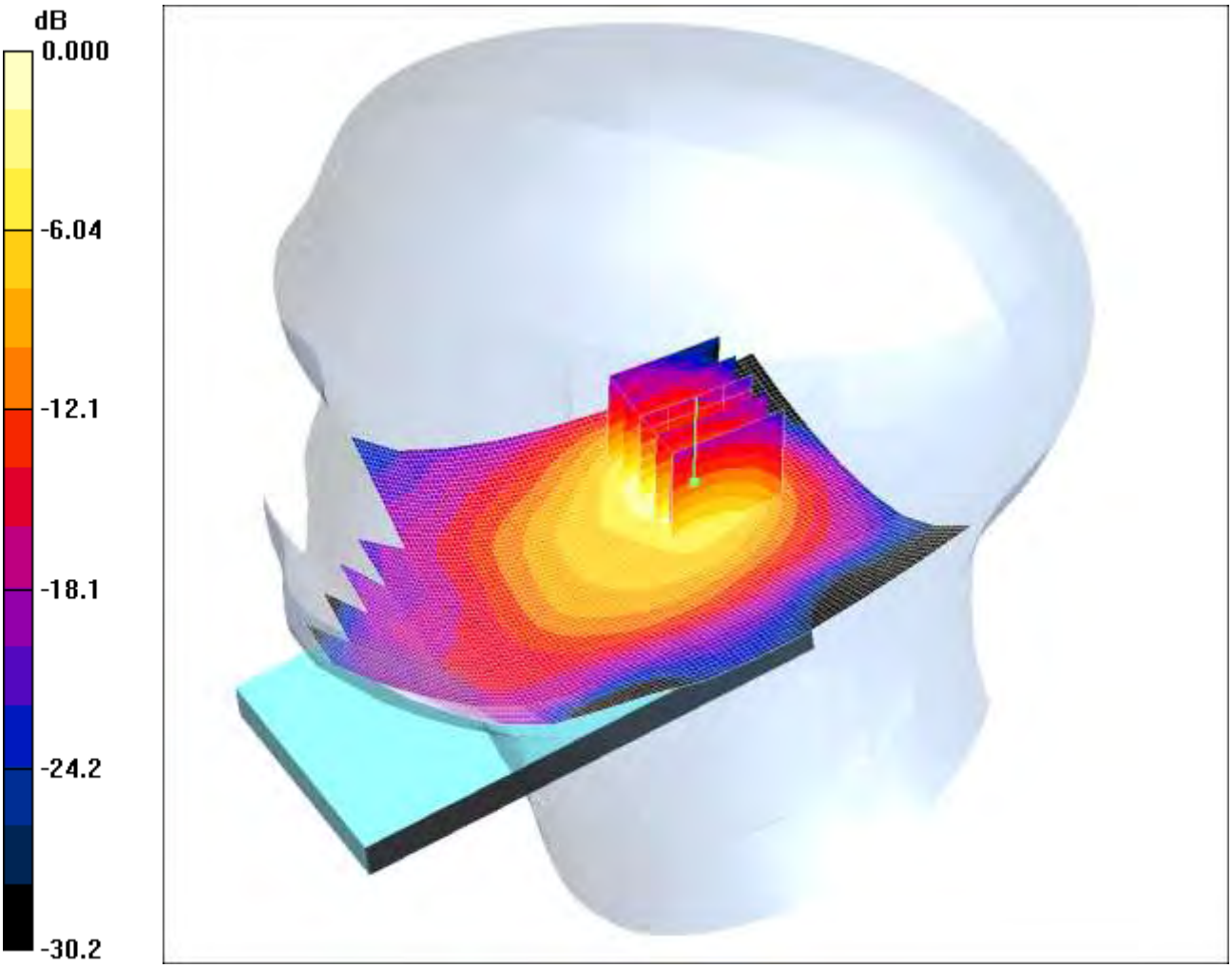


0 dB = 0.833mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.81 mho/m; ε_r = 41; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.02, 7.02, 7.02); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Right - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.877 mW/g
Touch Right - Middle/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.7 V/m; Power Drift = -0.008 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.649 mW/g; SAR(10 g) = 0.339 mW/g
Maximum value of SAR (measured) = 0.833 mW/g

SCN/87208JD02/065: Tilt Right WLAN802.11b 1Mbps CH6
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

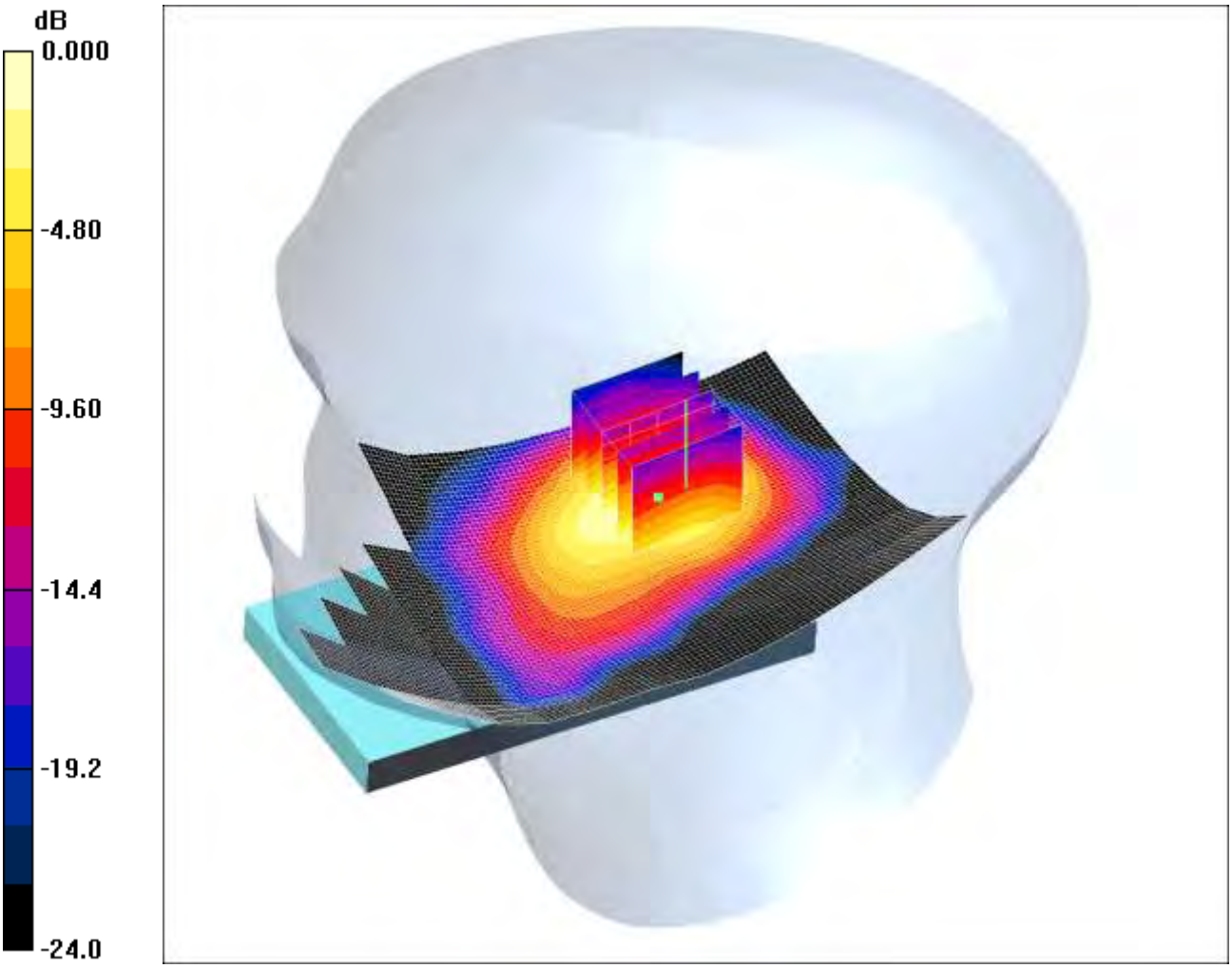


0 dB = 0.636mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.81 mho/m; ε_r = 41; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.02, 7.02, 7.02); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt Right - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.746 mW/g
Tilt Right - Middle/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 0.959 W/kg
SAR(1 g) = 0.455 mW/g; SAR(10 g) = 0.215 mW/g
Maximum value of SAR (measured) = 0.636 mW/g

SCN/87208JD02/066: Touch Right WLAN802.11b 1Mbps CH1
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

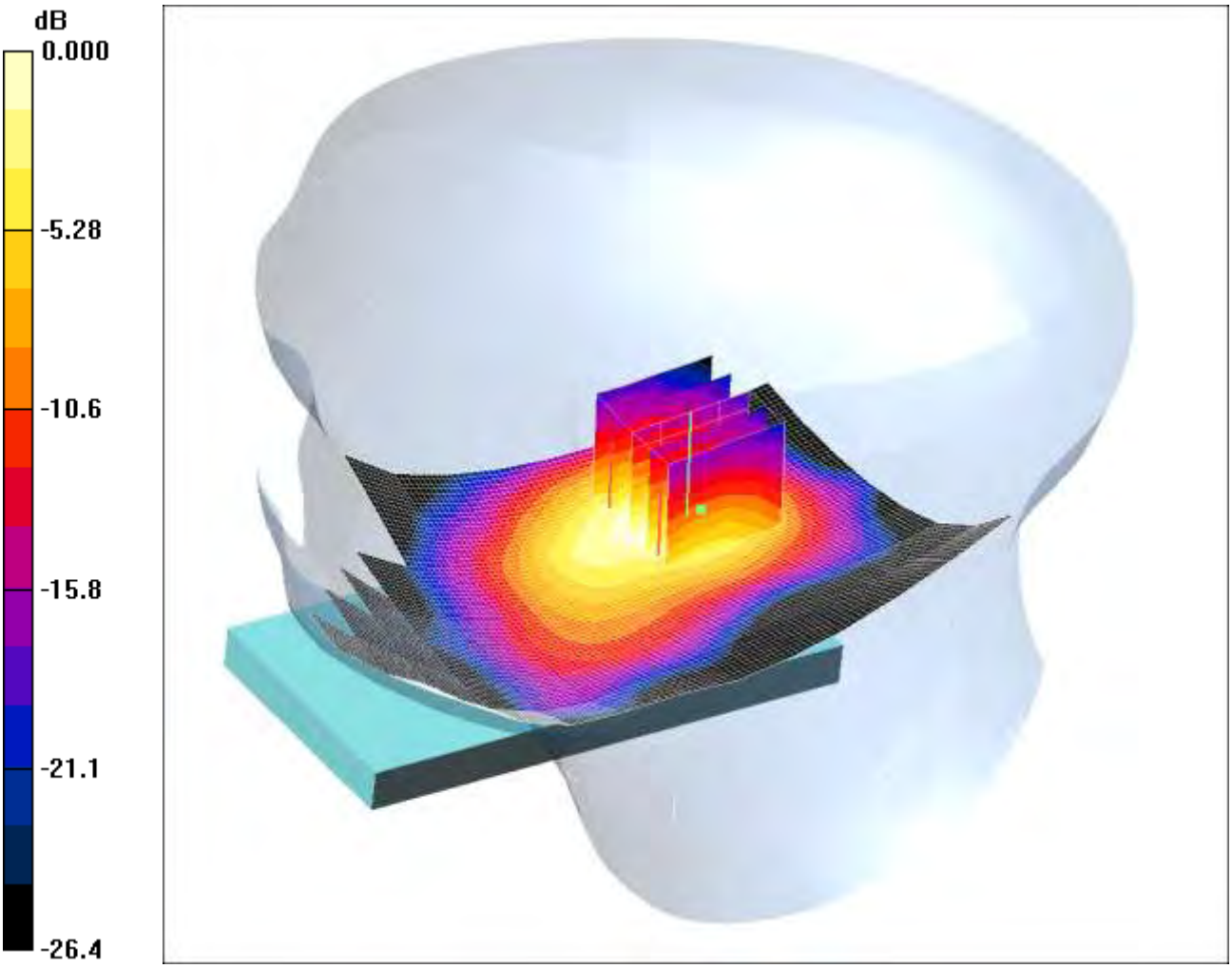


0 dB = 0.566mW/g

Communication System: WLAN; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2412 MHz; σ = 1.78 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.02, 7.02, 7.02); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Right - Low/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm.
Maximum value of SAR (interpolated) = 0.609 mW/g
Touch Right - Low/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.24 V/m; Power Drift = 0.100 dB
Peak SAR (extrapolated) = 0.853 W/kg
SAR(1 g) = 0.442 mW/g; SAR(10 g) = 0.232 mW/g.
Maximum value of SAR (measured) = 0.566 mW/g

SCN/87208JD02/067: Touch Right WLAN802.11b 1Mbps CH11
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

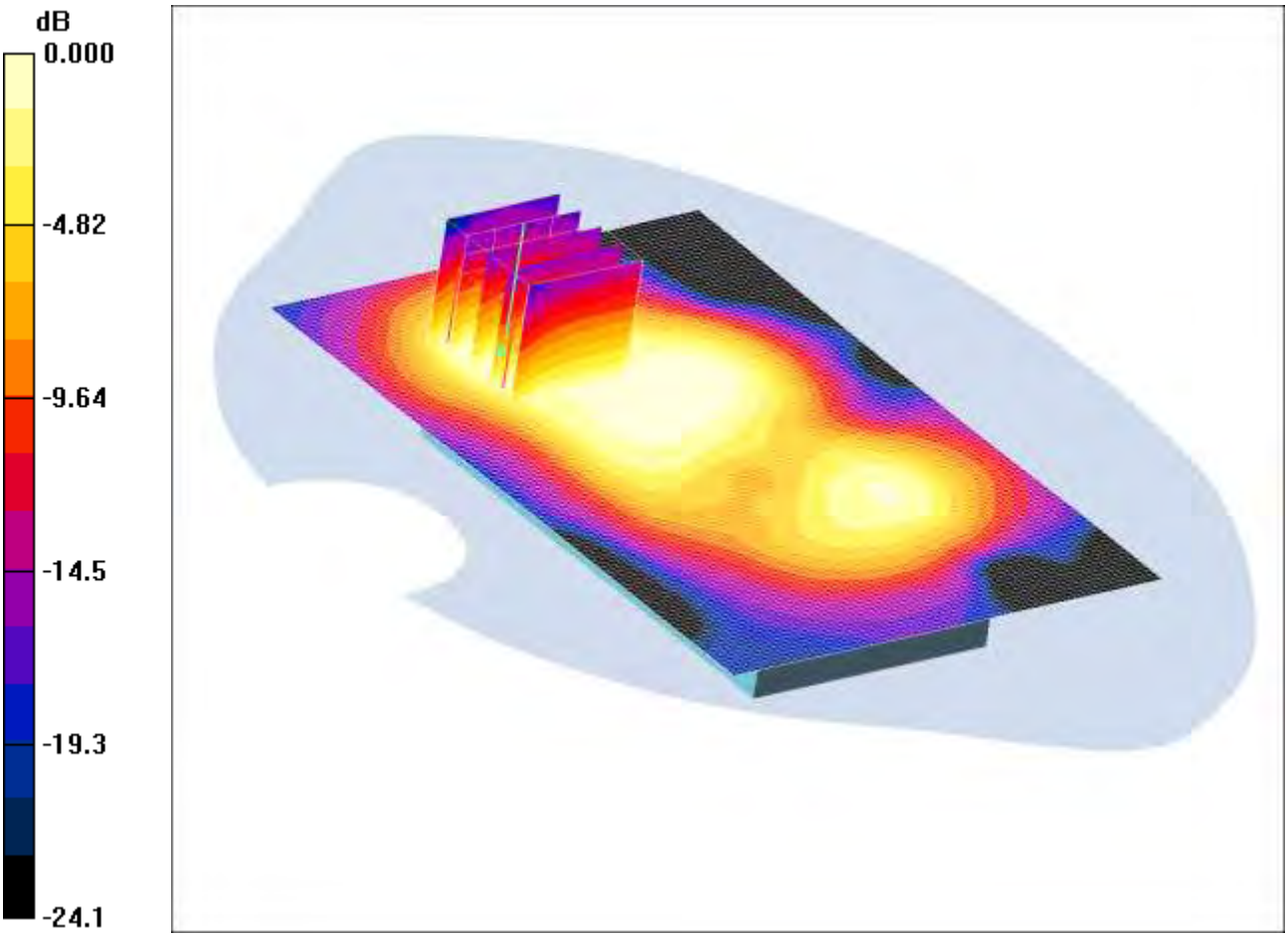


0 dB = 0.860mW/g

Communication System: WLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2462 MHz; σ = 1.84 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.02, 7.02, 7.02); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Right - High/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.890 mW/g
Touch Right - High/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.7 V/m; Power Drift = -0.051 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.652 mW/g; SAR(10 g) = 0.341 mW/g
Maximum value of SAR (measured) = 0.860 mW/g

SCN/87208JD02/068: Front of EUT Facing Phantom WLAN802.11b 1Mbps CH6
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

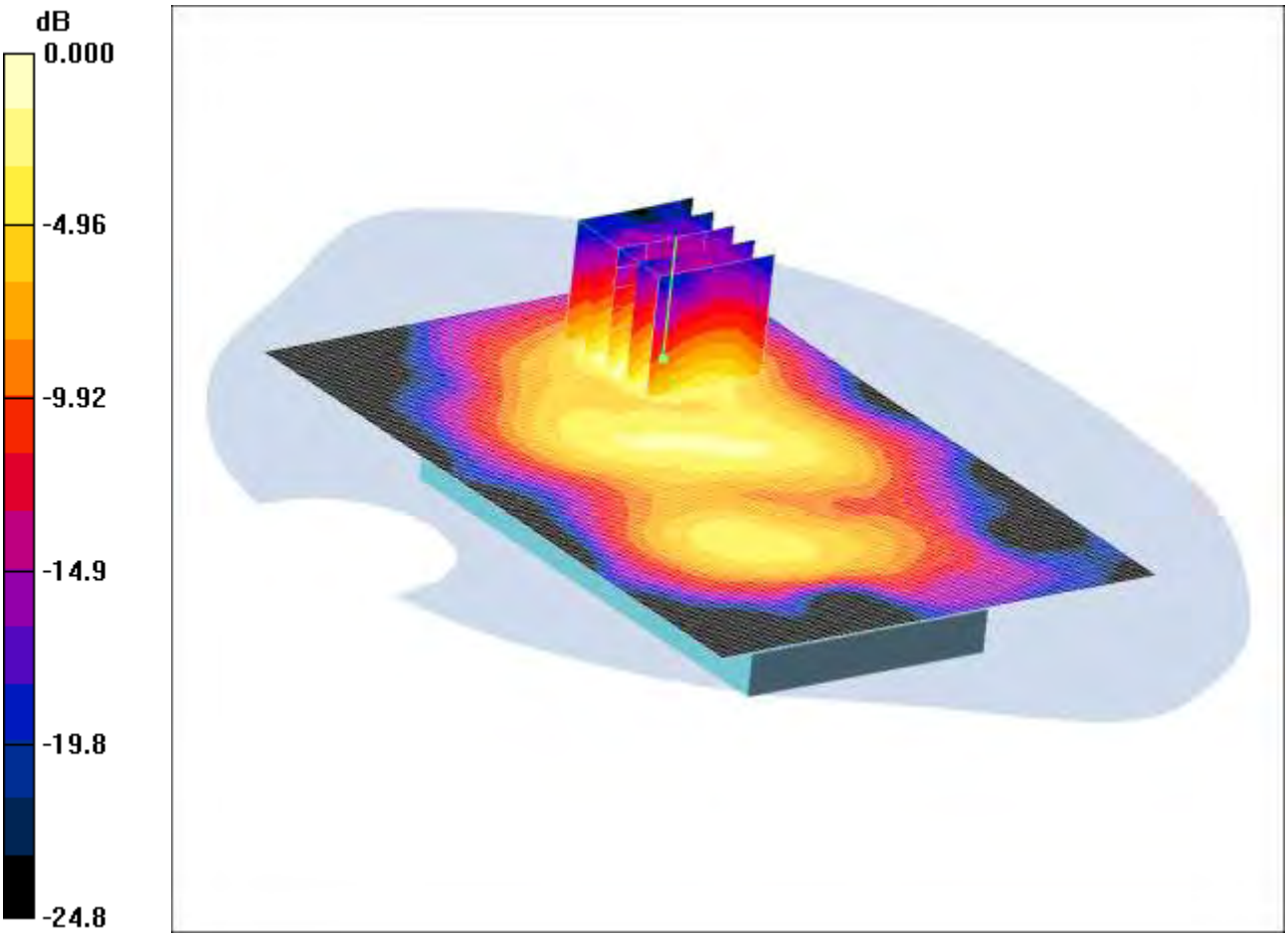


0 dB = 0.165mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.99 mho/m; ε_r = 54; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.178 mW/g
Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.31 V/m; Power Drift = 0.008 dB
Peak SAR (extrapolated) = 0.250 W/kg
SAR(1 g) = 0.132 mW/g; SAR(10 g) = 0.070 mW/g
Maximum value of SAR (measured) = 0.165 mW/g

SCN/87208JD02/069: Back of EUT Facing Phantom WLAN802.11b 1Mbps CH6
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

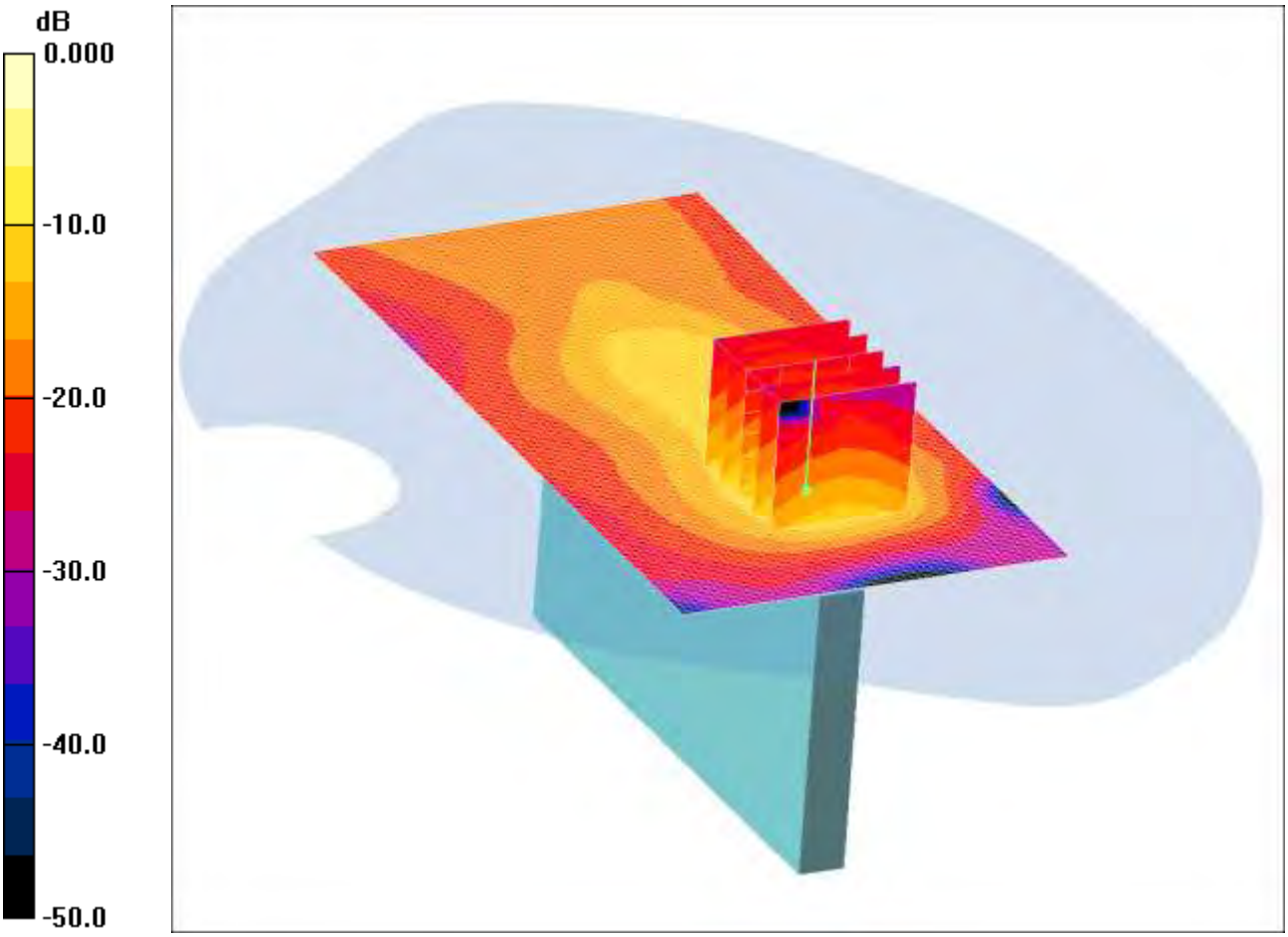


0 dB = 0.211mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.99 mho/m; ε_r = 54; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.211 mW/g
Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.23 V/m; Power Drift = 0.007 dB
Peak SAR (extrapolated) = 0.299 W/kg
SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.074 mW/g
Maximum value of SAR (measured) = 0.211 mW/g

SCN/87208JD02/070: Left Hand Side of EUT Facing Phantom WLAN802.11b 1Mbps CH6
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

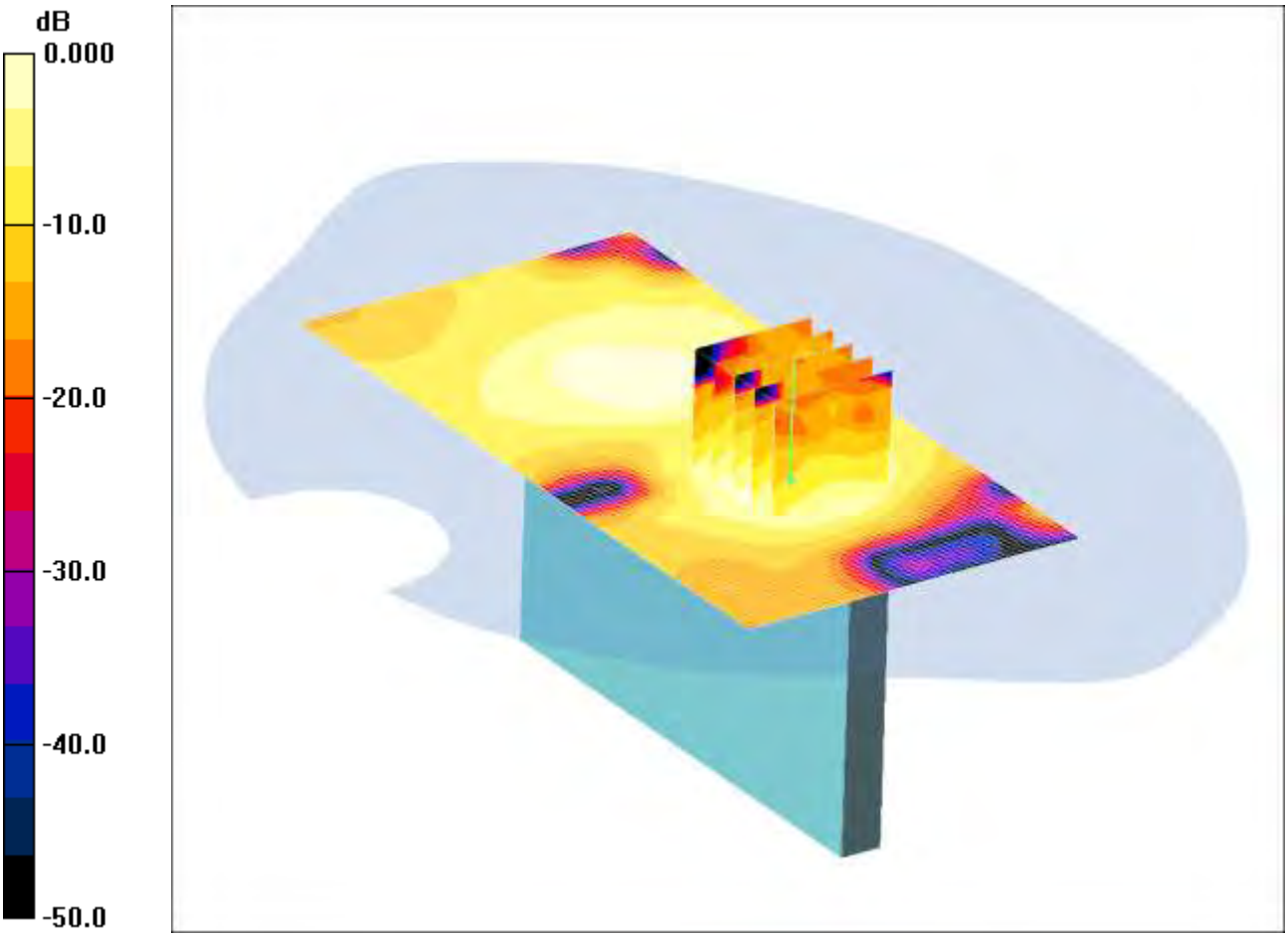


0 dB = 1.00mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.99 mho/m; ε_r = 54; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Left Hand Side of EUT Facing Phantom - Middle/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.149 mW/g
Left Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.26 V/m; Power Drift = -0.015 dB
Peak SAR (extrapolated) = 0.207 W/kg
SAR(1 g) = 0.110 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.148 mW/g

SCN/87208JD02/071: Right Hand Side of EUT Facing Phantom WLAN802.11b 1Mbps CH6
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

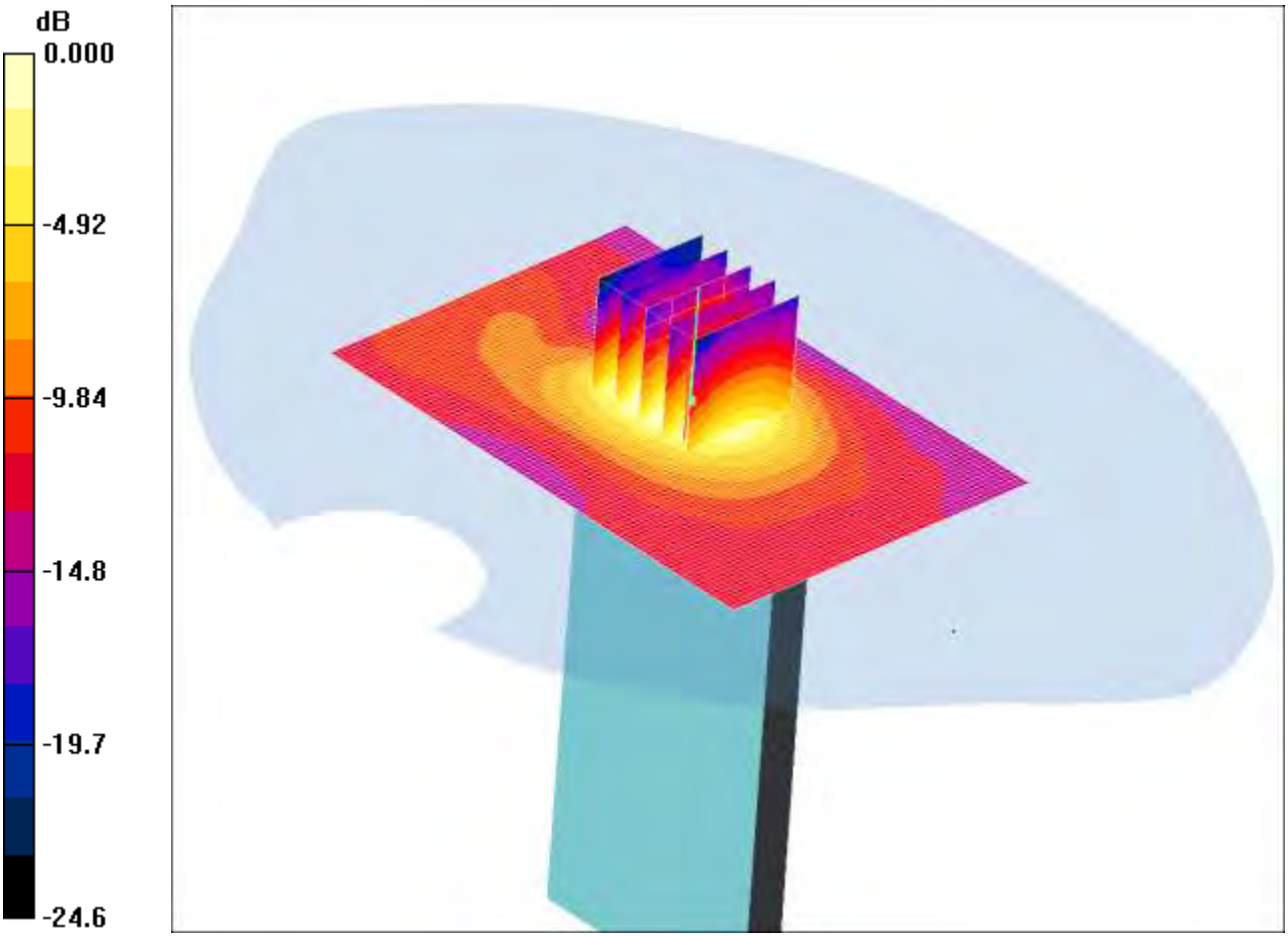


0 dB = 0.044mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.99 mho/m; ε_r = 54; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Right Hand Side of EUT Facing Phantom - Middle/Area Scan 2 (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.045 mW/g
Right Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.31 V/m; Power Drift = 0.056 dB
Peak SAR (extrapolated) = 0.061 W/kg
SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.044 mW/g

SCN/87208JD02/072: Top of EUT Facing Phantom WLAN802.11b 1Mbps CH6
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

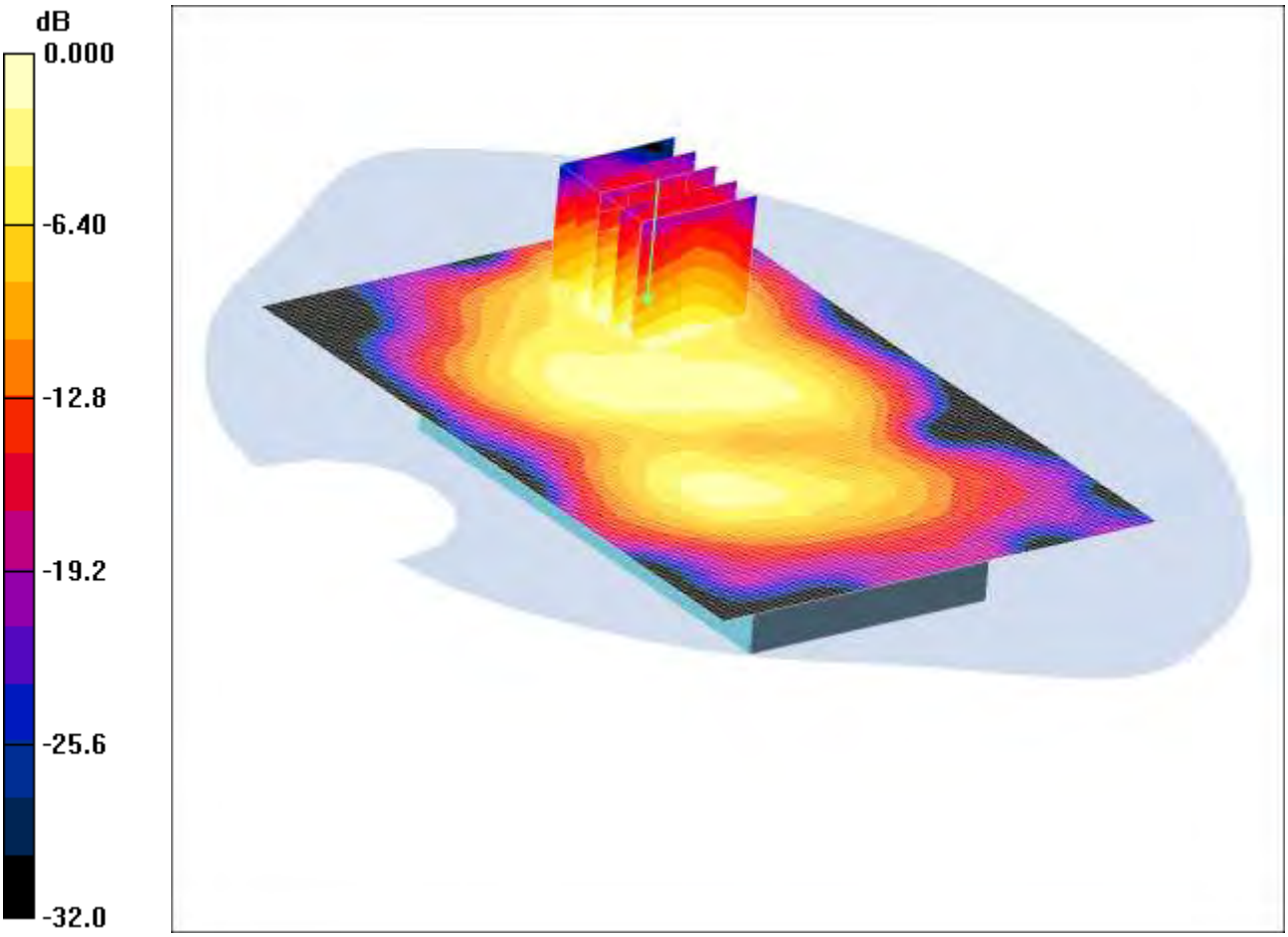


0 dB = 0.121mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.99 mho/m; ε_r = 54; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Top of EUT Facing Phantom - Middle/Area Scan 2 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.131 mW/g
Top of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.15 V/m; Power Drift = 0.026 dB
Peak SAR (extrapolated) = 0.166 W/kg
SAR(1 g) = 0.092 mW/g; SAR(10 g) = 0.048 mW/g
Maximum value of SAR (measured) = 0.121 mW/g

SCN/87208JD02/073: Back of EUT Facing Phantom WLAN802.11b 1Mbps CH1
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

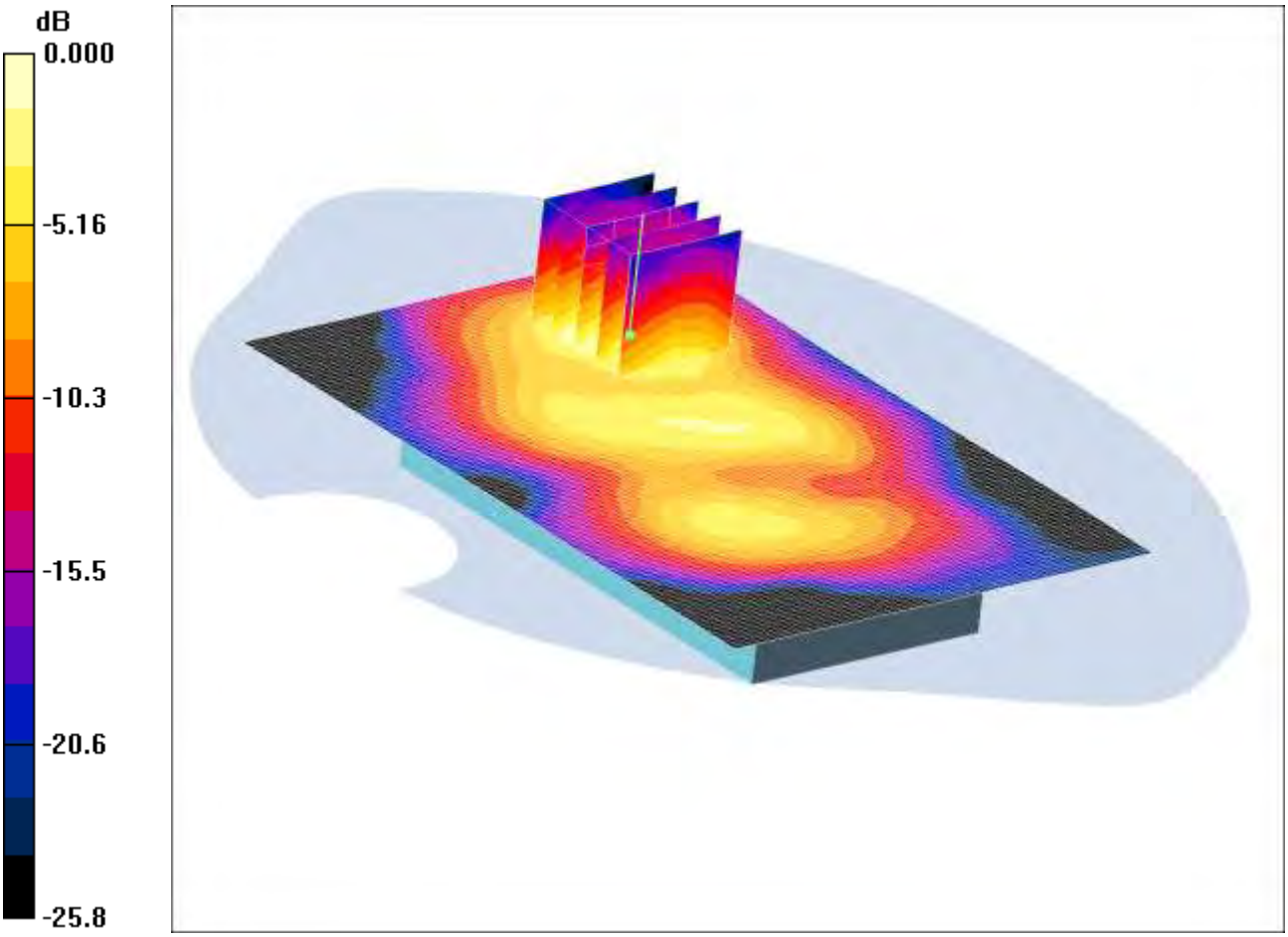


0 dB = 0.154mW/g

Communication System: WLAN; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2412 MHz; σ = 1.96 mho/m; ε_r = 54; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom - Low/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.166 mW/g
Back of EUT Facing Phantom - Low/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.98 V/m; Power Drift = 0.099 dB
Peak SAR (extrapolated) = 0.224 W/kg
SAR(1 g) = 0.110 mW/g; SAR(10 g) = 0.052 mW/g
Maximum value of SAR (measured) = 0.154 mW/g

SCN/87208JD02/074: Back of EUT Facing Phantom WLAN802.11b 1Mbps CH11
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

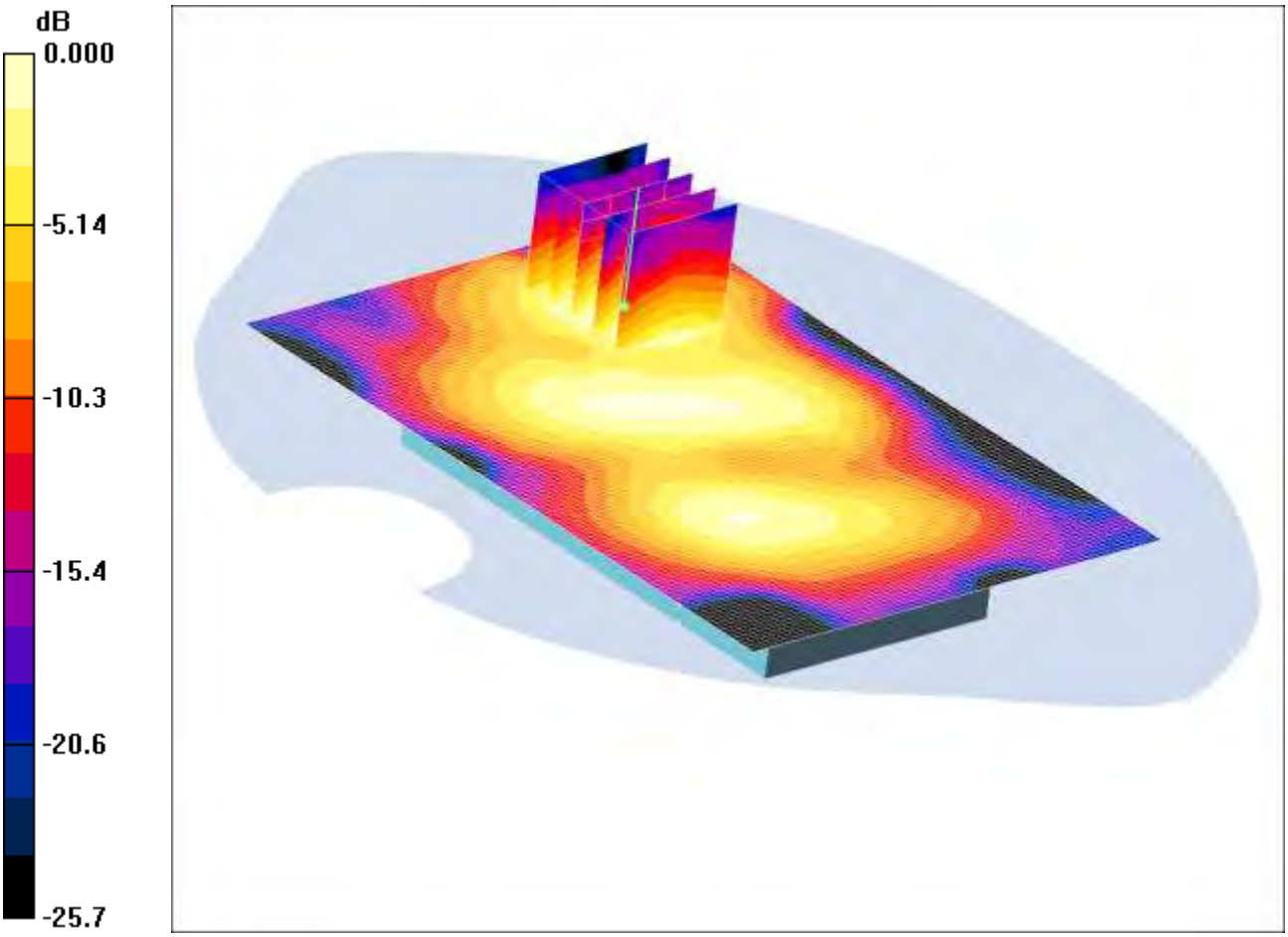


0 dB = 0.239mW/g

Communication System: WLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2462 MHz; σ = 2.02 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom - High/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.243 mW/g
Back of EUT Facing Phantom - High/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.02 V/m; Power Drift = -0.027 dB
Peak SAR (extrapolated) = 0.344 W/kg
SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.083 mW/g
Maximum value of SAR (measured) = 0.239 mW/g

SCN/87208JD02/075: Back of EUT Facing Phantom at 15mm WLAN802.11b 1Mbps CH6
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

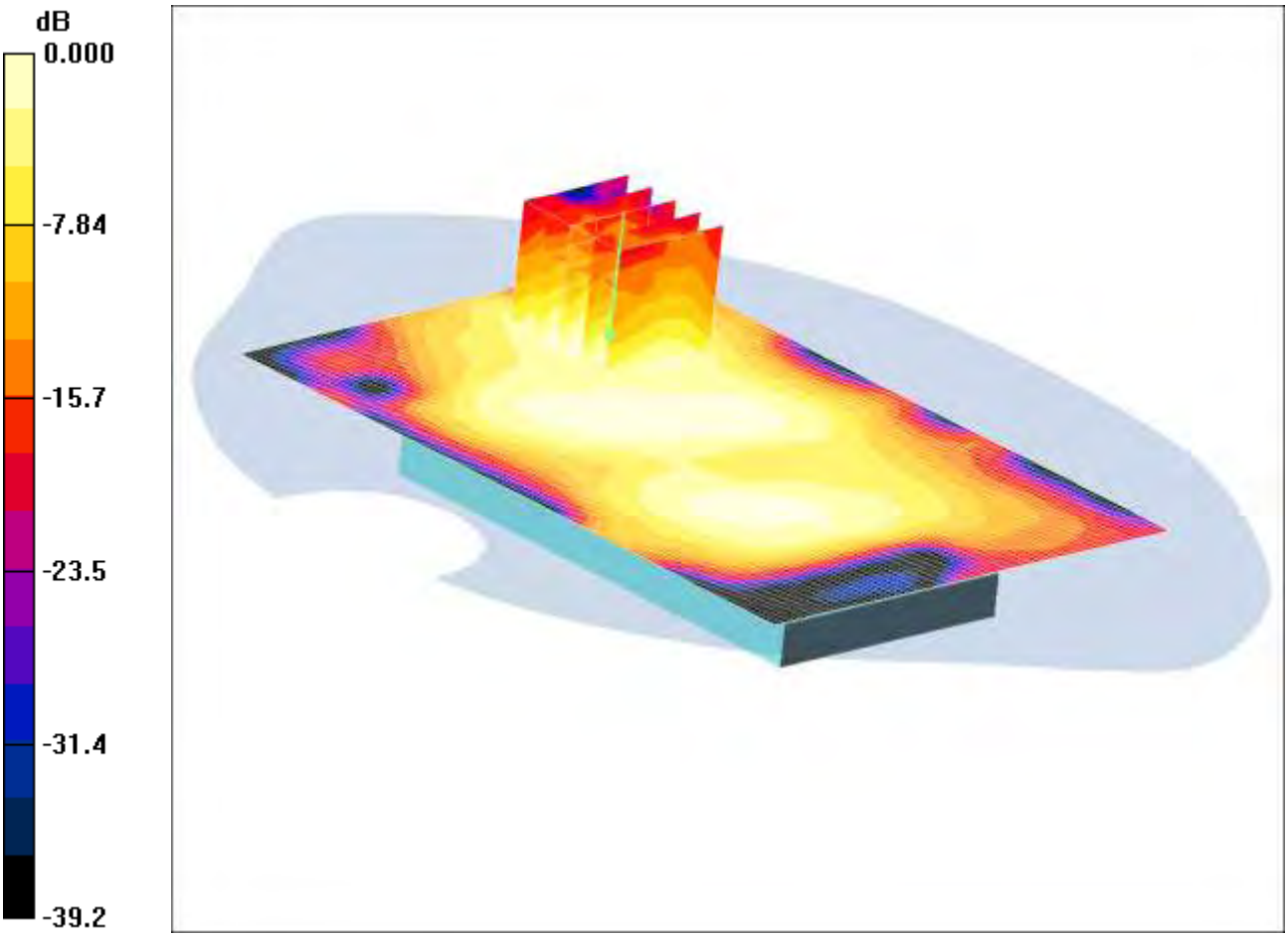


0 dB = 0.087mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.99 mho/m; ε_r = 54; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom at 15mm - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.088 mW/g
Back of EUT Facing Phantom at 15mm - Middle/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.50 V/m; Power Drift = 0.014 dB
Peak SAR (extrapolated) = 0.124 W/kg
SAR(1 g) = 0.064 mW/g; SAR(10 g) = 0.033 mW/g
Maximum value of SAR (measured) = 0.087 mW/g

SCN/87208JD02/076: Back of EUT Facing Phantom at 15mm WLAN802.11b 1Mbps CH1
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

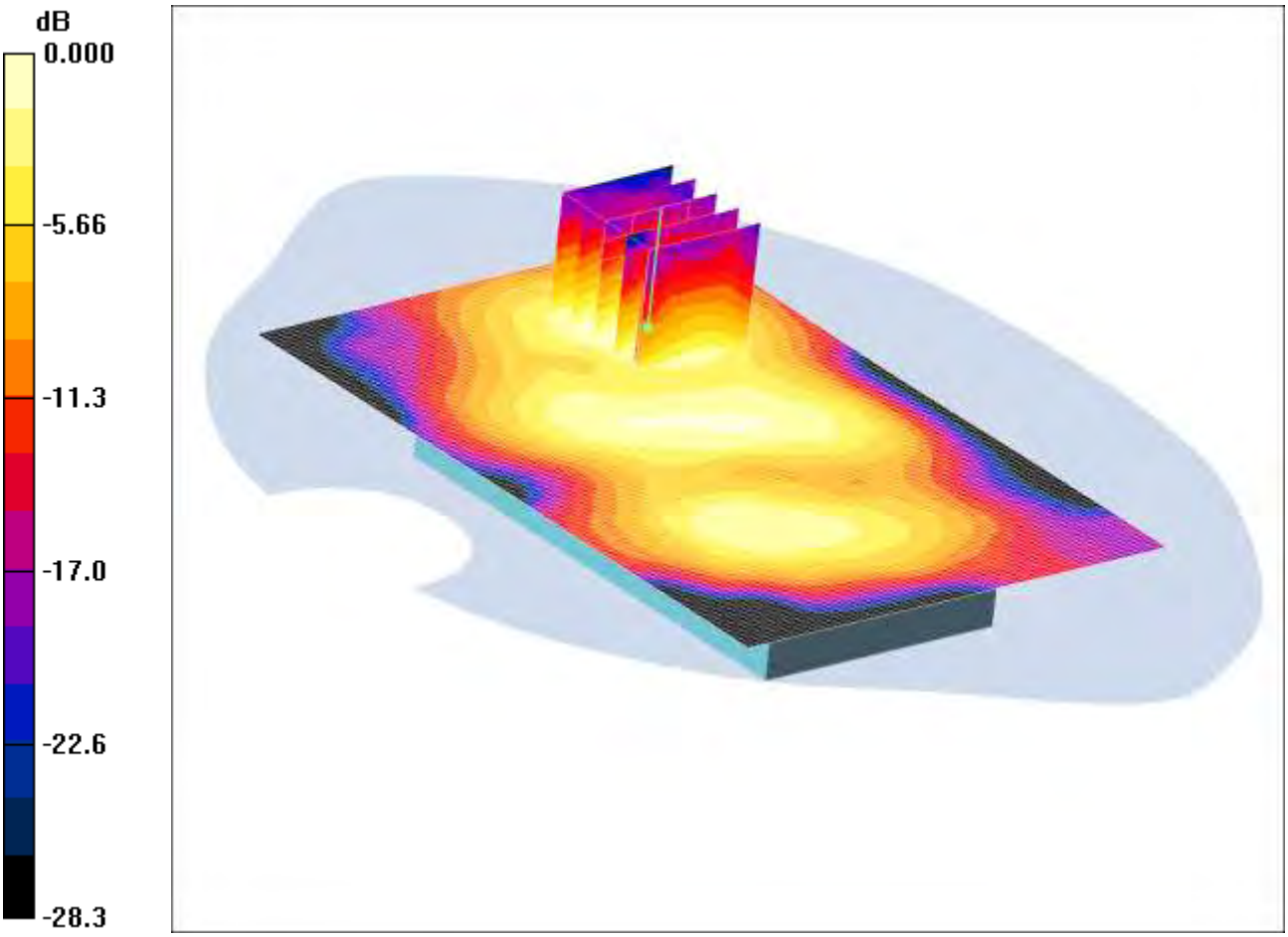


0 dB = 0.061mW/g

Communication System: WLAN; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2412 MHz; σ = 1.96 mho/m; ε_r = 54; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom at 15mm - Low/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.063 mW/g
Back of EUT Facing Phantom at 15mm - Low/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.72 V/m; Power Drift = -0.091 dB
Peak SAR (extrapolated) = 0.089 W/kg
SAR(1 g) = 0.045 mW/g; SAR(10 g) = 0.023 mW/g
Maximum value of SAR (measured) = 0.061 mW/g

SCN/87208JD02/077: Back of EUT Facing Phantom at 15mm WLAN802.11b 1Mbps CH11
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA

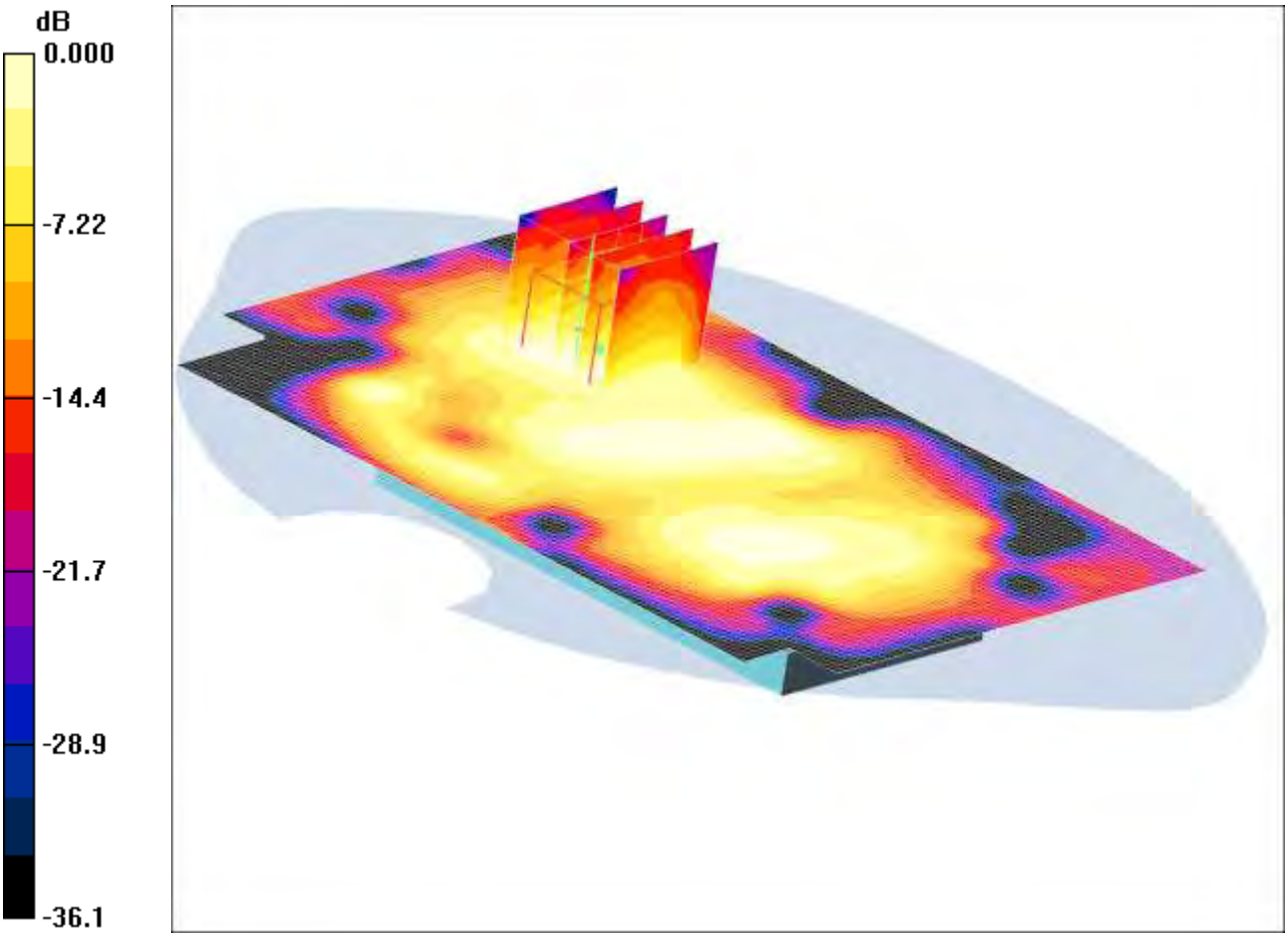


0 dB = 0.098mW/g

Communication System: WLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2462 MHz; σ = 2.02 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom at 15mm - High/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.103 mW/g
Back of EUT Facing Phantom at 15mm - High/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.93 V/m; Power Drift = 0.169 dB
Peak SAR (extrapolated) = 0.141 W/kg
SAR(1 g) = 0.073 mW/g; SAR(10 g) = 0.038 mW/g
Maximum value of SAR (measured) = 0.098 mW/g

SCN/87208JD02/078: Back of EUT Facing Phantom with PHF at 15mm WLAN802.11b 1Mbps CH11
Date: 05/09/2012
DUT: Sony Tsubasa Maki; Type: Tsubasa Maki; Serial: CB5A1K8HGA



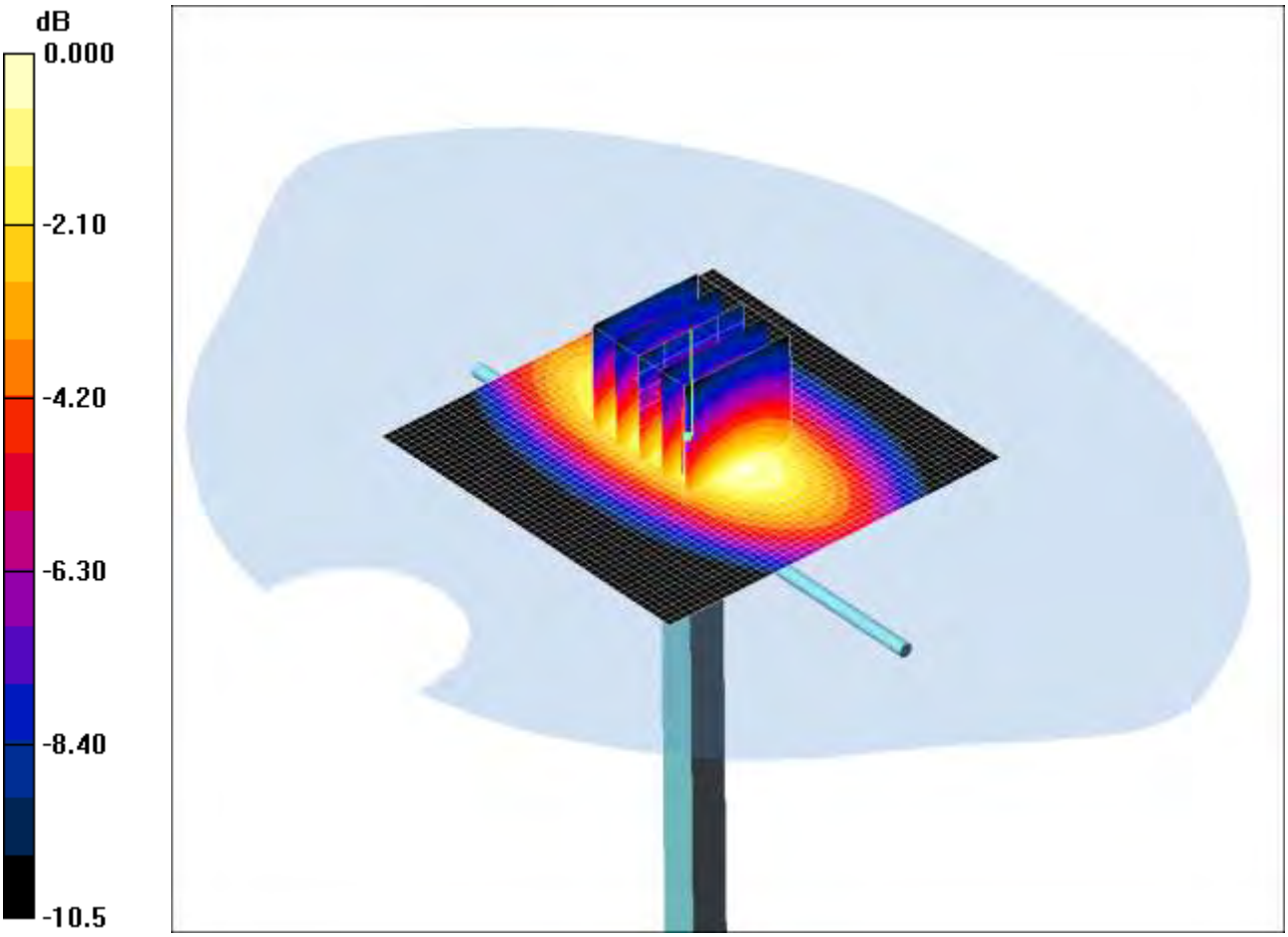
0 dB = 0.098mW/g

Communication System: WLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2462 MHz; σ = 2.02 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Back of EUT Facing Phantom with PHF at 15mm - High/Area Scan (91x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.107 mW/g

Back of EUT Facing Phantom with PHF at 15mm - High/Zoom Scan (5x5x7) 2 2 2 2 (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.16 V/m; Power Drift = 0.175 dB
Peak SAR (extrapolated) = 0.141 W/kg
SAR(1 g) = 0.075 mW/g; SAR(10 g) = 0.040 mW/g
Maximum value of SAR (measured) = 0.098 mW/g

SCN/87208JD02/079: System Performance Check 900MHz Head 31 07 12
Date: 31/07/2012
DUT: Dipole 900 MHz; SN: 124; Type: D900V2; Serial: SN124

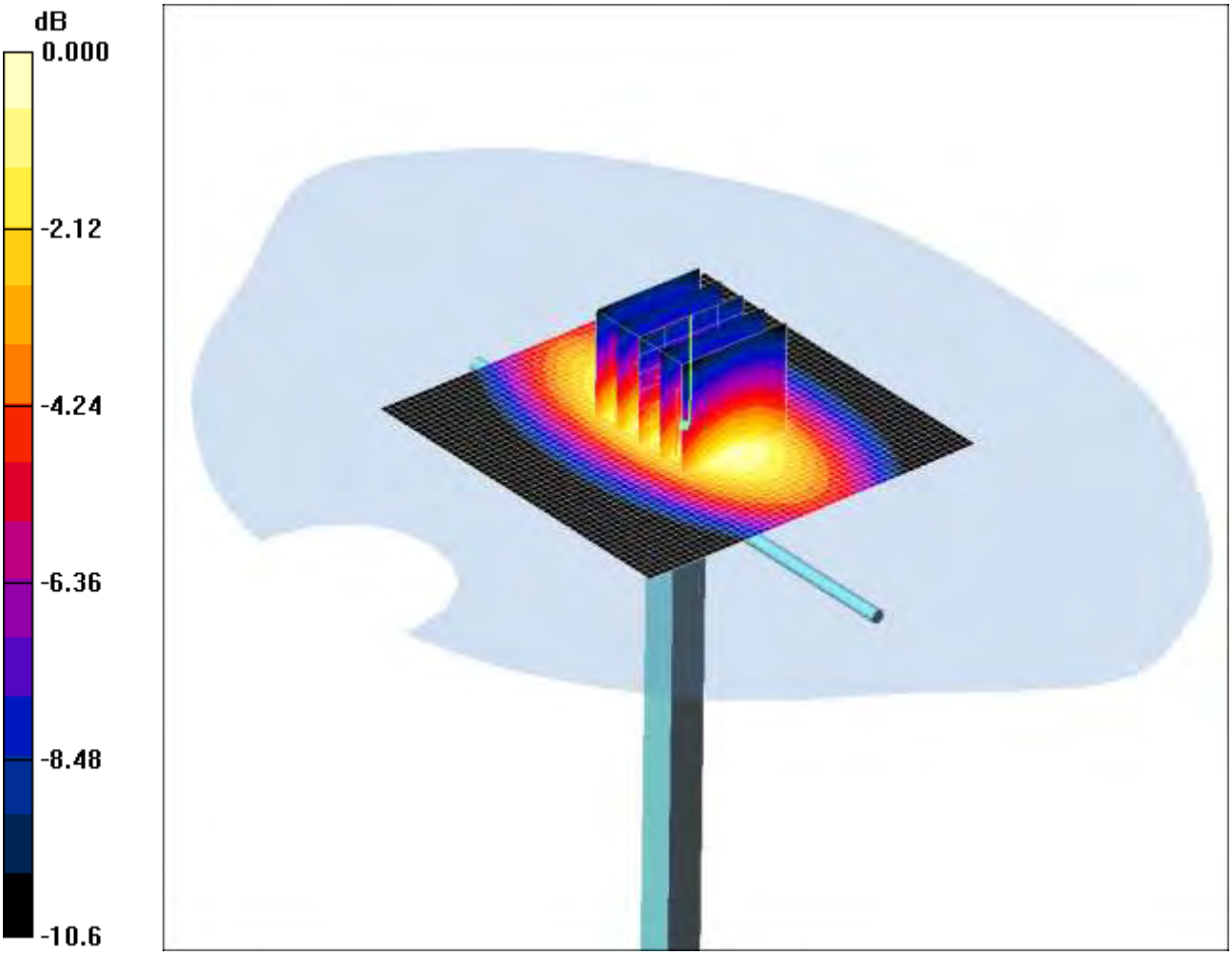


0 dB = 2.94mW/g

Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: 900 MHz HSL Medium parameters used: f = 900 MHz; σ = 0.964 mho/m; ε_r = 43.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW 2/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 2.98 mW/g
d=15mm, Pin=250mW 2/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 54.3 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 4.02 W/kg
SAR(1 g) = 2.72 mW/g; SAR(10 g) = 1.79 mW/g
Maximum value of SAR (measured) = 2.94 mW/g

SCN/87208JD02/080: System Performance Check 900MHz Head 10 08 12
Date: 10/08/2012
DUT: Dipole 900 MHz; SN: 124; Type: D900V2; Serial: SN124

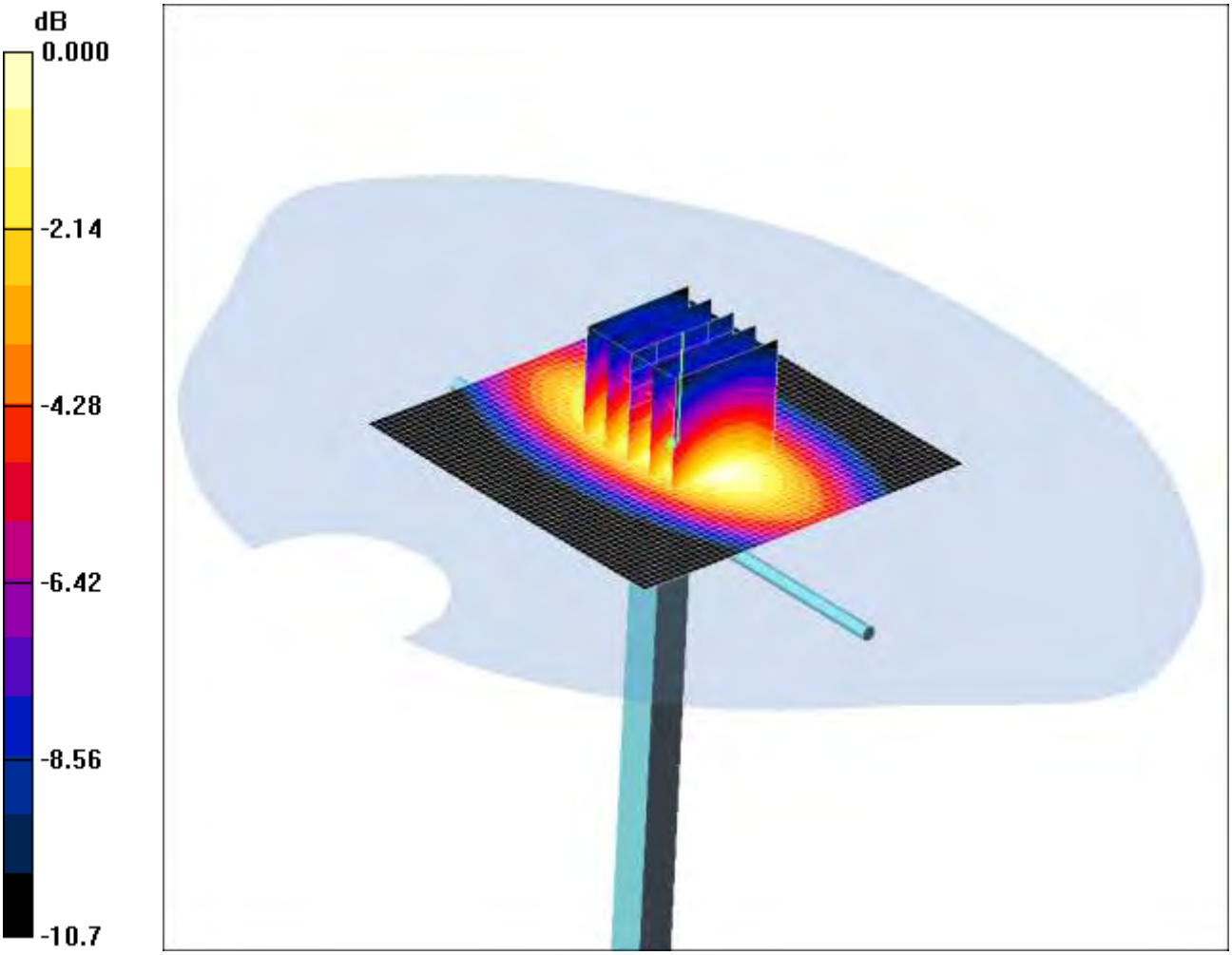


0 dB = 3.01mW/g

Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: 900 MHz HSL Medium parameters used: f = 900 MHz; σ = 0.946 mho/m; ε_r = 41.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.75, 8.75, 8.75); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW 2/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 3.05 mW/g
d=15mm, Pin=250mW 2/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.6 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 4.15 W/kg
SAR(1 g) = 2.8 mW/g; SAR(10 g) = 1.83 mW/g
Maximum value of SAR (measured) = 3.01 mW/g

SCN/87208JD02/081: System Performance Check 900MHz Body 02 08 12
Date: 02/08/2012
DUT: Dipole 900 MHz; SN: 124; Type: D900V2; Serial: SN124

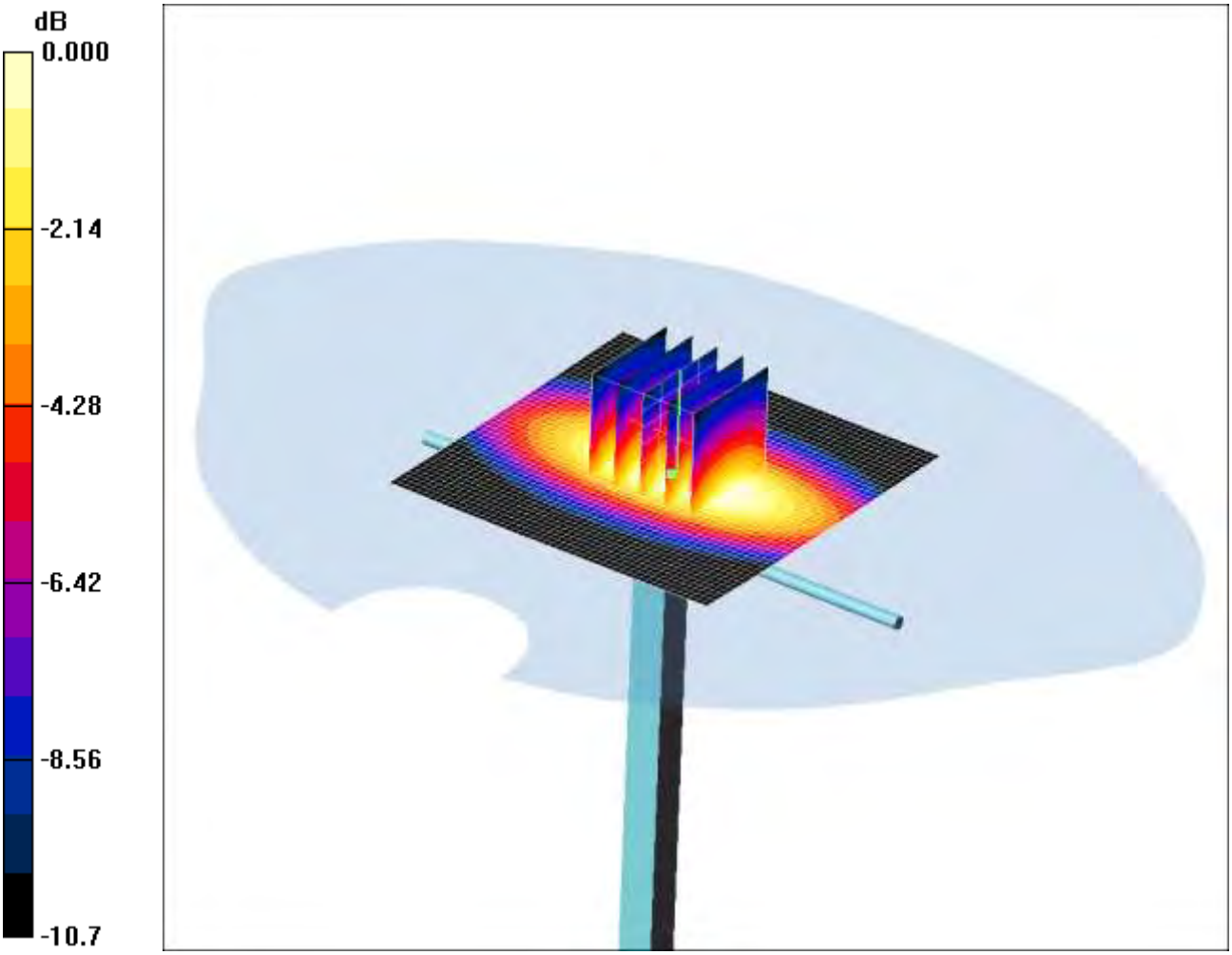


0 dB = 2.87mW/g

Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used: f = 900 MHz; σ = 1.05 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 3.06 mW/g
d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.9 V/m; Power Drift = -0.049 dB
Peak SAR (extrapolated) = 3.96 W/kg
SAR(1 g) = 2.66 mW/g; SAR(10 g) = 1.73 mW/g
Maximum value of SAR (measured) = 2.87 mW/g

SCN/87208JD02/082: System Performance Check 900MHz Body 03 08 12
Date: 03/08/2012
DUT: Dipole 900 MHz; SN: 124; Type: D900V2; Serial: SN124

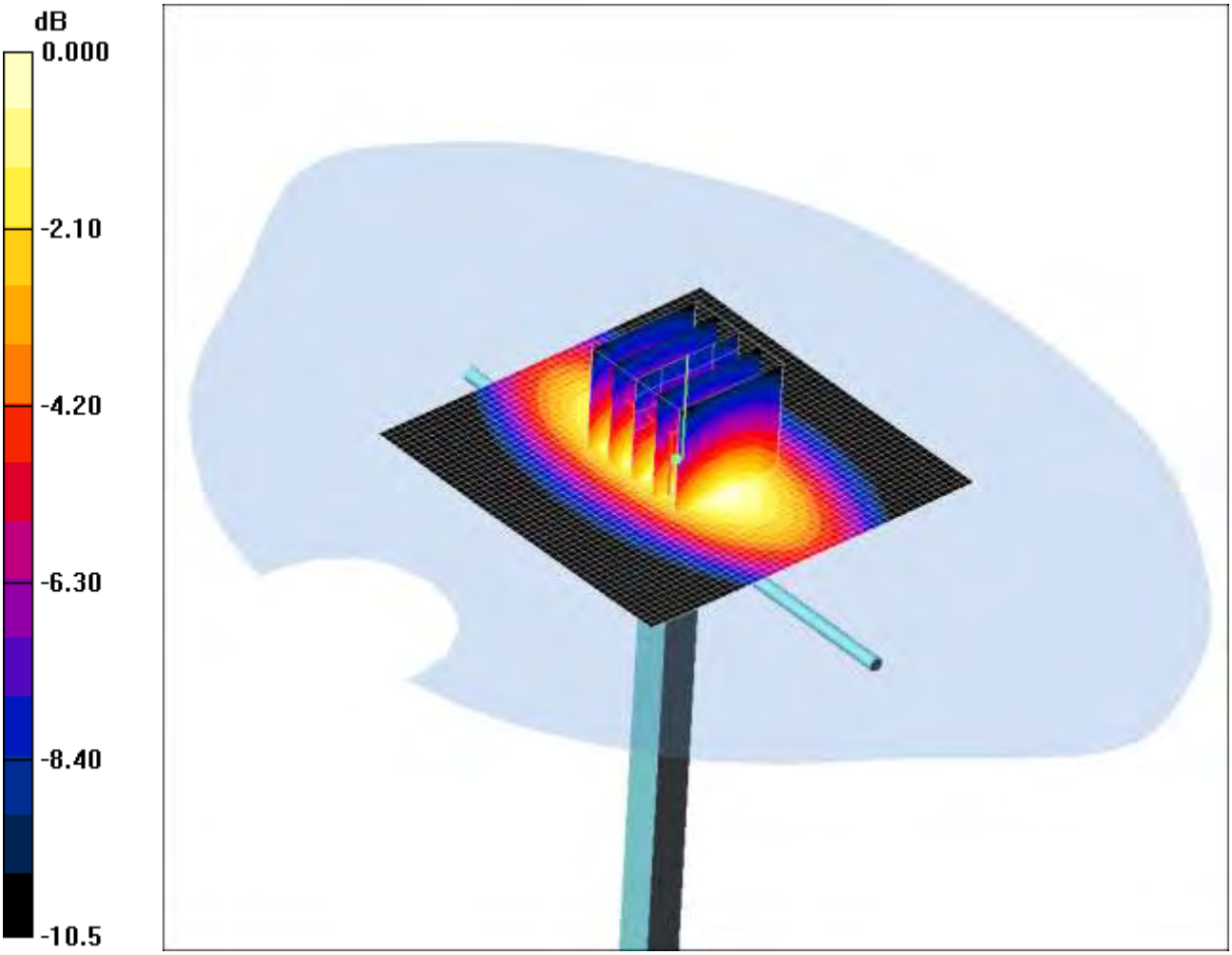


0 dB = 2.88mW/g

Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used: f = 900 MHz; σ = 1.05 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 3.03 mW/g
d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.8 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 3.99 W/kg
SAR(1 g) = 2.67 mW/g; SAR(10 g) = 1.73 mW/g
Maximum value of SAR (measured) = 2.88 mW/g

SCN/87208JD02/083: System Performance Check 900MHz Body 17 08 12
Date: 17/08/2012
DUT: Dipole 900 MHz; SN: 124; Type: D900V2; Serial: SN124

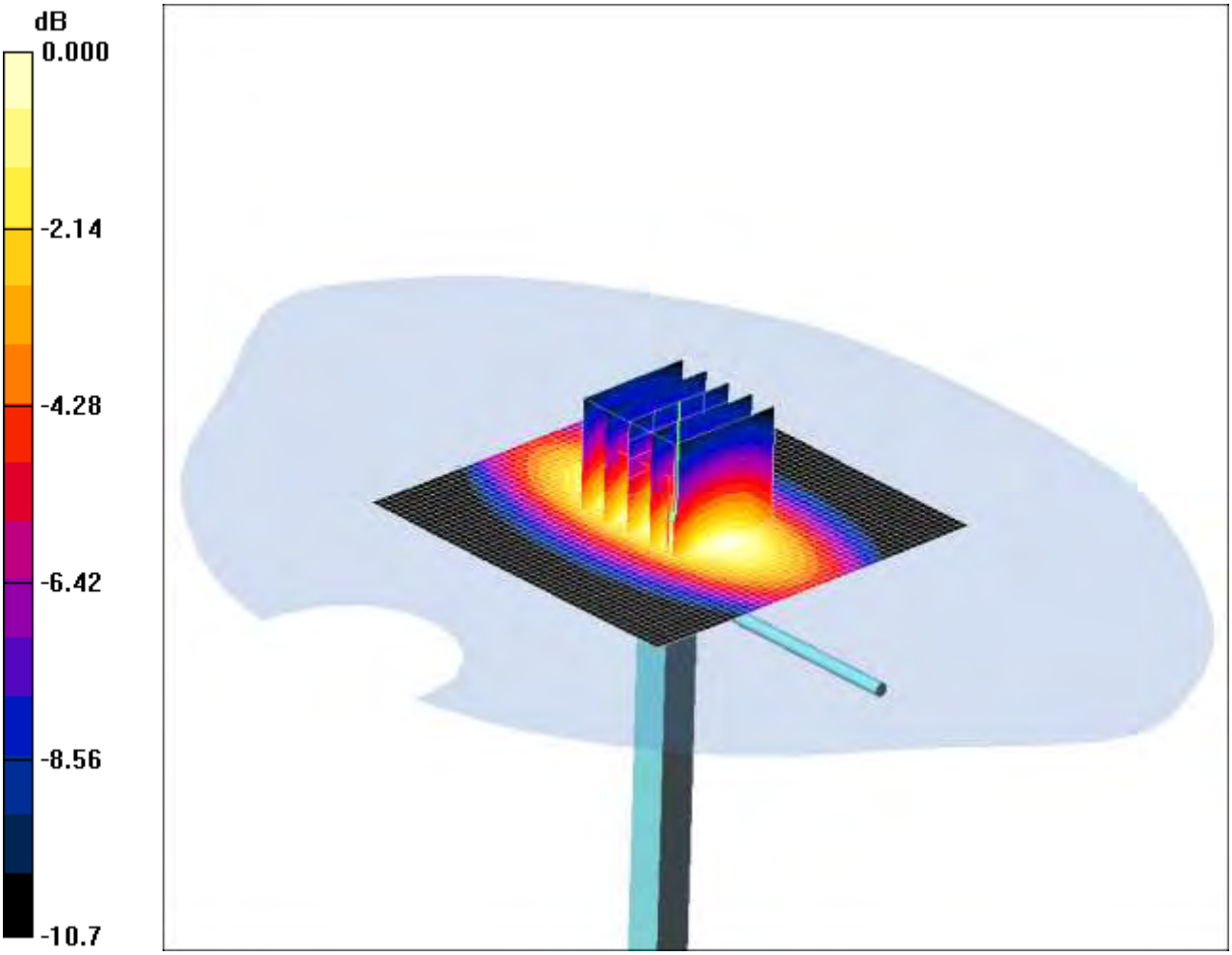


0 dB = 2.87mW/g

Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used: f = 900 MHz; σ = 1.04 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 3.05 mW/g
d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 52.4 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 3.94 W/kg
SAR(1 g) = 2.66 mW/g; SAR(10 g) = 1.74 mW/g
Maximum value of SAR (measured) = 2.87 mW/g

SCN/87208JD02/084: System Performance Check 900MHz Body 20 08 12
Date: 20/08/2012
DUT: Dipole 900 MHz; SN: 124; Type: D900V2; Serial: SN124

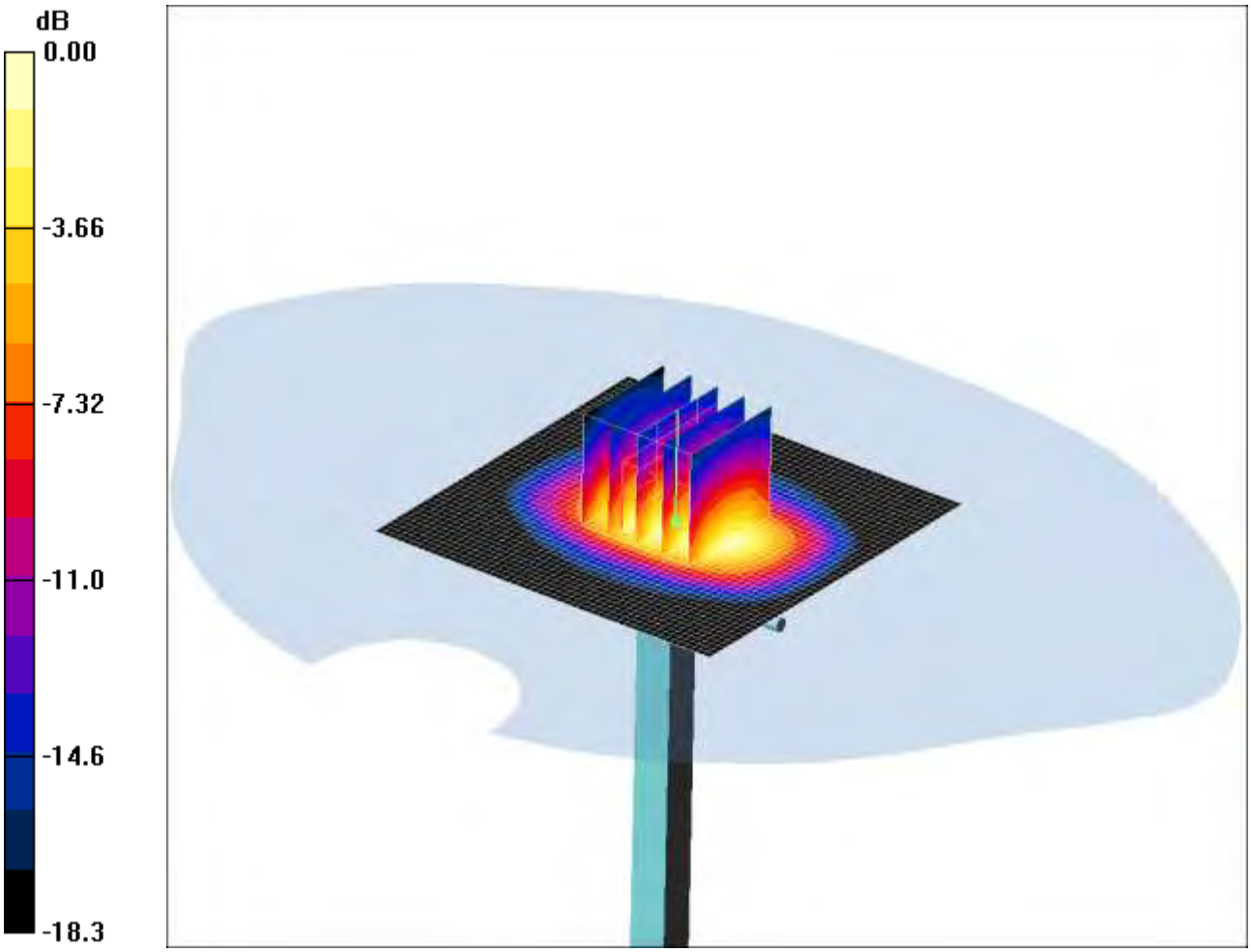


0 dB = 2.97mW/g

Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used: f = 900 MHz; σ = 1.03 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(8.92, 8.92, 8.92); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 3.19 mW/g
d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.7 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 4.09 W/kg
SAR(1 g) = 2.76 mW/g; SAR(10 g) = 1.81 mW/g
Maximum value of SAR (measured) = 2.97 mW/g

SCN/87208JD02/085: System Performance Check 1900MHz Head 14 08 12
Date: 14/08/2012
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: SN540

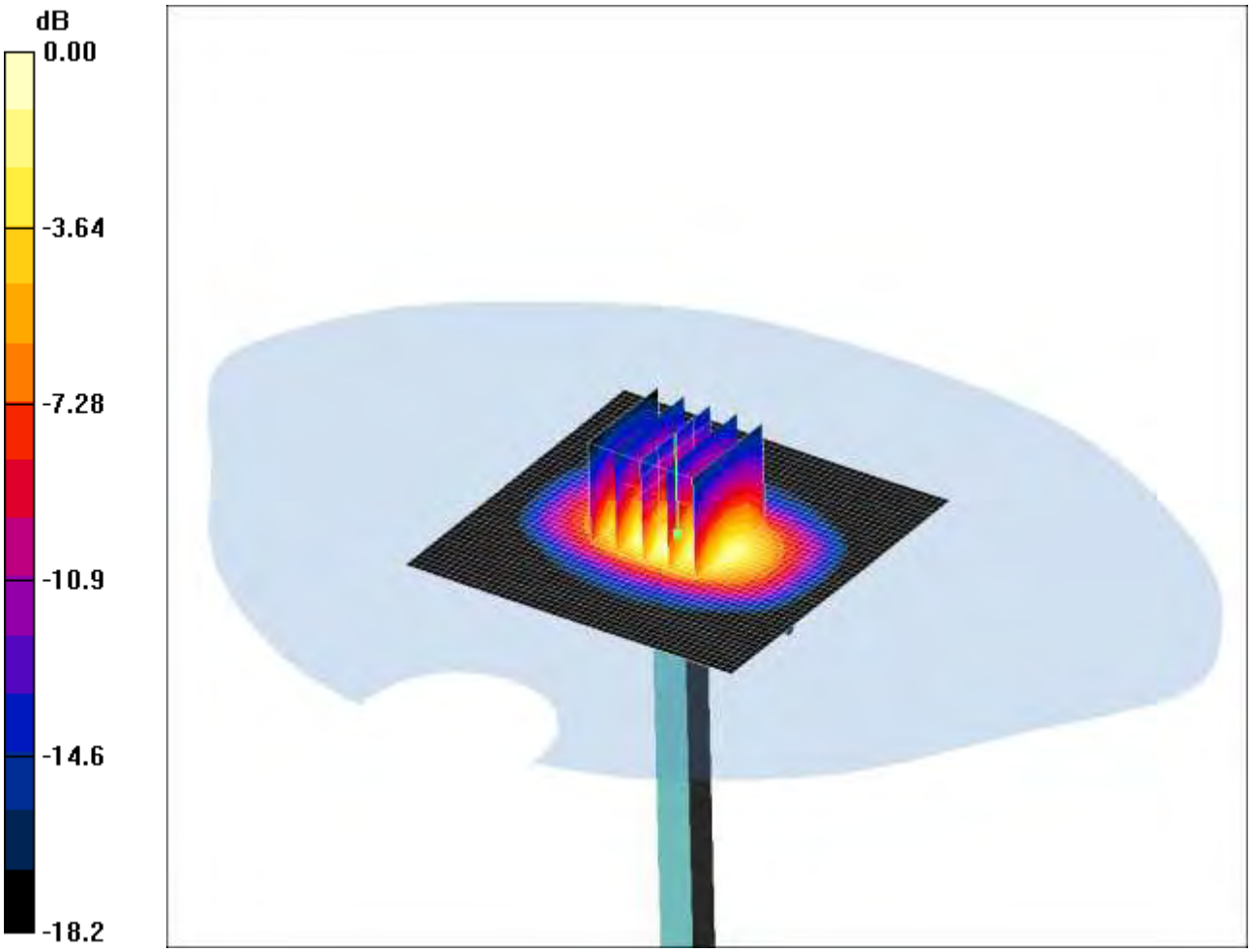


0 dB = 11.1mW/g

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 MHz HSL Medium parameters used: f = 1900 MHz; σ = 1.45 mho/m; ε_r = 38.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.92, 4.92, 4.92); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12a (Site 57); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 14.5 mW/g
d=10mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 91.8 V/m; Power Drift = 0.107 dB
Peak SAR (extrapolated) = 17.1 W/kg
SAR(1 g) = 9.94 mW/g; SAR(10 g) = 5.25 mW/g
Maximum value of SAR (measured) = 11.1 mW/g

SCN/87208JD02/086: System Performance Check 1900MHz Head 13 08 12
Date: 13/08/2012
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: SN540

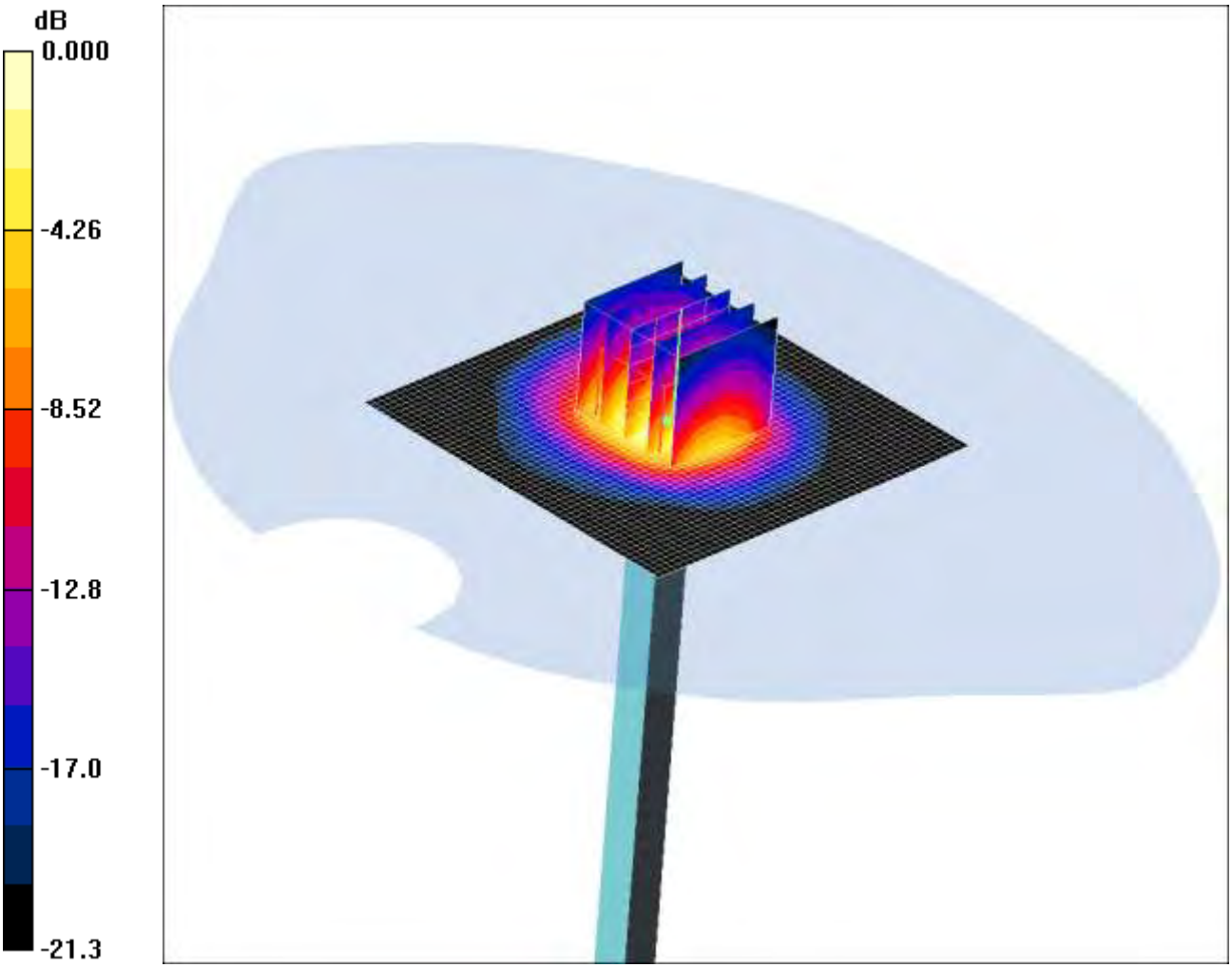


0 dB = 11.6mW/g

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 MHz HSL Medium parameters used: f = 1900 MHz; σ = 1.45 mho/m; ε_r = 38.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.92, 4.92, 4.92); Calibrated: 26/07/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: SAM 12a (Site 57); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 14.7 mW/g
d=10mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 91.6 V/m; Power Drift = 0.338 dB
Peak SAR (extrapolated) = 17.6 W/kg
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.37 mW/g
Maximum value of SAR (measured) = 11.6 mW/g

SCN/87208JD02/087: System Performance Check 2450MHz Head 05 09 12
Date: 05/09/2012
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:725

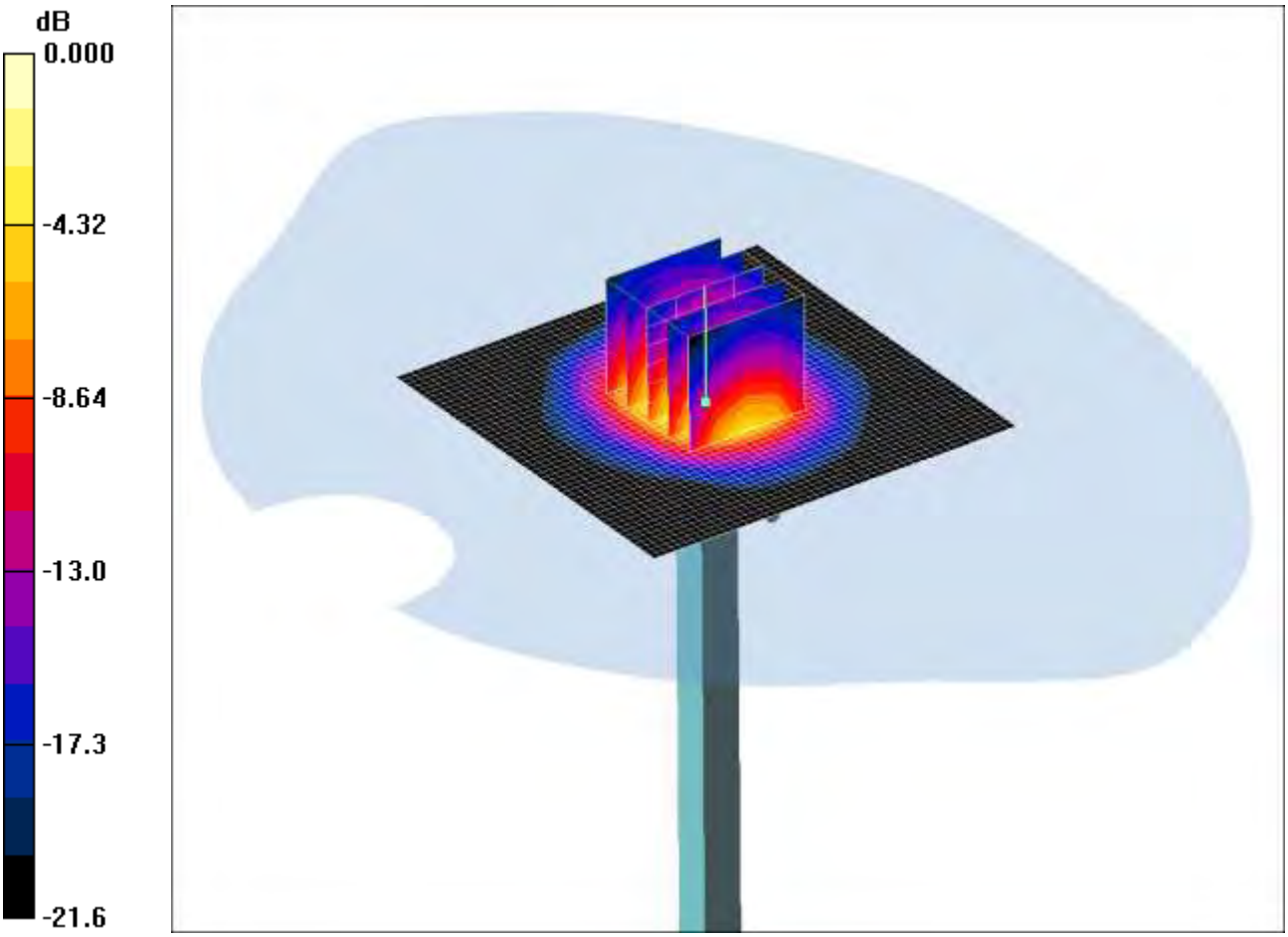


0 dB = 14.4mW/g

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used: f = 2450 MHz; σ = 1.82 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.02, 7.02, 7.02); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=10mm, Pin=250mW 2/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 20.0 mW/g
d=10mm, Pin=250mW 2/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 90.1 V/m; Power Drift = -0.211 dB
Peak SAR (extrapolated) = 26.1 W/kg
SAR(1 g) = 13.1 mW/g; SAR(10 g) = 6.15 mW/g
Maximum value of SAR (measured) = 14.4 mW/g

SCN/87208JD02/088: System Performance Check 2450MHz Body 05 09 12
Date: 05/09/2012
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:725



0 dB = 14.8mW/g

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used: f = 2450 MHz; σ = 2.01 mho/m; ε_r = 54; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn432; Calibrated: 02/05/2012
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=10mm, Pin=250mW 2/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 20.2 mW/g
d=10mm, Pin=250mW 2/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 85.7 V/m; Power Drift = -0.099 dB
Peak SAR (extrapolated) = 24.8 W/kg
SAR(1 g) = 12.8 mW/g; SAR(10 g) = 6.03 mW/g
Maximum value of SAR (measured) = 14.8 mW/g

Appendix 4. Photographs

This appendix contains the following photographs:

Photo Reference Number	Title
PHT/87208JD02/001	Test configuration for the measurement of Specific Absorption Rate (SAR)
PHT/87208JD02/002	Touch Left
PHT/87208JD02/003	Tilt Left
PHT/87208JD02/004	Touch Right
PHT/87208JD02/005	Tilt Right
PHT/87208JD02/006	Front of EUT facing Phantom at 10mm
PHT/87208JD02/007	Front of EUT facing Phantom at 15mm
PHT/87208JD02/008	Rear of EUT facing Phantom at 10mm
PHT/87208JD02/009	Rear of EUT facing Phantom at 15mm
PHT/87208JD02/010	Left Hand Side of EUT Facing Phantom
PHT/87208JD02/011	Right Hand Side of EUT Facing Phantom
PHT/87208JD02/012	Top of EUT Facing Phantom
PHT/87208JD02/013	Bottom of EUT Facing Phantom
PHT/87208JD02/014	General Setup of EUT with PHF
PHT/87208JD02/015	Front View of EUT
PHT/87208JD02/016	Rear View of EUT
PHT/87208JD02/017	Left View Hand Side of EUT
PHT/87208JD02/018	Right Hand Side View of EUT
PHT/87208JD02/019	Top View of EUT
PHT/87208JD02/020	Bottom View of EUT
PHT/87208JD02/021	Internal view of WWAN Radiated Sample (CB5A1K8HC5)
PHT/87208JD02/022	Internal view of WWAN Radiated Sample (CB5A1K8HPR)
PHT/87208JD02/023	Internal view of WWAN Conducted Sample (CB5A1K8HFH)
PHT/87208JD02/024	Internal view of WLAN Radiated Sample (CB5A1K8HGA)
PHT/87208JD02/025	Internal view of WLAN Conducted Sample (CB5A1K8HGA)
PHT/87208JD02/026	PHF View
PHT/87208JD02/027	Battery View
PHT/87208JD02/028	850/900 MHz Head Fluid Level
PHT/87208JD02/029	850/900 MHz Body Fluid Level
PHT/87208JD02/030	1900 MHz Head Fluid Level
PHT/87208JD02/031	1900 MHz Body Fluid Level
PHT/87208JD02/032	2450 MHz Head Fluid Level
PHT/87208JD02/033	2450 MHz Body Fluid Level

Appendix 5. System Check

Prior to the assessment, the system was verified in the flat region of the phantom, 900 MHz, 1900 MHz and 2450 MHz dipoles were used. A forward power of 250 mW was applied to the dipole and the system was verified to a tolerance of ±5% for the 900MHz, 1900MHz and 2450MHz dipoles.

The applicable verification normalised to 1 Watt.

System Check 850/900 Head

Date: 31/07/2012
Validation Dipole and Serial Number: D900V2; SN: 124

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Head	900	24.0ºC	22.0ºC	ε_r	41.50	43.32	4.39	5.00
				σ	0.97	0.96	-0.80	5.00
				1g SAR	11.00	10.88	-1.09	5.00
				10g SAR	7.01	7.16	2.14	5.00

Dielectrics for Frequencies Tested

Channel Number	Channel Description	Frequency (MHz)	Parameters	
4132	Low	826.4	ε_r	42.40
			σ	0.92
4183	Middle	836.6	ε_r	43.80
			σ	0.92
4233	High	846.6	ε_r	42.20
			σ	0.85

Date: 10/08/2012
Validation Dipole and Serial Number: D900V2; SN: 124

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Head	900	24.0ºC	23.1ºC	ε_r	41.50	41.36	-0.35	5.00
				σ	0.97	0.94	-2.60	5.00
				1g SAR	11.00	11.16	1.45	5.00
				10g SAR	7.01	7.32	4.42	5.00

Dielectrics for Frequencies Tested

Channel Number	Channel Description	Frequency (MHz)	Parameters	
128	Low	824.2	ε_r	41.90
			σ	0.90
190	Middle	836.6	ε_r	41.80
			σ	0.90
251	High	848.8	ε_r	41.70
			σ	0.91

System Check 850/900 Body

Date: 02/08/2012
Validation Dipole and Serial Number: D900V2; SN: 124

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	900	24.0 ºC	22.6 ºC	ε_r	55.00	53.10	-3.45	5.00
				σ	1.05	1.05	-0.24	5.00
				1g SAR	11.10	10.64	-4.14	5.00
				10g SAR	7.14	6.92	-3.08	5.00

Dielectrics for Frequencies Tested

Channel Number	Channel Description	Frequency (MHz)	Parameters	
4132	Low	826.4	ε_r	53.40
			σ	1.00
4183	Middle	836.6	ε_r	53.40
			σ	1.01
4233	High	846.6	ε_r	53.30
			σ	1.02

Date: 03/08/2012
Validation Dipole and Serial Number: D900V2; SN: 124

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	900	24.0ºC	22.6ºC	ε_r	55.00	53.10	-3.45	5.00
				σ	1.05	1.05	-0.24	5.00
				1g SAR	11.10	10.68	-3.78	5.00
				10g SAR	7.14	6.92	-3.08	5.00

Dielectrics for Frequencies Tested

Channel Number	Channel Description	Frequency (MHz)	Parameters	
4132	Low	826.4	ε_r	53.40
			σ	1.00
4183	Middle	836.6	ε_r	53.40
			σ	1.01
4233	High	846.6	ε_r	53.30
			σ	1.02

System Check 850/900 Body (Continued):

Date: 17/08/2012
Validation Dipole and Serial Number: D900V2; SN: 124

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	900	24.0ºC	22.5ºC	ε_r	55.00	52.65	-4.26	5.00
				σ	1.05	1.04	-1.34	5.00
				1g SAR	11.10	10.64	-4.14	5.00
				10g SAR	7.14	6.96	-2.52	5.00

Dielectrics for Frequencies Tested

Channel Number	Channel Description	Frequency (MHz)	Parameters	
128	Low	824.2	ε_r	53.00
			σ	0.99
190	Middle	836.6	ε_r	53.00
			σ	1.00
251	High	848.8	ε_r	52.90
			σ	1.00

Date: 20/08/2012
Validation Dipole and Serial Number: D900V2; SN: 124

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	900	24.0ºC	22.8ºC	ε_r	55.00	52.67	-4.24	5.00
				σ	1.05	1.03	-1.87	5.00
				1g SAR	11.10	11.04	-0.54	5.00
				10g SAR	7.14	7.24	1.40	5.00

Dielectrics for Frequencies Tested

Channel Number	Channel Description	Frequency (MHz)	Parameters	
128	Low	824.2	ε_r	53.00
			σ	0.99
190	Middle	836.6	ε_r	52.90
			σ	0.99
251	High	848.8	ε_r	52.90
			σ	1.00

System Check 1900 Head

Date: 14/08/2012
Validation Dipole and Serial Number: D1900V2; SN: 540

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Head	1900	24.0ºC	22.0ºC	ε_r	40.00	38.68	-3.29	5.00
				σ	1.40	1.45	3.32	5.00
				1g SAR	40.30	39.76	-1.34	5.00
				10g SAR	21.00	21.00	0.00	5.00

Dielectrics for Frequencies Tested

Channel Number	Channel Description	Frequency (MHz)	Parameters	
512	Low	1850.2	ε_r	38.90
			σ	1.40
661	Middle	1880	ε_r	38.30
			σ	1.43
810	High	1909.8	ε_r	38.60
			σ	1.46

System Check 1900 Body

Date: 13/08/2012
Validation Dipole and Serial Number: D1900V2; SN: 540

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	1900	24.0ºC	ºC	ε_r	53.30	51.62	-3.15	5.00
				σ	1.52	1.56	2.37	5.00
				1g SAR	40.70	40.80	0.25	5.00
				10g SAR	21.60	21.72	0.56	5.00

Dielectrics for Frequencies Tested

Channel Number	Channel Description	Frequency (MHz)	Parameters	
512	Low	1850.2	ε_r	38.90
			σ	1.40
661	Middle	1880	ε_r	38.30
			σ	1.43
810	High	1909.8	ε_r	38.60
			σ	1.46

System Check 2450 Head

Date: 05/09/2012
Validation Dipole and Serial Number: D2450V2; SN: 725

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Head	2450	24.0 ºC	22.9 ºC	ε_r	39.20	40.93	4.42	5.00
				σ	1.80	1.82	1.03	5.00
				1g SAR	52.90	52.40	-0.95	5.00
				10g SAR	24.70	24.60	-0.40	5.00

Dielectrics for Frequencies Tested

Channel Number	Channel Description	Frequency (MHz)	Parameters	
1	Low	2412	ε_r	41.10
			σ	1.78
6	Middle	2437	ε_r	41.00
			σ	1.81
11	High	2463	ε_r	40.90
			σ	1.84

System Check 2450 Body

Date:05/09/2012
Validation Dipole and Serial Number: D2450V2; SN: 725

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	2450	24.0 ºC	24.0 ºC	ε_r	52.70	54.00	2.46	5.00
				σ	1.95	2.01	2.94	5.00
				1g SAR	51.90	51.20	-1.35	5.00
				10g SAR	24.10	24.12	0.08	5.00

Dielectrics for Frequencies Tested

Channel Number	Channel Description	Frequency (MHz)	Parameters	
1	Low	2412	ε_r	54.00
			σ	1.96
6	Middle	2437	ε_r	54.00
			σ	1.99
11	High	2463	ε_r	53.90
			σ	2.02

Appendix 6. Simulated Tissues

The body mixture consists of water, Polysorbate and salt. Visual inspection is made to ensure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the tissue.

ingredient	Frequency
	835/850/900 MHz Head
De-Ionized Water	52.87
Polysorbate 20 (Tween 20)	46.10
Salt	1.03

Ingredient	Frequency
	835/850/900 MHz Body
De-Ionized Water	71.30
Polysorbate 20 (Tween 20)	28.00
Salt	0.70

Ingredient	Frequency
	1800/1900 MHz Head
De-Ionized Water	55.40
Polysorbate 20 (Tween 20)	44.22
Salt	0.38

Ingredient	Frequency
	1800/1900 MHz Body
De-Ionized Water	71.50
Polysorbate 20 (Tween 20)	28.00
Salt	0.50

Ingredient	Frequency
	2450 MHz Head
De-Ionized Water	55.75
Polysorbate 20 (Tween 20)	45.25

Ingredient	Frequency
	2450 MHz Body
De-Ionized Water	71.70
Polysorbate 20 (Tween 20)	28.00
Salt	0.30

Appendix 7. DASY4 System Details

A.7.1. DASY4 SAR Measurement System

RFI Global Services Ltd, SAR measurement facility utilises the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 system is coPower Back offised of the robot controller, computer, near-field probe, probe alignment sensor, and the SAM phantom containing brain or muscle equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller; teach pendant (Joystick), and remote control. This is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. The data acquisition electronics (DAE) performs signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection etc. The DAE is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card. The DAE3 utilises a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching mulitplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

A.7.2. DASY4 SAR System Specifications	
Robot System	
Positioner:	Stäubli Unimation Corp. Robot Model: RX90L
Repeatability:	0.025 mm
No. of Axis:	6
Serial Number:	F00/SD89A1/A/01
Reach:	1185 mm
Payload:	3.5 kg
Control Unit:	CS7
Programming Language:	V+
Robot System	
Positioner:	Stäubli Unimation Corp. Robot Model: RX90L
Repeatability:	0.025 mm
No. of Axis:	6
Serial Number:	F01/5J86A1/A/01
Reach:	1185 mm
Payload:	3.5 kg
Control Unit:	CS7
Programming Language:	V+
Data Acquisition Electronic (DAE) System	
Serial Number:	DAE3 SN:394
Serial Number:	DAE3 SN:432
PC Controller	
PC:	Dell Precision 340
Operating System:	Windows 2000
Data Card:	DASY4 Measurement Server
Serial Number:	1080
Data Converter	
Features:	Signal Amplifier, multiplexer, A/D converted and control logic.
Software:	DASY4 Software
Connecting Lines:	Optical downlink for data and status info. Optical uplink for commands and clock.
PC Interface Card	
Function:	24 bit (64 MHz) DSP for real time processing Link to DAE3 16 nit A/D converter for surface detection system serial link to robot direct emergency stop output for robot.

DASY4 SAR System Specifications (Continued)	
E-Field Probe	
Model:	EX3DV4
Serial No:	3814
Construction:	Triangular core
Frequency:	10 MHz to >6 GHz
Linearity:	±0.2 dB (30 MHz to 6 GHz)
Probe Length (mm):	330
Probe Diameter (mm):	12
Tip Length (mm):	20
Tip Diameter (mm):	2.5
Sensor X Offset (mm):	1
Sensor Y Offset (mm):	1
Sensor Z Offset (mm):	1
E-Field Probe	
Model:	ET3DV6
Serial No:	1528
Construction:	Triangular core
Frequency:	10 MHz to 2.55GHz
Linearity:	±0.2 dB (30 MHz to 2.55GHz)
Probe Length (mm):	337
Probe Diameter (mm):	10
Tip Length (mm):	10
Tip Diameter (mm):	6.8
Sensor X Offset (mm):	2.7
Sensor Y Offset (mm):	2.7
Sensor Z Offset (mm):	2.7
Phantom	
Phantom:	SAM Phantom
Shell Material:	Fibreglass
Thickness:	2.0 ±0.1 mm