TEST REPORT

Test of: P-03E

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

FCC ID: UCE313058A

Test Report Serial No:
UL-SAR-RP92315JD03A V2.0

Version 2.0 Supersedes All Previous Versions

This Test Report Is Issued Under The Authority Of Richelieu Quoi, SAR Technology Consultant:	(APPROVED SIGNATORY)
Checked By: Naseer Mirza	(APPROVED SIGNATORY)
Issue Date:	**01 May 2013**
Test Dates:	**28 March to 16 April 2013**

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1. Customer Information

Company Name:	Panasonic Mobile Comms Dev of Europe Ltd
Address:	Panasonic House, Willoughby Road, Bracknell, Berkshire, RG12 8FP, United Kingdom

2. Summary of Test Results

Test Name	Specification Reference	Result
Specific Absorption Rate-GSM 850	OET Bulletin 65 Supplement C: (2001-01)	
Specific Absorption Rate-PCS 1900	OET Bulletin 65 Supplement C: (2001-01)	
Specific Absorption Rate - UMTS-FDD 5	OET Bulletin 65 Supplement C: (2001-01)	
Specific Absorption Rate-Wi-Fi 802.11b/g/n 2.4 GHz	OET Bulletin 65 Supplement C: (2001-01)	
Specific Absorption Rate- Wi-Fi 802.11a/n 5.0 GHz	OET Bulletin 65 Supplement C: (2001-01)	
Key to Results	= Complied = Did not comply	

2.1. Highest Reported SAR: Individual Transmitter Evaluation per Band

Exposure Configuration	Technology Band	Highest Reported 1g -SAR (W/kg)	Equipment Class	Max Rated Source base Avg Power + Max Tolerance [dBm]	Highest Reported 1g-SAR (W/kg)
HEAD (Separation Distance 0mm)	GSM850	0.389	PCE	24.84	0.482
	PCS1900	0.389		21.59	
	UMTS FDD 5	0.482		24.01	
	WLAN 2.4 GHz	0.216	DTS	16.00	0.216
	WLAN 5.0 GHz	0.027	NII	8.50	0.027
HOTSPOT (Separation Distance 10mm)	GSM850	0.547	PCE	24.84	0.771
	PCS1900	0.771		21.59	
	UMTS FDD 5	0.679		24.01	
	WLAN 2.4 GHz	0.112	DTS	16.00	0.112
	WLAN 5.0 GHz	-	NII	-	-
BODY-WORN (Separation Distance 15mm)	GSM850	0.374	PCE	24.08	0.515
	PCS1900	0.303		20.80	
	UMTS FDD 5	0.515		24.01	
	WLAN 2.4 GHz	0.042	DTS	16.00	0.042
	WLAN 5.0 GHz	-	NII	-	-

2.2. Highest Reported Simultaneous Transmitter SAR per Exposure condition

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the *reported* standalone SAR of each applicable simultaneous transmitting antenna.

Exposure Configuration	Technology Band	Highest Reported 1g SAR (W/kg)	Equipment Class	Max Rated Source base Avg Power + Max Tolerance [dBm]	Highest Reported 1g Sum-SAR (W/kg)	SPLSR Ratio
HEAD (Separation Distance 0mm)	UMTS FDD 5	0.482	PCE	24.01	0.698	N/A
	WLAN 2.4 GHz	0.216	DTS	16.00		
HOTSPOT (Separation Distance 10mm)	PCS1900	0.771	PCE	21.59	0.883	N/A
	WLAN 2.4 GHz	0.112	DTS	16.00		
	PCS1900	0.771	PCE	21.59	0.812	N/A
	Bluetooth 2.4 GHz	0.041	DSS	3.00		
BODY-WORN (Separation Distance 15mm)	UMTS FDD 5	0.515	PCE	24.01	0.557	N/A
	WLAN 2.4 GHz	0.042	DTS	16.00		
	UMTS FDD 5	0.515	PCE	24.01	0.542	N/A
	Bluetooth 2.4 GHz	0.027	DSS	3.00		

Note(s):

*As per FCC KDB publication 447498 D01, for cases where sum of WWAN and WLAN exceed 1.6W/kg, the SAR to peak location separation ratio distance is calculated as shown below

- SAR peak location separation ratio (SPLSR) for each antenna pair in each simultaneous transmission configuration is given by $(SAR_1 + SAR_2)^{1.5} / R_l \leq 0.04$ for 1-g, where R_l is the separation distance between peak SAR locations for the antenna pair in mm.

2.3. SAR measurement variability and measurement uncertainty analysis:

Exposure Configuration	Technology Band	Measured 1g -SAR (W/kg)	Equipment Class	Max Meas. Source base Avg Power [dBm]	Ratio of Largest to Smallest SAR Measured
HEAD (Separation Distance 0mm)	-	-	PCE	-	N/A
	-	-		-	
HOTSPOT (Separation Distance 10mm)	-	-		-	N/A
	-	-		-	
BODY-WORN (Separation Distance 10mm)	-	-		-	N/A
	-	-		-	

Note(s):

1. The following step below were followed as per KDB publication 865664 D01:

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.

2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.

3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

2.4. Location of Tests

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

2.5.Nominal and Maximum Output power:

Note: The following source based average rated powers for GSM/GPRS/EDGE are without consideration of uplink time slot.

Bands	Speech (Voice Mode)	
	Target (dBm)	Tolerance + - (dB)
GSM850	32.50	+0.61 ~ -1.24
PCS1900	29.50	+0.33 ~ -0.92

Bands	GPRS							
	Tx Slot 1		Tx Slot 2		Tx Slot 3		Tx Slot 4	
	Target (dBm)	Tolerance + - (dB)	Target (dBm)	Tolerance + - (dB)	Target (dBm)	Tolerance + - (dB)	Target (dBm)	Tolerance + - (dB)
GSM850	32.50	+0.61 ~ -1.24	30.00	+0.90 ~ -0.90	28.2	+0.90 ~ -0.90	27.00	+0.90 ~ -0.90
PCS1900	29.50	+0.33 ~ -0.92	27.00	+0.60 ~ -0.60	25.2	+0.60 ~ -0.60	24.00	+0.60 ~ -0.60

Bands	EDGE GMSK (MCS1-4							
	Tx Slot 1		Tx Slot 2		Tx Slot 3		Tx Slot 4	
	Target (dBm)	Tolerance + - (dB)	Target (dBm)	Tolerance + - (dB)	Target (dBm)	Tolerance + - (dB)	Target (dBm)	Tolerance + - (dB)
GSM850	32.50	+0.61 ~ -1.24	30.00	+0.90 ~ -0.90	28.20	+0.90 ~ -0.90	27.00	+0.90 ~ -0.90
PCS1900	29.50	+0.33 ~ -0.92	27.00	+0.60 ~ -0.60	25.20	+0.60 ~ -0.60	24.00	+0.60 ~ -0.60

Bands	EDGE 8PSK (MCS5-9)							
	Tx Slot 1		Tx Slot 2		Tx Slot 3		Tx Slot 4	
	Target (dBm)	Tolerance + - (dB)	Target (dBm)	Tolerance + - (dB)	Target (dBm)	Tolerance + - (dB)	Target (dBm)	Tolerance + - (dB)
GSM850	26.50	+0.00 ~ -1.48	24.00	+0.70~ -0.70	22.20	+0.70~ -0.70	21.00	+0.70~ -0.70
PCS1900	25.50	+0.15~ 1.15	23.00	+0.65~ -0.65	21.20	+0.65~ -0.65	20.00	+0.65~ -0.65

Nominal and Maximum Output power (Continued):

Bands	UMTS FDD			
	CS		HS	
	Target (dBm)	Tolerance + - (dB)	Target (dBm)	Tolerance + - (dB)
UMTS FDD 5	23.50	+0.51 ~ -0.35	23.50	+0.51 ~ -0.35

	WLAN Modes					
	2.4 GHz 802.11b		2.4 GHz 802.11g		2.4 GHz 802.11n	
	1 Mbps	11 Mbps	6 Mbps	54 Mbps	6.5 Mbps	65 Mbps
Max Tx Power (dBm)	14.00 ±2dB	14.00 ±2dB	11.50 ±2dB	11.50 ±2dB	11.00 ±2dB	11.00 ±2dB

WLAN Modes								
5.0 GHz 802.11a								
	5.2 GHz 802.11a		5.3 GHz 802.11a		5.6 GHz 802.11a		5.8 GHz 802.11a	
	6 Mbps	54 Mbps	6 Mbps	54 Mbps	6 Mbps	54 Mbps	6 Mbps	54 Mbps
Max Tx Power (dBm)	6.50 ±2dB	6.50 ±2dB	6.50 ±2dB	6.50 ±2dB	6.50 ±2dB	6.50 ±2dB	N/A	N/A

WLAN Modes								
5.0 GHz 802.11n HT20								
	5.2 GHz 802.11n		5.3 GHz 802.11n		5.6 GHz 802.11n		5.8 GHz 802.11n	
	6.5 Mbps	65 Mbps	6.5 Mbps	65 Mbps	6.5 Mbps	65 Mbps	6.5 Mbps	65 Mbps
Max Tx Power (dBm)	6.50 ±2dB	6.50 ±2dB	6.50 ±2dB	6.50 ±2dB	6.50 ±2dB	6.50 ±2dB	N/A	N/A

WLAN Modes								
5.0 GHz 802.11n HT40								
	5.2 GHz 802.11n		5.3 GHz 802.11n		5.6 GHz 802.11n		5.8 GHz 802.11n	
	13.5 Mbps	135 Mbps	13.5 Mbps	135 Mbps	13.5 Mbps	135 Mbps	13.5 Mbps	135 Mbps
Max Tx Power (dBm)	6.50 ±2dB	6.50 ±2dB	6.50 ±2dB	6.50 ±2dB	6.50 ±2dB	6.50 ±2dB	N/A	N/A

Band	Max Power {Target (dBm) ±Tolerance (dB)}
Bluetooth	0.00±3dB

Note:

1. As per KDB865664 D02 SAR Reporting v01, 2.1.4(a), the nominal and maximum average source based rated power, declared by manufacturer are shown in the above tables.
2. These are specified maximum allowed average power for all the wireless modes and frequency bands supported.

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.

The Equipment Under Test complied with the Specific Absorption Rate for general population/uncontrolled exposure limit of 1.6 W/kg as specified in FCC 47 CFR part 2 (2.1093) and ANSI C95.1-1992 and has been tested in accordance with the reference documents in section 3.2 of this report.

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.

IEEE 1528: 2003
IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques

FCC KDB Publication:

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

KDB 447498 D01 General RF Exposure Guidance v05

KDB 648474 D04 SAR Handsets Multi Xmiter and Ant v01

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

KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01

KDB 865664 D02 SAR Reporting v01

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. Equipment Under Test (EUT)

4.1. Identification of Equipment Under Test (EUT)

Description:	Mobile Handset
Brand Name:	Panasonic
Model Name or Number:	P-03E
Serial Number:	C25
IMEI Number:	355335050017251
Hardware Version Number:	Rev B
Software Version Number:	ACPU:zoro-jb-10-0371 CCPU:161022_DCM_00.15
Hardware Revision of GSM Module:	Not Applicable
Software Revision of GSM Module:	Not Applicable
FCC ID Number:	UCE313058A
Country of Manufacture:	None Stated
Date of Receipt:	25 March 2013

Note(s):

This sample was used to perform WWAN and WLAN SAR evaluation measurements only.
The sample supports simultaneous transmission with the WWAN and WLAN. Wireless Personal Hotspot is also supported and was evaluated as per KDB 941225 D06 "Hot Spot SAR v01"

Description:	Mobile Handset
Brand Name:	Panasonic
Model Name or Number:	P-03E
Serial Number:	C11
IMEI Number:	355335050017111
Hardware Version Number:	Rev B
Software Version Number:	ACPU:zoro-jb-10-0371 CCPU:161022_DCM_00.15
Hardware Revision of GSM Module:	Not Applicable
Software Revision of GSM Module:	Not Applicable
FCC ID Number:	UCE313058A
Country of Manufacture:	None Stated
Date of Receipt:	25 March 2013

Note(s):

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

4.2. 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 (with HSDPA Category 14 and HSUPA Category 6), LTE Band 1/19/21 , WLAN 802.11 a/b/g/n, *Bluetooth,* Personal hotspot mode, RFID and wireless charging capabilities with Extendable and Retractable DTV Antenna.

4.3. Modifications Incorporated in the EUT

EUT (IMEI: 355335050017251) was used for SAR measurements only
EUT (IMEI: 355335050017111) was used for conducted power measurements only.

4.4. Accessories

The following accessories were supplied with the EUT during testing:

Description:	Battery
Brand Name:	NTT docomo
Model Name or Number:	P30
Serial Number:	None Stated
Cable Length and Type:	Not Applicable
Country of Manufacture:	None Stated
Connected to Port	6 pin contact

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:	Personal Hands Free Kit (PHF)
Brand Name:	NTT docomo
Model Name or Number:	Type 02
Serial Number:	316
Cable Length and Type:	~1.15m
Country of Manufacture:	None Stated
Connected to Port	3.5mm Jack

Description:	Dummy Battery
Brand Name:	None Stated
Model Name or Number:	None Stated
Serial Number:	None Stated
Cable Length and Type:	~0.5m
Country of Manufacture:	None Stated
Connected to Port	6 pin contact

Note(s):

This Dummy Battery was only used to perform conducted power measurements.

4.5. 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 (E5515C)
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 (E5515E)
Serial Number:	GB46200666
Cable Length and Type:	~4.0m Utiflex Cable
Connected to Port:	RF (Input / Output) Air Link

4.6. 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, WiFi and *Bluetooth* 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 FDD 5	Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01.
	2.4 GHz WiFi 802.11b/g/n	Test Software was used to configure the EUT to transmit at a maximum power of up to 15.40dBm.
	5.0 GHz Wi-Fi 802.11a/n (HT20 / HT40)	Test Software was used to configure the EUT to transmit at a maximum power of up to 7.70dBm.
	Bluetooth	:= 1.99 mW or ~3.00 dBm

Additional Information Related to Testing (Continued):				
Transmitter Frequency Range:	GSM850	824 to 849 MHz		
	PCS1900	1850 to 1910 MHz		
	UMTS FDD 5	826 to 847 MHz		
	2.4 GHz Wi-Fi 802.11b/g/n	2412 to 2462 MHz		
	5.0 GHz Wi-Fi 802.11a/n (HT20 / HT40)	5180 to 5700 MHz		
Transmitter Frequency Allocation of EUT When Under Test:	**Bands**	**Channel Number**	**Channel Description**	**Frequency (MHz)**
	GSM850	128	Low	824.2
		190	Middle	836.6
		251	High	848.8
	PCS1900	512	Low	1850.2
		661	Middle	1880.0
		810	High	1909.8
	UMTS FDD 5	4132	Low	826.4
		4183	Middle	836.6
		4233	High	846.6
	2.4 GHz Wi-Fi 802.11b/g/n	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:

Band: 5.0 GHz Wi-Fi 802.11a/n (HT20 / HT40)

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

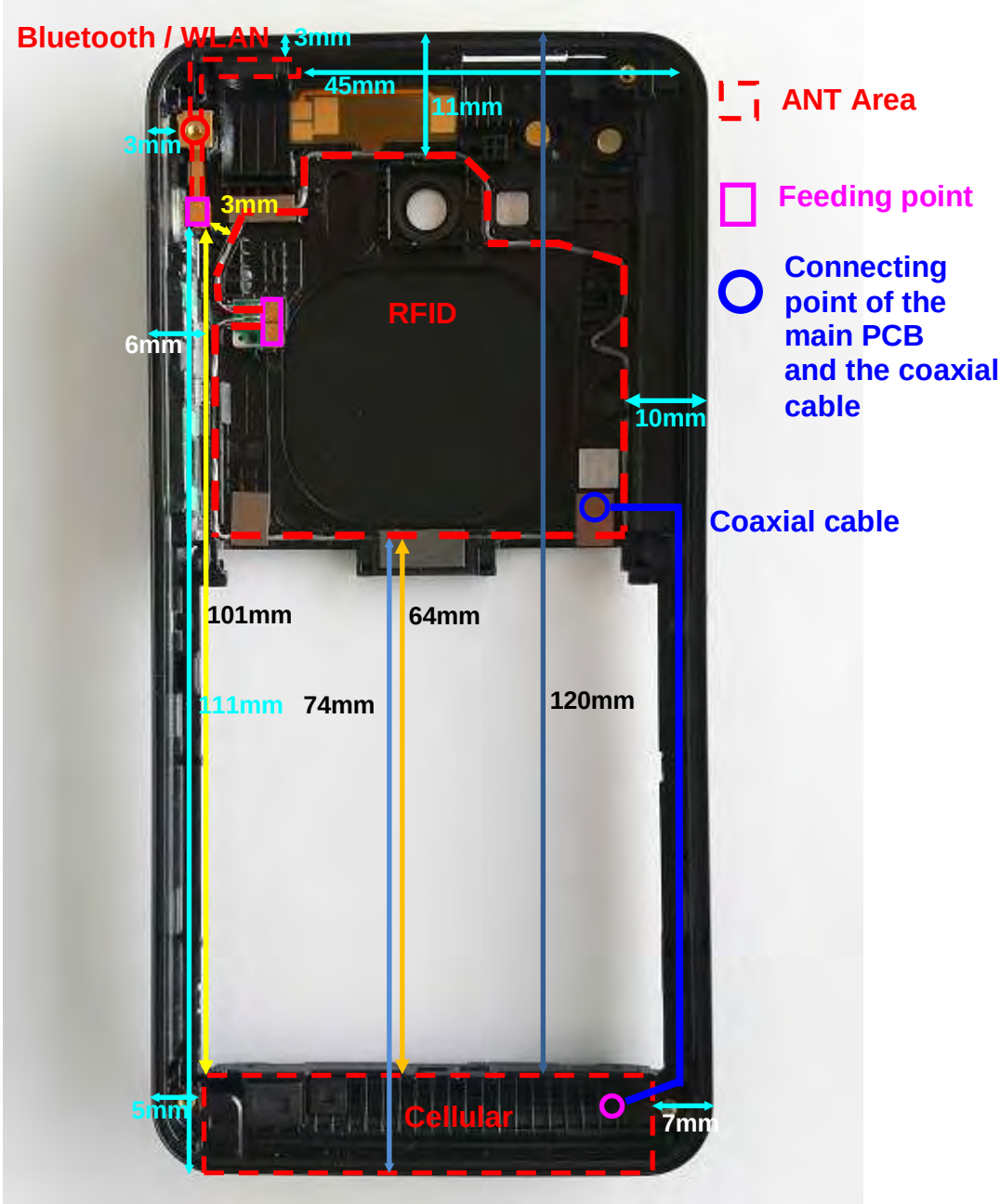
Modulation(s):

GMSK (GSM/ GPRS): 217 Hz
QPSK(UMTS / HSDPA/HSUPA):0Hz
DBPSK, CCK (Wi-Fi): 0 Hz

Modulation Scheme (Crest Factor):

GSMK (GSM): 8.3
GMSK (GPRS850): 2.67
GMSK (GPRS1900): 2
DBPSK, CCK (Wi-Fi): 1
QPSK(UMTS FDD / HSDPA): 1

Additional Information Related to Testing (Continued):	
Antenna Type:	Internal integral
Antenna Length:	Unknown
Number of Antenna Positions:	1 fixed (WWAN) 1 fixed (WLAN/*Bluetooth*) 1 fixed (RFID) 1 fixed (Diversity) 1 fixed (Extendable and retractable DTV)
Power Supply Requirement:	3.8V (2600mAh, 9.9Wh)
Battery Type(s):	Li-ion



5. Deviations from the Test Specification

Test was performed as per KDB 248227 D01 SAR measurements for 802.11a/b/g v01r02, KDB 447498 D01 General RF Exposure Guidance v05, KDB 648474 D04 SAR Handsets Multi Xmiter and Ant v01, 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, KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01, KDB 865664 D02 SAR Reporting 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".

As per 648474 D04 SAR Handsets Multi Xmiter and Ant v01, ‘’When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset’’. Hence, Body worn configurations were not evaluated with PHF attached.

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. 3-uplink were found to give the highest power reference point measurement on the DASY4 system (unit v/m) for GPRS850 and 4-uplink were found to give the highest power reference point measurement on the DASY4 system GPRS1900. All settings were performed with the device in a fixed position Front 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 reference (v/m)	GPRS1900 Power reference (v/m)
1 uplink	13.12	4.99
2 uplink	13.14	5.33
3 uplink	**13.98**	5.38
4 uplink	13.77	**5.43**

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.

6. Operation and Configuration of the EUT during Testing

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 3 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 4 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 "FTM – Box 3 Ver 1.0.3" software to excise mode ‘b’, ‘g’ and ‘n’, with maximum power of up to 15.40 dBm for ‘b’ mode and 13.00 dBm for ‘g’ and 13.0 dBm for ‘n’ modes.
- 5.0 GHz WiFi802.11a/n Data allocated mode using "FTM – Box 3 Ver 1.0.3" software to excise mode ‘a’ and ‘n’, with maximum power of up to 7.70 dBm for ‘a’ mode and 7.20 dBm for ‘n’ modes.

6.1. Configuration and Peripherals

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

- Standalone fully charged battery powered.
- Head, Hotspot Mode 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 33: setup for 1-uplink, 2-uplink, 3-uplink and 4-uplink were evaluated to find the setting with the highest power reference measurements. 3-uplink were found to give the highest power reference point measurement on the DASY4 system (unit v/m) for GPRS850 and 4-uplink were found to give the highest power reference point measurement on the DASY4 system GPRS1900. 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. 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 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.

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.

6.2. Configuration Consideration

Technology Antenna	Configuration	Antenna-to-User Separation	Position	Antenna-to-Edge Separation	Evaluation Considered
WWAN	Head	0mm	Touch Left	<25mm	Yes
			Tilt Left	<25mm	Yes
			Touch Right	<25mm	Yes
			Tilt Right	<25mm	Yes
	Hotspot	10mm	Front	<25mm	Yes
			Back	<25mm	Yes
			Top Edge	>25mm	No
			Bottom Edge	<25mm	Yes
			Right Edge	<25mm	Yes
			Left Edge	<25mm	Yes
	Body	15mm	Front	<25mm	Yes
			Back	<25mm	Yes
WLAN	Head	0mm	Touch Left	<25mm	Yes
			Tilt Left	<25mm	Yes
			Touch Right	<25mm	Yes
			Tilt Right	<25mm	Yes
	Hotspot	10mm	Front	<25mm	Yes
			Back	<25mm	Yes
			Top Edge	<25mm	Yes
			Bottom Edge	>25mm	No
			Right Edge	>25mm	No
			Left Edge	<25mm	Yes
	Body	15mm	Front	<25mm	Yes
			Back	<25mm	Yes

Note:

1. Test distances are as per FCC KDB publication 447498 D01v05 for mobile handsets.
2. Bluetooth standalone SAR is excluded as the output power meets the exclusion threshold:

"

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:

[(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] · [$\sqrt{f_{(GHz)}}$] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,[16] where

- $f_{(GHz)}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation[17]
- The result is rounded to one decimal place for comparison

" **Taken from FCC KDB publication 447498 D01v05**

6.3. SAR Test Exclusion Consideration

Frequency Band	Configuration(s)		
	Head	Hotspot Mode	Body-worn
GSM850	No	No	No
PCS1900	No	No	No
UMTS FDD 5	No	No	No
WLAN 2.4 GHz	No	No	No
WLAN 5.0 GHz	No	Yes	Yes
Bluetooth	N/A	Yes	Yes

Note:

1. As per KDB 447498 D01 General RF Exposure Guidance v05, The Frequency Bands with Rated Power including Upper tolerance, which qualify for **Standalone SAR Test Exclusion,** are as per the above table.

   The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
   [(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] * [$\sqrt{f_{(GHz)}}$] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

   - $f_{(GHz)}$ is the RF channel transmit frequency in GHz
   - Power and distance are rounded to the nearest *mW* and *mm* before calculation
   - The result is rounded to one decimal place for comparison

   The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

   Applying the above formula for WLAN 5.0GHz Hotspot Mode we get:
   - For 5200MHz, [(7.08)/10]*[√5.2] = 1.61 ≤ 3.0
   - For 5300MHz, [(7.08)/10]*[√5.3] = 1.63 ≤ 3.0
   - For 5600MHz, [(7.08)/10]*[√5.6] = 1.68 ≤ 3.0

   Applying the above formula for WLAN 5.0GHz Body-worn we get:
   - For 5200MHz, [(7.08)/15]*[√5.2] = 1.08 ≤ 3.0
   - For 5300MHz, [(7.08)/15]*[√5.3] = 1.09 ≤ 3.0
   - For 5600MHz, [(7.08)/15]*[√5.6] = 1.12 ≤ 3.0

   Hence, testing is not required on WLAN 5.0GHz Hotspot Mode and Body-worn.

   Applying the above formula for *Bluetooth* Hotspot Mode we get:
   - For 2450MHz, [(1.99)/10]*[√2.45] =0.31 ≤ 3.0

   Applying the above formula for *Bluetooth* Body-worn we get:
   - For 2450MHz, [(1.99)/15]*[√2.45] =0.21 ≤ 3.0

   Hence, testing is not required on *Bluetooth* Hotspot Mode and Body-worn configurations.

2. The details for the ***Maximum Rated Power*** and tolerance(s) can be found in section 2.5.

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. Conducted Power Measurements

7.2.1.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	33.0	24.0	Conducted, GMSK
190	836.6	33.0	24.0	Conducted, GMSK
251	848.8	32.8	23.8	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	33.0	29.8	28.5	27.0	Conducted, GMSK
190	836.6	33.0	29.8	28.5	27.1	Conducted, GMSK
251	848.8	32.8	29.8	28.4	27.0	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	24.0	23.8	24.2	24.0	Conducted, GMSK
190	836.6	24.0	23.8	24.2	24.1	Conducted, GMSK
251	848.8	23.8	23.8	24.1	24.0	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	33.0	29.8	28.5	27.0	Conducted, GMSK
190	836.6	33.0	29.8	28.5	27.1	Conducted, GMSK
251	848.8	32.8	29.8	28.4	27.0	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	24.0	23.8	24.2	24.0	Conducted, GMSK
190	836.6	24.0	23.8	24.2	24.1	Conducted, GMSK
251	848.8	23.8	23.8	24.1	24.0	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	26.5	23.8	21.9	20.5	Conducted, 8PSK
190	836.6	26.5	23.8	21.9	20.5	Conducted, 8PSK
251	848.8	26.5	23.8	21.9	20.5	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	17.5	17.8	17.6	17.5	Conducted, 8PSK
190	836.6	17.5	17.8	17.6	17.5	Conducted, 8PSK
251	848.8	17.5	17.8	17.6	17.5	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**

7.2.2.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	29.6	20.6	Conducted, GMSK
661	1880.0	29.6	20.6	Conducted, GMSK
810	1909.8	29.6	20.6	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	29.6	27.0	25.5	24.2	Conducted, GMSK
661	1880.0	29.6	27.1	25.5	24.2	Conducted, GMSK
810	1909.8	29.6	27.0	25.3	24.0	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	20.6	21.0	21.2	21.2	Conducted, GMSK
661	1880.0	20.6	21.1	21.2	21.2	Conducted, GMSK
810	1909.8	20.6	21.0	21.0	21.0	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	29.6	27.0	25.5	24.2	Conducted, GMSK
661	1880.0	29.6	27.1	25.5	24.2	Conducted, GMSK
810	1909.8	29.6	27.0	25.3	24.0	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	20.6	21.0	21.2	21.2	Conducted, GMSK
661	1880.0	20.6	21.1	21.2	21.2	Conducted, GMSK
810	1909.8	20.6	21.0	21.0	21.0	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	25.6	22.9	21.7	20.6	Conducted, 8PSK
661	1880.0	25.6	22.9	21.7	20.6	Conducted, 8PSK
810	1909.8	25.6	22.9	21.7	20.6	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	16.6	16.9	17.4	17.6	Conducted, 8PSK
661	1880.0	16.6	16.9	17.4	17.6	Conducted, 8PSK
810	1909.8	16.6	16.9	17.4	17.6	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**

7.2.3.Conducted Average Power Measurement 3G:

Modes		HSDPA				HSPUA					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	22.8	22.6	22.1	22.1	21.0	21.7	20.7	22.1	20.8	23.9
	4183 4408	22.7	22.5	22.0	22.1	21.4	21.6	20.8	22.2	20.9	23.8
	4233 4458	22.7	22.5	22.0	21.9	21.2	21.5	20.7	22.0	20.8	23.8
ßc		2	12	15	15	11	6	15	2	15	
ßd		15	15	8	4	15	15	9	15	15	
ΔACK, ΔNACK, ΔCQI		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 / HSUPA 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 HSUPA

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 Table 5.1g.

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

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

802.11b/g

Channel Number	Frequency (MHZ)	TX Power (dBm)	Note
1	2412.0	15.3	**2.4GHz 802.11b** (1Mbps)
6	2437.0	15.4	
11	2462.0	15.3	
1	2412.0	14.1	**2.4GHz 802.11b** (11Mbps)
6	2437.0	14.1	
11	2462.0	14.0	
1	2412.0	12.4	**2.4GHz 802.11g** (6Mbps)
6	2437.0	13.0	
11	2462.0	13.0	
1	2412.0	12.0	**2.4GHz 802.11g** (54Mbps)
6	2437.0	12.5	
11	2462.0	12.4	

802.11n

Channel Number	Frequency (MHZ)	TX Power (dBm)	Note
1	2412.0	12.2	**2.4GHz 802.11n** (MCS0 6.5Mbps)
6	2437.0	13.0	
11	2462.0	13.0	
1	2412.0	11.1	**2.4GHz 802.11n** (MCS7 65Mbps)
6	2437.0	11.6	
11	2462.0	11.6	

7.2.5.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**	7.5	6.9	**5.2 GHz**
40	5200.0	7.5	7.0	
44	5220.0	7.5	6.9	
48*	**5240.0**	7.4	6.9	
52*	**5260.0**	7.6	7.0	**5.3 GHz**
56	5280.0	7.6	6.9	
60	5300.0	7.5	7.0	
64*	**5320.0**	7.7	7.0	
100	5500.0	7.3	6.9	**5.6 GHz**
104*	**5520.0**	7.3	6.7	
108	5540.0	7.1	6.5	
112	5560.0	7.4	6.5	
116*	**5580.0**	7.4	6.8	
120	5600.0	7.2	6.7	
124*	**5620.0**	7.5	6.9	
128	5640.0	7.4	6.8	
132	5660.0	7.4	6.8	
136*	**5680.0**	7.2	6.6	
140	5700.0	7.1	6.5	
149*	**5745.0**	Not Supported	Not Supported	**5.8 GHz**
153	5765.0	Not Supported	Not Supported	
157*	**5785.0**	Not Supported	Not Supported	
161	5805.0	Not Supported	Not Supported	
165*	**5825.0**	Not Supported	Not Supported	

*** Default test Channels**

802.11n (5.0 GHz) (HT20)

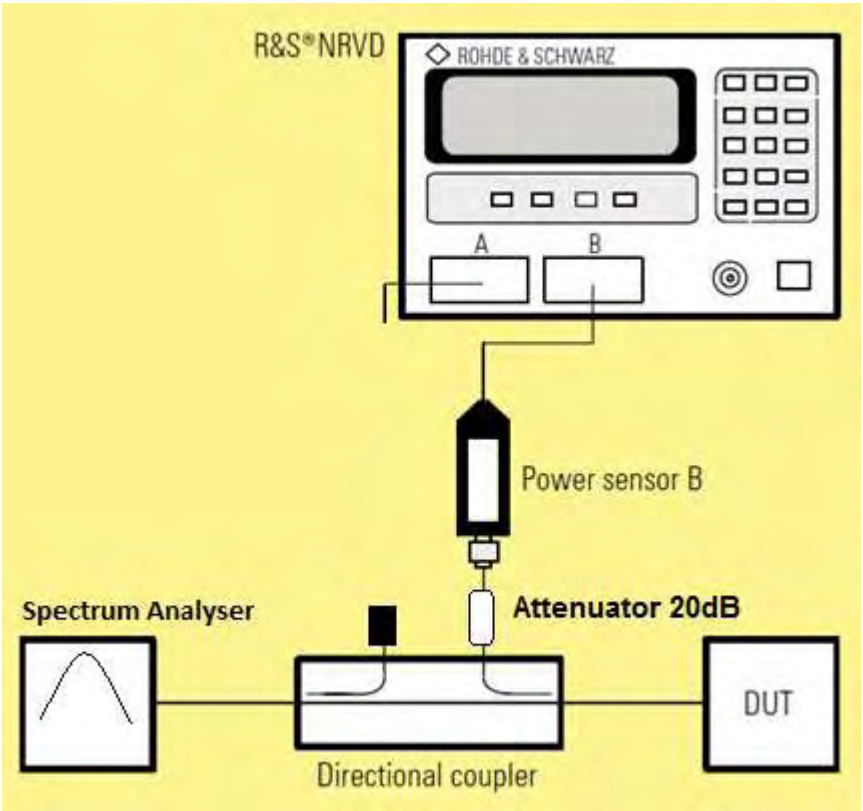
Channel Number	Frequency (MHZ)	TX Power (dBm) 6.5 Mbps	TX Power (dBm) 65 Mbps	Note
36*	**5180.0**	7.1	7.0	**5.2 GHz**
40	5200.0	7.1	7.0	
44	5220.0	7.1	6.9	
48*	**5240.0**	7.2	7.0	
52*	**5260.0**	7.1	7.0	**5.3 GHz**
56	5280.0	7.1	6.9	
60	5300.0	7.1	7.0	
64*	**5320.0**	7.1	7.0	
100	5500.0	6.9	6.7	**5.6 GHz**
104*	**5520.0**	6.9	6.7	
108	5540.0	6.8	6.8	
112	5560.0	6.8	6.9	
116*	**5580.0**	6.9	6.8	
120	5600.0	6.9	6.8	
124*	**5620.0**	7.1	6.8	
128	5640.0	6.8	6.7	
132	5660.0	6.9	6.7	
136*	**5680.0**	6.7	6.6	
140	5700.0	6.8	6.5	
149*	**5745.0**	Not Supported	Not Supported	**5.8 GHz**
153	5765.0	Not Supported	Not Supported	
157*	**5785.0**	Not Supported	Not Supported	
161	5805.0	Not Supported	Not Supported	
165*	**5825.0**	Not Supported	Not Supported	

*** 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	6.9	6.7	**5.2 GHz**
46	5230.0	6.9	6.7	
54	5270.0	7.0	6.8	**5.3 GHz**
62	5310.0	7.1	6.9	
102	5510.0	6.9	6.5	**5.6 GHz**
110	5550.0	7.0	6.8	
118	5590.0	7.0	6.6	
126	5630.0	7.1	6.6	
134	5670.0	7.1	6.6	
151	5755.0	Not Supported	Not Supported	**5.8 GHz**
159	5795.0	Not Supported	Not Supported	

Test setup for power measurements



7.3. Test Results

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

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

Test Summary:

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.305
Maximum Reported Level (W/kg):	0.311
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	20.6 to 20.6

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
1	Touch Left Antenna Retracted	190	24.00	24.08	0.305	0.311	1, 2	GSMK
2	Touch Left Antenna Extended	190	24.00	24.08	0.292	0.297	1, 2	GSMK
3	Tilt Left Antenna Retracted	190	24.00	24.08	0.217	0.221	1, 2	GSMK
4	Tilt Left Antenna Extended	190	24.00	24.08	0.218	0.222	1, 2	GSMK
5	Touch Right Antenna Retracted	190	24.00	24.08	0.296	0.302	1, 2	GSMK
6	Touch Right Antenna Extended	190	24.00	24.08	0.287	0.292	1, 2	GSMK
7	Tilt Right Antenna Retracted	190	24.00	24.08	0.257	0.262	1, 2	GSMK
8	Tilt Right Antenna Extended	190	24.00	24.08	0.222	0.226	1, 2	GSMK

Note(s):

1. Voice Mode
2. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3

7.3.2.Specific Absorption Rate - GPRS 850 Head Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.336
Maximum Reported Level (W/kg):	0.389
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	20.6 to 20.6

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
9	Touch Left Antenna Retracted	190	24.20	24.84	0.336	0.389	1, 2	GSMK

Note(s):

1. Data - SAR measurements were performed using 3 uplink timeslots
2. Touch Left, is worst case and most conservative configuration from Voice Mode Head configuration is used for Data Mode Head configuration.
3. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3

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

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.472
Maximum Reported Level (W/kg):	0.547

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.9 to 23.9

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
10	Front Antenna Retracted	190	24.20	24.84	0.429	0.497	1, 2, 3	GSMK
11	Front Antenna Extended	190	24.20	24.84	0.472	0.547	1, 2, 3	GSMK
12	Back Antenna Retracted	190	24.20	24.84	0.452	0.524	1, 2, 3	GSMK
13	Back Antenna Extended	190	24.20	24.84	0.446	0.517	1, 2, 3	GSMK
14	Left Antenna Retracted	190	24.20	24.84	0.389	0.451	1, 2, 3	GSMK
15	Left Antenna Extended	190	24.20	24.84	0.257	0.298	1, 2, 3	GSMK
16	Right Antenna Retracted	190	24.20	24.84	0.209	0.242	1, 2, 3	GSMK
17	Right Antenna Extended	190	24.20	24.84	0.178	0.206	1, 2, 3	GSMK
18	Bottom Antenna Retracted	190	24.20	24.84	0.134	0.155	1, 2, 3	GSMK

Note(s):

1. Data - SAR measurements were performed using 3 uplink timeslots
2. SAR measurements were performed with the closest edge of the EUT at a separation distance of 10mm from the 'SAM' phantom flat section.
3. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3

*Bottom edge configuration with DTV Antenna Extended is NOT required, as DTV Antenna to Bottom edge separation is >120mm.

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

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.367
Maximum Reported Level (W/kg):	0.374

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.9 to 23.9

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
19	Front Antenna Retracted	190	24.00	24.08	0.367	0.374	1, 2, 3	GSMK
20	Front Antenna Extended	190	24.00	24.08	0.290	0.295	1, 2, 3	GSMK
21	Back Antenna Retracted	190	24.00	24.08	0.350	0.357	1, 2, 3	GSMK
22	Back Antenna Extended	190	24.00	24.08	0.281	0.286	1, 2, 3	GSMK

Note(s):

1. Voice Mode
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. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3

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

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.278
Maximum Reported Level (W/kg):	0.291
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.5 to 23.5

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
23	Touch Left Antenna Retracted	661	20.60	20.80	0.220	0.230	1, 2	GSMK
24	Touch Left Antenna Extended	661	20.60	20.80	0.225	0.236	1, 2	GSMK
25	Tilt Left Antenna Retracted	661	20.60	20.80	0.045	0.047	1, 2	GSMK
26	Tilt Left Antenna Extended	661	20.60	20.80	0.037	0.038	1, 2	GSMK
27	Touch Right Antenna Retracted	661	20.60	20.80	0.278	0.291	1, 2	GSMK
28	Touch Right Antenna Extended	661	20.60	20.80	0.277	0.290	1, 2	GSMK
29	Tilt Right Antenna Retracted	661	20.60	20.80	0.076	0.080	1, 2	GSMK
30	Tilt Right Antenna Extended	661	20.60	20.80	0.076	0.080	1, 2	GSMK

Note(s):

1. Voice Mode
2. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3

7.3.6.Specific Absorption Rate - GPRS 1900 Head Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.356
Maximum Reported Level (W/kg):	0.389
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.5 to 23.5

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
31	Touch Right Antenna Retracted	661	21.20	21.59	0.356	0.389	1, 2, 3	GSMK

Note(s):

1. Data - SAR measurements were performed using 4 uplink timeslots
2. Touch Right, is worst case and most conservative configuration from Voice Mode Head configuration is used for Data Mode Head configuration.
3. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3

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

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.705
Maximum Reported Level (W/kg):	0.771
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.2 to 23.2

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
32	Front Antenna Retracted	661	21.20	21.59	0.705	0.771	1, 2, 3	GSMK
33	Front Antenna Extended	661	21.20	21.59	0.614	0.672	1, 2, 3	GSMK
34	Back Antenna Retracted	661	21.20	21.59	0.498	0.545	1, 2, 3	GSMK
35	Back Antenna Extended	661	21.20	21.59	0.423	0.463	1, 2, 3	GSMK
36	Left Antenna Retracted	661	21.20	21.59	0.112	0.123	1, 2, 3	GSMK
37	Left Antenna Extended	661	21.20	21.59	0.131	0.143	1, 2, 3	GSMK
38	Right Antenna Retracted	661	21.20	21.59	0.189	0.207	1, 2, 3	GSMK
39	Right Antenna Extended	661	21.20	21.59	0.096	0.105	1, 2, 3	GSMK
40	Bottom Antenna Retracted	661	21.20	21.59	0.659	0.721	1, 2, 3	GSMK

Note(s):

1. Data - SAR measurements were performed using 4 uplink timeslots
2. SAR measurements were performed with the closest edge of the EUT at a separation distance of 10mm from the 'SAM' phantom flat section.
3. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3

*Bottom edge configuration with DTV Antenna Extended is NOT required, as DTV Antenna to Bottom edge separation is >120mm.

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

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.289
Maximum Reported Level (W/kg):	0.303

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.2 to 23.2

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
41	Front Antenna Retracted	661	20.60	20.80	0.289	0.303	1, 2, 3	GSMK
42	Front Antenna Extended	661	20.60	20.80	0.289	0.303	1, 2, 3	GSMK
43	Back Antenna Retracted	661	20.60	20.80	0.199	0.208	1, 2, 3	GSMK
44	Back Antenna Extended	661	20.60	20.80	0.204	0.214	1, 2, 3	GSMK

Note(s):

1. Voice Mode
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. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3

7.3.9.Specific Absorption Rate - UMTS-FDD 5 Head Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.459
Maximum Reported Level (W/kg):	0.482

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	20.6 to 20.6

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
45	Touch Left Antenna Retracted	4183	23.80	24.01	0.459	0.482	1, 2	QPSK
46	Touch Left Antenna Extended	4183	23.80	24.01	0.449	0.471	1, 2	QPSK
47	Tilt Left Antenna Retracted	4183	23.80	24.01	0.324	0.340	1, 2	QPSK
48	Tilt Left Antenna Extended	4183	23.80	24.01	0.251	0.263	1, 2	QPSK
49	Touch Right Antenna Retracted	4183	23.80	24.01	0.432	0.453	1, 2	QPSK
50	Touch Right Antenna Extended	4183	23.80	24.01	0.431	0.452	1, 2	QPSK
51	Tilt Right Antenna Retracted	4183	23.80	24.01	0.309	0.324	1, 2	QPSK
52	Tilt Right Antenna Extended	4183	23.80	24.01	0.265	0.278	1, 2	QPSK

Note(s):

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
2. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3

*KDB 941225 - SAR is not required for RMC+HSPA (HSDPA/HSUPA) channels when the maximum average output power is less than ¼ dB higher than that measured on the corresponding RMC channels.

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

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.647
Maximum Reported Level (W/kg):	0.679
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.5 to 23.5

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
53	Front Antenna Retracted	4183	23.80	24.01	0.640	0.672	1, 2, 3	QPSK
54	Front Antenna Extended	4183	23.80	24.01	0.626	0.657	1, 2, 3	QPSK
55	Back Antenna Retracted	4183	23.80	24.01	0.609	0.639	1, 2, 3	QPSK
56	Back Antenna Extended	4183	23.80	24.01	0.647	0.679	1, 2, 3	QPSK
57	Left Antenna Retracted	4183	23.80	24.01	0.439	0.461	1, 2, 3	QPSK
58	Left Antenna Extended	4183	23.80	24.01	0.413	0.433	1, 2, 3	QPSK
59	Right Antenna Retracted	4183	23.80	24.01	0.298	0.313	1, 2, 3	QPSK
60	Right Antenna Extended	4183	23.80	24.01	0.248	0.260	1, 2, 3	QPSK
61	Bottom Antenna Retracted	4183	23.80	24.01	0.171	0.179	1, 2, 3	QPSK

Note(s):

1. Circuit Switch (CS) - 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.
3. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3

*Bottom edge configuration with DTV Antenna Extended is NOT required, as DTV Antenna to Bottom edge separation is >120mm.

*KDB 941225 - SAR is not required for RMC+HSPA (HSDPA/HSUPA) channels when the maximum average output power is less than ¼ dB higher than that measured on the corresponding RMC channels.

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

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.491
Maximum Reported Level (W/kg):	0.515
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.5 to 23.5

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
62	Front Antenna Retracted	4183	23.80	24.01	0.484	0.508	1, 2, 3	QPSK
63	Front Antenna Extended	4183	23.80	24.01	0.491	0.515	1, 2, 3	QPSK
64	Back Antenna Retracted	4183	23.80	24.01	0.441	0.463	1, 2, 3	QPSK
65	Back Antenna Extended	4183	23.80	24.01	0.449	0.471	1, 2, 3	QPSK

Note(s):

1. Circuit Switch (CS) - 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 15mm from the 'SAM' phantom flat section.
3. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3

*KDB 941225 - SAR is not required for RMC+HSPA (HSDPA/HSUPA) channels when the maximum average output power is less than ¼ dB higher than that measured on the corresponding RMC channels.

7.3.12.Specific Absorption Rate - Wi-Fi 802.11b 2.4 GHz Head Configuration 1g Test Summary:

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.188
Maximum Reported Level (W/kg):	0.216
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.8 to 23.8

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
66	Touch Left Antenna Retracted	6	15.40	16.00	0.119	0.137	1, 2	DBPSK
67	Touch Left Antenna Extended	6	15.40	16.00	0.121	0.139	1, 2	DBPSK
68	Tilt Left Antenna Retracted	6	15.40	16.00	0.115	0.132	1, 2	DBPSK
69	Tilt Left Antenna Extended	6	15.40	16.00	0.126	0.145	1, 2	DBPSK
70	Touch Right Antenna Retracted	6	15.40	16.00	0.184	0.211	1, 2	DBPSK
71	Touch Right Antenna Extended	6	15.40	16.00	0.188	0.216	1, 2	DBPSK
72	Tilt Right Antenna Retracted	6	15.40	16.00	0.174	0.200	1, 2	DBPSK
73	Tilt Right Antenna Extended	6	15.40	16.00	0.169	0.194	1, 2	DBPSK

Note(s):

1. WLAN 802.11b 1Mbps
2. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3

*KDB 248227 - SAR is not required for 802.11g/n channels when the maximum average output power is equal to that measured on the corresponding 802.11b channels.

7.3.13.Specific Absorption Rate - Wi-Fi 802.11b 2.4 GHz Hotspot Mode Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.097
Maximum Reported Level (W/kg):	0.112

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.2 to 23.2

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
74	Front Antenna Retracted	6	15.40	16.00	0.037	0.043	1, 2, 3	DBPSK
75	Front Antenna Extended	6	15.40	16.00	0.040	0.046	1, 2, 3	DBPSK
76	Back Antenna Retracted	6	15.40	16.00	0.079	0.091	1, 2, 3	DBPSK
77	Back Antenna Extended	6	15.40	16.00	0.097	0.112	1, 2, 3	DBPSK
78	Left Antenna Retracted	6	15.40	16.00	0.003	0.004	1, 2, 3	DBPSK
79	Left Antenna Extended	6	15.40	16.00	0.015	0.017	1, 2, 3	DBPSK
80	Top Antenna Retracted	6	15.40	16.00	0.068	0.078	1, 2, 3	DBPSK

Note(s):

1. WLAN 802.11b 1Mbps
2. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3
3. 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 equal to that measured on the corresponding 802.11b channels.

*Top edge configuration with DTV Antenna Extended is NOT required, as DTV Antenna Extended on Top edge is not achievable.

7.3.14.Specific Absorption Rate - Wi-Fi 802.11b 2.4 GHz Body-Worn Configuration 1g Test Summary:

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.037
Maximum Reported Level (W/kg):	0.042
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.2 to 23.2

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
81	Front Antenna Retracted	6	15.40	16.00	0.027	0.031	1, 2, 3	DBPSK
82	Front Antenna Extended	6	15.40	16.00	0.019	0.022	1, 2, 3	DBPSK
83	Back Antenna Retracted	6	15.40	16.00	0.032	0.037	1, 2, 3	DBPSK
84	Back Antenna Extended	6	15.40	16.00	0.037	0.042	1, 2, 3	DBPSK

Note(s):

1. WLAN 802.11b 1Mbps
2. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3
3. SAR measurements were performed with the closest edge of the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.

*KDB 248227 - SAR is not required for 802.11g/n channels when the maximum average output power is equal to that measured on the corresponding 802.11b channels.

7.3.15.Specific Absorption Rate - Wi-Fi 802.11a 5.0 GHz Head Configuration 1g Test Summary:

Tissue Volume:	1g
Maximum Measured Level (W/kg):	0.023
Maximum Reported Level (W/kg):	0.027
Environmental Conditions:	
Temperature Variation in Lab (°C):	24.0 to 24.0
Temperature Variation in Liquid (°C):	23.8 to 23.8

Results:

Scan No.	EUT Position	Channel Number	Meas. Avg Power (dBm)	Max Rated Power (dBm)	Meas. Level (W/kg)	Reported SAR (W/kg)	Note(s)	Mod.
-	Touch Left Antenna Retracted	36	7.50	8.50	0.000	0.000	1, 2, 4	BPSK
-	Touch Left Antenna Extended	36	7.50	8.50	0.000	0.000	1, 2, 4	BPSK
-	Tilt Left Antenna Retracted	36	7.50	8.50	0.000	0.000	1, 2, 4	BPSK
85	Tilt Left Antenna Extended	36	7.50	8.50	0.019	0.024	1, 2	BPSK
86	Touch Right Antenna Retracted	36	7.50	8.50	0.021	0.026	1, 2	BPSK
87	Touch Right Antenna Extended	36	7.50	8.50	0.017	0.021	1, 2	BPSK
88	Tilt Right Antenna Retracted	36	7.50	8.50	0.020	0.025	1, 2	BPSK
89	Tilt Right Antenna Extended	36	7.50	8.50	0.016	0.021	1, 2	BPSK
90	Touch Right Antenna Retracted	64	7.70	8.50	0.023	0.027	1, 2	BPSK
91	Touch Right Antenna Retracted	124	7.50	8.50	0.021	0.027	1, 3	BPSK

Note(s):

1. WLAN 802.11a 6Mbps
2. For frequency bands with an operating range of < 100 MHz, when the reported SAR for the highest output power channel within is ≤ 0.8 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3
3. For frequency bands with an operating range of < 200 MHz, when the reported SAR for the highest output power channel within is ≤ 0.4 W/kg, SAR for the remaining channels is not required. As per KDB 447498, section 4.3.3
4. SAR could not be evaluated as the level measured was below the noise floor and hence no peak was found to perform the zoom scan.

*KDB 248227 - SAR is not required for 802.11n HT20 /HT40 channels as the maximum average output power is less than ¼ dB higher than 802.11a.

7.4. Simultaneous Transmission SAR Analysis WWAN + WLAN

Simultaneous transmission analysis of worst cases is shown in the tables below.
Overall Worst Case:

1. WWAN+WLAN
2. WWAN+WPAN

	Reported SAR 1g (W/kg)			
	WWAN	WLAN	WPAN	Maximum Sum of SAR
EUT Position	PCS1900	Wi-Fi 802.11b (2.4 GHz)	Bluetooth	
Front	0.771	0.046		0.817
Front	0.771		0.041	0.812

Normal Analysis:

Head Configuration 1g – Worst cases measurements WWAN + WLAN

	Reported SAR 1g (W/kg)				
	WWAN			WLAN	Sum of WWAN & WLAN
EUT Position	GSM 850	PCS 1900	UMTS FDD 5	Wi-Fi	
Touch Left	0.389			0.139	0.528
Tilt Left	0.222			0.145	0.367
Touch Right	0.302			0.216	0.518
Tilt Right	0.262			0.200	0.462
Touch Left		0.236		0.139	0.375
Tilt Left		0.047		0.145	0.192
Touch Right		0.389		0.216	0.605
Tilt Right		0.080		0.200	0.280
Touch Left			0.482	0.139	0.621
Tilt Left			0.340	0.145	0.485
Touch Right			0.453	0.216	0.669
Tilt Right			0.324	0.200	0.524

Simultaneous Transmission SAR Analysis (Continued)

Hotspot Mode Configuration 1g – Worst cases measurements WWAN+WLAN

	Reported SAR 1g (W/kg)				
	WWAN			WLAN	Sum of WWAN & WLAN
EUT Position	GSM850	PCS1900	UMTS FDD 5	Wi-Fi	
Front	0.547			0.046	0.593
Back	0.524			0.112	0.636
Left Hand Side	0.451			0.017	0.468
Right Hand Side	0.242				0.242
Bottom	0.155				0.155
Top				0.078	0.078
Front		**0.771**		**0.046**	**0.817**
Back		0.545		0.112	0.657
Left Hand Side		0.143		0.017	0.160
Right Hand Side		0.207			0.207
Bottom		0.721			0.721
Top				0.078	0.078
Front			0.672	0.046	0.718
Back			0.679	0.112	0.791
Left Hand Side			0.461	0.017	0.478
Right Hand Side			0.313		0.313
Bottom			0.179		0.179
Top				0.078	0.078

Simultaneous Transmission SAR Analysis (Continued)					
Body-Worn Configuration 1g – Worst cases measurements WWAN + WLAN					
	Reported SAR 1g (W/kg)				
	WWAN			**WLAN**	**Sum of WWAN & WLAN**
EUT Position	**GSM850**	**PCS1900**	**UMTS FDD 5**	**Wi-Fi**	
Front	0.374			0.031	0.405
Back	0.357			0.042	0.399
Front		0.303		0.031	0.334
Back		0.214		0.042	0.256
Front			0.515	0.031	0.546
Back			0.471	0.042	0.513

Note(s):

1. The sum of WWAN and WLAN did not exceed 1.6 W/kg in any of the above cases and hence, the SAR to peak location separation ratio distance was not calculated.
2. Since 2.4 GHz WLAN 1g SAR measurements for head and body were higher than 5GHz WLAN 1g SAR measurements, 2.4 GHz WLAN is considered as worst case for the Simultaneous transmission worst case measurements in above tables

***All WWAN and WLAN 1g SAR levels used for Simultaneous Transmission SAR analysis are Reported SAR levels.**

7.5. Simultaneous Transmission SAR Analysis WWAN+WPAN

Hotspot Mode Configuration 1g – Worst cases measurements WWAN+WPAN

	Reported SAR 1g (W/kg)				
	WWAN			WPAN	Sum of WWAN & WPAN
EUT Position	GSM850	PCS1900	UMTS FDD 5	*Bluetooth*	
Front	0.547			0.041	0.588
Back	0.524			0.041	0.565
Left Hand Side	0.451			0.041	0.492
Right Hand Side	0.242				0.242
Bottom	0.155				0.155
Top				0.041	0.041
Front		**0.771**		**0.041**	**0.812**
Back		0.545		0.041	0.586
Left Hand Side		0.143		0.041	0.184
Right Hand Side		0.207			0.207
Bottom		0.721			0.721
Top				0.041	0.041
Front			0.672	0.041	0.713
Back			0.679	0.041	0.720
Left Hand Side			0.461	0.041	0.502
Right Hand Side			0.313		0.313
Bottom			0.179		0.179
Top				0.041	0.041

Simultaneous Transmission SAR Analysis WWAN+WPAN (Continued)

Body-Worn Configuration 1g – Worst cases measurements WWAN + WPAN

	Reported SAR 1g (W/kg)				
	WWAN			WPAN	Sum of WWAN & WPAN
EUT Position	GSM850	PCS1900	UMTS FDD 5	*Bluetooth*	
Front	0.374			0.027	0.401
Back	0.357			0.027	0.384
Front		0.303		0.027	0.330
Back		0.214		0.027	0.241
Front			0.515	0.027	0.542
Back			0.471	0.027	0.498

Note(s):

1. The sum of WWAN and WPAN did not exceed 1.6 W/kg in any of the above cases and hence, the SAR to peak location separation ratio distance was not calculated.
2. Bluetooth SAR result is calculated as per the formula below following FCC KDB publication 447498.
3. Separation distance of 10mm was used for hotspot mode and 15mm for body-worn configuration.

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

- *(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[$\sqrt{f_{(GHz)}}/x$]* W/kg for *test separation distances* ≤ 50 mm;
  where $x = 7.5$ for 1-g SAR, and $x = 18.75$ for 10-g SAR.
  - **10mm Bluetooth estimated SAR level:**
    Estimated *Bluetooth* SAR = (1.99mW/10mm)*(√2.4 / 7.5) = 0.041 W/kg
  - **15mm Bluetooth estimated SAR level:**
    Estimated *Bluetooth* SAR = (1.99mW/15mm)*(√2.4 / 7.5) = 0.027 W/kg

***All WWAN 1g SAR values used for Simultaneous Transmission SAR analysis are <u>Reported</u> SAR levels and WPAN 1g SAR levels are estimated levels.**

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 850/ UMTS FDD 5 Body Configuration 1g	95%	±20.07%
Specific Absorption Rate-PCS 1900 Head Configuration 1g	95%	±20.72%
Specific Absorption Rate-PCS / GPRS1900 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%
Specific Absorption Rate-Wi-Fi 5GHz Head Configuration 1g	95%	±20.14%
Specific Absorption Rate-Wi-Fi 5GHz Body Configuration 1g	95%	±20.14%

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

8.7. Specific Absorption Rate-Wi-Fi 5GHz 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	6.550	6.550	normal (k=1)	1.0000	1.0000	6.550	6.550	∞
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	2.540	2.540	normal (k=1)	1.0000	1.0000	2.540	2.540	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)	3.830	3.830	normal (k=1)	1.0000	0.6000	2.298	2.298	5
	Combined standard uncertainty			t-distribution			10.28	10.28	>400
	Expanded uncertainty			k = 1.96			20.14	20.14	>400

8.8. Specific Absorption Rate-Wi-Fi 5GHz 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	6.550	6.550	normal (k=1)	1.0000	1.0000	6.550	6.550	∞
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	2.540	2.540	normal (k=1)	1.0000	1.0000	2.540	2.540	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)	3.830	3.830	normal (k=1)	1.0000	0.6000	2.298	2.298	5
	Combined standard uncertainty			t-distribution			10.28	10.28	>400
	Expanded uncertainty			k = 1.96			20.14	20.14	>400

Appendix 1. Test Equipment Used

UL 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	-
A2110	Data Acquisition Electronics	Schmid & Partner Engineering AG	DAE3	431	20 Sept 2012	12
L1090	Probe	Schmid & Partner Engineering AG	EX3DV4	3871	20 Aug 2012	12
A2201	900 MHz Dipole Kit	Schmid & Partner Engineering AG	D900V2	035	16 Aug 2012	12
A2200	1900 MHz Dipole Kit	Schmid & Partner Engineering AG	D1900V2	537	14 Aug 2012	12
A2202	2440 MHz Dipole Kit	Schmid & Partner Engineering AG	D2440V2	701	13 Aug 2012	12
A1377	5.0 GHz Dipole Kit	Schmid & Partner Engineering AG	D5GHzV2	1016	20 Feb 2013	12
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	-
A1328	Handset Positioner	Schmid & Partner Engineering AG	Modification	SD 000 H01 DA	-	-
A1182	Handset Positioner	Schmid & Partner Engineering AG	V3.0	None	-	-
A215	20 dB Attenuator	Narda	766-20	9402	Calibrated as part of system	-
A1531	Antenna	AARONIA AG	7025	02458	-	-
A2263	Digital Camera	Samsung	PL211	9453C90B 607487L	-	-
M1015	Network Analyser	Agilent Technologies	8753ES	US39172406	09 Oct 2012	12
C1145	Cable	Rosenberger MICRO-COAX	FA147A F003003030	41843-1	Calibrated as part of system	-

UL No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
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	-
G087	PSU	Thurlby Thandar	CPX200	100701	Calibrated before use	-
M1047	Robot Arm	Staubli	RX908 L	F00/SD8 9A1/A/01	Calibrated before use	-
M1647	Signal Generator	Hewlett Packward	8648C	3537A01598	01 Jun 2012	12
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	UL	Site 56	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.

Checked by [illegible]
DATE: 26-FEB-2013

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

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

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client UL CCS USA

Certificate No: EX3-3871_Aug12

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3871

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: August 20, 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: August 20, 2012

TS ✓

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

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

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

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:3871

Manufactured: February 2, 2012
Calibrated: August 20, 2012

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3871

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.40	0.50	0.44	± 10.1 %
DCP (mV)[B]	107.2	96.3	103.6	

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	145.3	±3.5 %
			Y	0.00	0.00	1.00	163.2	
			Z	0.00	0.00	1.00	151.9	

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:3871

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	10.39	10.39	10.39	0.12	1.00	± 13.4 %
750	41.9	0.89	10.04	10.04	10.04	0.80	0.60	± 12.0 %
835	41.5	0.90	9.55	9.55	9.55	0.28	1.06	± 12.0 %
900	41.5	0.97	9.51	9.51	9.51	0.33	0.99	± 12.0 %
1450	40.5	1.20	8.83	8.83	8.83	0.28	1.02	± 12.0 %
1640	40.3	1.29	9.22	9.22	9.22	0.37	0.84	± 12.0 %
1750	40.1	1.37	8.62	8.62	8.62	0.42	0.77	± 12.0 %
1900	40.0	1.40	8.26	8.26	8.26	0.46	0.75	± 12.0 %
1950	40.0	1.40	8.01	8.01	8.01	0.71	0.57	± 12.0 %
2000	40.0	1.40	8.23	8.23	8.23	0.44	0.75	± 12.0 %
2300	39.5	1.67	7.76	7.76	7.76	0.34	0.83	± 12.0 %
2450	39.2	1.80	7.35	7.35	7.35	0.32	0.82	± 12.0 %
2600	39.0	1.96	7.14	7.14	7.14	0.34	0.92	± 12.0 %
3500	37.9	2.91	7.06	7.06	7.06	0.46	0.95	± 13.1 %
3700	37.7	3.12	6.39	6.39	6.39	0.48	0.89	± 13.1 %
4950	36.3	4.40	5.44	5.44	5.44	0.30	1.80	± 13.1 %
5200	36.0	4.66	5.18	5.18	5.18	0.35	1.80	± 13.1 %
5300	35.9	4.76	4.92	4.92	4.92	0.35	1.80	± 13.1 %
5500	35.6	4.96	4.75	4.75	4.75	0.45	1.80	± 13.1 %
5600	35.5	5.07	4.49	4.49	4.49	0.50	1.80	± 13.1 %
5800	35.3	5.27	4.53	4.53	4.53	0.50	1.80	± 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.

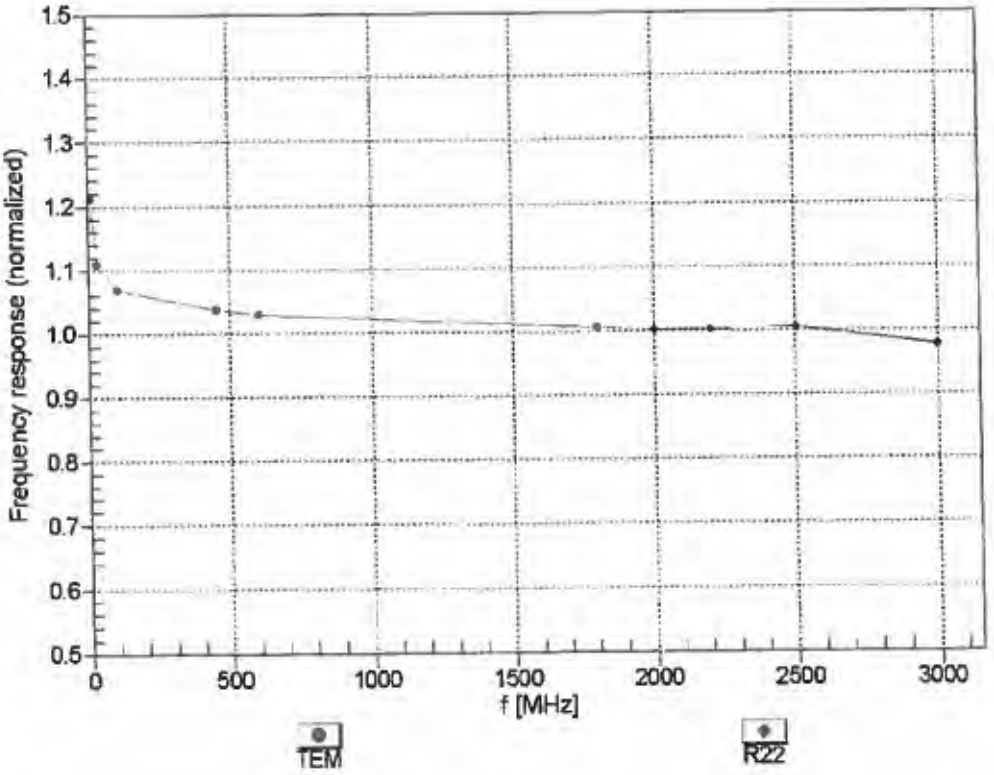
DASY/EASY - Parameters of Probe: EX3DV4 - SN:3871

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	11.10	11.10	11.10	0.04	1.00	± 13.4 %
750	55.5	0.96	9.75	9.75	9.75	0.25	1.17	± 12.0 %
835	55.2	0.97	9.68	9.68	9.68	0.28	1.08	± 12.0 %
900	55.0	1.05	9.62	9.62	9.62	0.41	0.90	± 12.0 %
1450	54.0	1.30	8.65	8.65	8.65	0.35	0.89	± 12.0 %
1640	53.8	1.40	8.77	8.77	8.77	0.60	0.69	± 12.0 %
1750	53.4	1.49	8.10	8.10	8.10	0.36	0.85	± 12.0 %
1900	53.3	1.52	7.83	7.83	7.83	0.56	0.68	± 12.0 %
1950	53.3	1.52	8.06	8.06	8.06	0.53	0.70	± 12.0 %
2000	53.3	1.52	7.97	7.97	7.97	0.45	0.75	± 12.0 %
2300	52.9	1.81	7.67	7.67	7.67	0.52	0.67	± 12.0 %
2450	52.7	1.95	7.44	7.44	7.44	0.79	0.54	± 12.0 %
2600	52.5	2.16	7.31	7.31	7.31	0.80	0.50	± 12.0 %
3500	51.3	3.31	6.54	6.54	6.54	0.40	1.09	± 13.1 %
3700	51.0	3.55	6.61	6.61	6.61	0.34	1.18	± 13.1 %
4950	49.4	5.01	4.73	4.73	4.73	0.50	1.90	± 13.1 %
5200	49.0	5.30	4.42	4.42	4.42	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.21	4.21	4.21	0.53	1.90	± 13.1 %
5500	48.6	5.65	4.01	4.01	4.01	0.55	1.90	± 13.1 %
5600	48.5	5.77	3.89	3.89	3.89	0.55	1.90	± 13.1 %
5800	48.2	6.00	4.23	4.23	4.23	0.55	1.90	± 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.

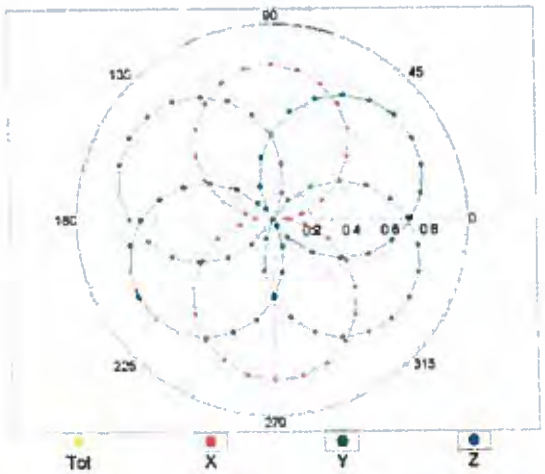
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



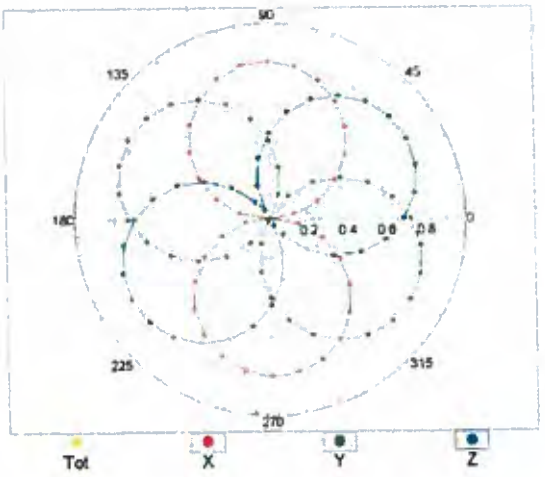
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

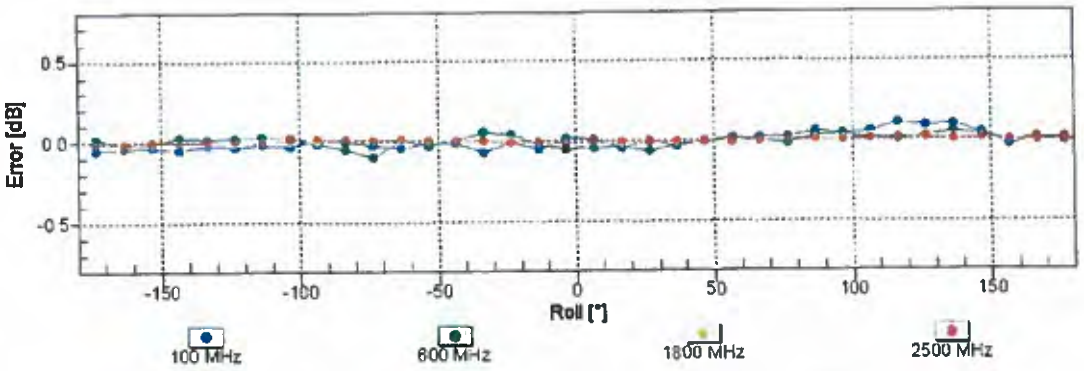
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



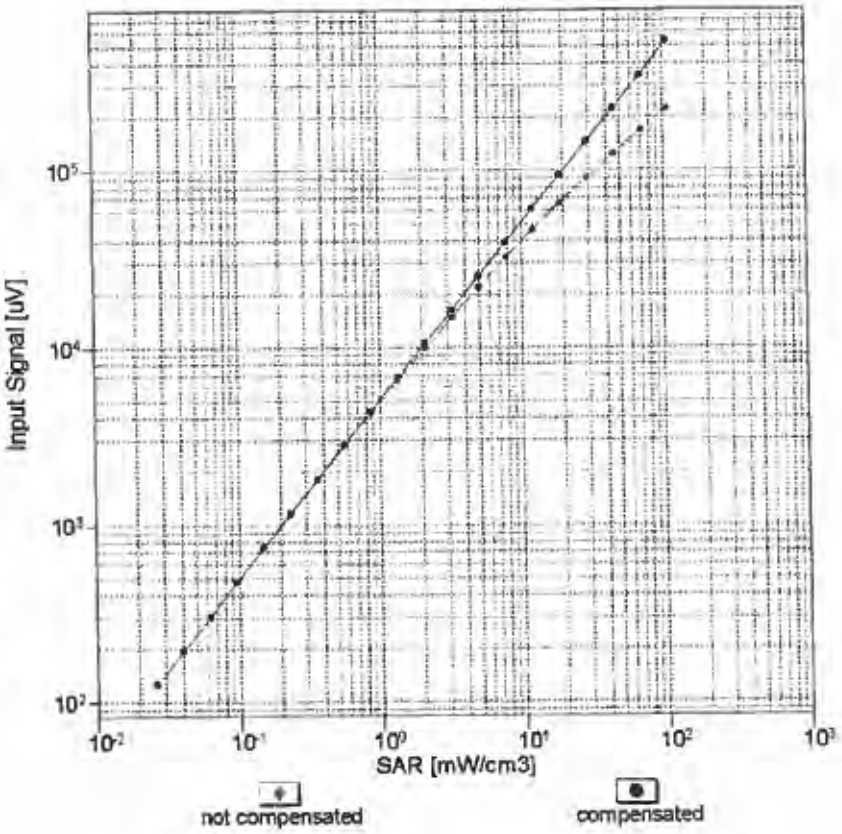
f=1800 MHz,R22

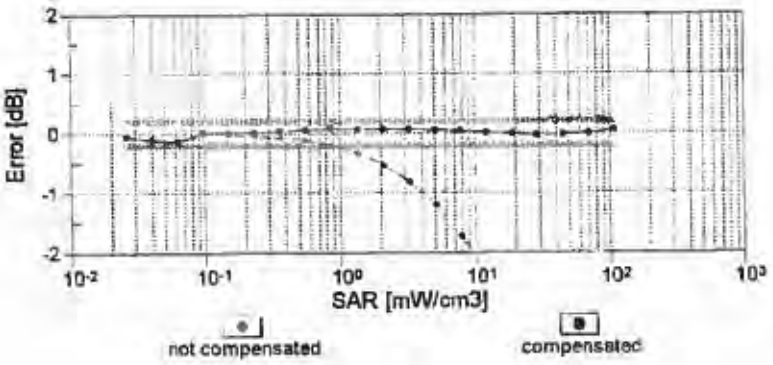




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

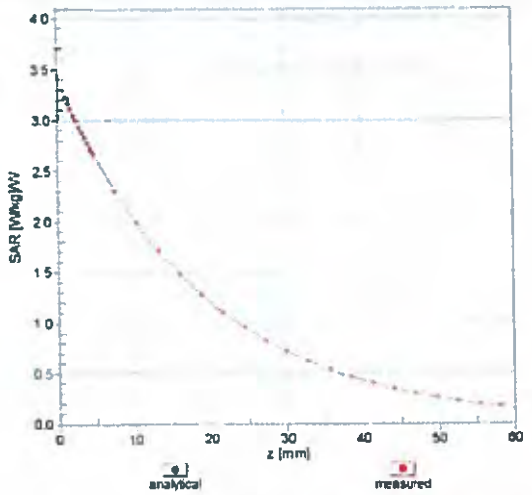




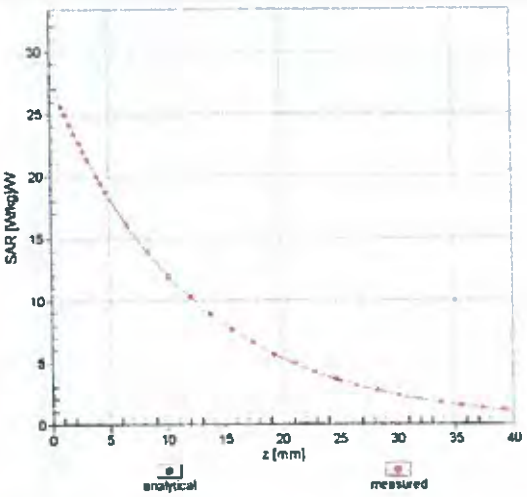
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

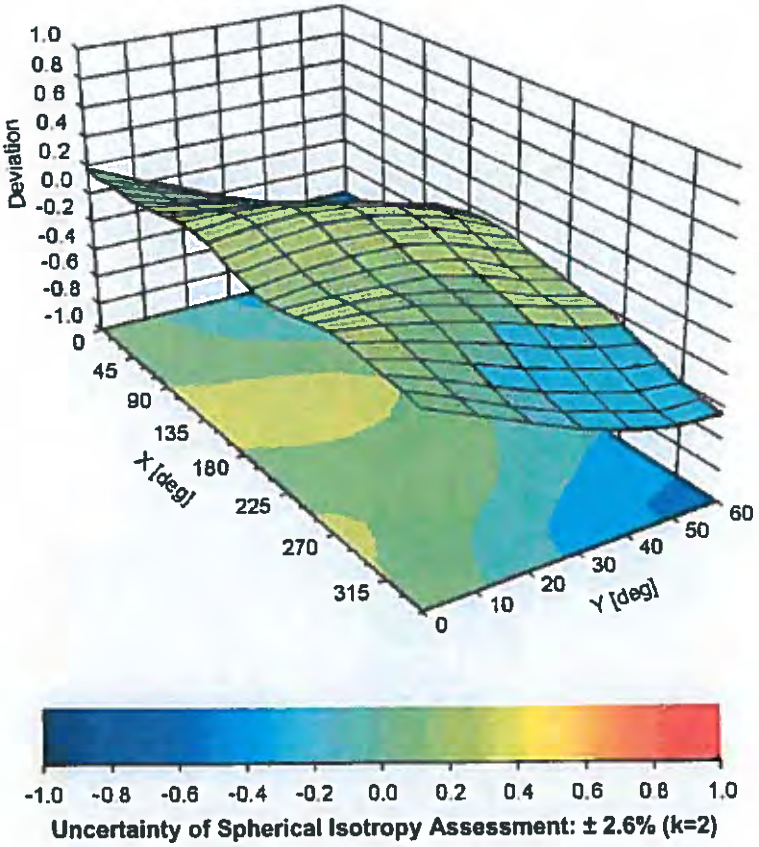


f = 1900 MHz,WGLS R22 (H_convF)



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:3871

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	36.6
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

Check by [signature] DATE: 7-August 2012

Calibration Laboratory of
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C Service suisse d'étalonnage
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S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS) ASSET: A220/ **Accreditation No.: SCS 108**
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Client RFI **Certificate No: D900V2-035_Aug12**

CALIBRATION CERTIFICATE

Object	D900V2 - SN: 035
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 16, 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 EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	[signature]
Approved by:	Katja Pokovic	Technical Manager	[signature]

Issued: August 16, 2012

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.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
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	22.0 °C	41.5	0.97 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.6 ± 6 %	0.96 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.62 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**10.5 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.68 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.74 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	52.6 ± 6 %	1.06 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.74 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**10.8 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.76 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.96 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.8 Ω - 5.8 jΩ
Return Loss	- 24.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.5 Ω - 5.5 jΩ
Return Loss	- 24.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.404 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
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	February 26, 1998

DASY5 Validation Report for Head TSL

Date: 16.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN: 035

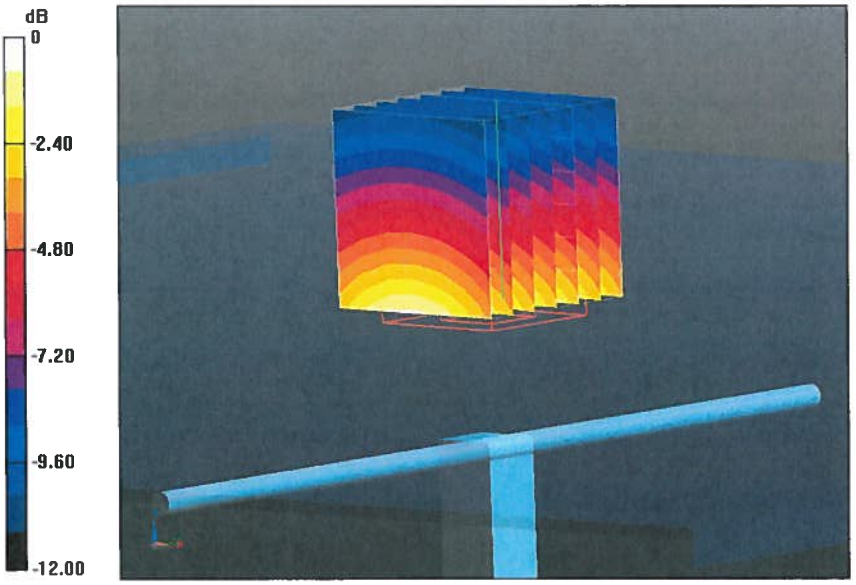
Communication System: CW; Frequency: 900 MHz
Medium parameters used: f = 900 MHz; σ = 0.96 mho/m; ε_r = 40.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.97, 5.97, 5.97); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

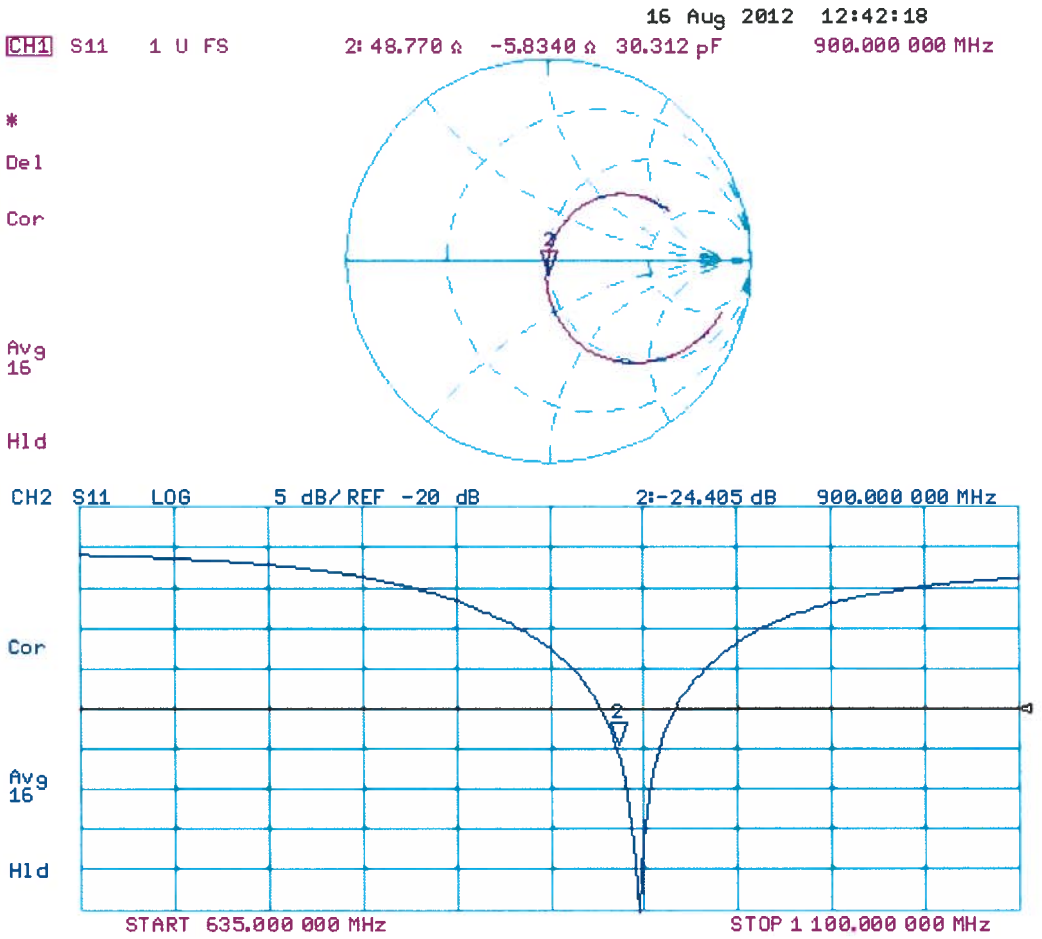
Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.325 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.926 mW/g
SAR(1 g) = 2.62 mW/g; SAR(10 g) = 1.68 mW/g
Maximum value of SAR (measured) = 3.06 W/kg



0 dB = 3.06 W/kg = 9.71 dB W/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 16.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN: 035

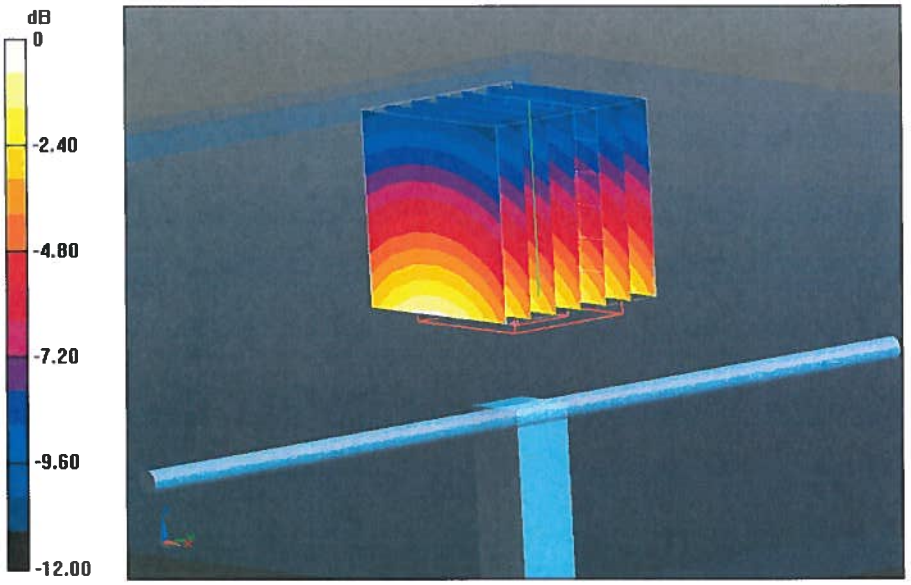
Communication System: CW; Frequency: 900 MHz
Medium parameters used: f = 900 MHz; σ = 1.06 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.94, 5.94, 5.94); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

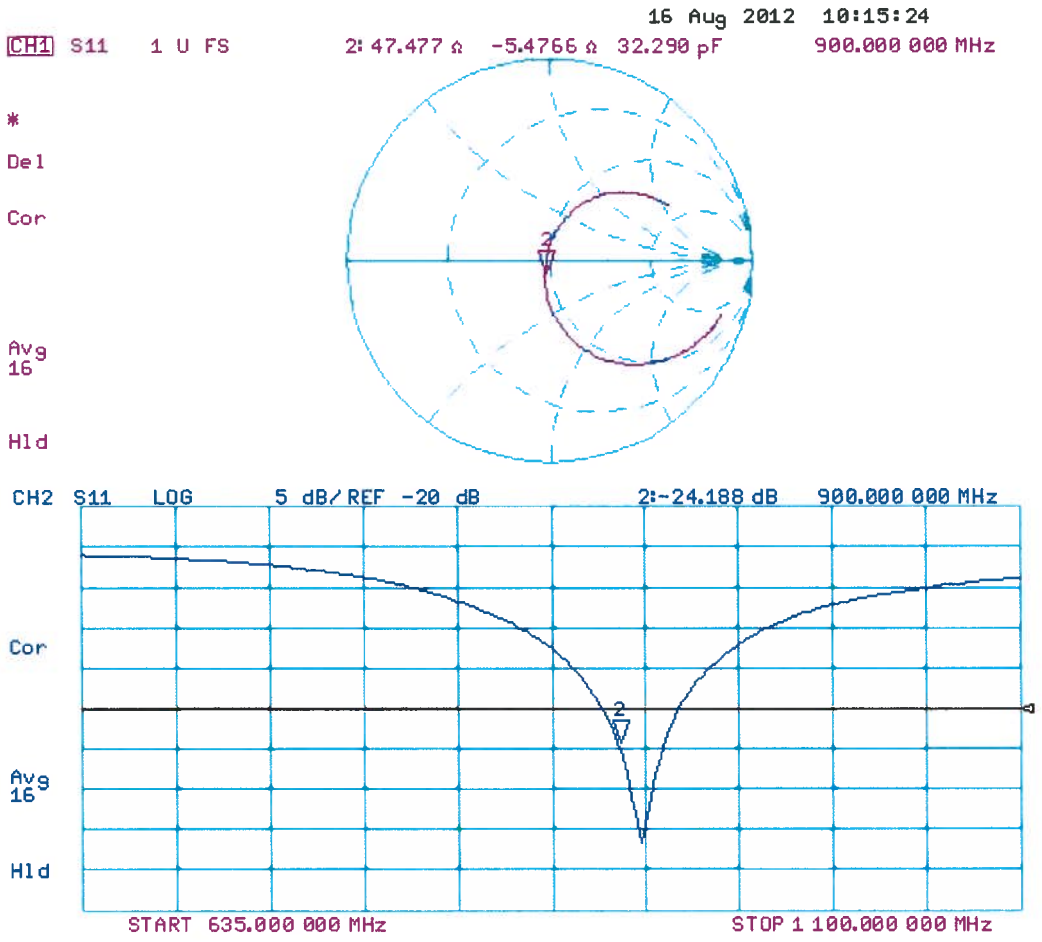
Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.325 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 4.184 mW/g
SAR(1 g) = 2.74 mW/g; SAR(10 g) = 1.76 mW/g
Maximum value of SAR (measured) = 3.18 W/kg



0 dB = 3.18 W/kg = 10.05 dB W/kg

Impedance Measurement Plot for Body TSL



checked by [signature] Date: 7 Sept 2012

Calibration Laboratory of
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Accredited by the Swiss Accreditation Service (SAS) ASSET: A2290 **Accreditation No.: SCS 108**
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Client RFI **Certificate No: D1900V2-537_Aug12**

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 537
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 14, 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 EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	[signature]
Approved by:	Katja Pokovic	Technical Manager	[signature]

Issued: August 14, 2012

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

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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

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.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
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	39.9 ± 6 %	1.38 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.78 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.4 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.16 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.7 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	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.5 ± 6 %	1.53 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**40.5 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.37 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.4 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.1 Ω - 5.7 jΩ
Return Loss	- 24.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	44.0 Ω - 5.2 jΩ
Return Loss	- 21.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.181 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
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	March 22, 2001

DASY5 Validation Report for Head TSL

Date: 14.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 537

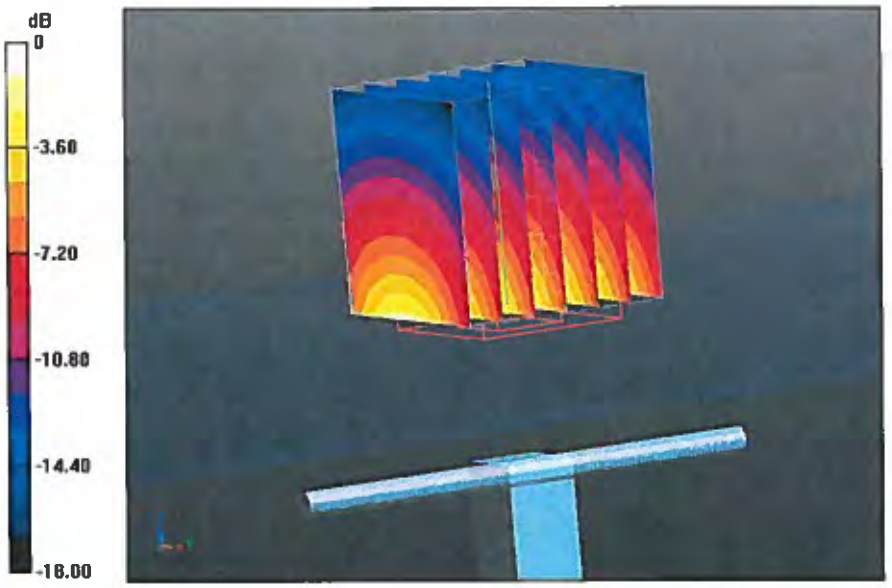
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.38 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

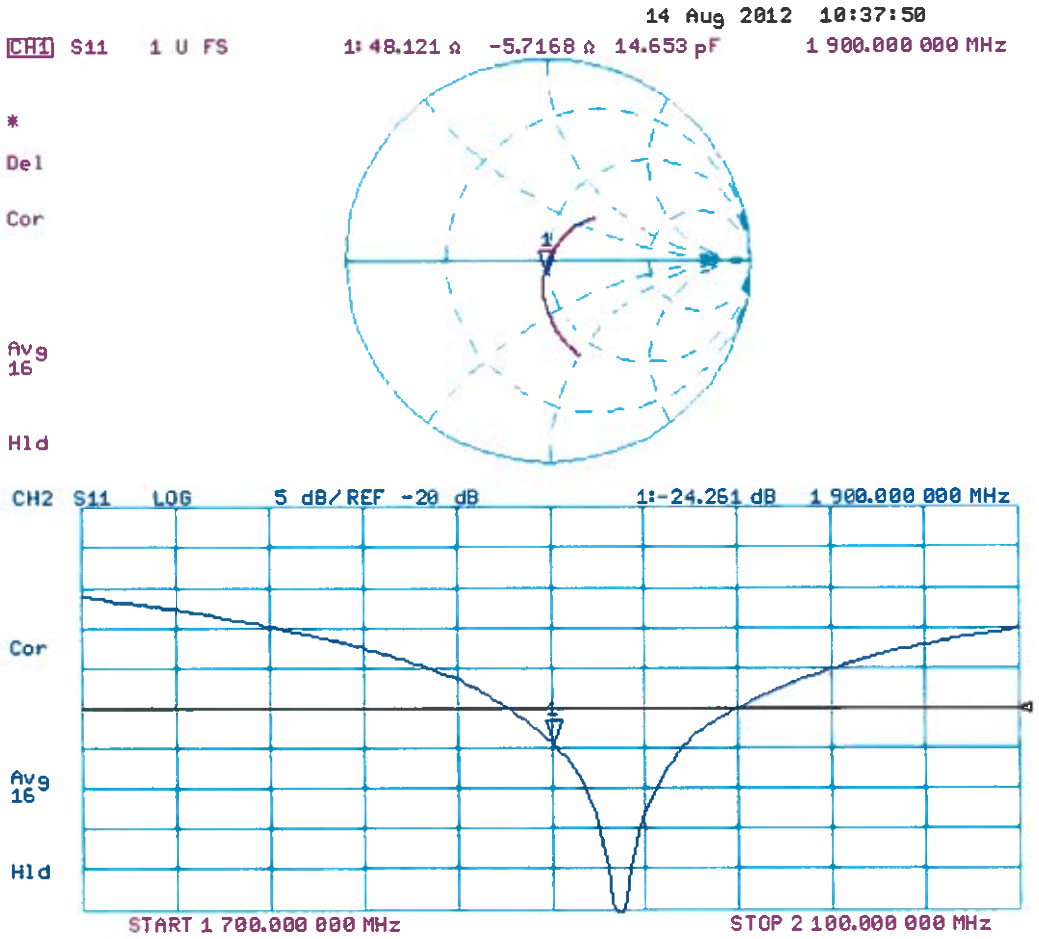
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.874 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 17.436 mW/g
SAR(1 g) = 9.78 mW/g; SAR(10 g) = 5.16 mW/g
Maximum value of SAR (measured) = 11.9 W/kg



0 dB = 11.9 W/kg = 21.51 dB W/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 14.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 537

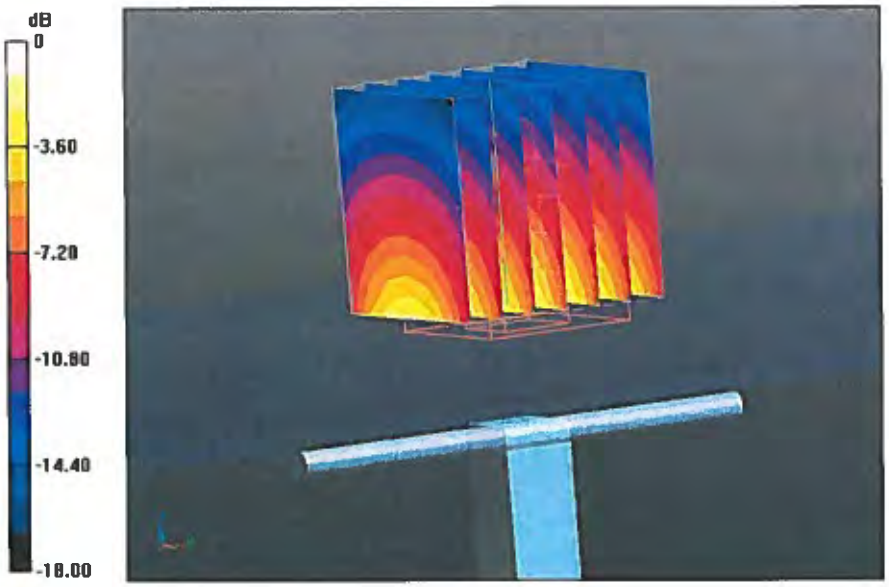
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.53 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

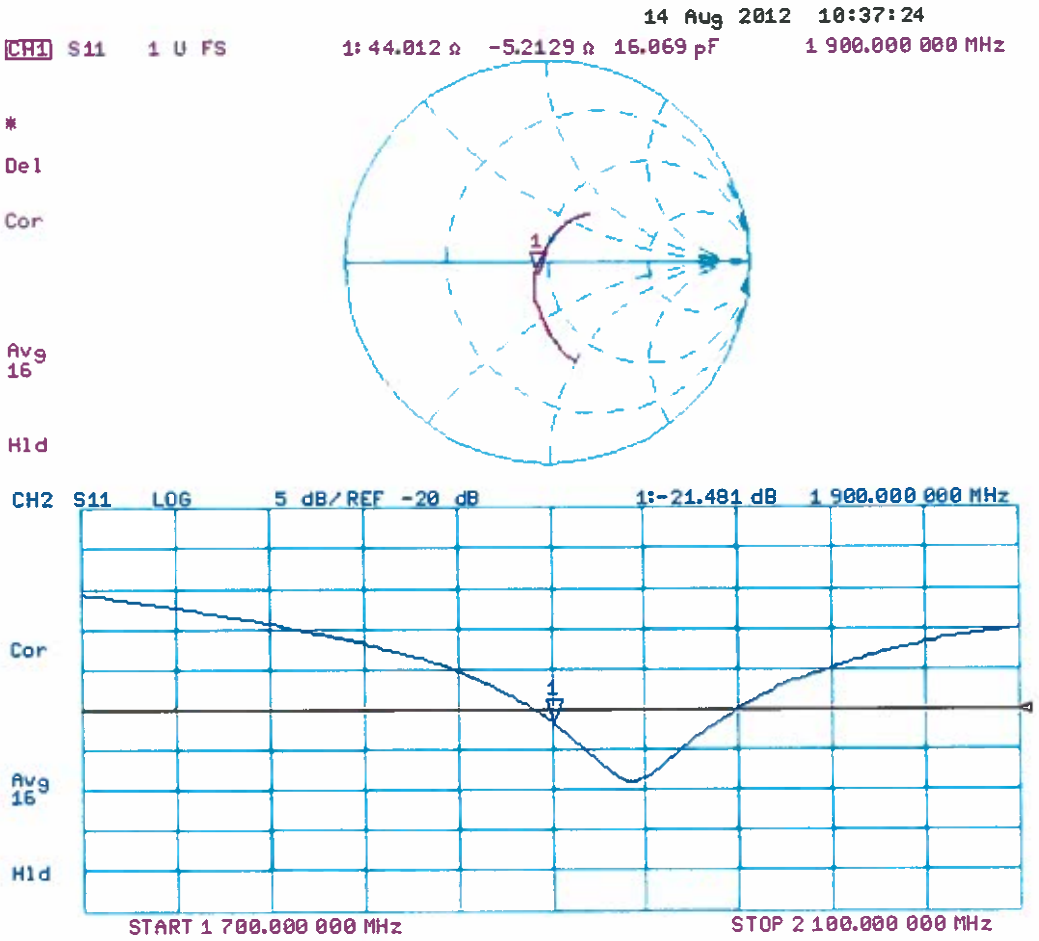
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.874 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 17.899 mW/g
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.37 mW/g
Maximum value of SAR (measured) = 12.8 W/kg



0 dB = 12.8 W/kg = 22.14 dB W/kg

Impedance Measurement Plot for Body TSL



Checked by [signature] DATE: 7 Sept 2012

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland

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

Accredited by the Swiss Accreditation Service (SAS) ASSET: A2202
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: D2440V2-701_Aug12

CALIBRATION CERTIFICATE

Object	D2440V2 - SN: 701
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 13, 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 EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	Israa El-Naouq
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 13, 2012

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.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
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	39.2 ± 6 %	1.81 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.1 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**52.3 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.06 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**24.2 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	51.3 ± 6 %	1.99 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**52.0 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.09 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	48.4 Ω - 8.2 jΩ
Return Loss	- 21.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	45.8 Ω - 6.9 jΩ
Return Loss	- 21.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.141 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
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	August 24, 2000

DASY5 Validation Report for Head TSL

Date: 13.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2440 MHz; Type: D2440V2; Serial: D2440V2 - SN: 701

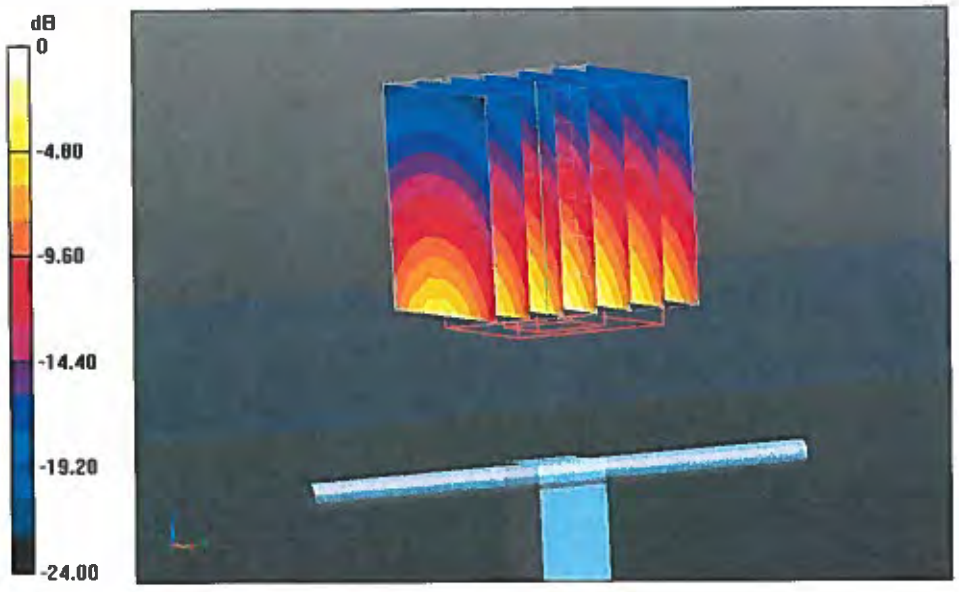
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.81 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

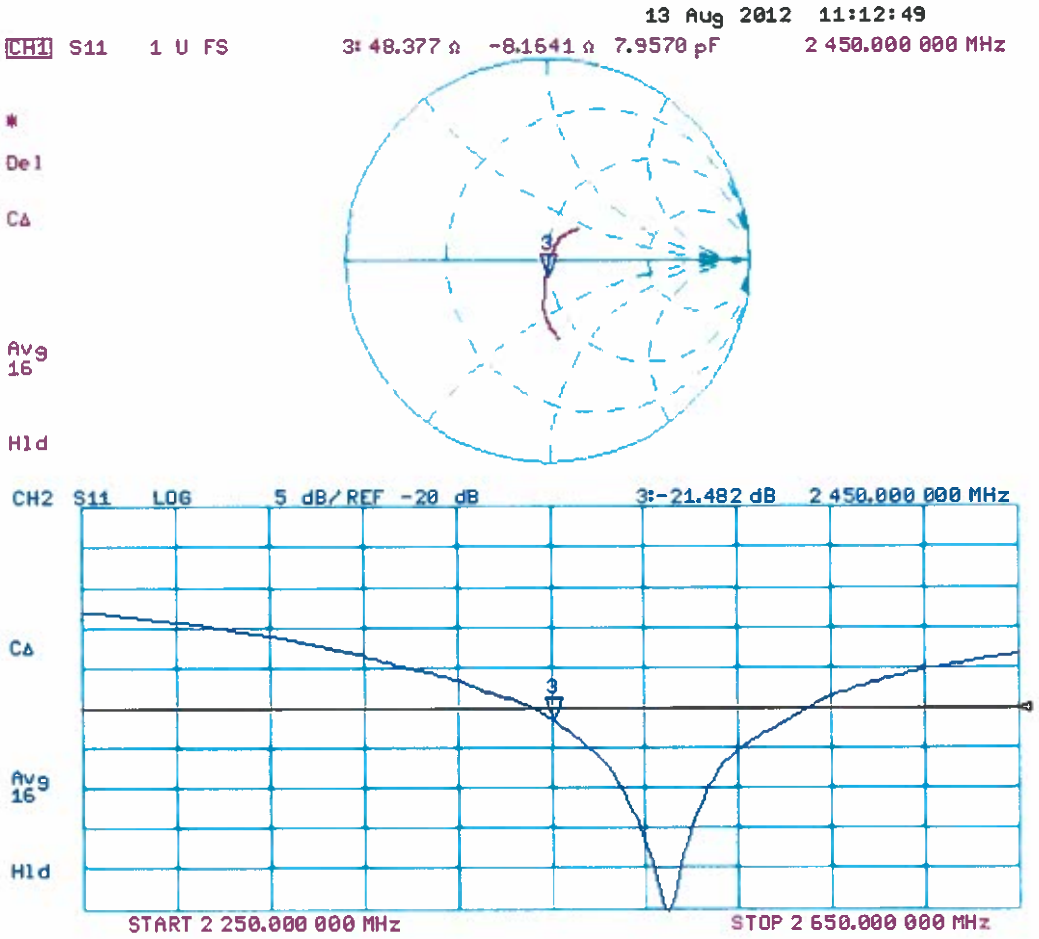
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.955 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 27.027 mW/g
SAR(1 g) = 13.1 mW/g; SAR(10 g) = 6.06 mW/g
Maximum value of SAR (measured) = 16.8 W/kg



0 dB = 16.8 W/kg = 24.51 dB W/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 13.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2440 MHz; Type: D2440V2; Serial: D2440V2 - SN: 701

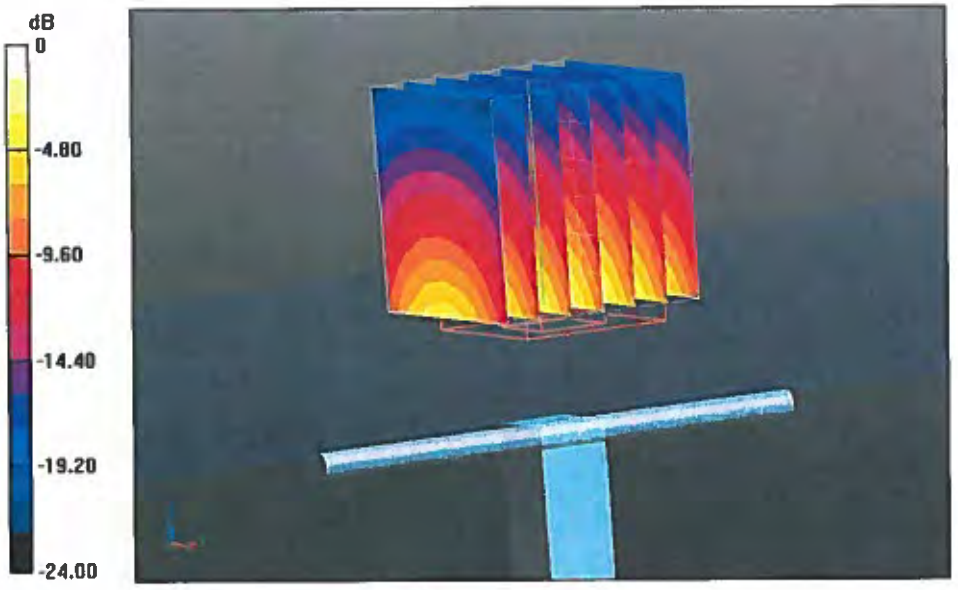
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.99 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

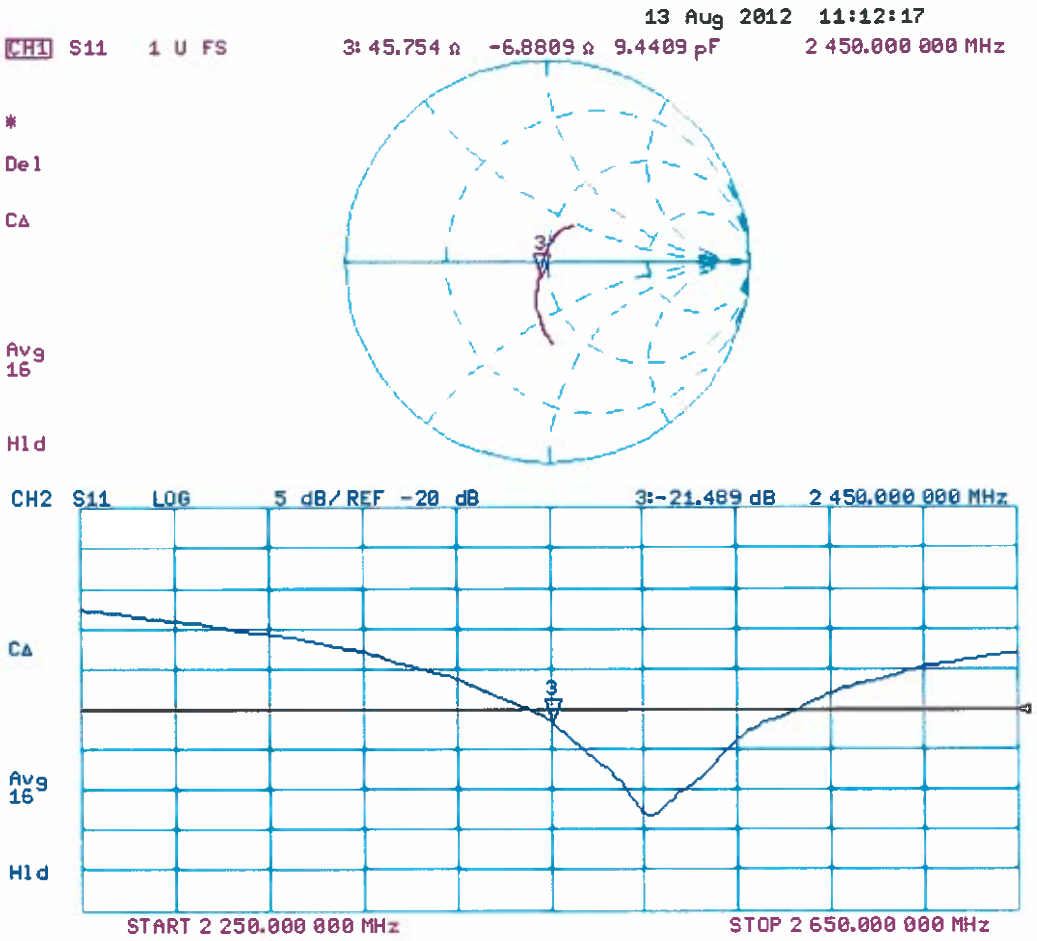
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.149 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 26.944 mW/g
SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.09 mW/g
Maximum value of SAR (measured) = 17.1 W/kg



0 dB = 17.1 W/kg = 24.66 dB W/kg

Impedance Measurement Plot for Body TSL



checked by: [illegible] Date: 26-Feb-2013

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
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S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client RFI A1377 **Certificate No: D5GHzV2-1016_Feb13**

CALIBRATION CERTIFICATE

Object	D5GHzV2 - SN: 1016
Calibration procedure(s)	QA CAL-22.v2 Calibration procedure for dipole validation kits between 3-6 GHz
Calibration date:	February 20, 2013

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	01-Nov-12 (No. 217-01640)	Oct-13
Power sensor HP 8481A	US37292783	01-Nov-12 (No. 217-01640)	Oct-13
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.3 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe EX3DV4	SN: 3503	28-Dec-12 (No. EX3-3503_Dec12)	Dec-13
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-12)	In house check: Oct-13

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	Israe El-Naouq
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 20, 2013

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) IEC 62209-2, "Evaluation of Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices in the Frequency Range of 30 MHz to 6 GHz: Human models, Instrumentation, and Procedures"; Part 2: "Procedure to determine the Specific Absorption Rate (SAR) for including accessories and multiple transmitters", March 2010

b) 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:

c) 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.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.5
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5200 MHz ± 1 MHz 5500 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.7 ± 6 %	4.47 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.88 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**78.1 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.26 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.3 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	35.6	4.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.2 ± 6 %	4.74 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.34 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**82.5 W / kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.38 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.5 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	33.9 ± 6 %	5.05 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.78 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**77.0 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**21.9 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.9 ± 6 %	5.36 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.58 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**75.1 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.13 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.1 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.3 ± 6 %	5.71 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.98 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**79.0 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.23 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**22.0 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	45.9 ± 6 %	6.12 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.51 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**74.4 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.09 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**20.6 W/kg ± 19.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	52.7 Ω - 9.7 jΩ
Return Loss	- 20.2 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	48.5 Ω - 0.8 jΩ
Return Loss	- 35.3 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	57.1 Ω + 7.1 jΩ
Return Loss	- 20.6 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	53.2 Ω - 9.1 jΩ
Return Loss	- 20.6 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	48.7 Ω - 0.2 jΩ
Return Loss	- 37.3 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	57.1 Ω + 8.7 jΩ
Return Loss	- 19.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.199 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
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	November 14, 2003

DASY5 Validation Report for Head TSL

Date: 20.02.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1016

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 4.47 S/m; ε_r = 34.7; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 4.74 S/m; ε_r = 34.2; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 5.05 S/m; ε_r = 33.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

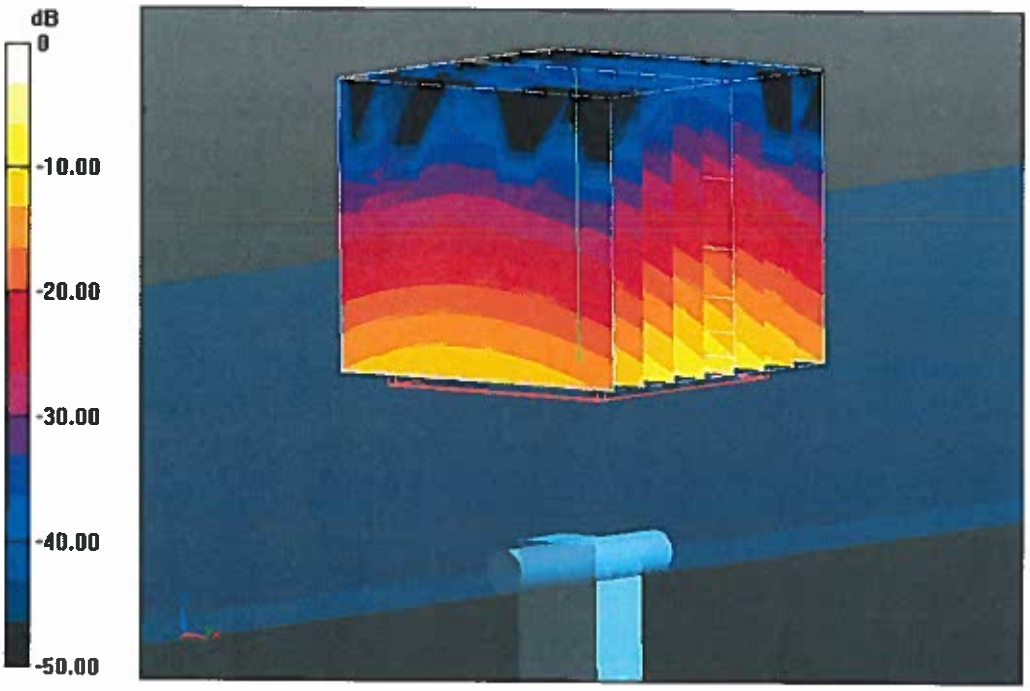
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.41, 5.41, 5.41); Calibrated: 28.12.2012, ConvF(4.91, 4.91, 4.91); Calibrated: 28.12.2012, ConvF(4.81, 4.81, 4.81); Calibrated: 28.12.2012;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 64.875 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 29.2 W/kg
SAR(1 g) = 7.88 W/kg; SAR(10 g) = 2.26 W/kg
Maximum value of SAR (measured) = 18.5 W/kg

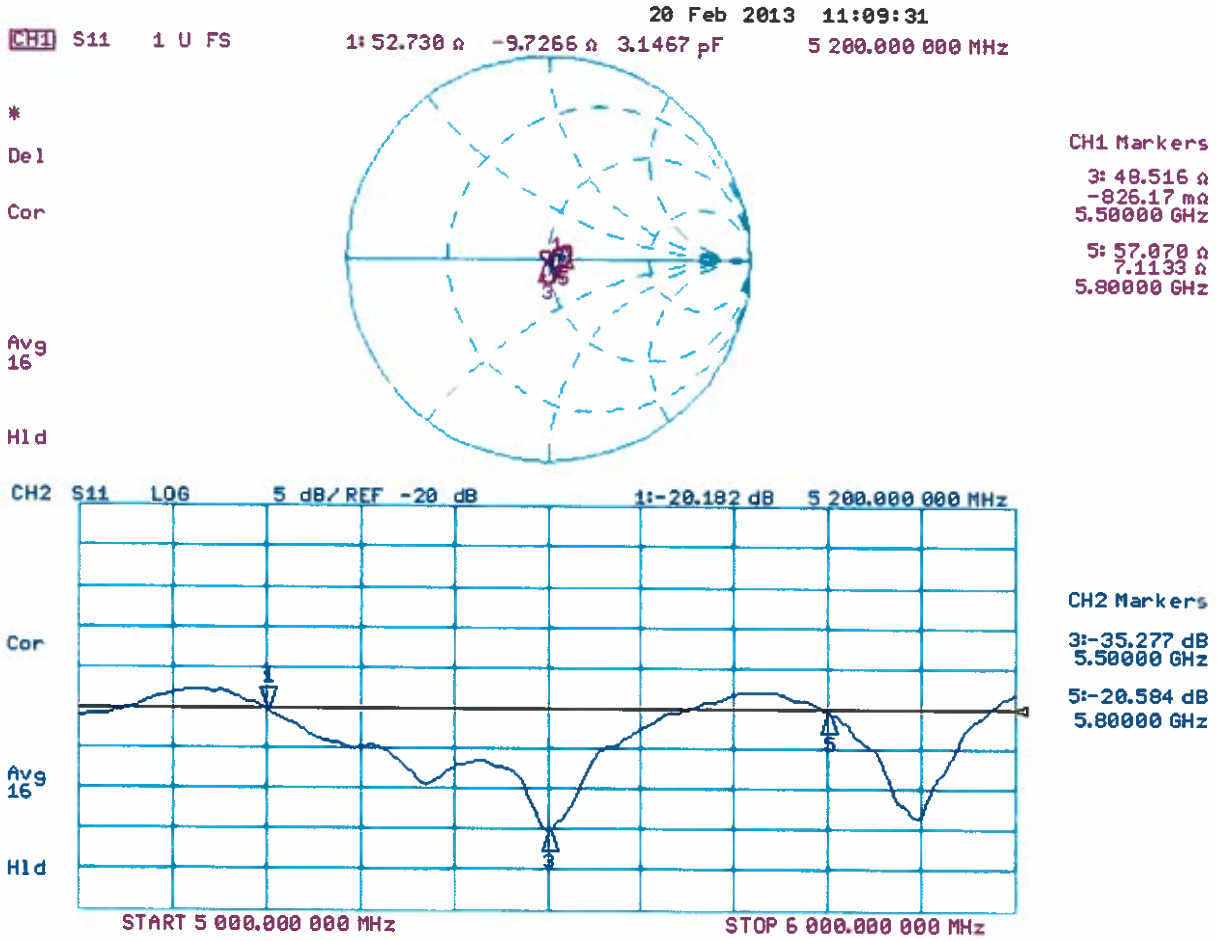
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.120 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 33.0 W/kg
SAR(1 g) = 8.34 W/kg; SAR(10 g) = 2.38 W/kg
Maximum value of SAR (measured) = 20.1 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 61.682 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 32.4 W/kg
SAR(1 g) = 7.78 W/kg; SAR(10 g) = 2.22 W/kg
Maximum value of SAR (measured) = 19.1 W/kg



0 dB = 19.1 W/kg = 12.81 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 14.02.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1016

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 5.36 S/m; ε_r = 46.9; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 5.71 S/m; ε_r = 46.3; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 6.12 S/m; ε_r = 45.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

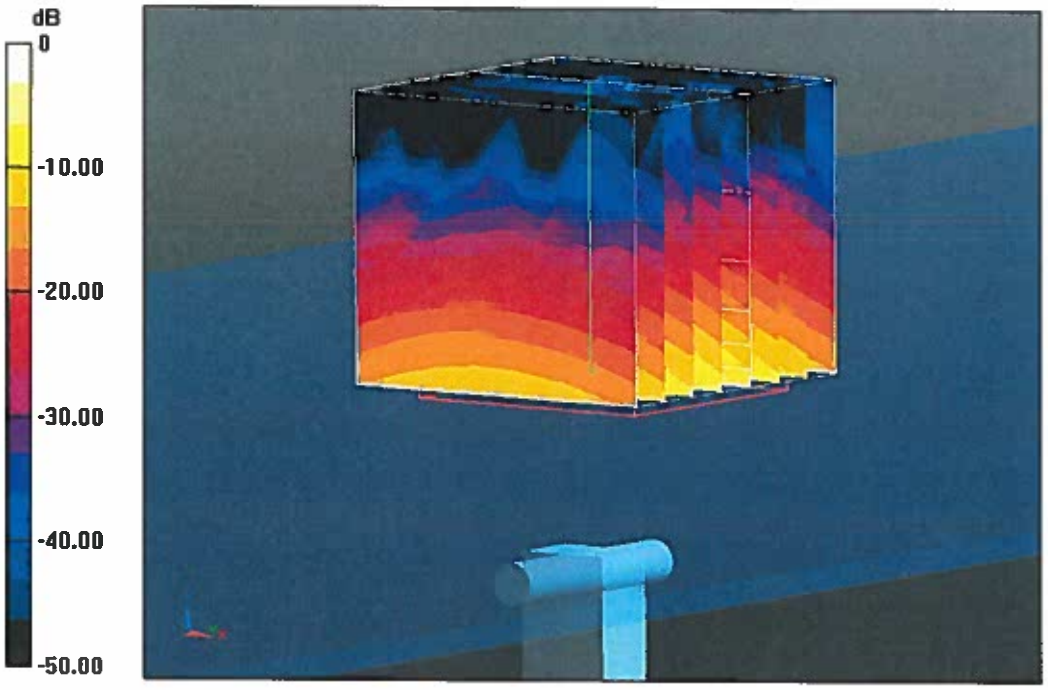
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.91, 4.91, 4.91); Calibrated: 28.12.2012, ConvF(4.43, 4.43, 4.43); Calibrated: 28.12.2012, ConvF(4.38, 4.38, 4.38); Calibrated: 28.12.2012;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 60.072 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 30.6 W/kg
SAR(1 g) = 7.58 W/kg; SAR(10 g) = 2.13 W/kg
Maximum value of SAR (measured) = 18.0 W/kg

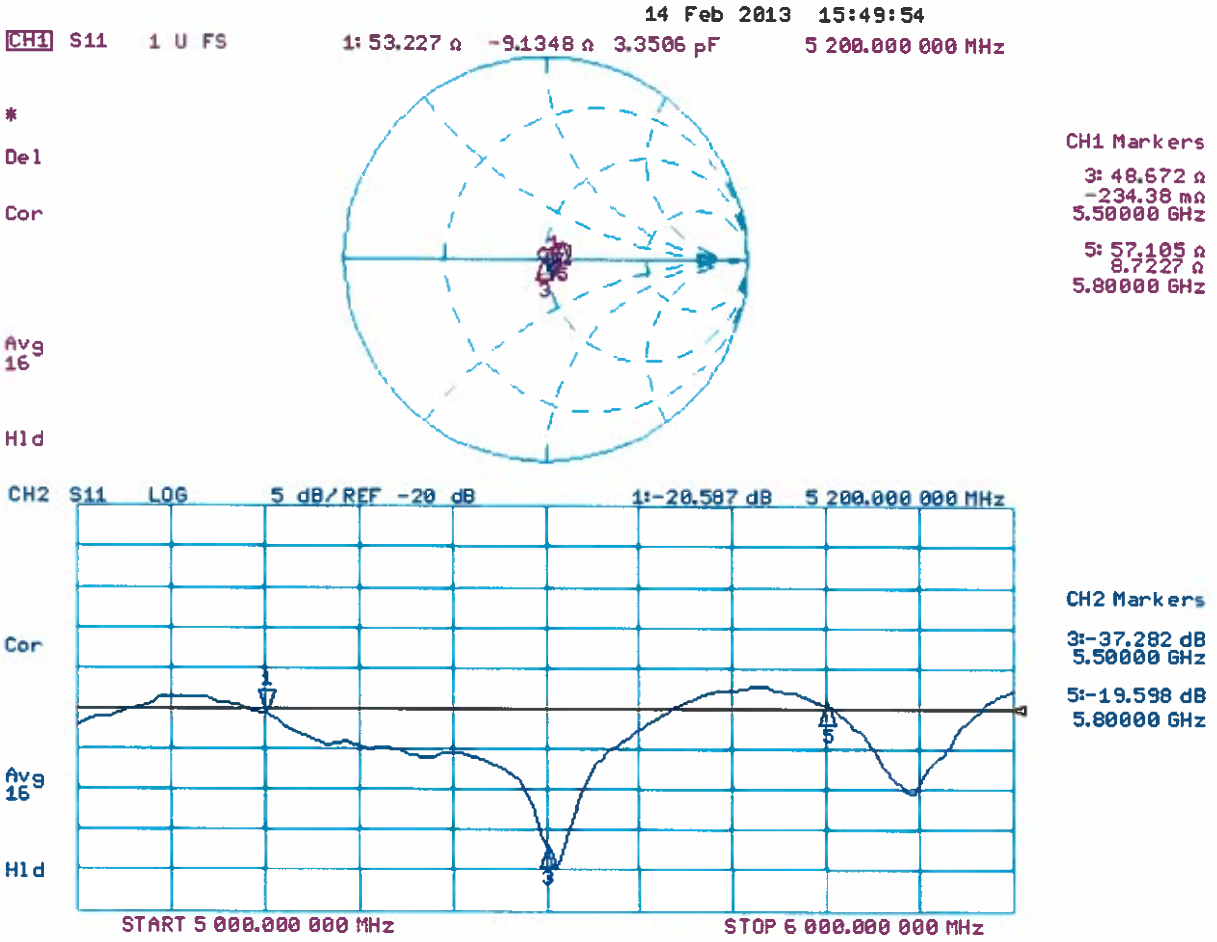
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 59.550 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 35.1 W/kg
SAR(1 g) = 7.98 W/kg; SAR(10 g) = 2.23 W/kg
Maximum value of SAR (measured) = 19.5 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 56.431 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 35.6 W/kg
SAR(1 g) = 7.51 W/kg; SAR(10 g) = 2.09 W/kg
Maximum value of SAR (measured) = 18.8 W/kg



0 dB = 18.8 W/kg = 12.74 dBW/kg

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 < 2.0 GHz, 7x7x7 matrix for measurement 2.0 GHz to 3.0 GHz, and 7x7x12 for > 5.0 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 865664 D01.

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 for frequency below 2.0 GHz, above 2.0GHz up to 3.0 GHz 7x7x7 cube of 343 points and a 7x7x12 cube of 588 points for frequency 5.0 GHz and above 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 7x7x7 or 7x7x12 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/92315JD03A/001	Touch Left GSM CH190
SCN/92315JD03A/002	Touch Left Antenna Extended GSM CH190
SCN/92315JD03A/003	Tilt Left GSM CH190
SCN/92315JD03A/004	Tilt Left Antenna Extended GSM CH190
SCN/92315JD03A/005	Touch Right GSM CH190
SCN/92315JD03A/006	Touch Right Antenna Extended GSM CH190
SCN/92315JD03A/007	Tilt Right GSM CH190
SCN/92315JD03A/008	Tilt Right Antenna Extended GSM CH190
SCN/92315JD03A/009	Touch Left GPRS CH190
SCN/92315JD03A/010	Front of EUT Facing Phantom GPRS CH190
SCN/92315JD03A/011	Front of EUT Facing Phantom Antenna Extended GPRS CH190
SCN/92315JD03A/012	Back of EUT Facing Phantom GPRS CH190
SCN/92315JD03A/013	Back of EUT Facing Phantom Antenna Extended GPRS CH190
SCN/92315JD03A/014	Left Hand Side of EUT Facing Phantom GPRS CH190
SCN/92315JD03A/015	Left Hand Side of EUT Facing Phantom Antenna Extended GPRS CH190
SCN/92315JD03A/016	Right Hand Side of EUT Facing Phantom GPRS CH190
SCN/92315JD03A/017	Right Hand Side of EUT Facing Phantom Antenna Extended GPRS CH190
SCN/92315JD03A/018	Bottom of EUT Facing Phantom GPRS CH190
SCN/92315JD03A/019	Front of EUT Facing Phantom GSM CH190
SCN/92315JD03A/020	Front of EUT Facing Phantom Antenna Extended GSM CH190
SCN/92315JD03A/021	Back of EUT Facing Phantom GSM CH190
SCN/92315JD03A/022	Back of EUT Facing Phantom Antenna Extended GSM CH190
SCN/92315JD03A/023	Touch Left PCS CH661
SCN/92315JD03A/024	Touch Left Antenna Extended PCS CH661
SCN/92315JD03A/025	Tilt Left PCS CH661
SCN/92315JD03A/026	Tilt Left Antenna Extended PCS CH661
SCN/92315JD03A/027	Touch Right PCS CH661
SCN/92315JD03A/028	Touch Right Antenna Extended PCS CH661
SCN/92315JD03A/029	Tilt Right PCS CH661
SCN/92315JD03A/030	Tilt Right Antenna Extended PCS CH661
SCN/92315JD03A/031	Touch Right GPRS CH661
SCN/92315JD03A/032	Front of EUT Facing Phantom GPRS CH661

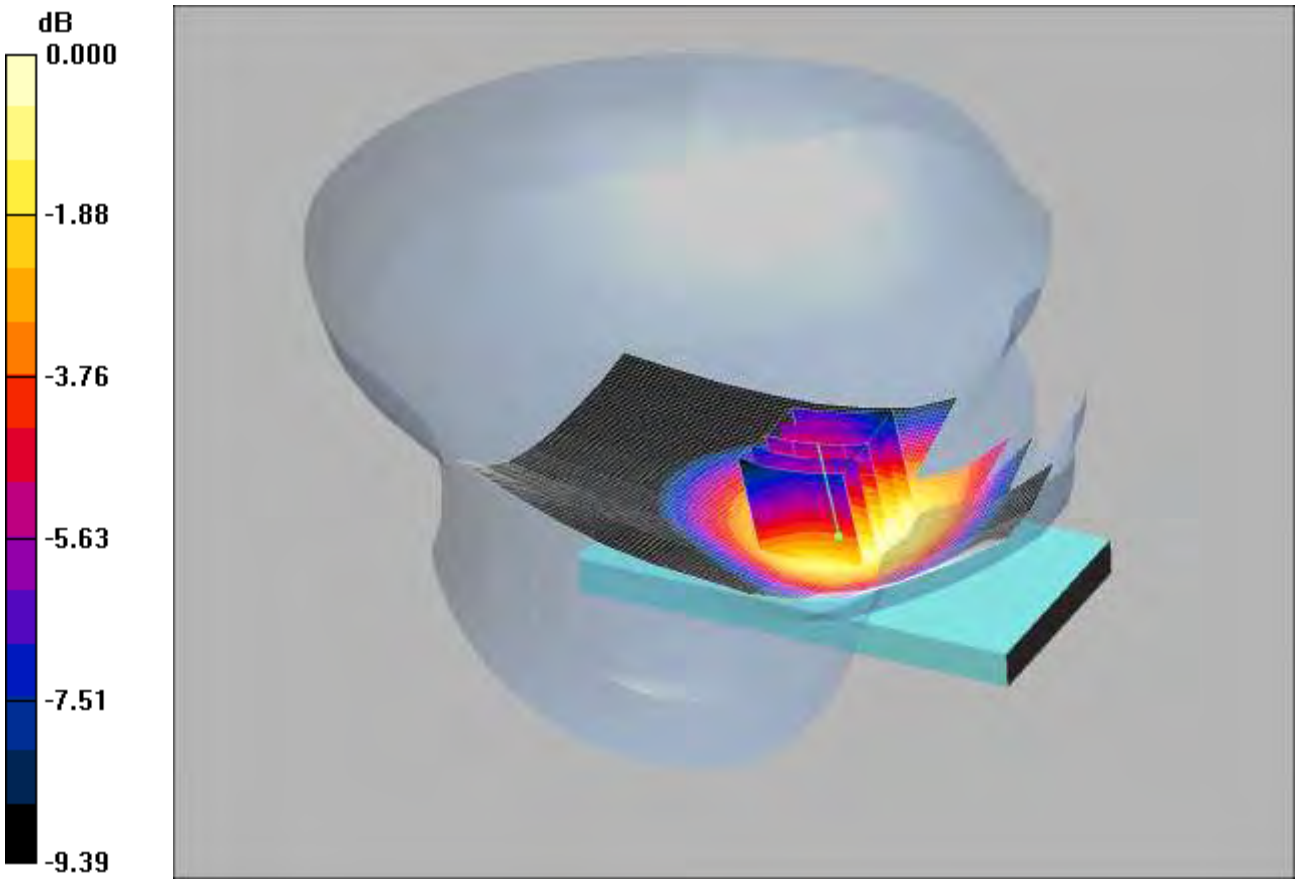
SAR Distribution Scans (Continued):

Scan Reference Number	Title
SCN/92315JD03A/033	Front of EUT Facing Phantom Antenna Extended GPRS CH661
SCN/92315JD03A/034	Back of EUT Facing Phantom GPRS CH661
SCN/92315JD03A/035	Back of EUT Facing Phantom Antenna Extended GPRS CH661
SCN/92315JD03A/036	Left Hand Side of EUT Facing Phantom GPRS CH661
SCN/92315JD03A/037	Left Hand Side of EUT Facing Phantom Antenna Extended GPRS CH661
SCN/92315JD03A/038	Right Hand Side of EUT Facing Phantom GPRS CH661
SCN/92315JD03A/039	Right Hand Side of EUT Facing Phantom Antenna Extended GPRS CH661
SCN/92315JD03A/040	Bottom of EUT Facing Phantom GPRS CH661
SCN/92315JD03A/041	Front of EUT Facing Phantom PCS CH661
SCN/92315JD03A/042	Front of EUT Facing Phantom Antenna Extended PCS CH661
SCN/92315JD03A/043	Back of EUT Facing Phantom PCS CH661
SCN/92315JD03A/044	Back of EUT Facing Phantom Antenna Extended PCS CH661
SCN/92315JD03A/045	Touch Left UMTS FDD 5 CH4183
SCN/92315JD03A/046	Touch Left Antenna Extended UMTS FDD 5 CH4183
SCN/92315JD03A/047	Tilt Left UMTS FDD 5 CH4183
SCN/92315JD03A/048	Tilt Left Antenna Extended UMTS FDD 5 CH4183
SCN/92315JD03A/049	Touch Right UMTS FDD 5 CH4183
SCN/92315JD03A/050	Touch Right Antenna Extended UMTS FDD 5 CH4183
SCN/92315JD03A/051	Tilt Right UMTS FDD 5 CH4183
SCN/92315JD03A/052	Tilt Right Antenna Extended UMTS FDD 5 CH4183
SCN/92315JD03A/053	Front of EUT Facing Phantom UMTS FDD 5 CH4183
SCN/92315JD03A/054	Front of EUT Facing Phantom Antenna Extended UMTS FDD 5 CH4183
SCN/92315JD03A/055	Back of EUT Facing Phantom UMTS FDD 5 CH4183
SCN/92315JD03A/056	Back of EUT Facing Phantom Antenna Extended UMTS FDD 5 CH4183
SCN/92315JD03A/057	Left Hand Side of EUT Facing Phantom UMTS FDD 5 CH4183
SCN/92315JD03A/058	Left Hand Side of EUT Facing Phantom Antenna Extended UMTS FDD 5 CH4183
SCN/92315JD03A/059	Right Hand Side of EUT Facing Phantom UMTS FDD 5 CH4183
SCN/92315JD03A/060	Right Hand Side of EUT Facing Phantom Antenna Extended UMTS FDD 5 CH4183
SCN/92315JD03A/061	Bottom of EUT Facing Phantom UMTS FDD 5 CH4183
SCN/92315JD03A/062	Front of EUT Facing Phantom at 15mm UMTS FDD 5 CH4183
SCN/92315JD03A/063	Front of EUT Facing Phantom Antenna Extended at 15mm UMTS FDD 5 CH4183
SCN/92315JD03A/064	Back of EUT Facing Phantom at 15mm UMTS FDD 5 CH4183
SCN/92315JD03A/065	Back of EUT Facing Phantom Antenna Extended at 15mm UMTS FDD 5 CH4183

SAR Distribution Scans (Continued):	
Scan Reference Number	**Title**
SCN/92315JD03A/066	Touch Left WiFi 802.11b 1Mpbs CH6
SCN/92315JD03A/067	Touch Left Antenna Extended WiFi 802.11b 1Mpbs CH6
SCN/92315JD03A/068	Tilt Left WiFi 802.11b 1Mpbs CH6
SCN/92315JD03A/069	Tilt Left Antenna Extended WiFi 802.11b 1Mpbs CH6
SCN/92315JD03A/070	Touch Right WiFi 802.11b 1Mpbs CH6
SCN/92315JD03A/071	Touch Right Antenna Extended WiFi 802.11b 1Mpbs CH6
SCN/92315JD03A/072	Tilt Right WiFi 802.11b 1Mpbs CH6
SCN/92315JD03A/073	Tilt Right Antenna Extended WiFi 802.11b 1Mpbs CH6
SCN/92315JD03A/074	Front of EUT Facing Phantom 802.11b 1Mbps CH6
SCN/92315JD03A/075	Front of EUT Antenna Extended Facing Phantom 802.11b 1Mbps CH6
SCN/92315JD03A/076	Back of EUT Antenna Extended Facing Phantom 802.11b 1Mbps CH6
SCN/92315JD03A/077	Left Hand Side of EUT Facing Phantom 802.11b 1Mbps CH6
SCN/92315JD03A/078	Left Hand Side of EUT Antenna Extended Facing Phantom 802.11b 1Mbps CH6
SCN/92315JD03A/079	Top of EUT Facing Phantom 802.11b 1Mbps CH6
SCN/92315JD03A/080	Front of EUT Facing Phantom at 15mm 802.11b 1Mbps CH6
SCN/92315JD03A/081	Front of EUT Facing Phantom Antenna Extended at 15mm 802.11b 1Mbps CH6
SCN/92315JD03A/082	Back of EUT Facing Phantom at 15mm 802.11b 1Mbps CH6
SCN/92315JD03A/083	Back of EUT Antenna Extended Facing Phantom at 15mm 802.11b 1Mbps CH6
SCN/92315JD03A/084	Tilt Left Antenna Extended WiFi 802.11a 6Mpbs CH36
SCN/92315JD03A/085	Touch Right WiFi 802.11a 6Mpbs CH36
SCN/92315JD03A/086	Touch Right Antenna Extended WiFi 802.11a 6Mpbs CH36
SCN/92315JD03A/087	Tilt Right WiFi 802.11a 6Mpbs CH36
SCN/92315JD03A/088	Tilt Right Antenna Extended WiFi 802.11a 6Mpbs CH36
SCN/92315JD03A/089	Touch Right WiFi 802.11a 6Mpbs CH64
SCN/92315JD03A/090	Touch Right WiFi 802.11a 6Mpbs CH124
SCN/92315JD03A/091	System Performance Check 900MHz Head 02 04 13
SCN/92315JD03A/092	System Performance Check 900MHz Head 03 04 13
SCN/92315JD03A/093	System Performance Check 900MHz Body 05 04 13
SCN/92315JD03A/094	System Performance Check 900MHz Body 08 04 13
SCN/92315JD03A/095	System Performance Check 900MHz Body 09 04 13
SCN/92315JD03A/096	System Performance Check 1900MHz Head 28 03 13
SCN/92315JD03A/097	System Performance Check 1900MHz Body 09 04 13
SCN/92315JD03A/098	System Performance Check 1900MHz Body 10 04 13
SCN/92315JD03A/099	System Performance Check 2450MHz Head 10 04 13
SCN/92315JD03A/100	System Performance Check 2450MHz Head 11 04 13

SAR Distribution Scans (Continued):	
Scan Reference Number	**Title**
SCN/92315JD03A/101	System Performance Check 2450MHz Body 11 04 13
SCN/92315JD03A/102	System Performance Check 2450MHz Body 12 04 13
SCN/92315JD03A/103	System Performance Check 5200MHz Head 15 04 13
SCN/92315JD03A/104	System Performance Check 5200MHz Head 16 04 13
SCN/92315JD03A/105	System Performance Check 5500MHz Head 16 04 13
SCN/92315JD03A/106	System Performance Check 5800MHz Head 16 04 13

SCN/92315JD03A/001: Touch Left GSM CH190
Date: 02/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.321mW/g

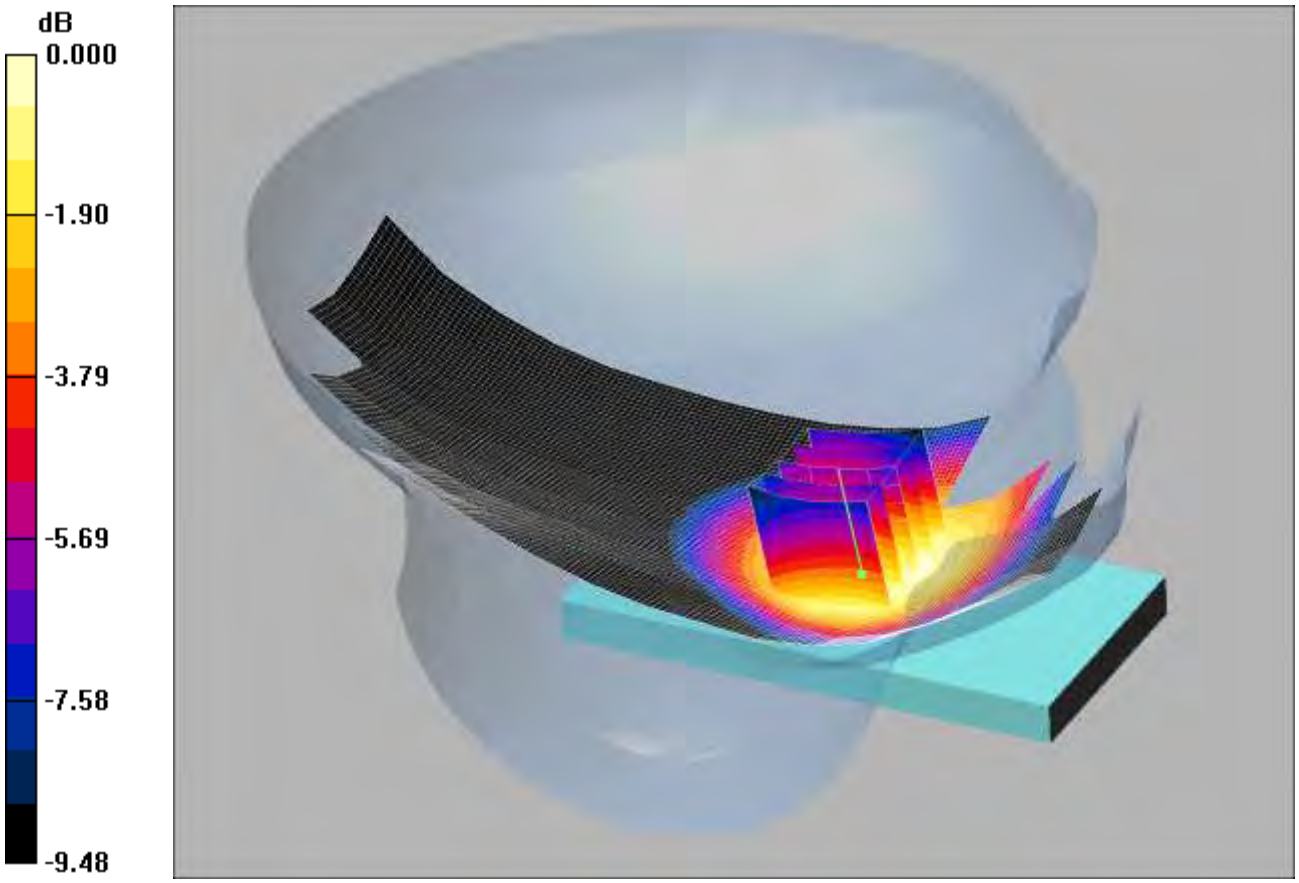
Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.330 mW/g

Touch Left - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.25 V/m; Power Drift = 0.074 dB
Peak SAR (extrapolated) = 0.382 W/kg
SAR(1 g) = 0.305 mW/g; SAR(10 g) = 0.232 mW/g
Maximum value of SAR (measured) = 0.321 mW/g

SCN/92315JD03A/002: Touch Left Antenna Extended GSM CH190
Date: 02/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.304mW/g

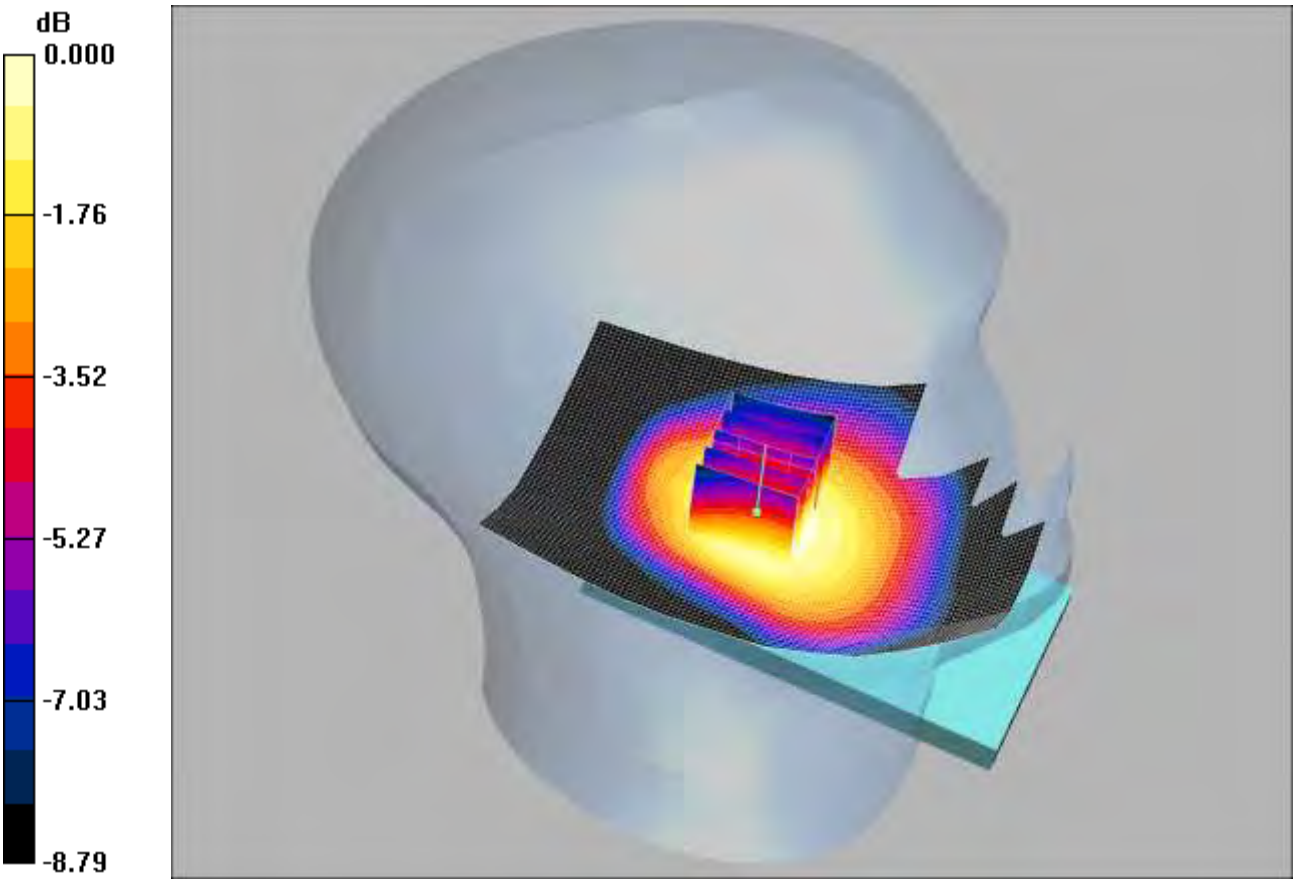
Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Left - Middle/Area Scan (71x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.319 mW/g

Touch Left - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.0 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 0.367 W/kg
SAR(1 g) = 0.292 mW/g; SAR(10 g) = 0.223 mW/g
Maximum value of SAR (measured) = 0.304 mW/g

SCN/92315JD03A/003: Tilt Left GSM CH190
Date 02/04/2013
DUT: Panasonic **Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251**



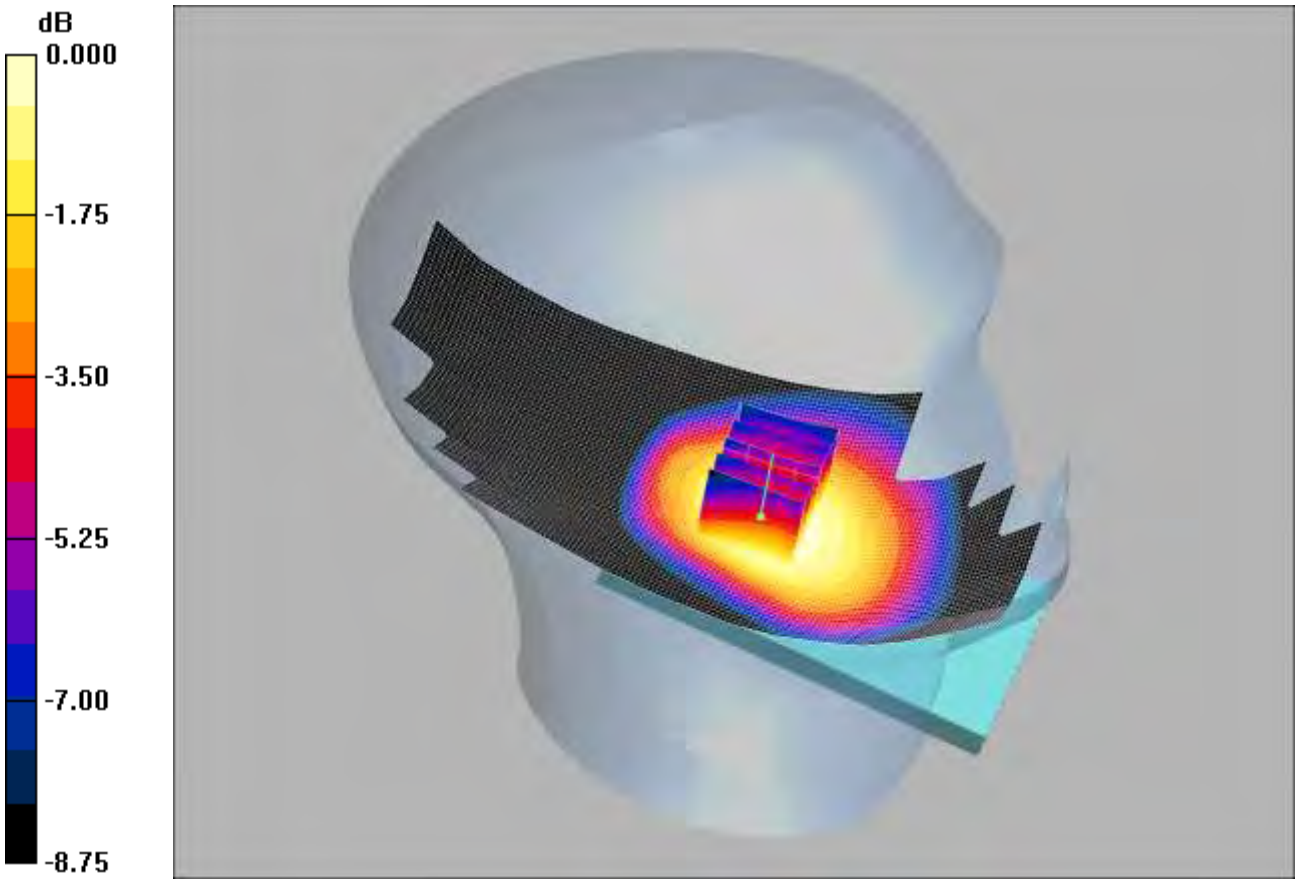
0 dB = 0.226mW/g

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 = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.220 mW/g
Tilt Left - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.0 V/m; Power Drift = 0.002 dB
Peak SAR (extrapolated) = 0.264 W/kg
SAR(1 g) = 0.217 mW/g; SAR(10 g) = 0.168 mW/g
Maximum value of SAR (measured) = 0.226 mW/g

SCN/92315JD03A/004: Tilt Left Antenna Extended GSM CH190
Date 02/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



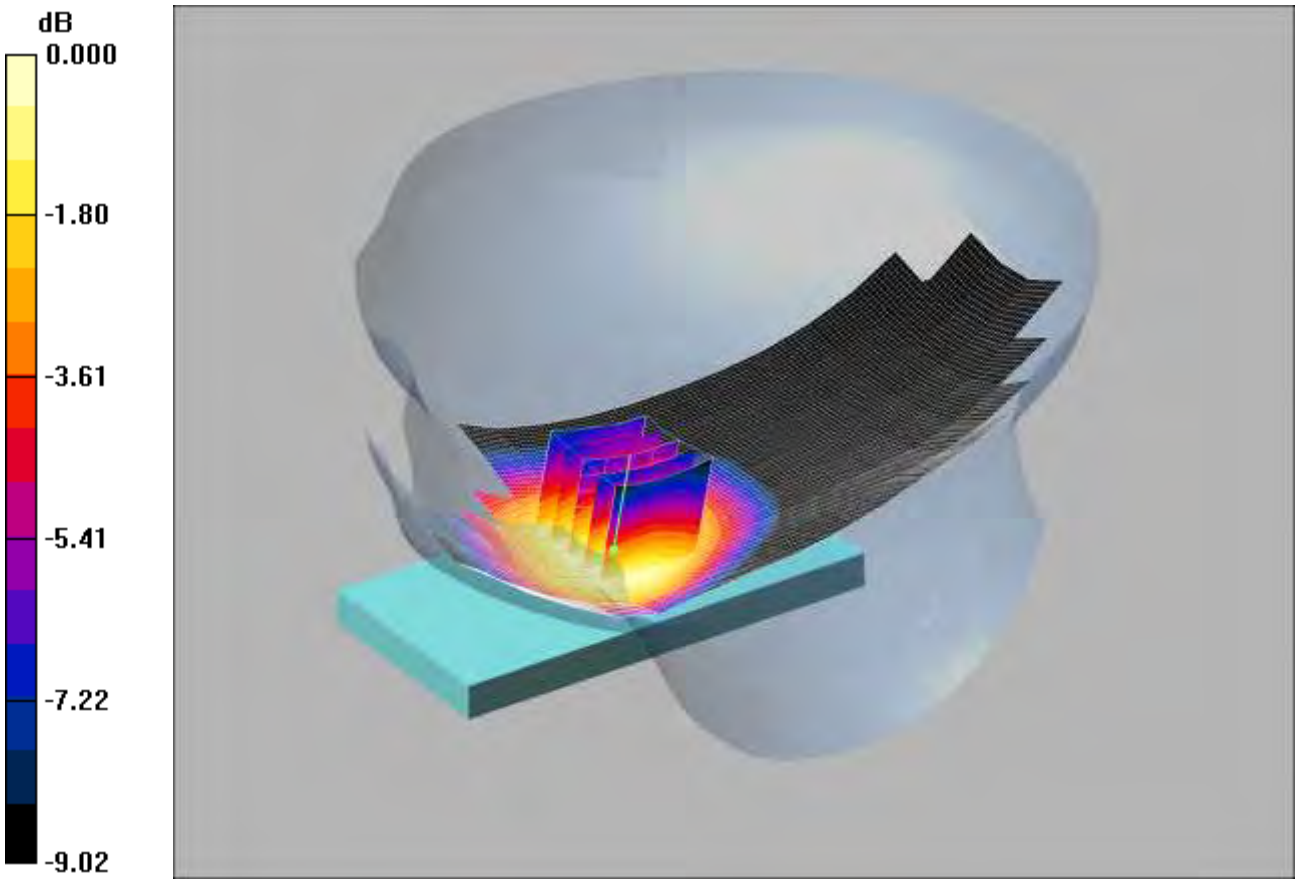
0 dB = 0.229mW/g

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 = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Left - Middle/Area Scan (71x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.230 mW/g
Tilt Left - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.2 V/m; Power Drift = 0.108 dB
Peak SAR (extrapolated) = 0.264 W/kg
SAR(1 g) = 0.218 mW/g; SAR(10 g) = 0.170 mW/g
Maximum value of SAR (measured) = 0.229 mW/g

SCN/92315JD03A/005: Touch Right GSM CH190
Date: 02/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.307mW/g

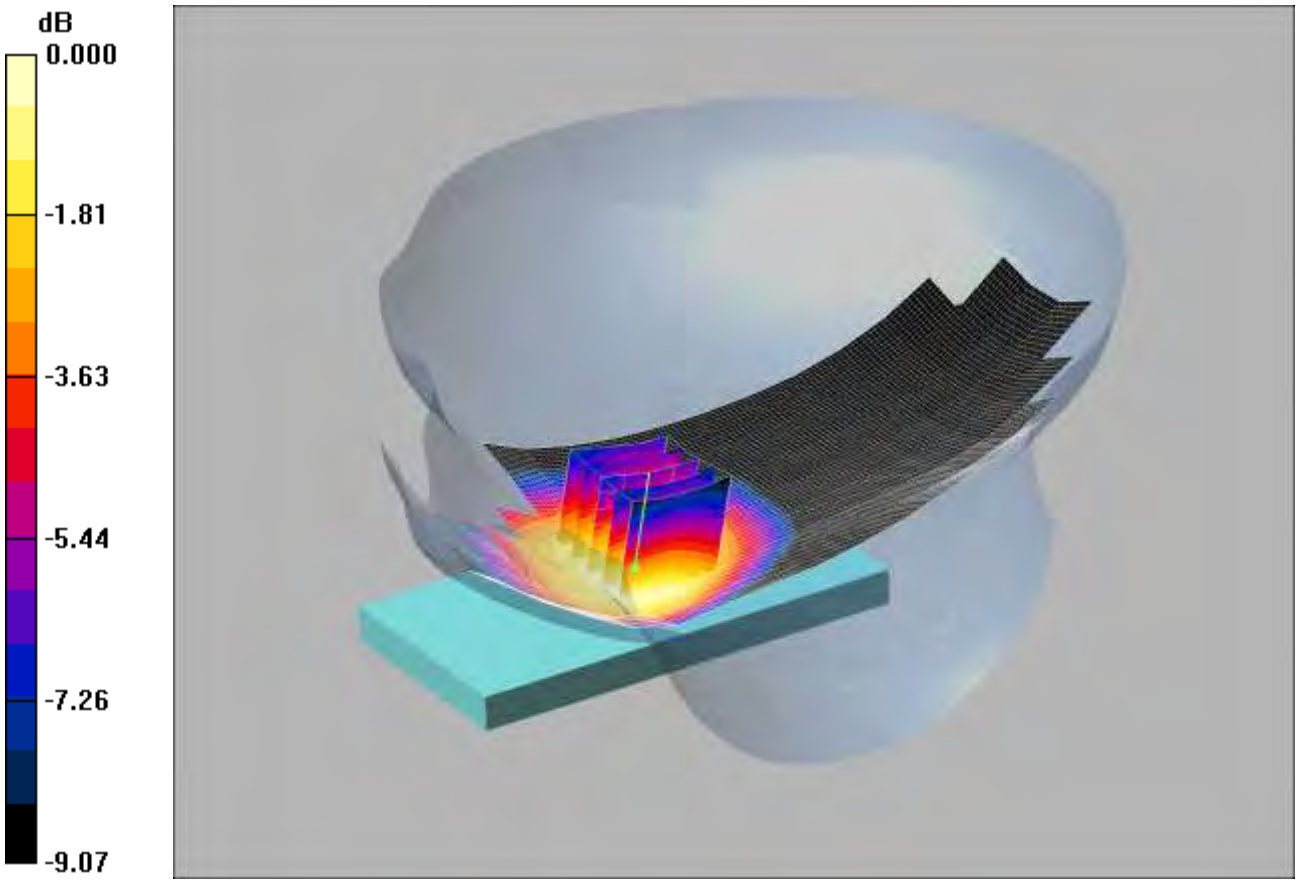
Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right - Middle/Area Scan (71x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.308 mW/g

Touch Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.4 V/m; Power Drift = -0.083 dB
Peak SAR (extrapolated) = 0.358 W/kg
SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.226 mW/g
Maximum value of SAR (measured) = 0.307 mW/g

SCN/92315JD03A/006: Touch Right Antenna Extended GSM CH190
Date: 02/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.300mW/g

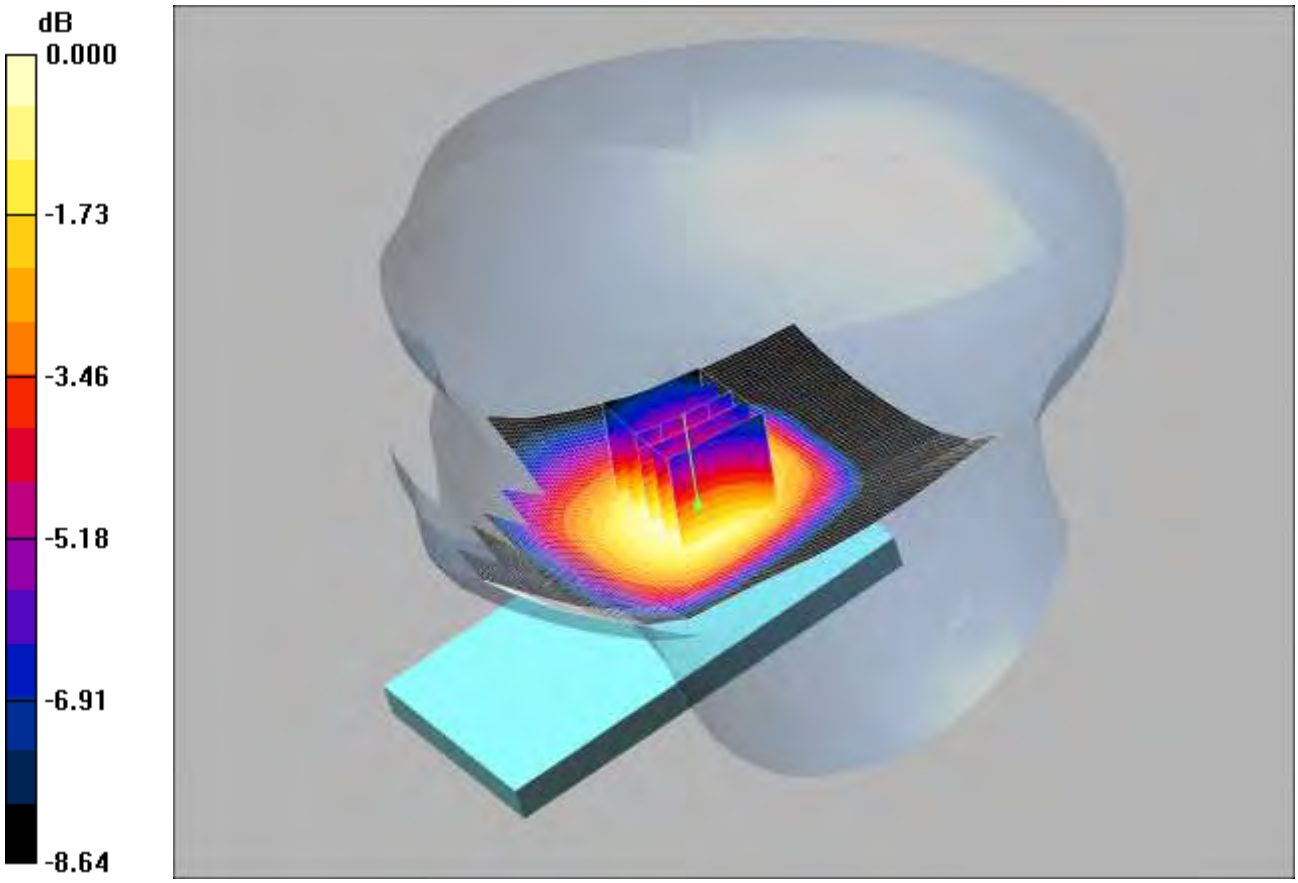
Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right - Middle/Area Scan (71x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.305 mW/g

Touch Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.9 V/m; Power Drift = -0.015 dB
Peak SAR (extrapolated) = 0.347 W/kg
SAR(1 g) = 0.287 mW/g; SAR(10 g) = 0.220 mW/g
Maximum value of SAR (measured) = 0.300 mW/g

SCN/92315JD03A/007: Tilt Right GSM CH190
Date: 02/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.267mW/g

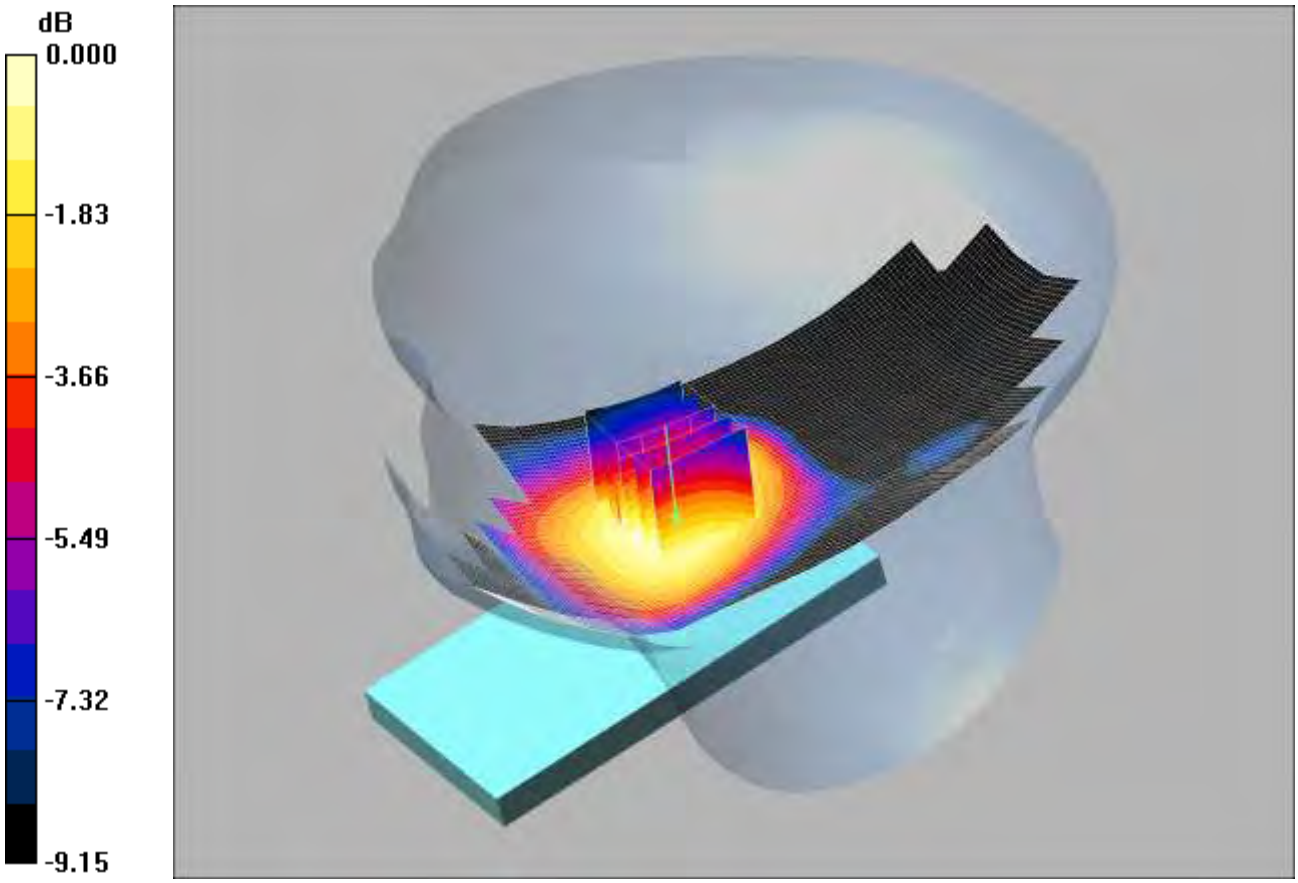
Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Right - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.279 mW/g

Tilt Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.8 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 0.312 W/kg
SAR(1 g) = 0.257 mW/g; SAR(10 g) = 0.198 mW/g
Maximum value of SAR (measured) = 0.267 mW/g

SCN/92315JD03A/008: Tilt Right Antenna Extended GSM CH190
Date: 02/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.231mW/g

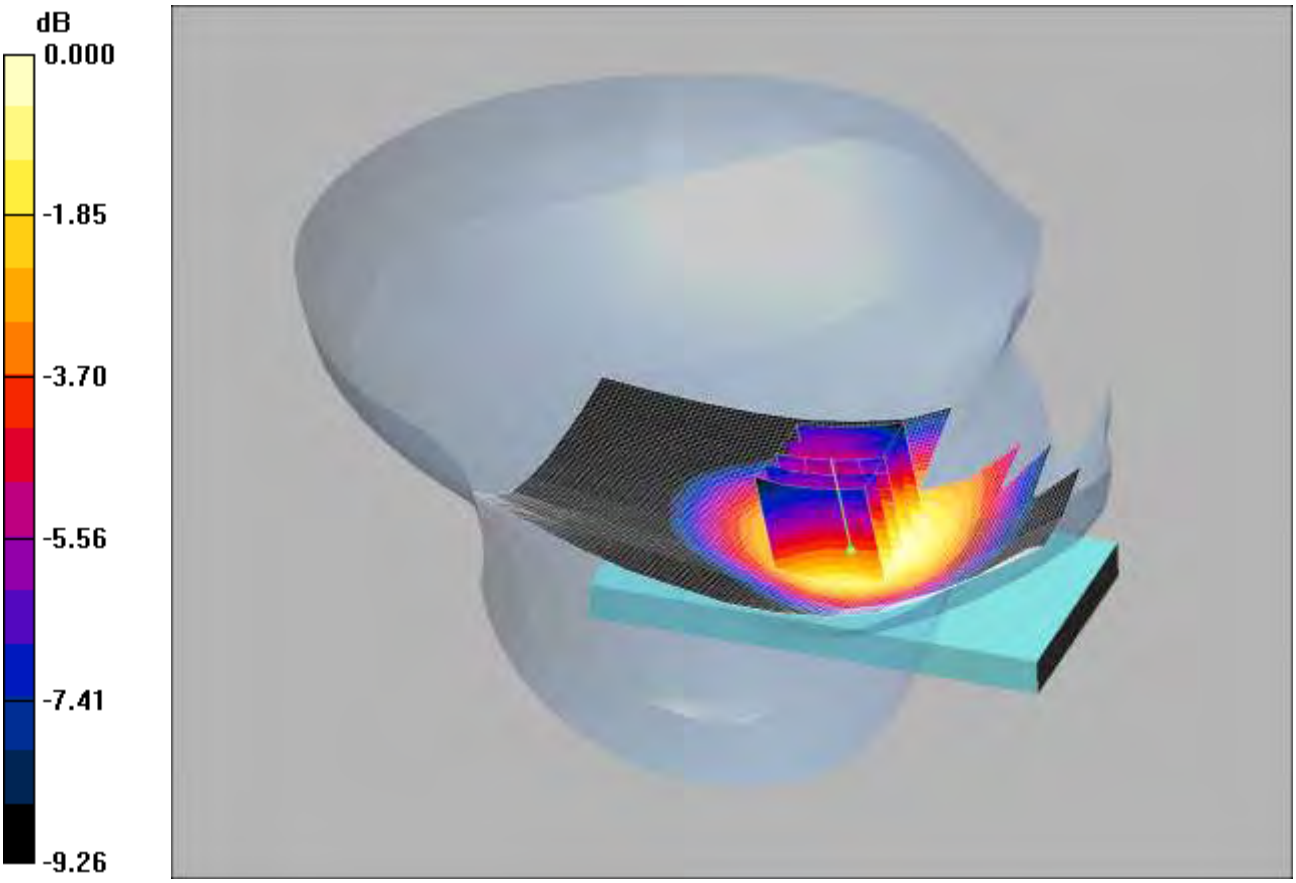
Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Right - Middle/Area Scan (71x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.235 mW/g

Tilt Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.0 V/m; Power Drift = -0.030 dB
Peak SAR (extrapolated) = 0.268 W/kg
SAR(1 g) = 0.222 mW/g; SAR(10 g) = 0.171 mW/g
Maximum value of SAR (measured) = 0.231 mW/g

SCN/92315JD03A/009: Touch Left GPRS CH190
Date: 02/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.352mW/g

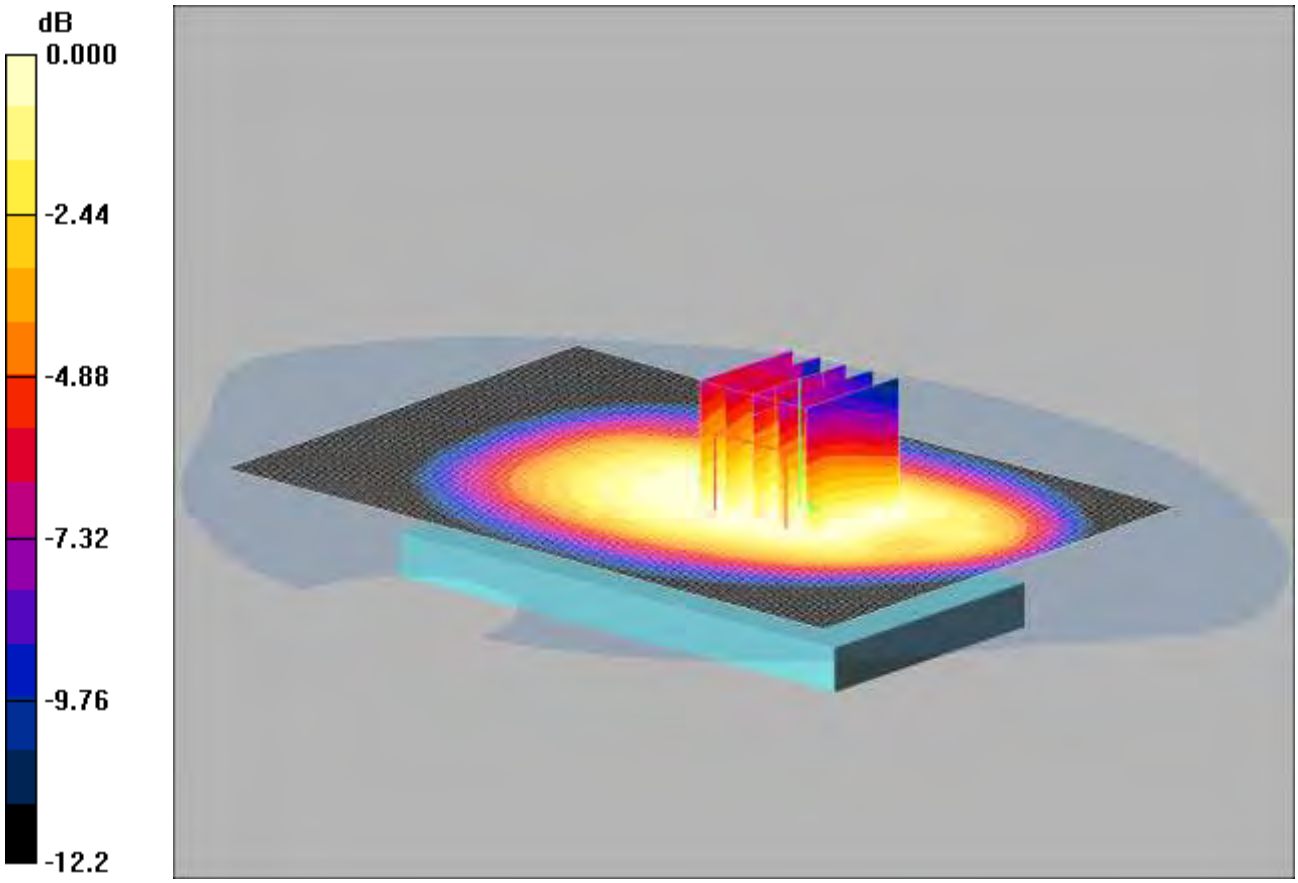
Communication System: GPRS 850 MHz 3TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.369 mW/g

Touch Left - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.37 V/m; Power Drift = 0.077 dB
Peak SAR (extrapolated) = 0.423 W/kg
SAR(1 g) = 0.336 mW/g; SAR(10 g) = 0.257 mW/g
Maximum value of SAR (measured) = 0.352 mW/g

SCN/92315JD03A/010: Front of EUT Facing Phantom GPRS CH190
Date: 08/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



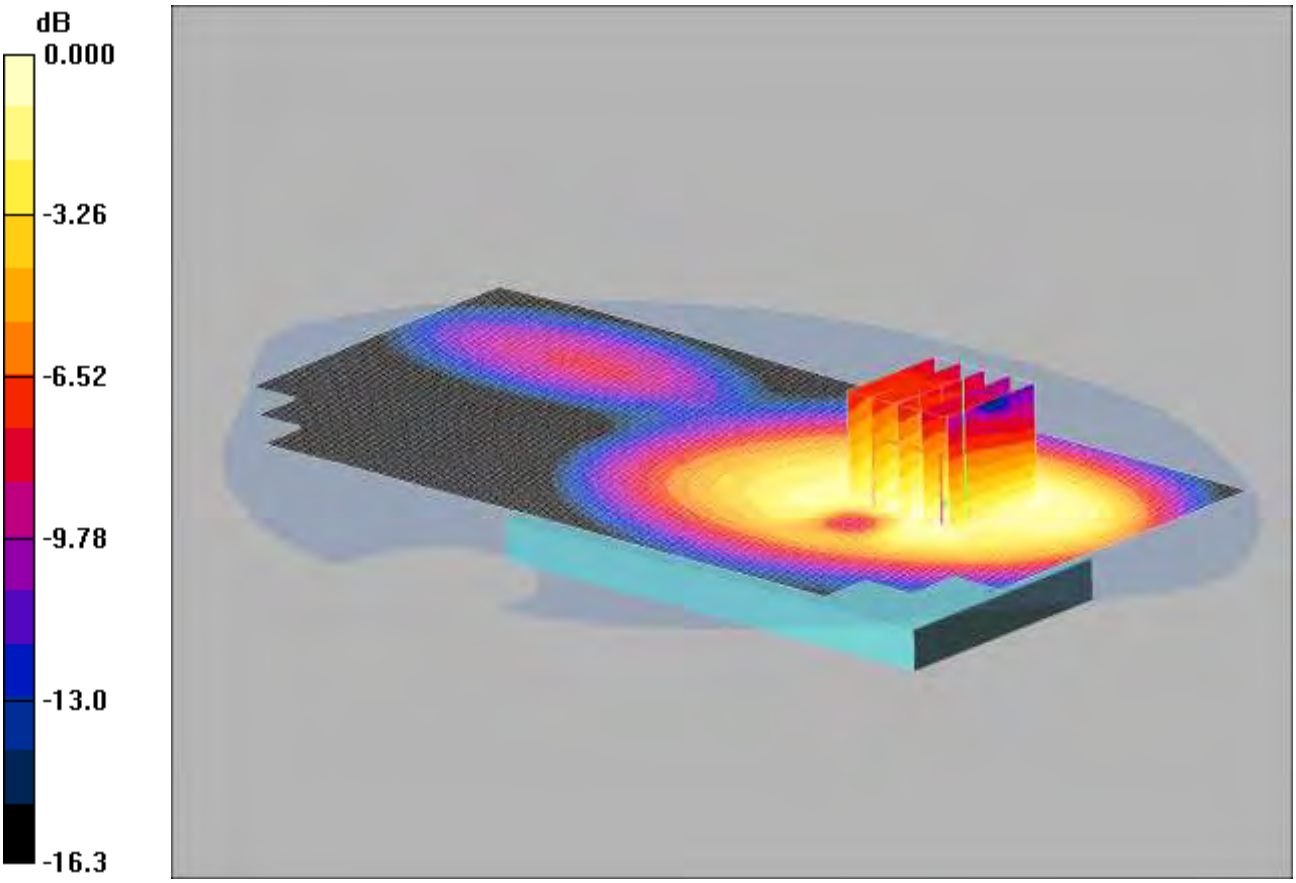
0 dB = 0.450mW/g

Communication System: GPRS 850 MHz 3TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.498 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 = 20.9 V/m; Power Drift = 0.051 dB
Peak SAR (extrapolated) = 0.560 W/kg
SAR(1 g) = 0.429 mW/g; SAR(10 g) = 0.323 mW/g
Maximum value of SAR (measured) = 0.450 mW/g

SCN/92315JD03A/011: Front of EUT Facing Phantom Antenna Extended GPRS CH190
Date: 08/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



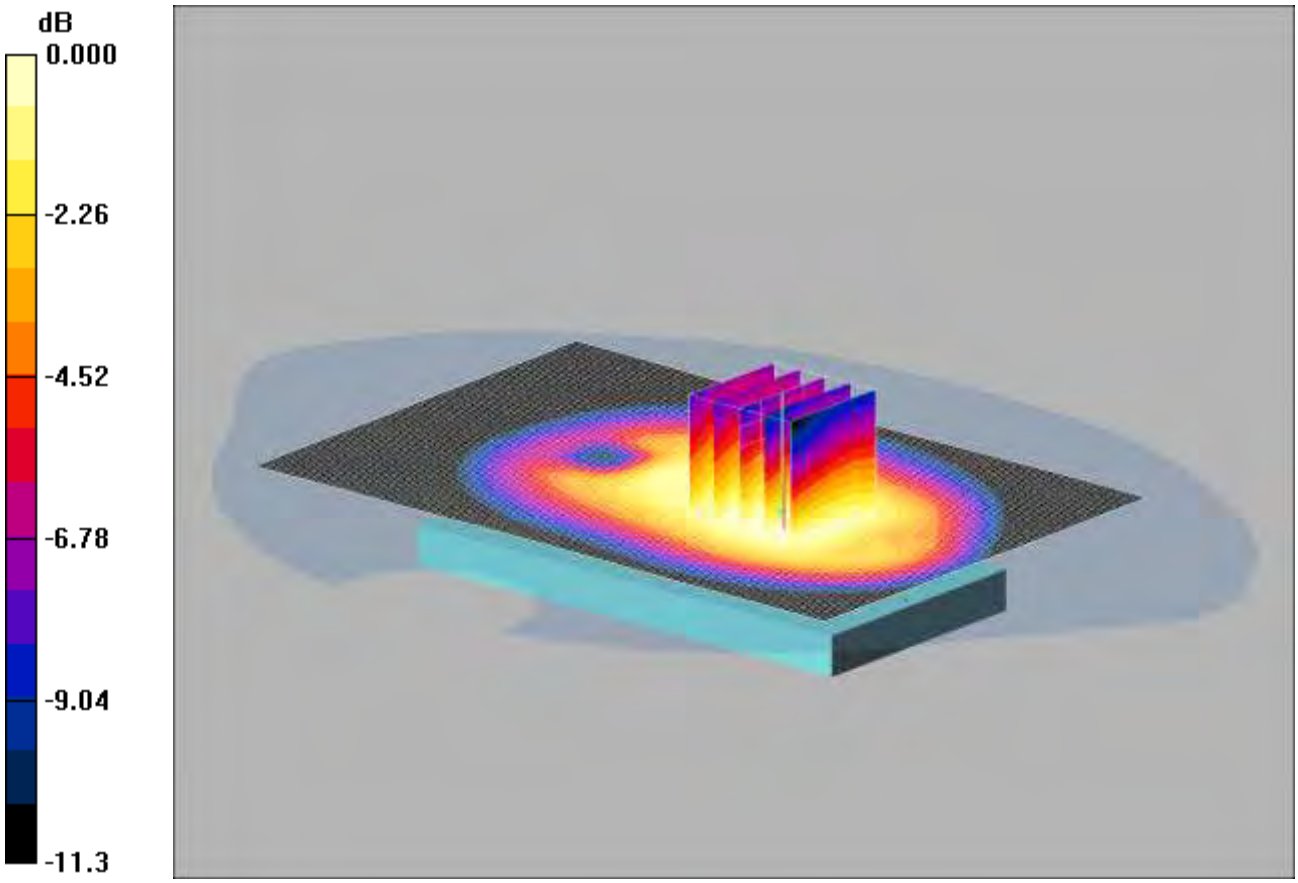
0 dB = 0.492mW/g

Communication System: GPRS 850 MHz 3TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.530 mW/g
Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.7 V/m; Power Drift = 0.009 dB
Peak SAR (extrapolated) = 0.665 W/kg
SAR(1 g) = 0.472 mW/g; SAR(10 g) = 0.336 mW/g
Maximum value of SAR (measured) = 0.492 mW/g

SCN/92315JD03A/012: Back of EUT Facing Phantom GPRS CH190
Date: 08/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



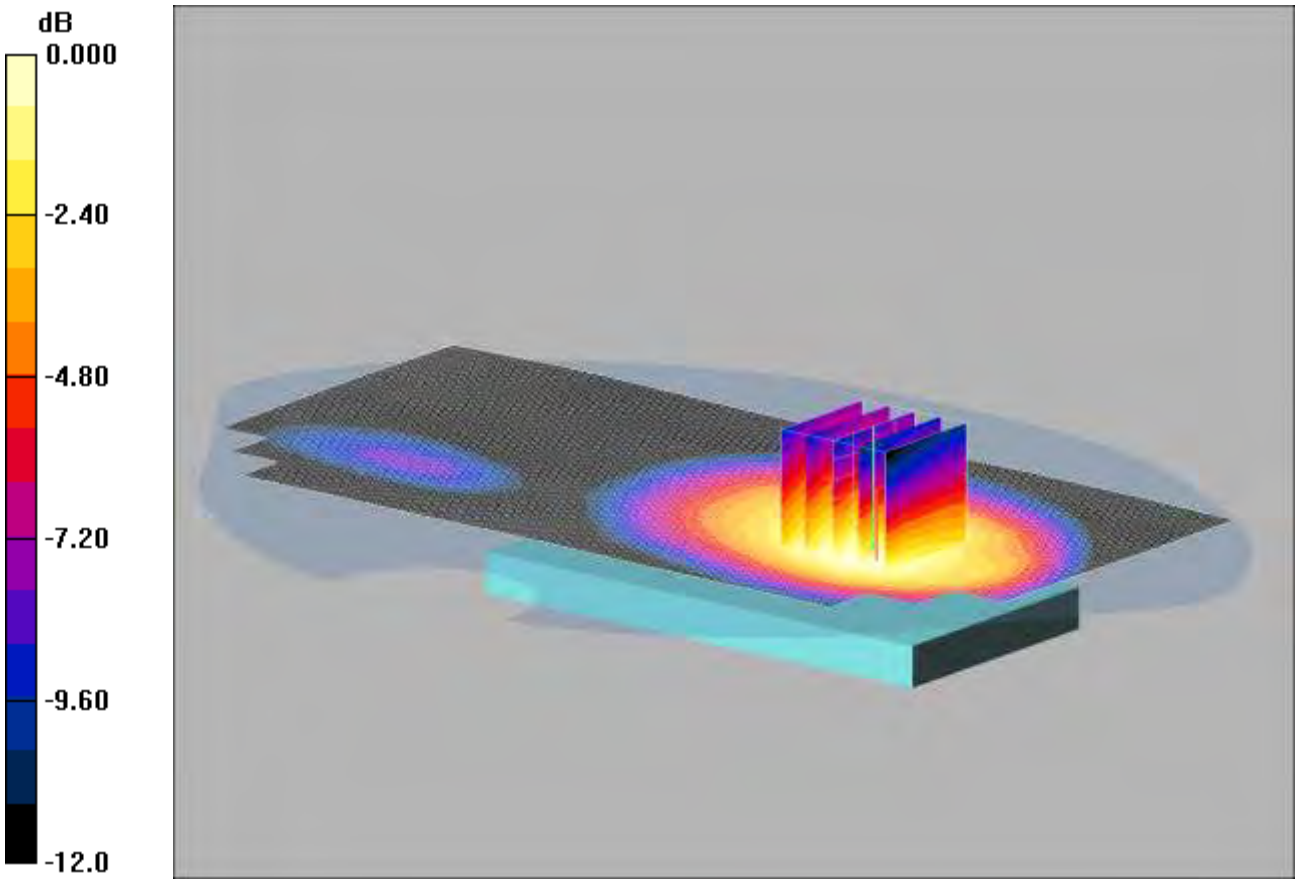
0 dB = 0.473mW/g

Communication System: GPRS 850 MHz 3TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.477 mW/g
Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.8 V/m; Power Drift = -0.044 dB
Peak SAR (extrapolated) = 0.590 W/kg
SAR(1 g) = 0.452 mW/g; SAR(10 g) = 0.335 mW/g
Maximum value of SAR (measured) = 0.473 mW/g

SCN/92315JD03A/013: Back of EUT Facing Phantom Antenna Extended GPRS CH190
Date: 08/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



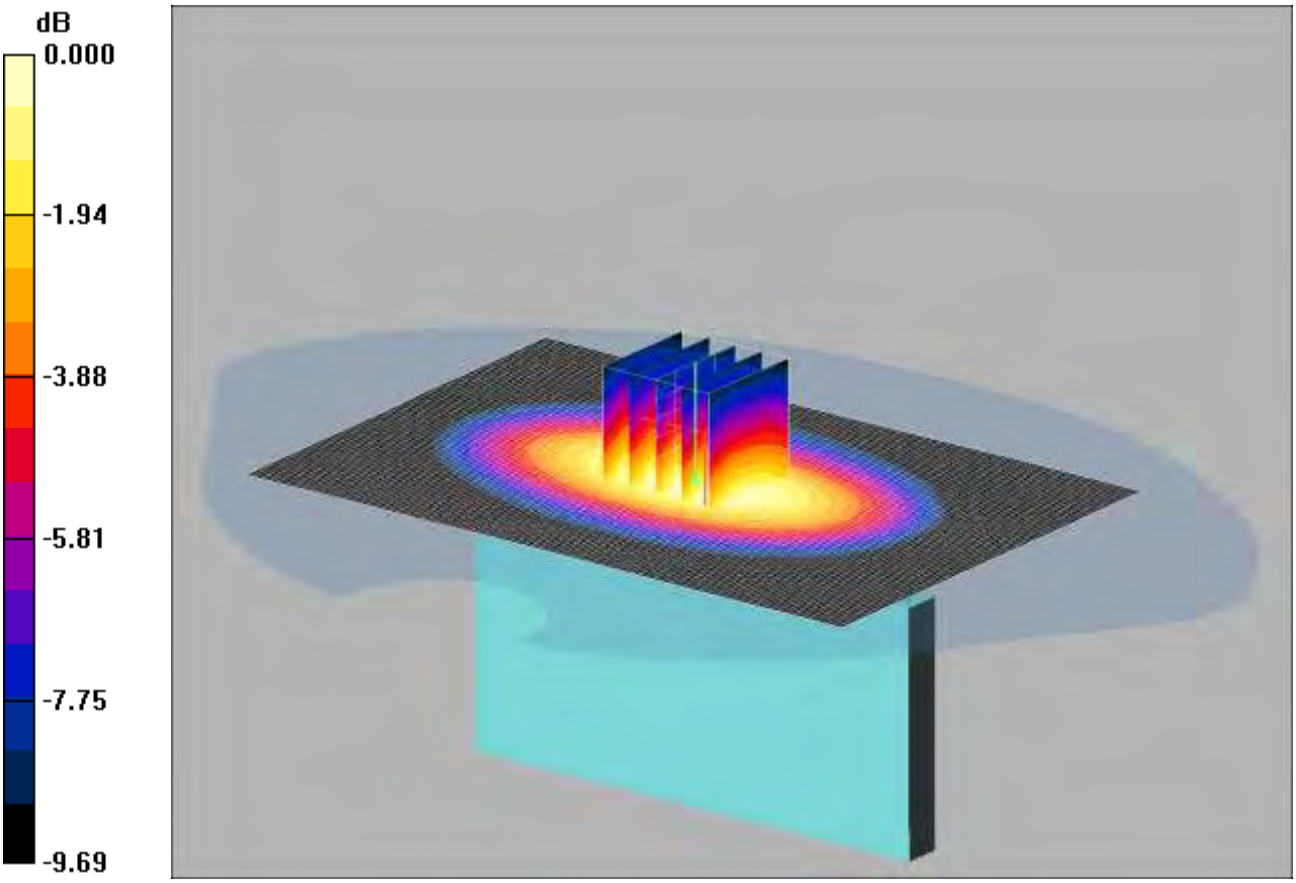
0 dB = 0.474mW/g

Communication System: GPRS 850 MHz 3TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.467 mW/g
Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.0 V/m; Power Drift = -0.007 dB
Peak SAR (extrapolated) = 0.642 W/kg
SAR(1 g) = 0.446 mW/g; SAR(10 g) = 0.313 mW/g
Maximum value of SAR (measured) = 0.474 mW/g

SCN/92315JD03A/014: Left Hand Side of EUT Facing Phantom GPRS CH190
Date: 08/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



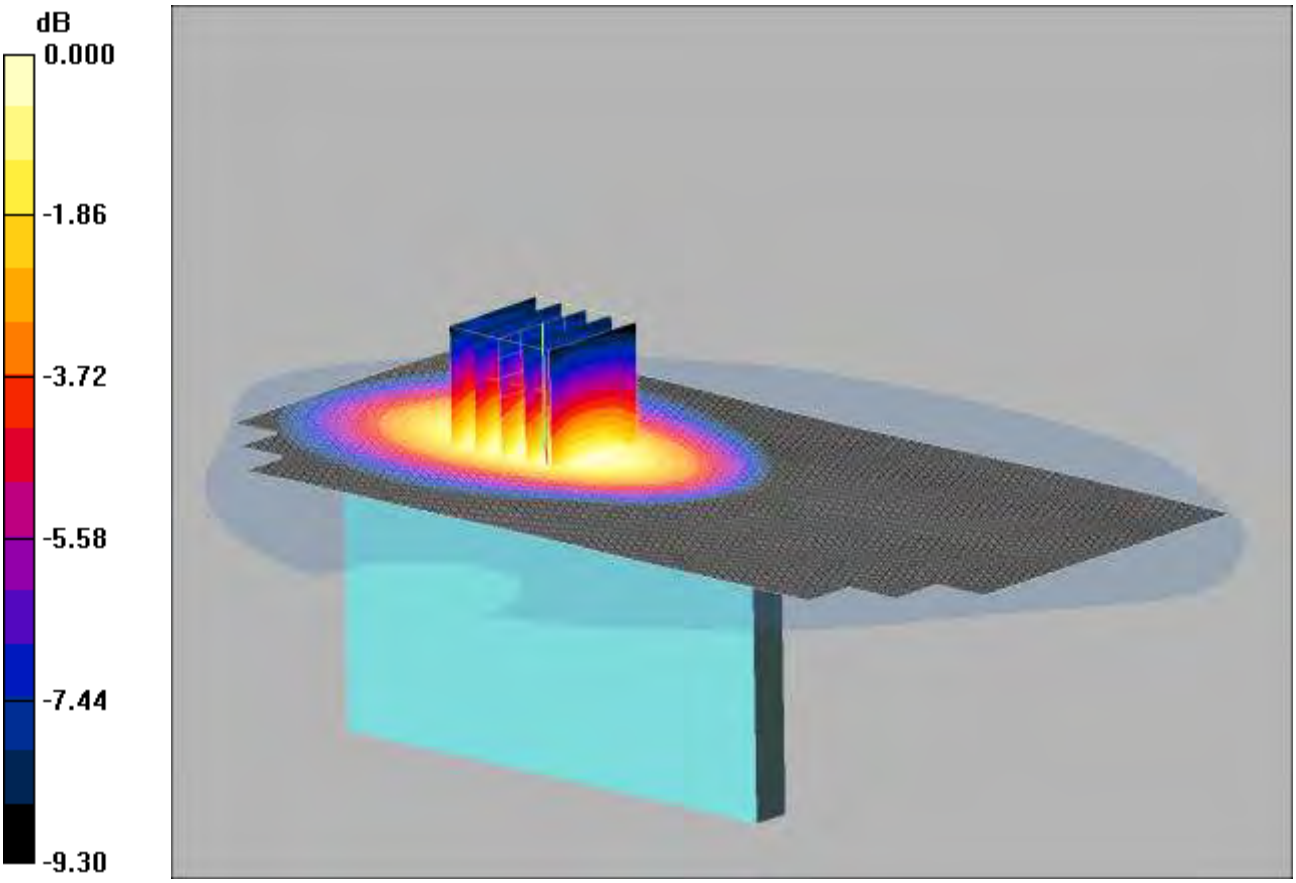
0 dB = 0.412mW/g

Communication System: GPRS 850 MHz 3TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Left Hand Side of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.403 mW/g
Left Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.9 V/m; Power Drift = 0.000 dB
Peak SAR (extrapolated) = 0.540 W/kg
SAR(1 g) = 0.389 mW/g; SAR(10 g) = 0.268 mW/g
Maximum value of SAR (measured) = 0.412 mW/g

SCN/92315JD03A/015: Left Hand Side of EUT Facing Phantom Antenna Extended GPRS CH190
Date: 08/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.272mW/g

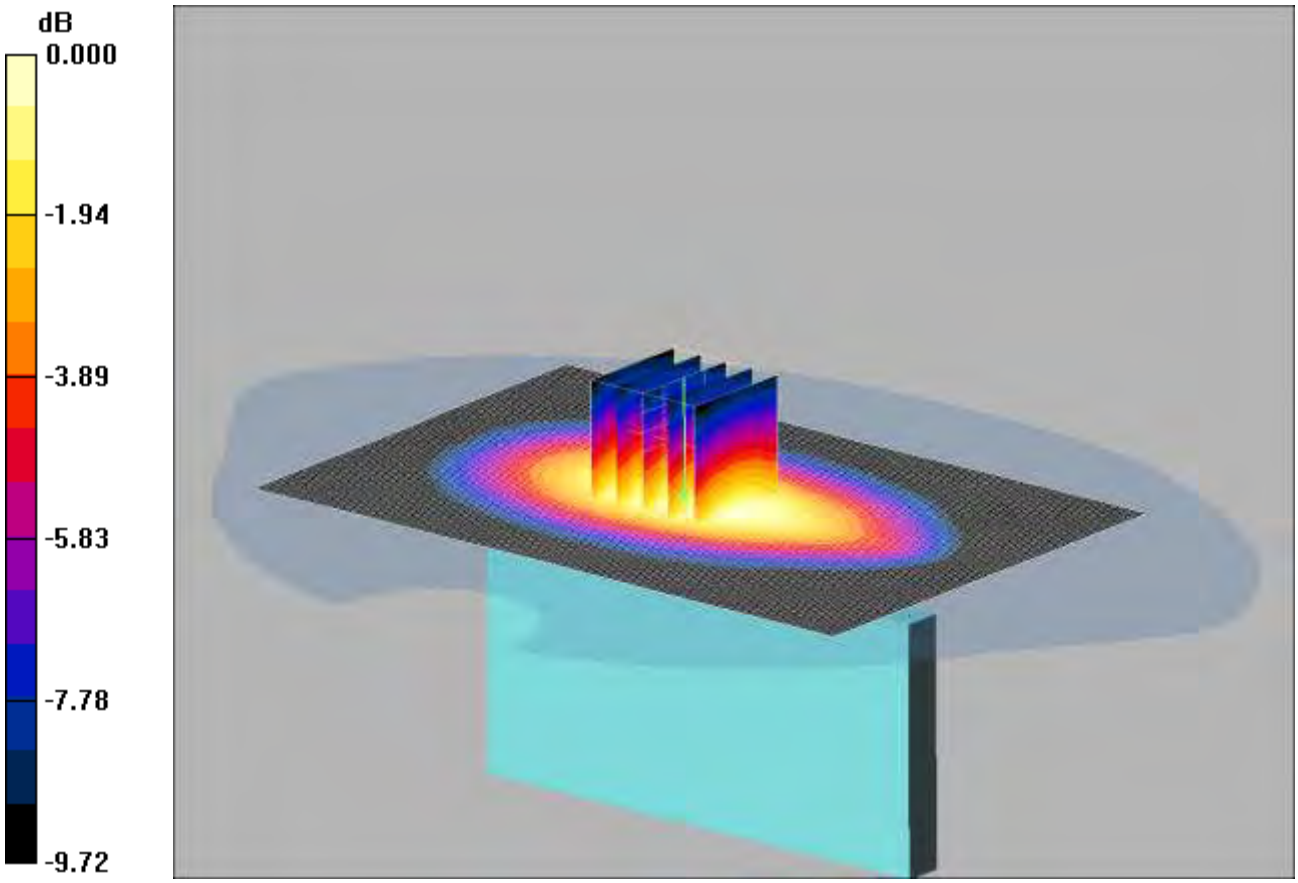
Communication System: GPRS 850 MHz 3TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Left Hand Side of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.277 mW/g

Left Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.78 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 0.352 W/kg
SAR(1 g) = 0.257 mW/g; SAR(10 g) = 0.181 mW/g
Maximum value of SAR (measured) = 0.272 mW/g

SCN/92315JD03A/016: Right Hand Side of EUT Facing Phantom GPRS CH190
Date: 08/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.225mW/g

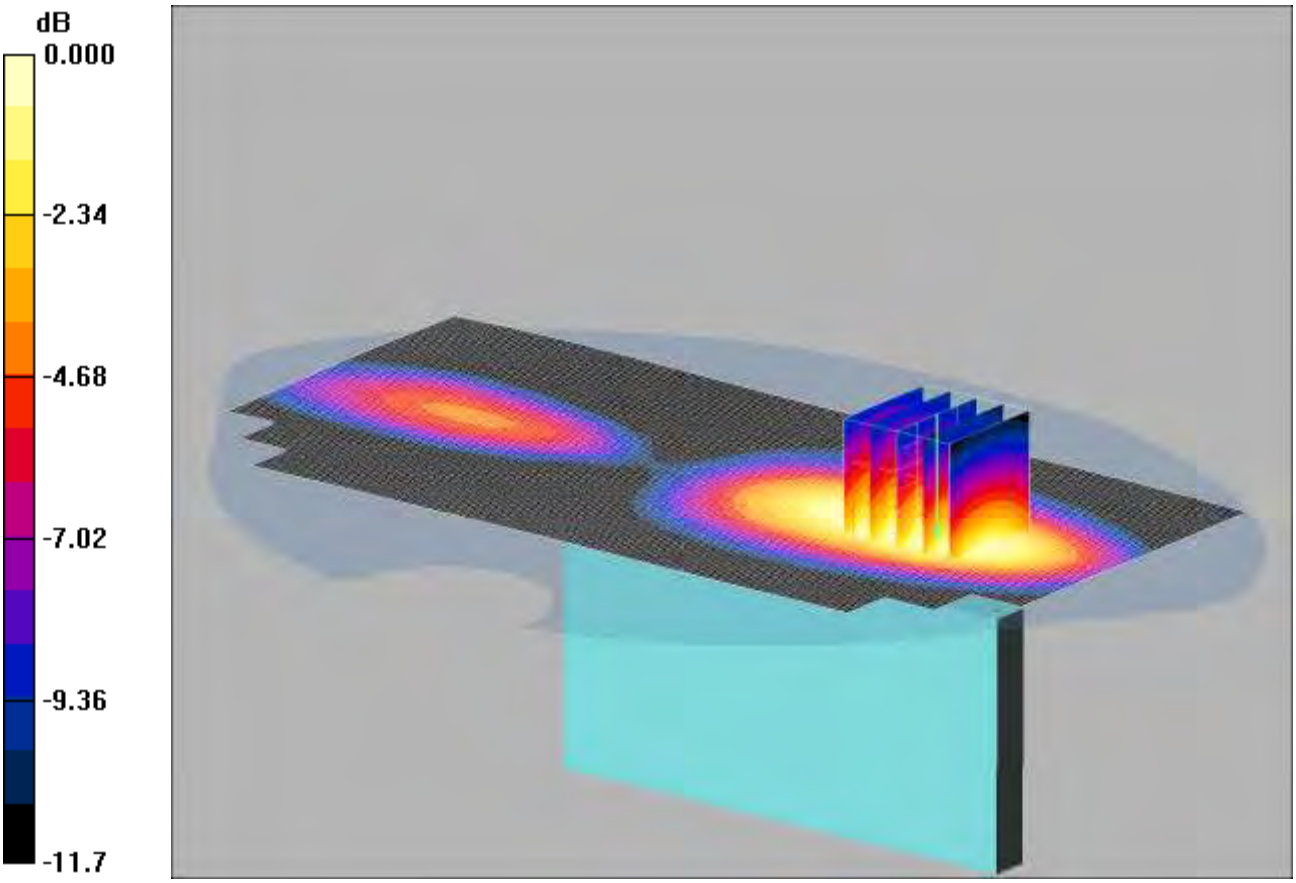
Communication System: GPRS 850 MHz 3TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Right Hand Side of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.222 mW/g

Right Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.8 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 0.297 W/kg
SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.143 mW/g
Maximum value of SAR (measured) = 0.225 mW/g

SCN/92315JD03A/017: Right Hand Side of EUT Facing Phantom Antenna Extended GPRS CH190
Date: 08/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.191mW/g

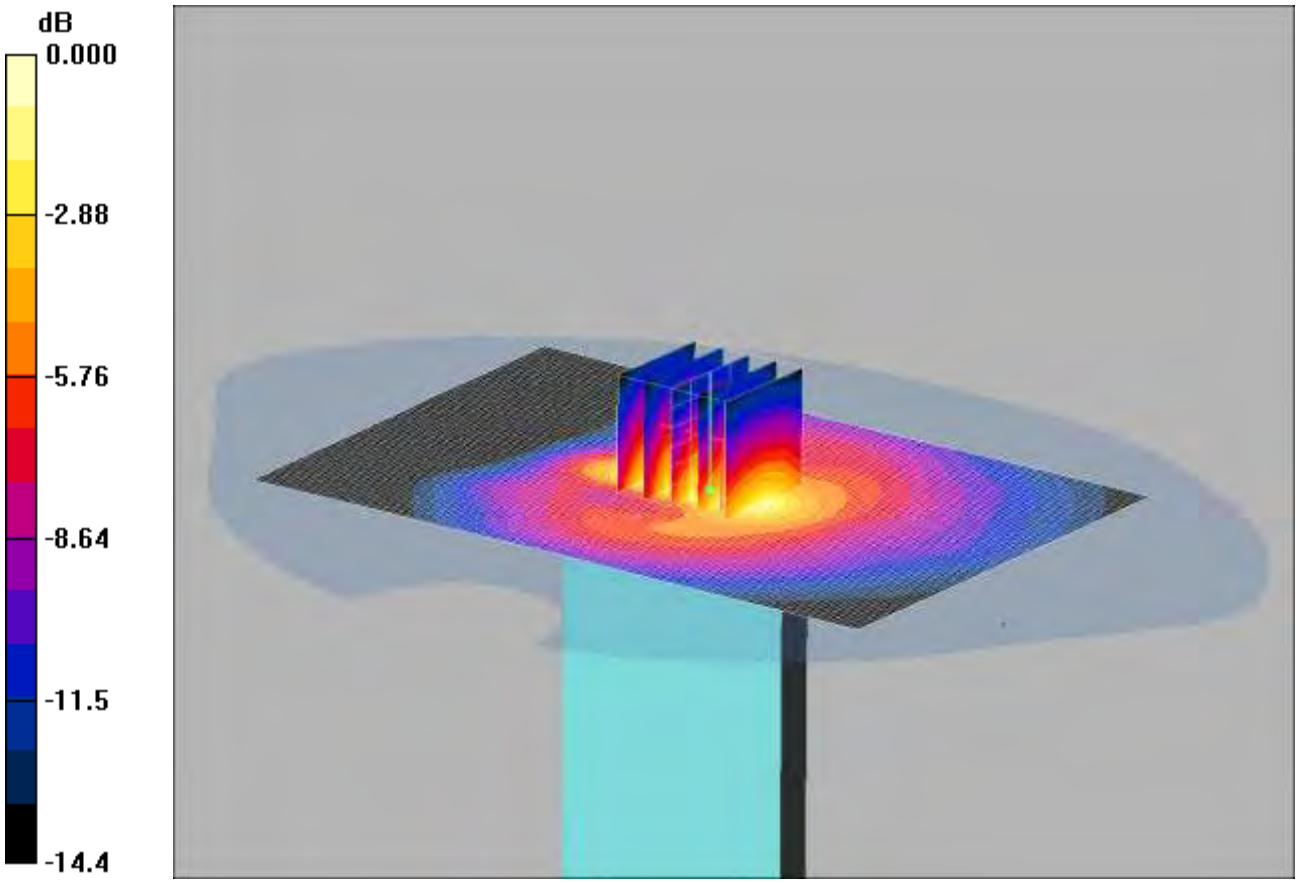
Communication System: GPRS 850 MHz 3TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Right Hand Side of EUT Facing Phantom - Middle 2/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.197 mW/g

Right Hand Side of EUT Facing Phantom - Middle 2/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.61 V/m; Power Drift = -0.065 dB
Peak SAR (extrapolated) = 0.264 W/kg
SAR(1 g) = 0.178 mW/g; SAR(10 g) = 0.117 mW/g
Maximum value of SAR (measured) = 0.191 mW/g

SCN/92315JD03A/018: Bottom of EUT Facing Phantom GPRS CH190
Date: 08/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.150mW/g

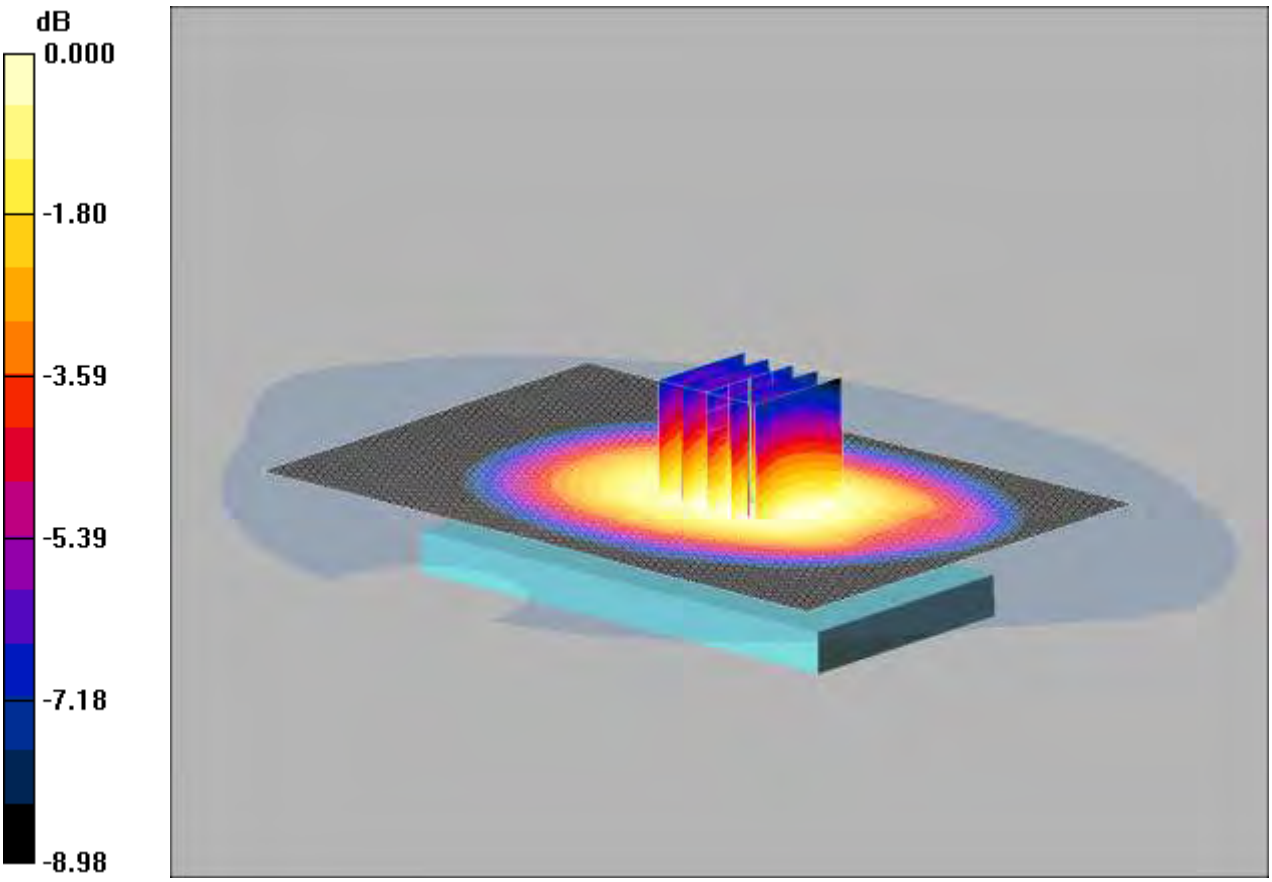
Communication System: GPRS 850 MHz 3TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Bottom of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.145 mW/g

Bottom of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.0 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 0.245 W/kg
SAR(1 g) = 0.134 mW/g; SAR(10 g) = 0.073 mW/g
Maximum value of SAR (measured) = 0.150 mW/g

SCN/92315JD03A/019: Front of EUT Facing Phantom GSM CH190
Date: 09/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.383mW/g

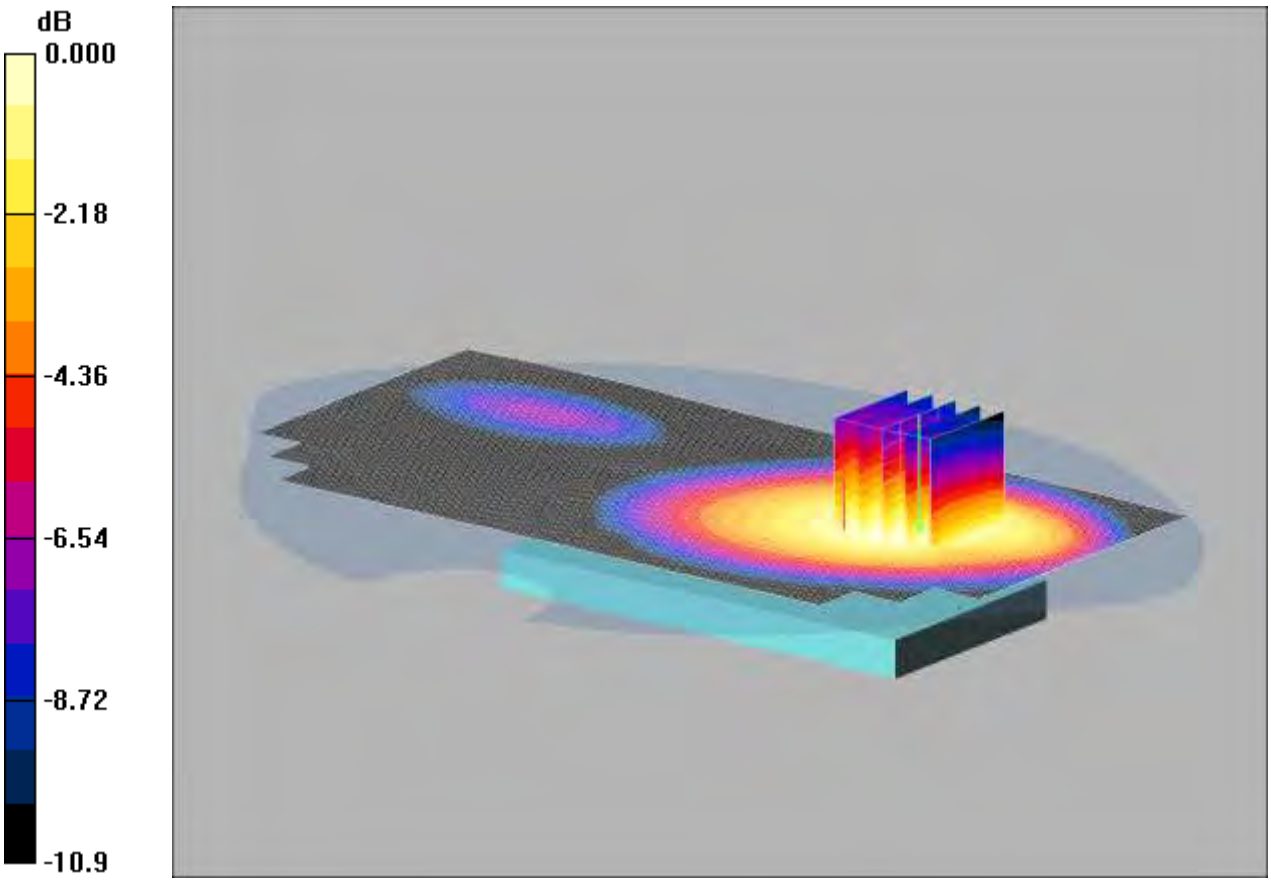
Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.390 mW/g

Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.4 V/m; Power Drift = 0.006 dB
Peak SAR (extrapolated) = 0.459 W/kg
SAR(1 g) = 0.367 mW/g; SAR(10 g) = 0.280 mW/g
Maximum value of SAR (measured) = 0.383 mW/g

SCN/92315JD03A/020: Front of EUT Facing Phantom Antenna Extended GSM CH190
Date: 09/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.310mW/g

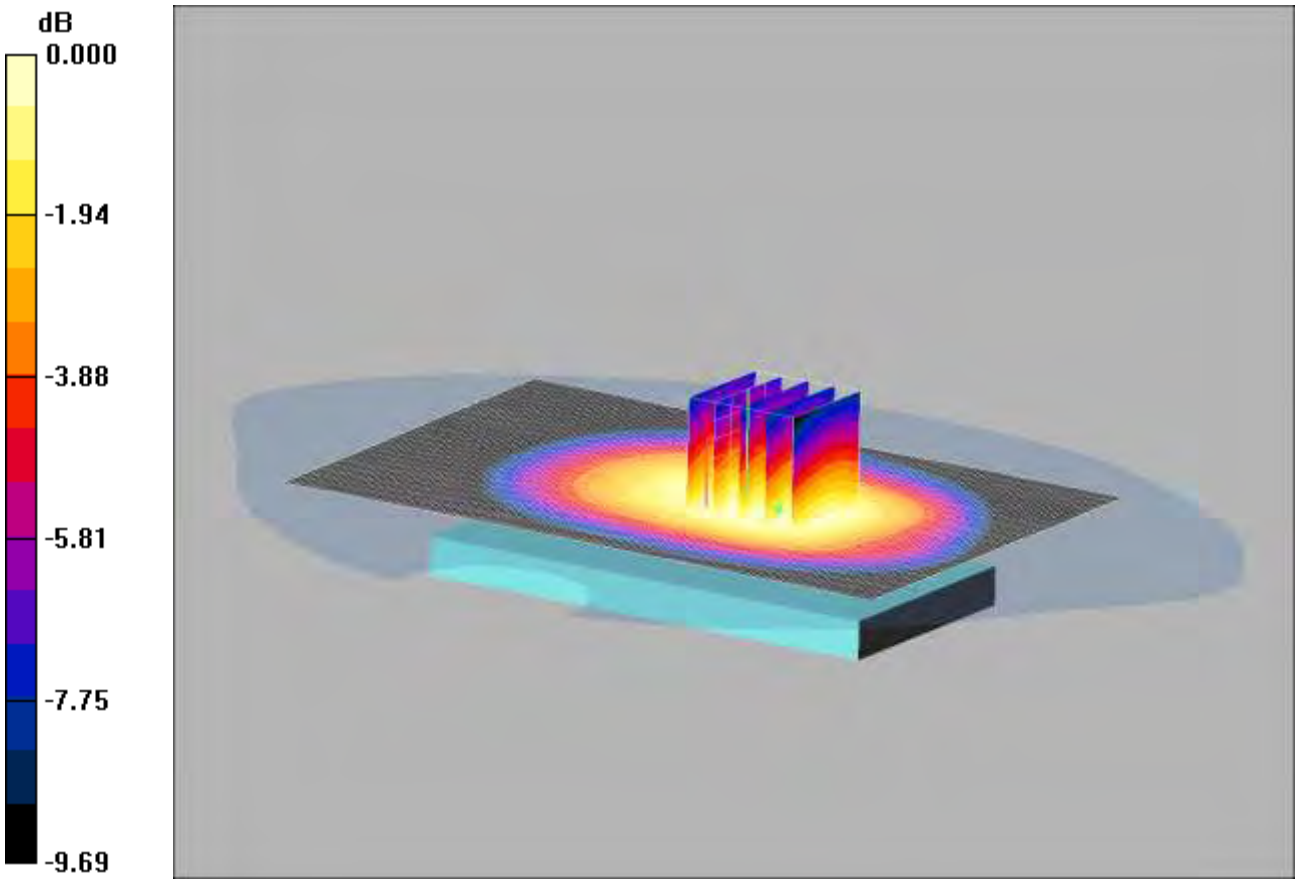
Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.312 mW/g

Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.43 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 0.397 W/kg
SAR(1 g) = 0.290 mW/g; SAR(10 g) = 0.208 mW/g
Maximum value of SAR (measured) = 0.310 mW/g

SCN/92315JD03A/021: Back of EUT Facing Phantom GSM CH190
Date: 09/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.373mW/g

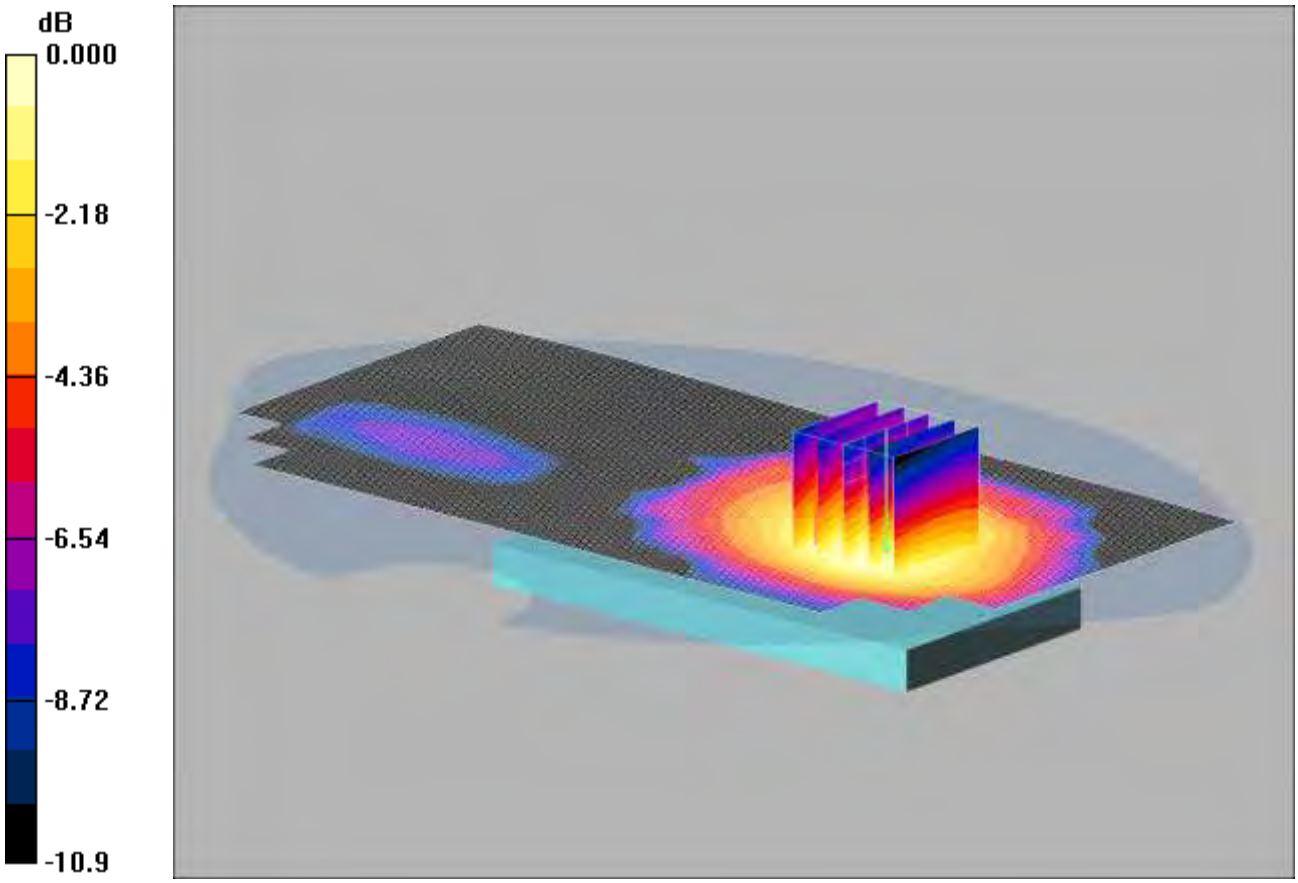
Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.359 mW/g

Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.1 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 0.449 W/kg
SAR(1 g) = 0.350 mW/g; SAR(10 g) = 0.262 mW/g
Maximum value of SAR (measured) = 0.373 mW/g

SCN/92315JD03A/022: Back of EUT Facing Phantom Antenna Extended GSM CH190
Date: 09/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.298mW/g

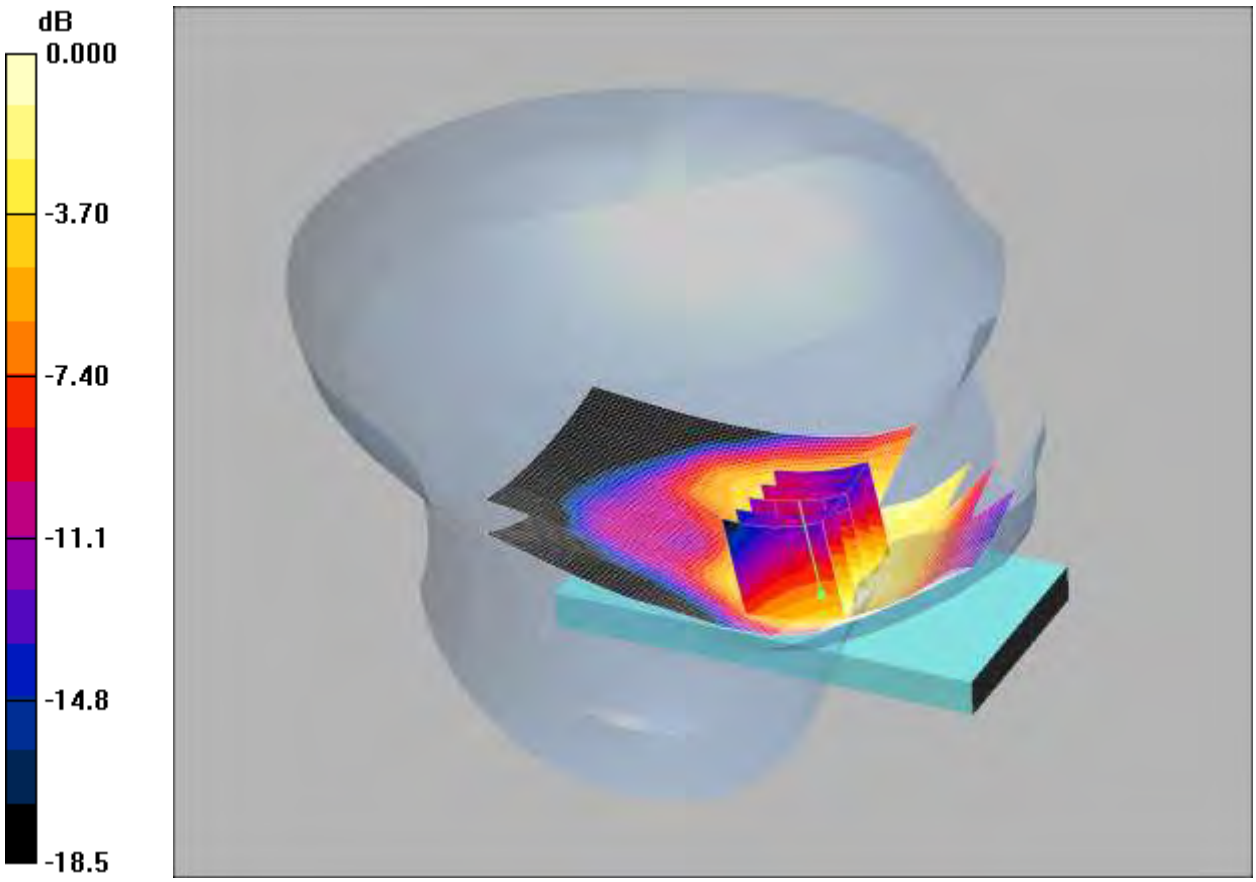
Communication System: GSM 850 MHz; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.293 mW/g

Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.56 V/m; Power Drift = 0.195 dB
Peak SAR (extrapolated) = 0.381 W/kg
SAR(1 g) = 0.281 mW/g; SAR(10 g) = 0.202 mW/g
Maximum value of SAR (measured) = 0.298 mW/g

SCN/92315JD03A/023: Touch Left PCS CH661
Date: 28/03/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.241mW/g

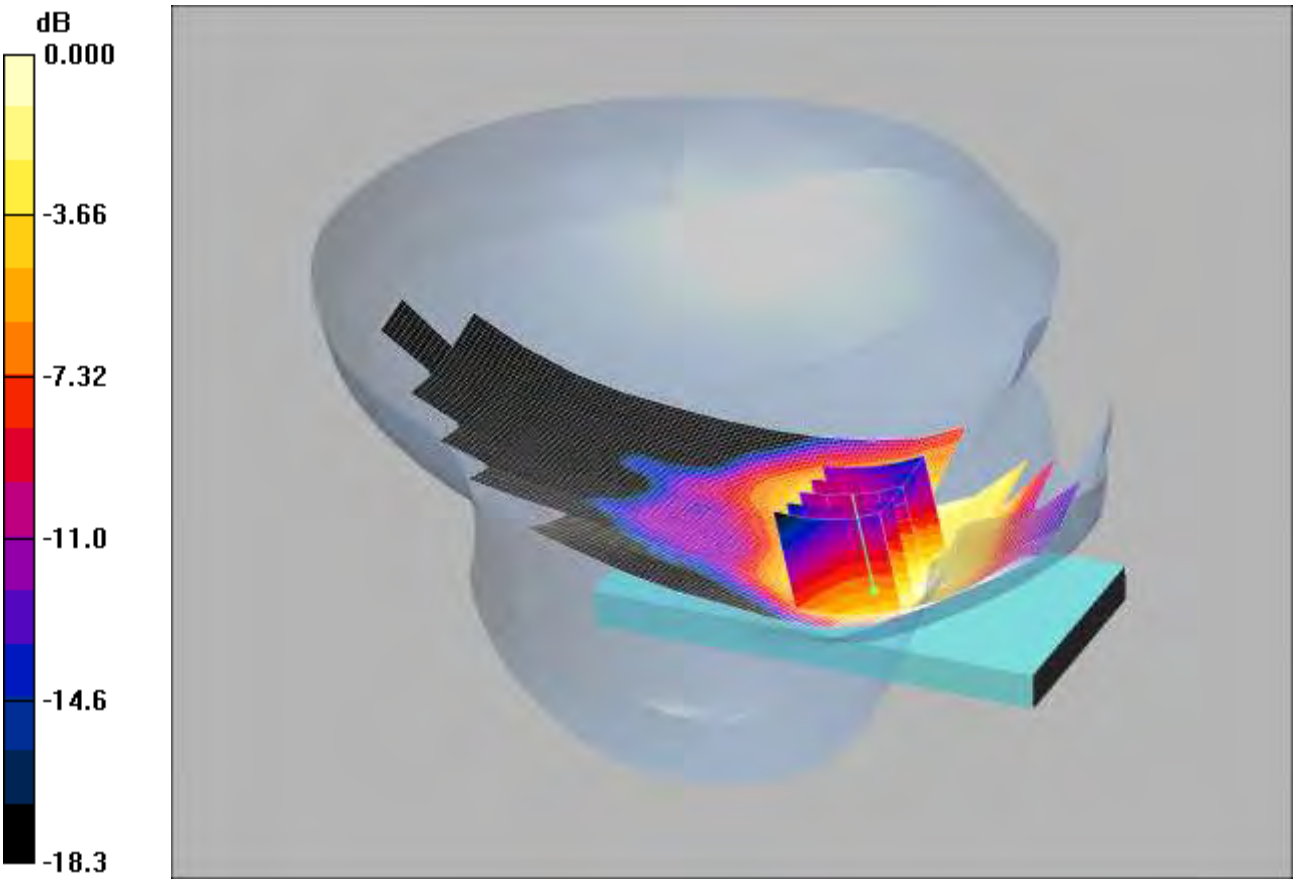
Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(8.26, 8.26, 8.26); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.255 mW/g

Touch Left - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.60 V/m; Power Drift = -0.140 dB
Peak SAR (extrapolated) = 0.349 W/kg
SAR(1 g) = 0.220 mW/g; SAR(10 g) = 0.133 mW/g
Maximum value of SAR (measured) = 0.241 mW/g

SCN/92315JD03A/024: Touch Left Antenna Extended PCS CH661
Date: 28/03/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.248mW/g

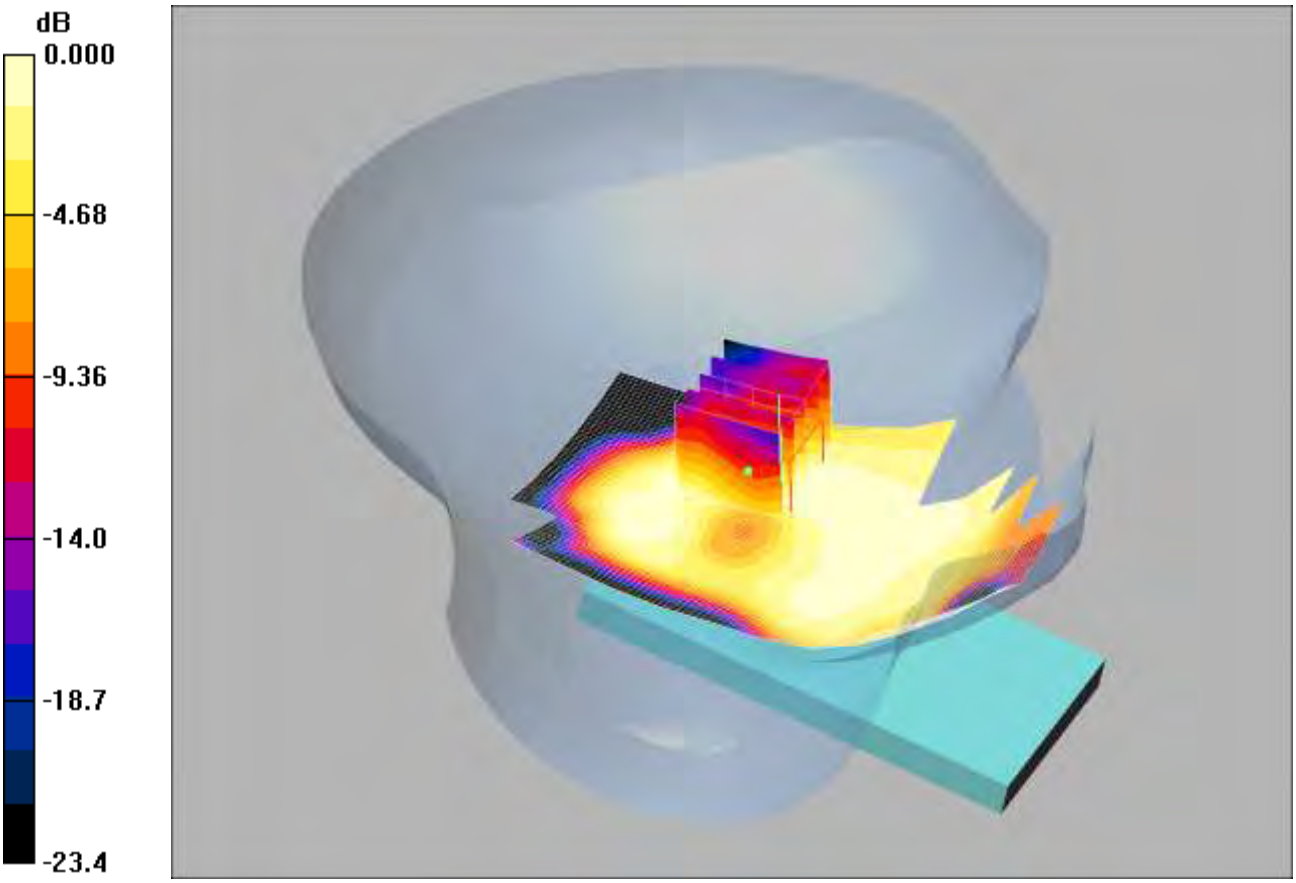
Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(8.26, 8.26, 8.26); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Left - Middle/Area Scan (71x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.265 mW/g

Touch Left - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.98 V/m; Power Drift = 0.111 dB
Peak SAR (extrapolated) = 0.357 W/kg
SAR(1 g) = 0.225 mW/g; SAR(10 g) = 0.135 mW/g
Maximum value of SAR (measured) = 0.248 mW/g

SCN/92315JD03A/025: Tilt Left PCS CH661
Date: 28/03/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.049mW/g

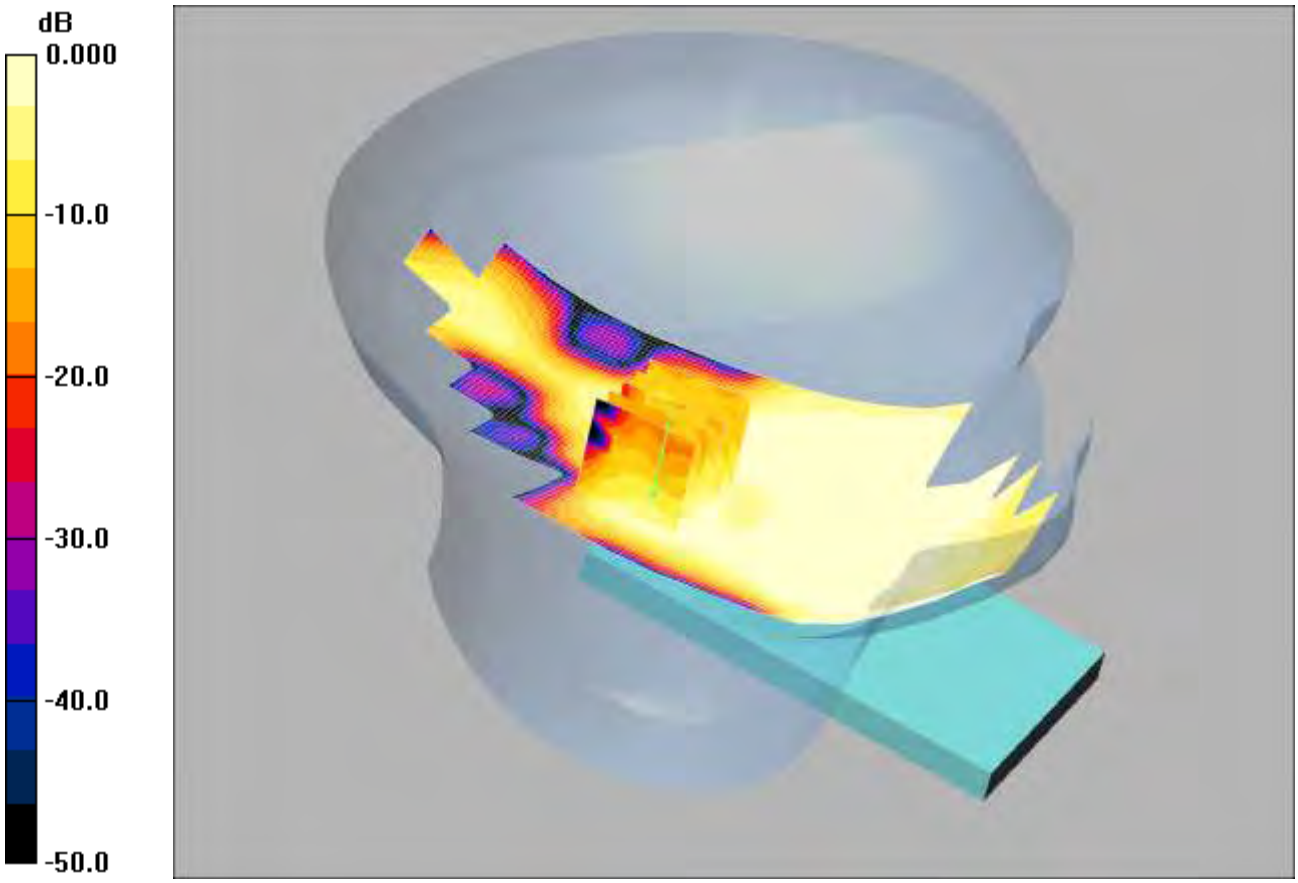
Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(8.26, 8.26, 8.26); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.057 mW/g

Tilt Left - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.86 V/m; Power Drift = 0.069 dB
Peak SAR (extrapolated) = 0.074 W/kg
SAR(1 g) = 0.045 mW/g; SAR(10 g) = 0.027 mW/g
Maximum value of SAR (measured) = 0.049 mW/g

SCN/92315JD03A/026: Tilt Left Antenna Extended PCS CH661
Date: 28/03/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.041mW/g

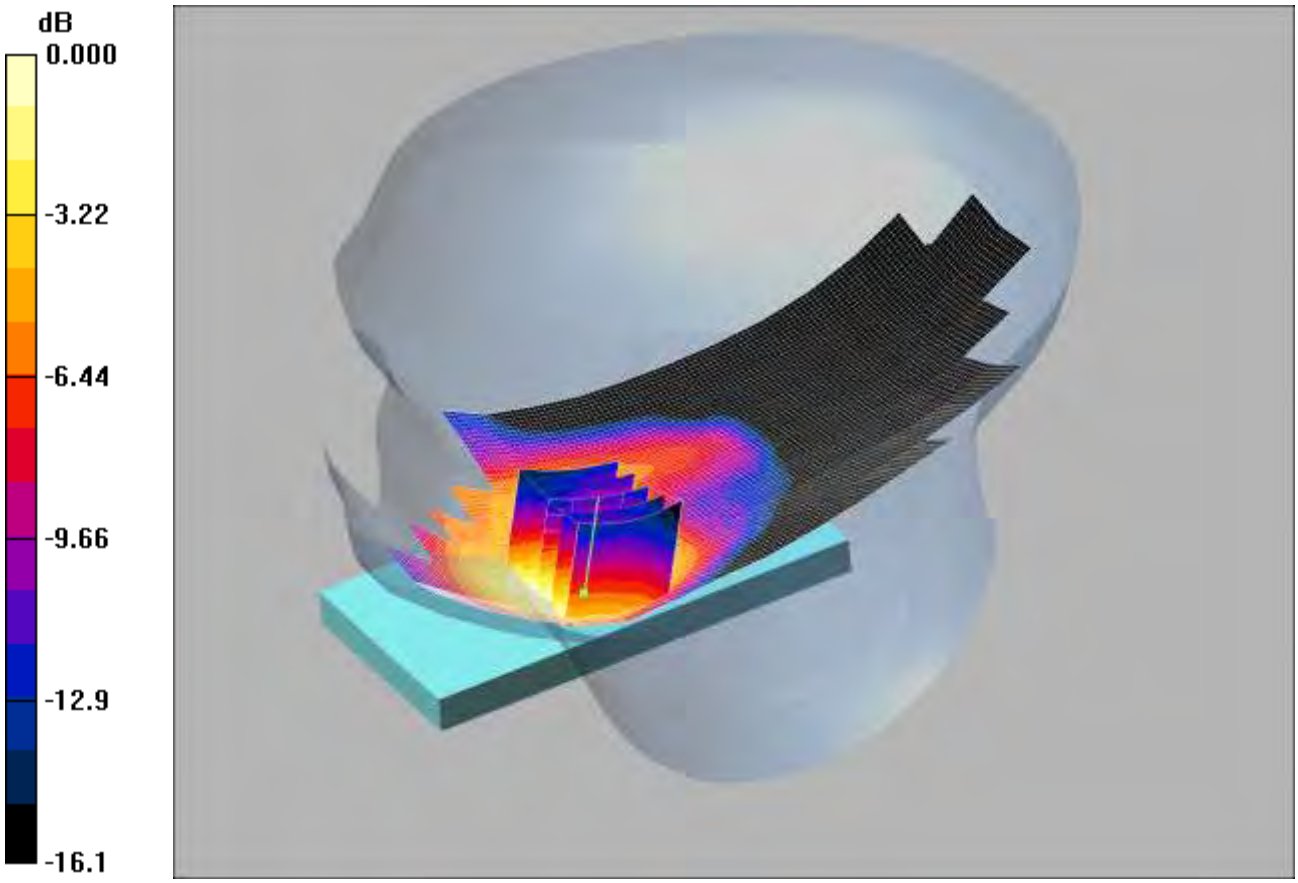
Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(8.26, 8.26, 8.26); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Left - Middle/Area Scan (71x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.055 mW/g

Tilt Left - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.55 V/m; Power Drift = 0.057 dB
Peak SAR (extrapolated) = 0.063 W/kg
SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.020 mW/g
Maximum value of SAR (measured) = 0.041 mW/g

SCN/92315JD03A/027: Touch Right PCS CH661
Date: 28/03/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.300mW/g

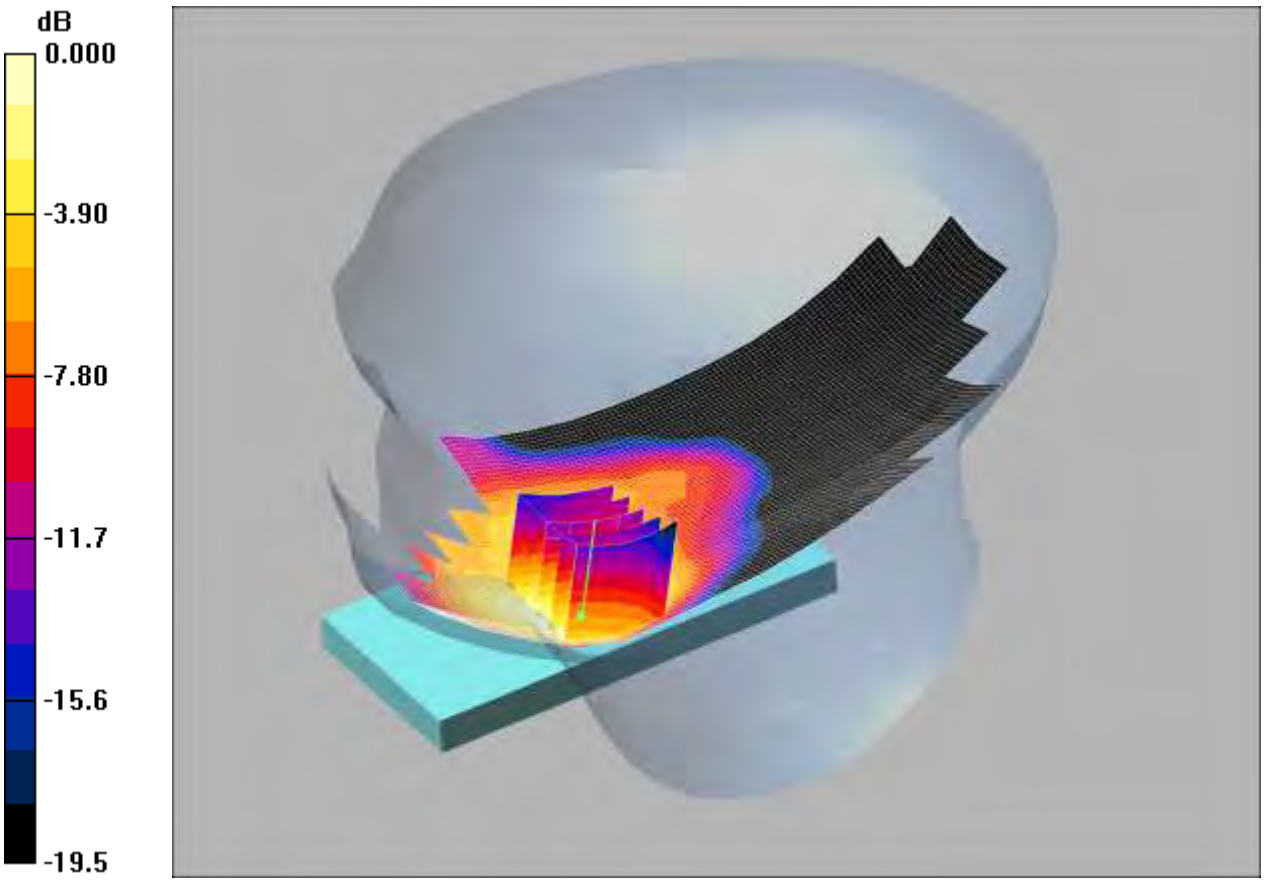
Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(8.26, 8.26, 8.26); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right - Middle/Area Scan (71x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.304 mW/g

Touch Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.99 V/m; Power Drift = -0.161 dB
Peak SAR (extrapolated) = 0.453 W/kg
SAR(1 g) = 0.278 mW/g; SAR(10 g) = 0.166 mW/g
Maximum value of SAR (measured) = 0.300 mW/g

SCN/92315JD03A/028: Touch Right Antenna Extended PCS CH661
Date: 28/03/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.297mW/g

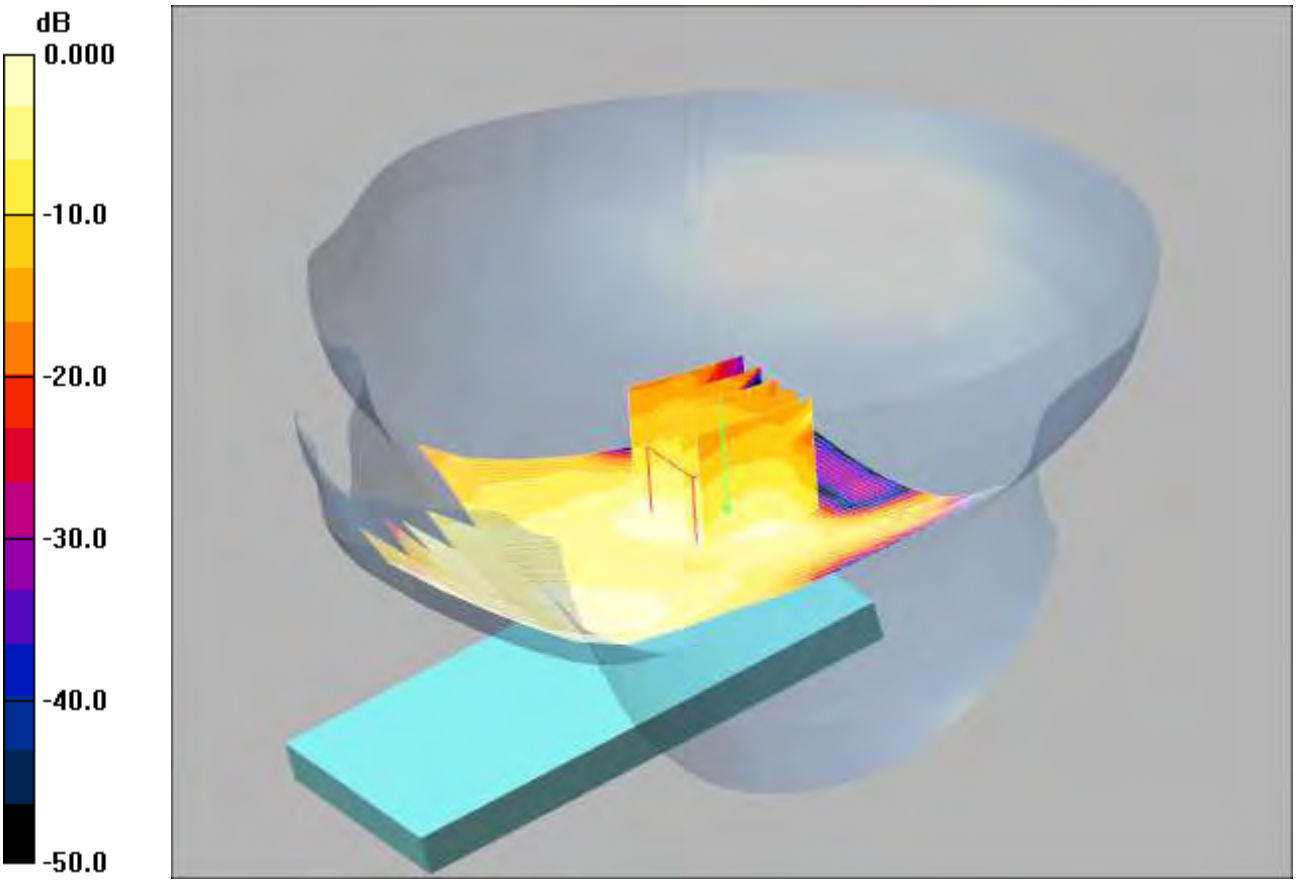
Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(8.26, 8.26, 8.26); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right - Middle/Area Scan (71x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.301 mW/g

Touch Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.79 V/m; Power Drift = 0.010 dB
Peak SAR (extrapolated) = 0.454 W/kg
SAR(1 g) = 0.277 mW/g; SAR(10 g) = 0.164 mW/g
Maximum value of SAR (measured) = 0.297 mW/g

SCN/92315JD03A/029: Tilt Right PCS CH661
Date: 28/03/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.083mW/g

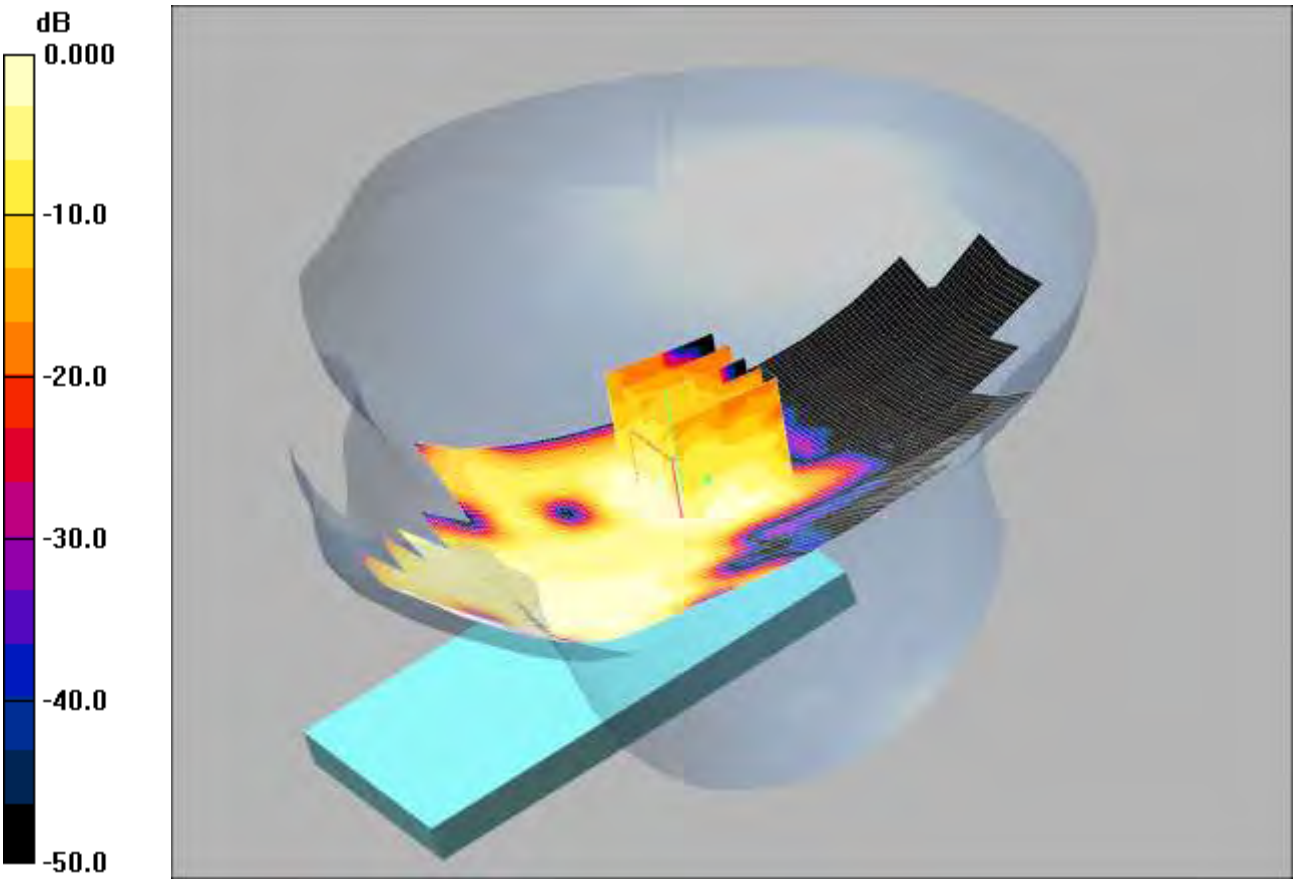
Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(8.26, 8.26, 8.26); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Right - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.156 mW/g

Tilt Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.48 V/m; Power Drift = 0.086 dB
Peak SAR (extrapolated) = 0.121 W/kg
SAR(1 g) = 0.076 mW/g; SAR(10 g) = 0.043 mW/g
Maximum value of SAR (measured) = 0.083 mW/g

SCN/92315JD03A/030: Tilt Right Antenna Extended PCS CH661
Date: 28/03/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.084mW/g

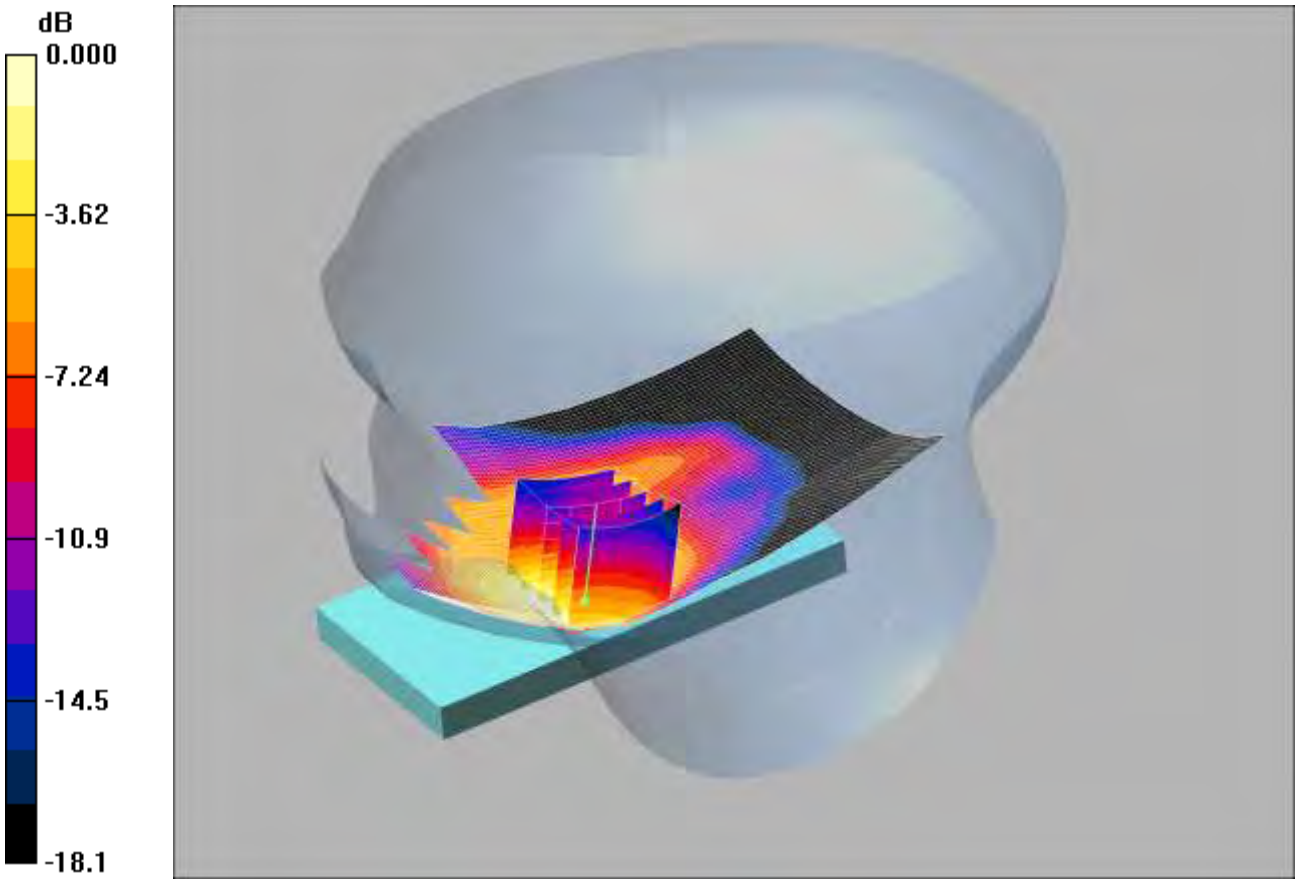
Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(8.26, 8.26, 8.26); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Right - Middle/Area Scan (71x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.129 mW/g

Tilt Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.41 V/m; Power Drift = 0.154 dB
Peak SAR (extrapolated) = 0.364 W/kg
SAR(1 g) = 0.076 mW/g; SAR(10 g) = 0.044 mW/g
Maximum value of SAR (measured) = 0.084 mW/g

SCN/92315JD03A/031: Touch Right GPRS CH661
Date: 28/03/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.384mW/g

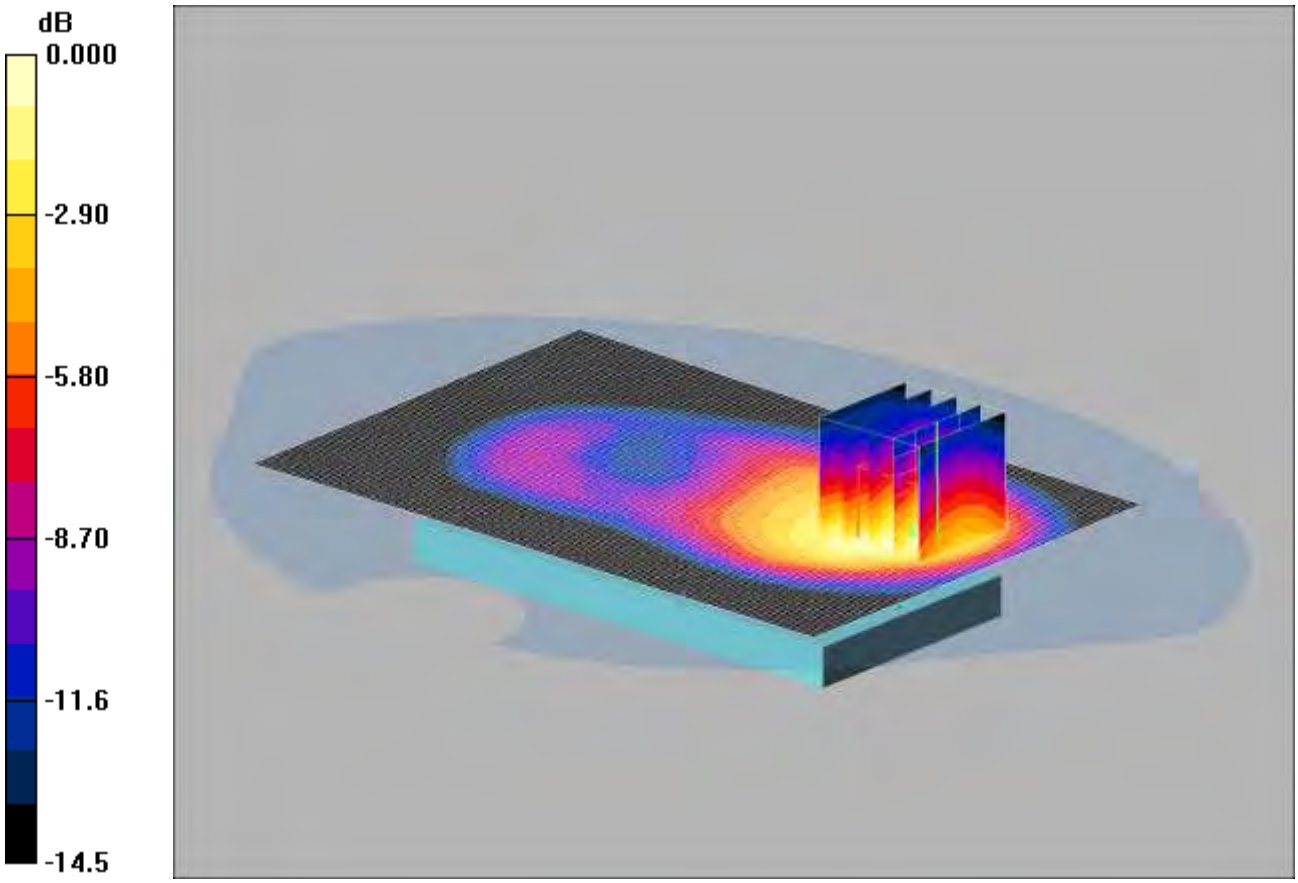
Communication System: GPRS 1900 4Tx; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: 1900 MHz HSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(8.26, 8.26, 8.26); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.404 mW/g

Touch Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.4 V/m; Power Drift = -0.175 dB
Peak SAR (extrapolated) = 0.572 W/kg
SAR(1 g) = 0.356 mW/g; SAR(10 g) = 0.212 mW/g
Maximum value of SAR (measured) = 0.384 mW/g

SCN/92315JD03A/032: Front of EUT Facing Phantom GPRS CH661
Date: 09/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.724mW/g

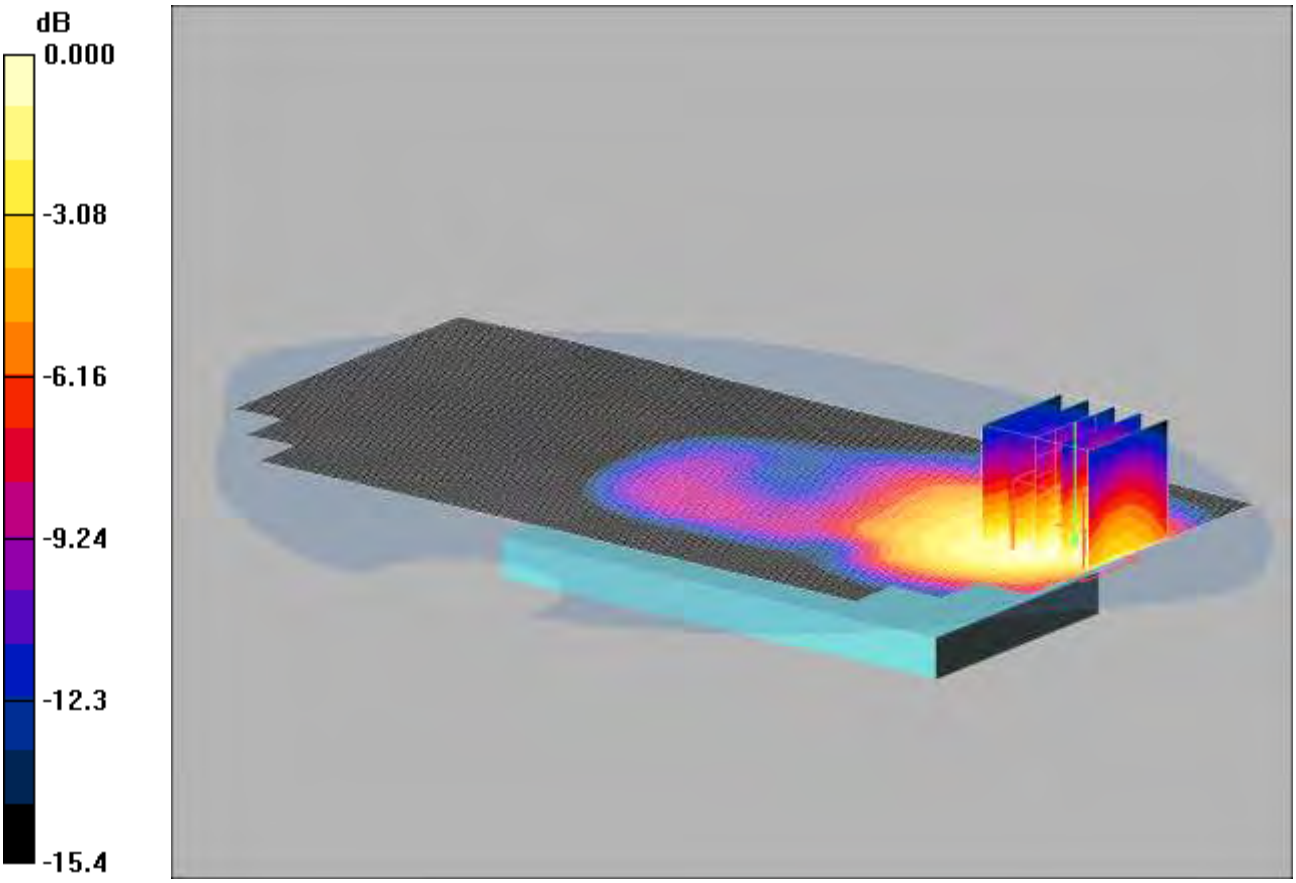
Communication System: GPRS 1900 4Tx; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.733 mW/g

Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.72 V/m; Power Drift = 0.056 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.705 mW/g; SAR(10 g) = 0.400 mW/g
Maximum value of SAR (measured) = 0.724 mW/g

SCN/92315JD03A/033: Front of EUT Facing Phantom Antenna Extended GPRS CH661
Date: 09/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.639mW/g

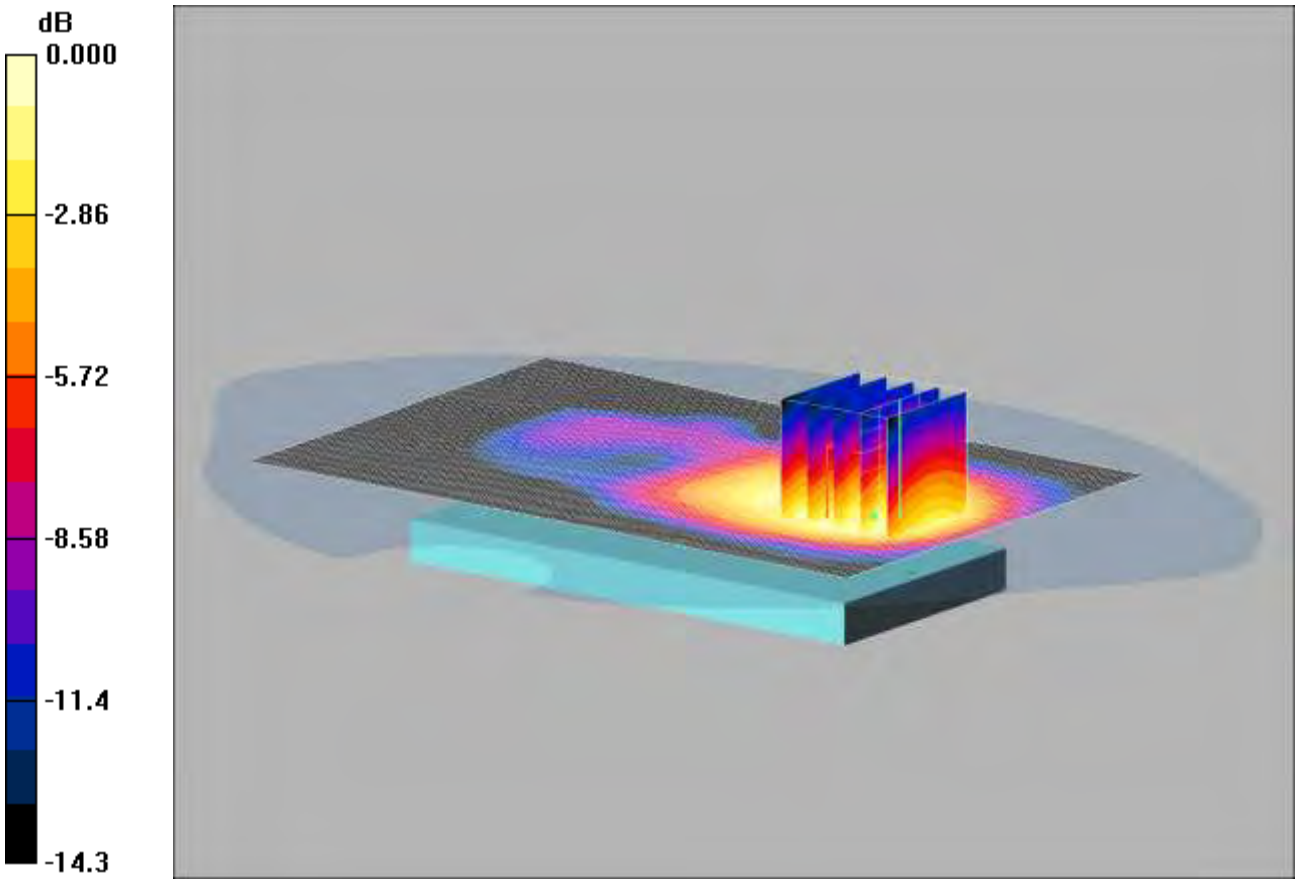
Communication System: GPRS 1900 4Tx; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.682 mW/g

Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.96 V/m; Power Drift = -0.162 dB
Peak SAR (extrapolated) = 0.951 W/kg
SAR(1 g) = 0.614 mW/g; SAR(10 g) = 0.361 mW/g
Maximum value of SAR (measured) = 0.639 mW/g

SCN/92315JD03A/034: Back of EUT Facing Phantom GPRS CH661
Date: 09/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.543mW/g

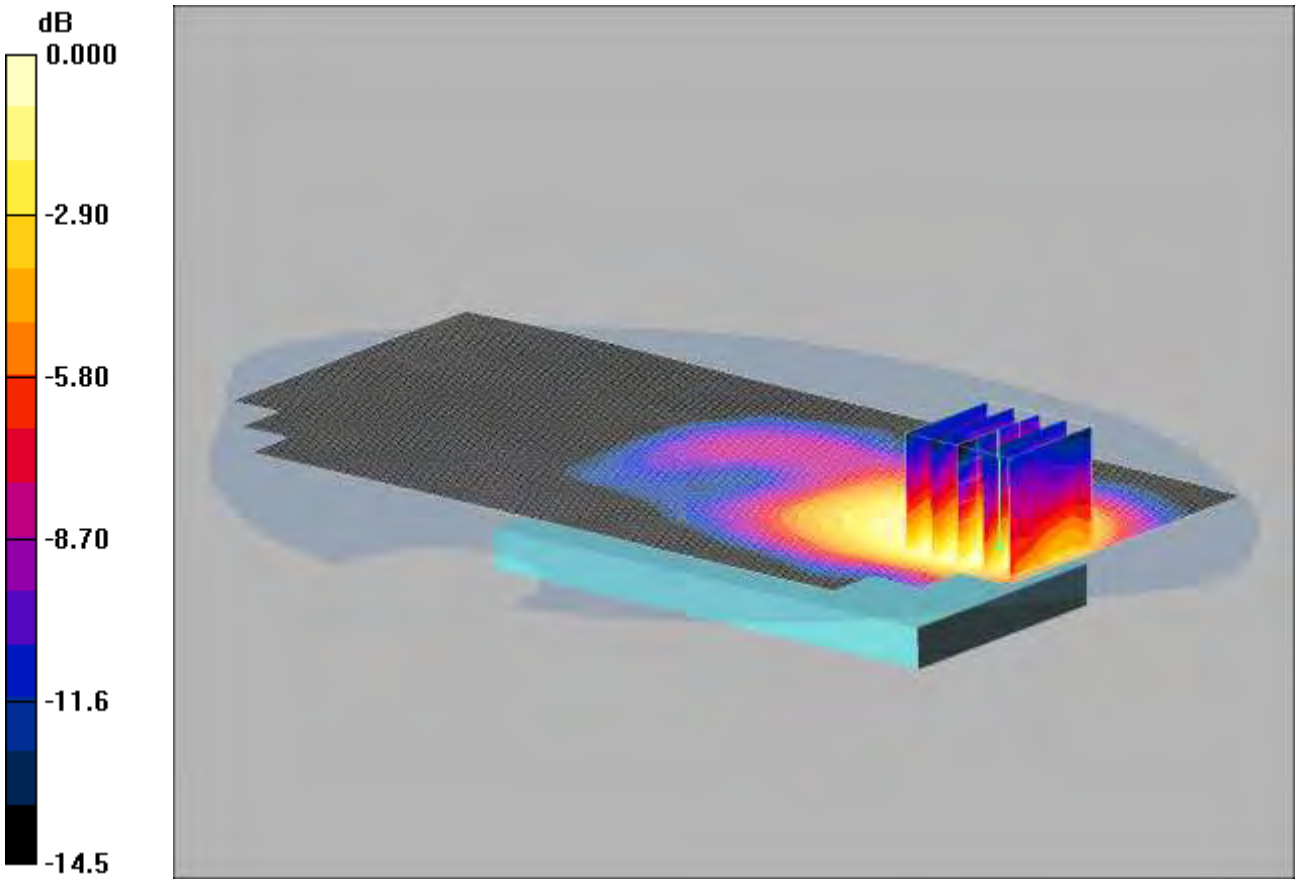
Communication System: GPRS 1900 4Tx; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.511 mW/g

Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.05 V/m; Power Drift = 0.068 dB
Peak SAR (extrapolated) = 0.794 W/kg
SAR(1 g) = 0.498 mW/g; SAR(10 g) = 0.305 mW/g
Maximum value of SAR (measured) = 0.543 mW/g

SCN/92315JD03A/035: Back of EUT Facing Phantom Antenna Extended GPRS CH661
Date: 09/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.456mW/g

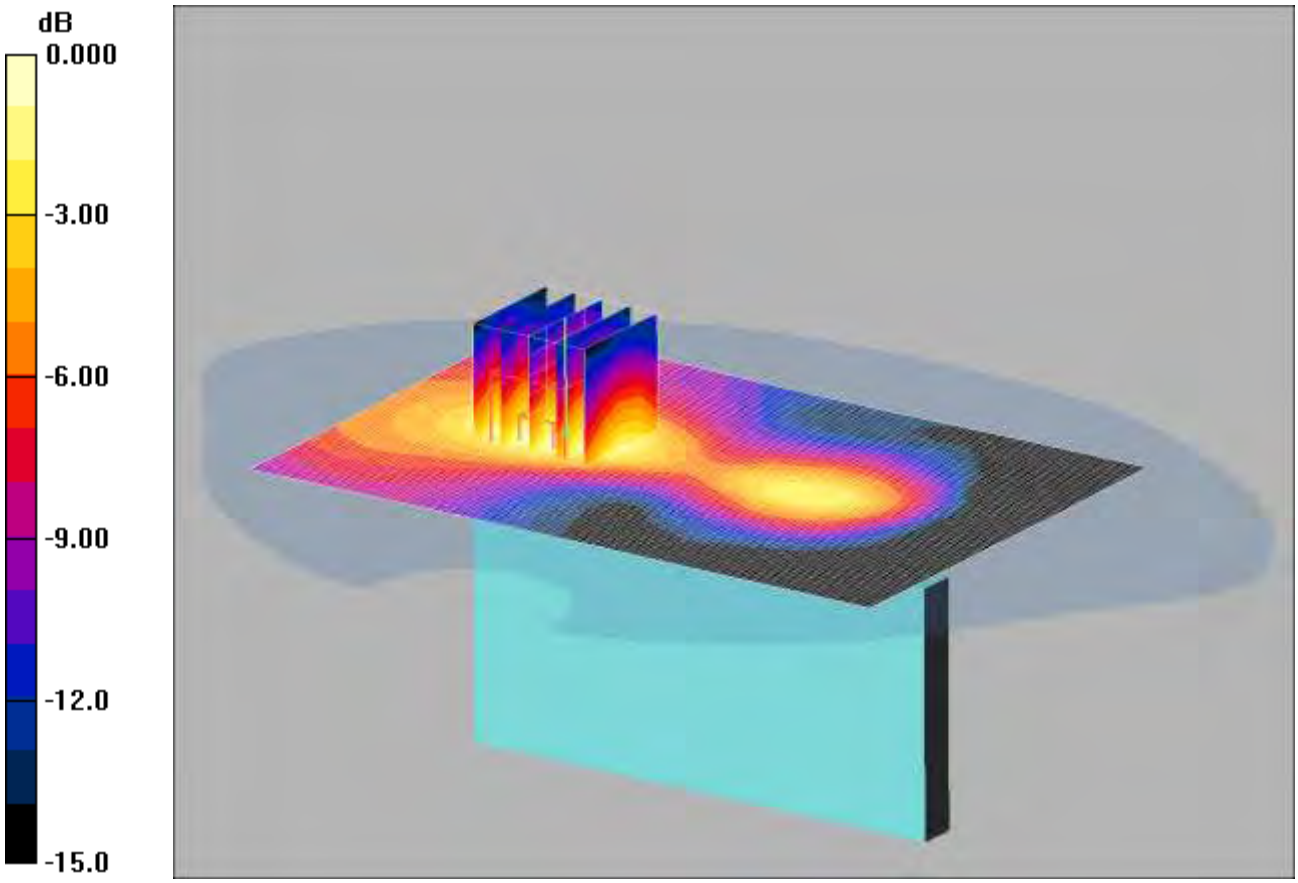
Communication System: GPRS 1900 4Tx; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.466 mW/g

Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.55 V/m; Power Drift = 0.137 dB
Peak SAR (extrapolated) = 0.655 W/kg
SAR(1 g) = 0.423 mW/g; SAR(10 g) = 0.264 mW/g
Maximum value of SAR (measured) = 0.456 mW/g

SCN/92315JD03A/036: Left Hand Side of EUT Facing Phantom GPRS CH661
Date: 09/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.131mW/g

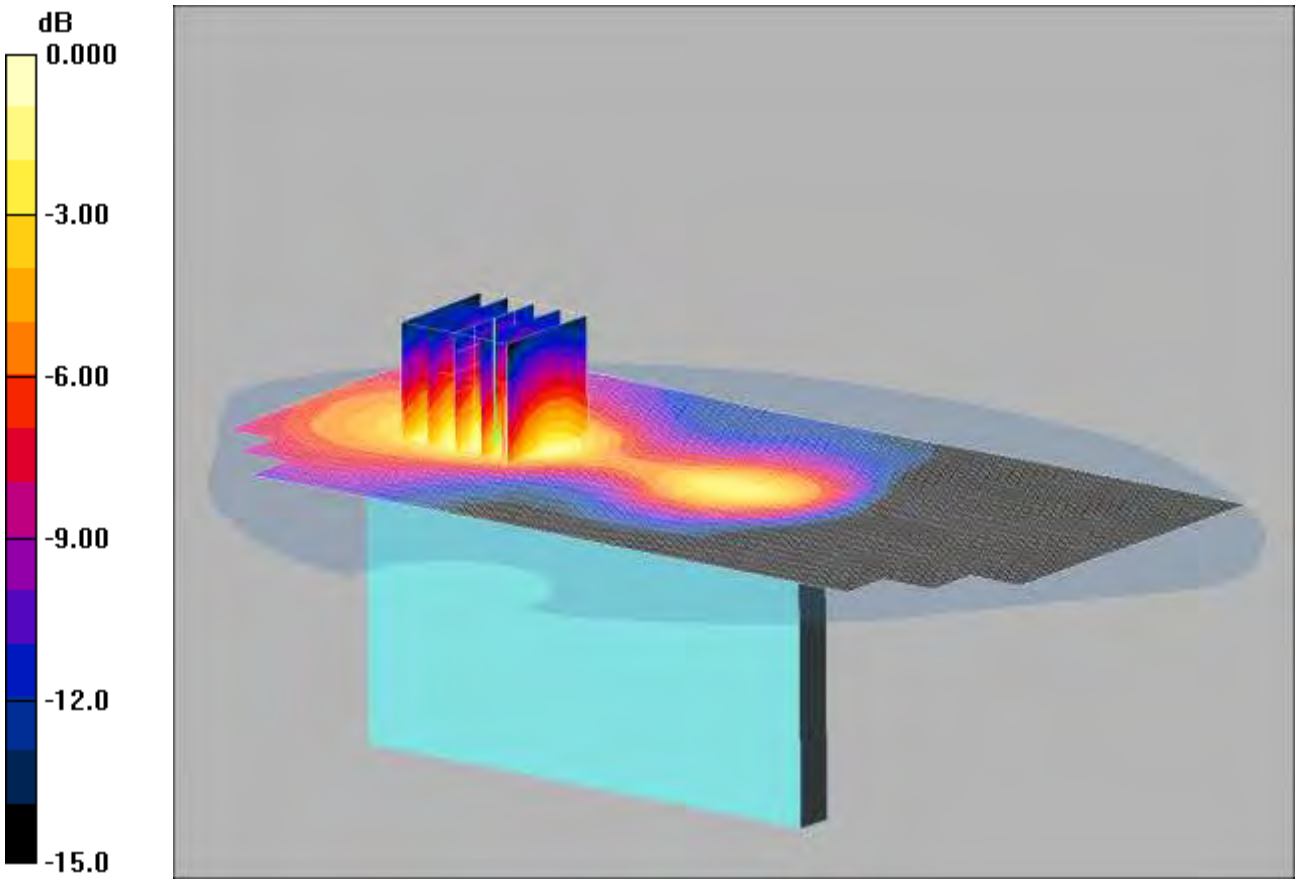
Communication System: GPRS 1900 4Tx; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Left Hand Side of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.126 mW/g

Left Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.65 V/m; Power Drift = 0.136 dB
Peak SAR (extrapolated) = 0.167 W/kg
SAR(1 g) = 0.112 mW/g; SAR(10 g) = 0.066 mW/g
Maximum value of SAR (measured) = 0.131 mW/g

SCN/92315JD03A/037: Left Hand Side of EUT Facing Phantom Antenna Extended GPRS CH661
Date: 09/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.145mW/g

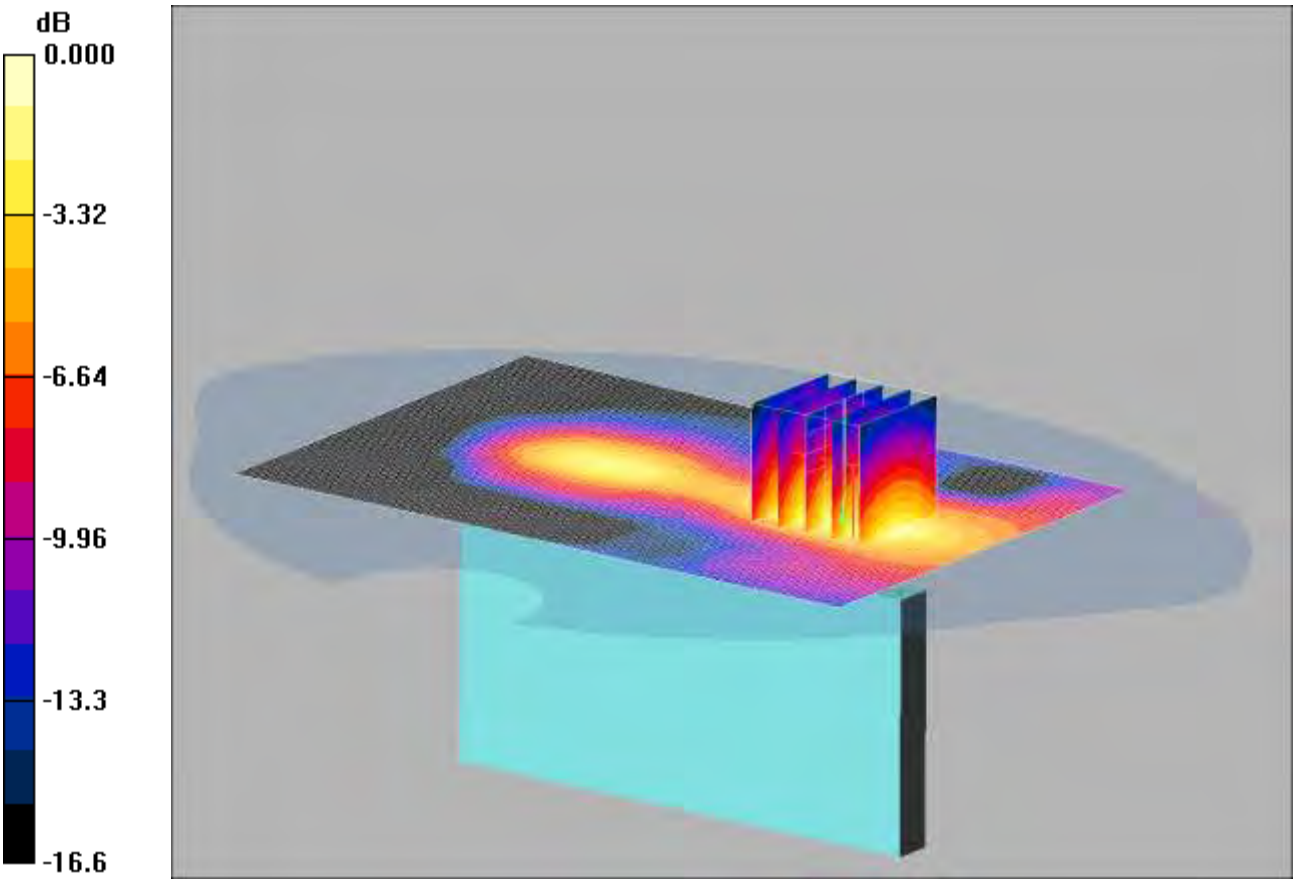
Communication System: GPRS 1900 4Tx; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Left Hand Side of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.147 mW/g

Left Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.92 V/m; Power Drift = 0.011 dB
Peak SAR (extrapolated) = 0.201 W/kg
SAR(1 g) = 0.131 mW/g; SAR(10 g) = 0.078 mW/g
Maximum value of SAR (measured) = 0.145 mW/g

SCN/92315JD03A/038: Right Hand Side of EUT Facing Phantom GPRS CH661
Date: 09/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.210mW/g

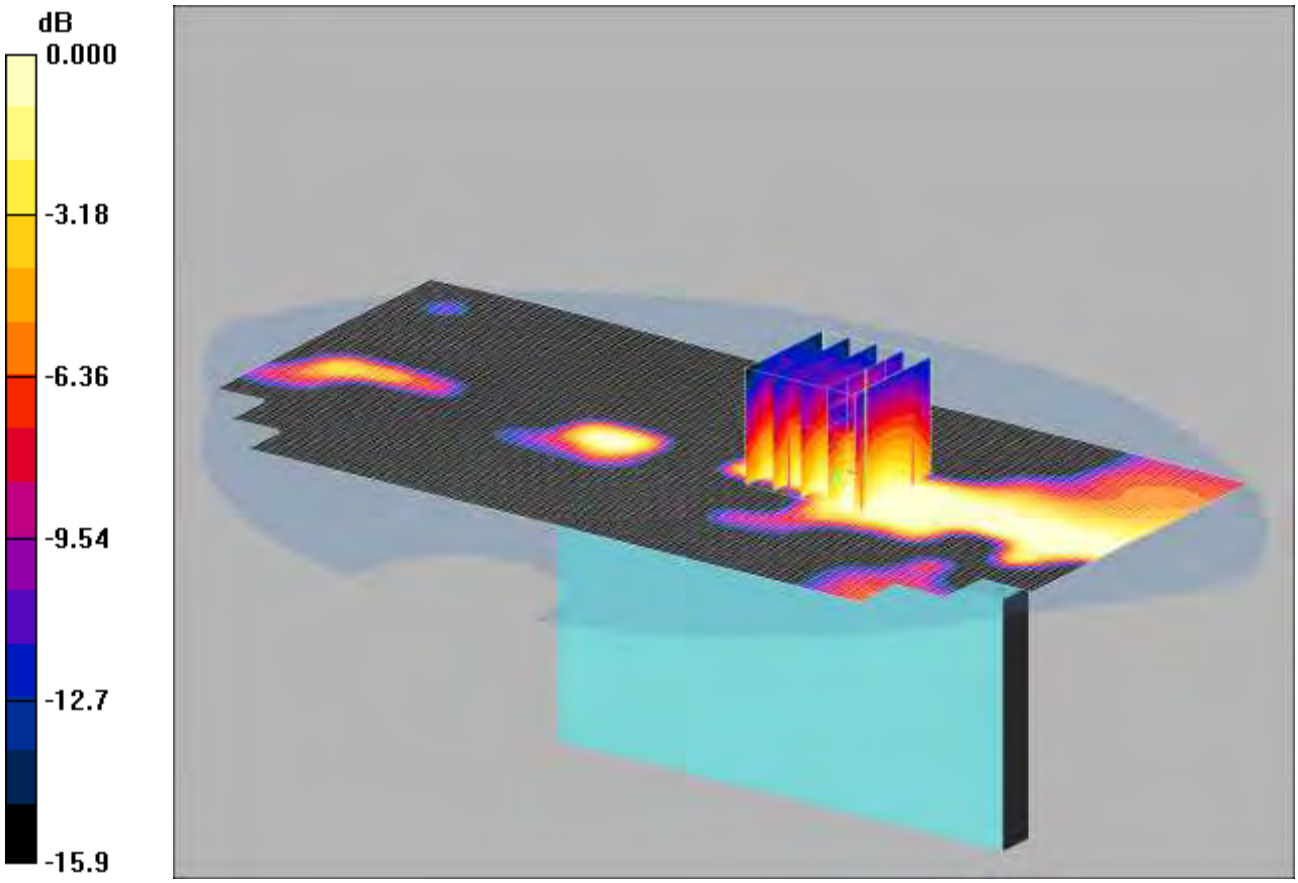
Communication System: GPRS 1900 4Tx; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Right Hand Side of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.211 mW/g

Right Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.78 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 0.324 W/kg
SAR(1 g) = 0.189 mW/g; SAR(10 g) = 0.106 mW/g
Maximum value of SAR (measured) = 0.210 mW/g

SCN/92315JD03A/039: Right Hand Side of EUT Facing Phantom Antenna Extended GPRS CH661
Date: 09/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.104mW/g

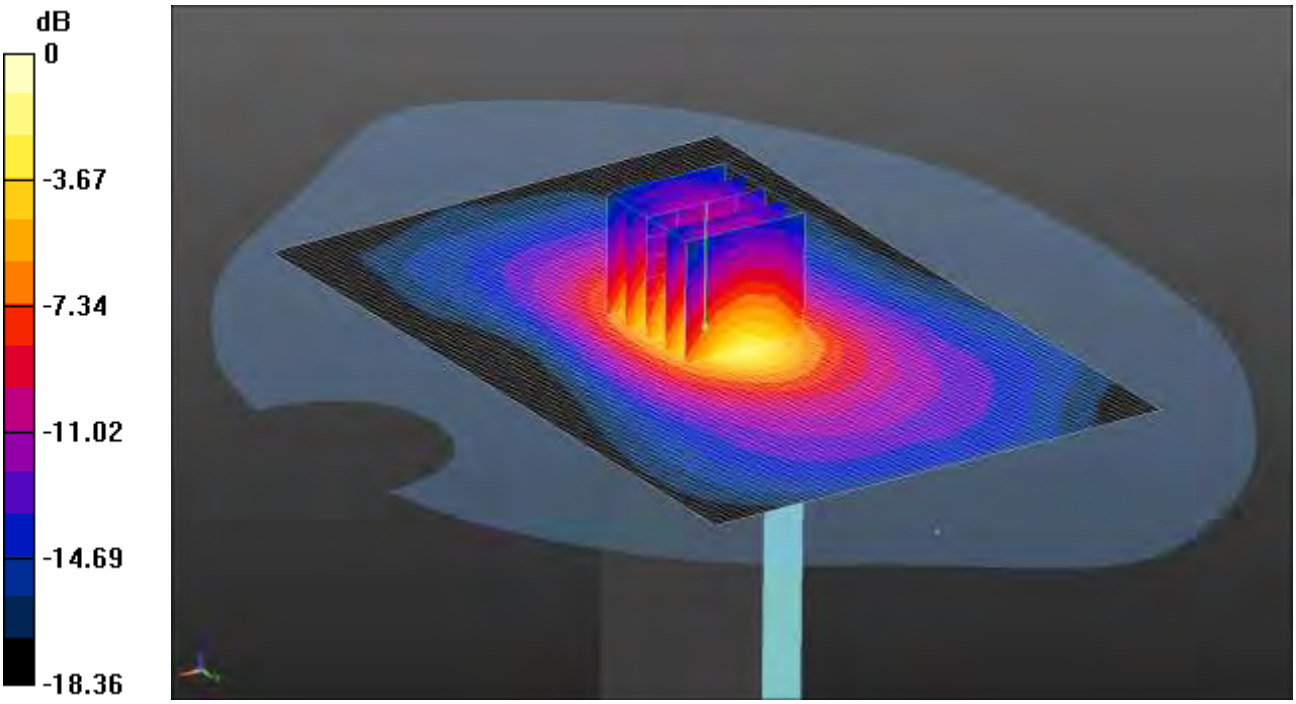
Communication System: GPRS 1900 4Tx; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Right Hand Side of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.188 mW/g

Right Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.42 V/m; Power Drift = -0.182 dB
Peak SAR (extrapolated) = 0.153 W/kg
SAR(1 g) = 0.096 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.104 mW/g

SCN/92315JD03A/040: Bottom of EUT Facing Phantom GPRS CH661
Date: 10/05/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.750 W/kg = -1.25 dBW/kg

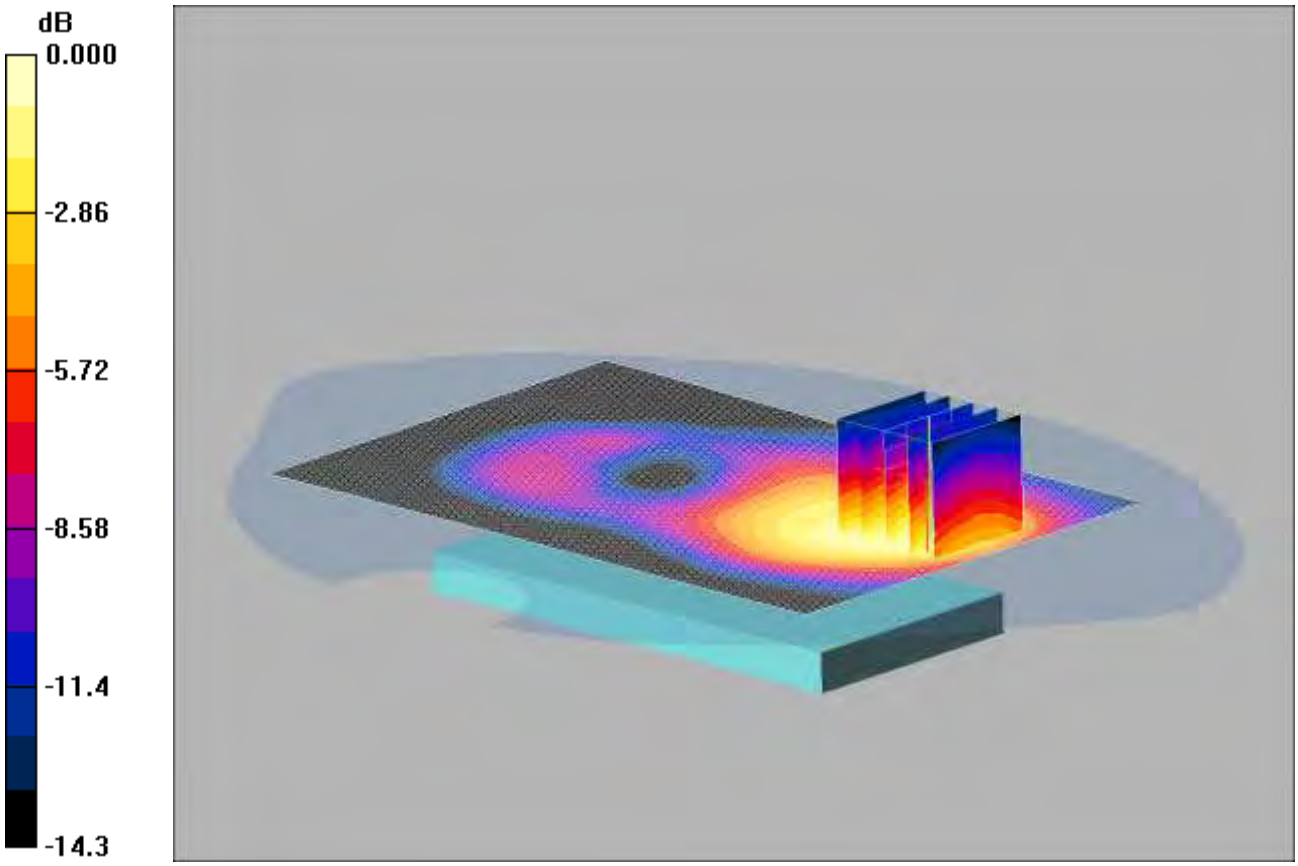
Communication System: GPRS 1900 4Tx; Frequency: 1880 MHz;Duty Cycle: 1:2
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.537 mho/m; ε_r = 51.094; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- ; SEMCAD X Version 14.6.7 (6848)

Configuration/Bottom of EUT Facing Phantom - Middle/Area Scan (81x121x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.724 W/kg

Configuration/Bottom of EUT Facing Phantom - Middle/Zoom Scan (5x5x7)
(5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.859 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.659 W/kg; SAR(10 g) = 0.359 W/kg
Maximum value of SAR (measured) = 0.750 W/kg

SCN/92315JD03A/041: Front of EUT Facing Phantom PCS CH661
Date: 10/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



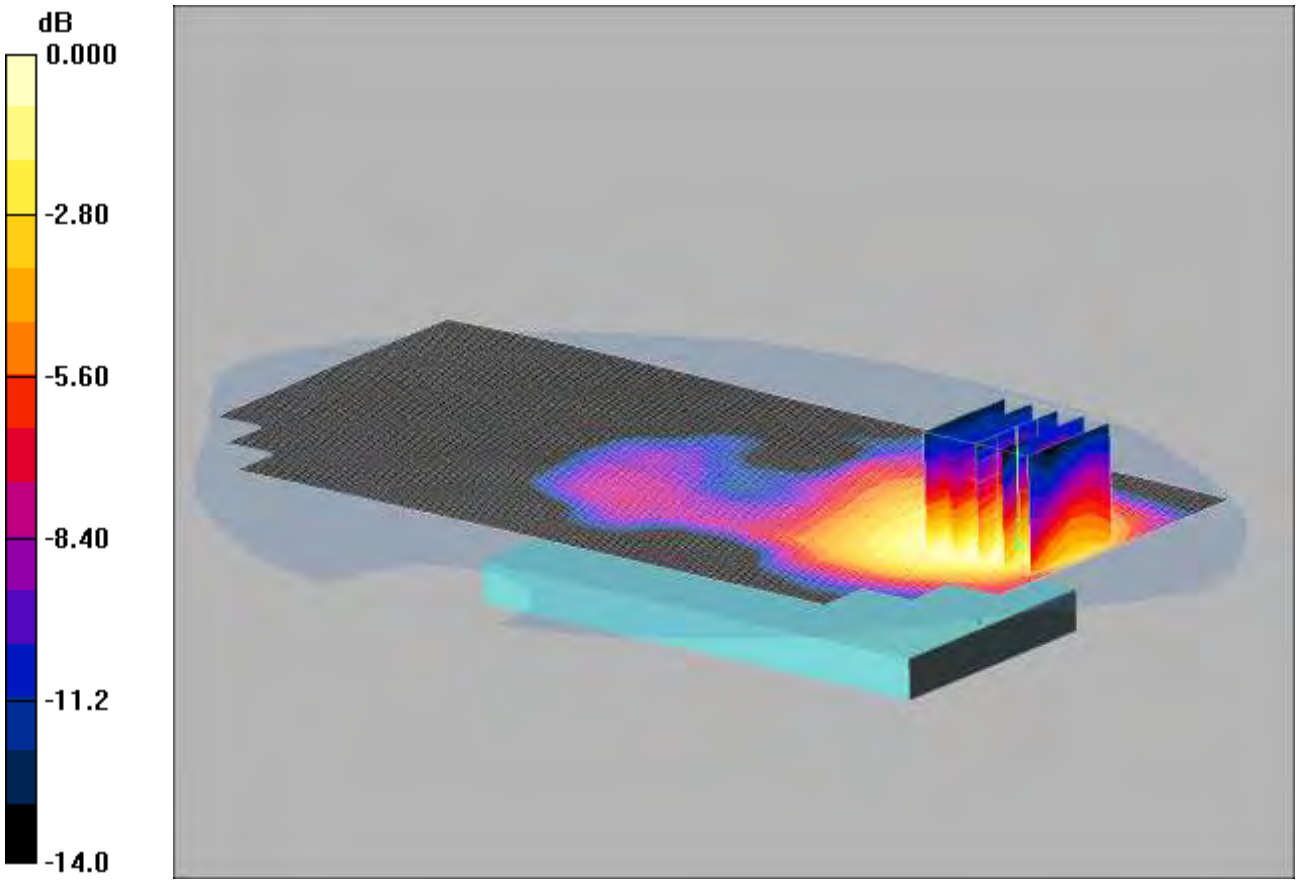
0 dB = 0.317mW/g

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 = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.297 mW/g
Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.73 V/m; Power Drift = -0.030 dB
Peak SAR (extrapolated) = 0.446 W/kg
SAR(1 g) = 0.289 mW/g; SAR(10 g) = 0.178 mW/g
Maximum value of SAR (measured) = 0.317 mW/g

SCN/92315JD03A/042: Front of EUT Facing Phantom Antenna Extended PCS CH661
Date: 10/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



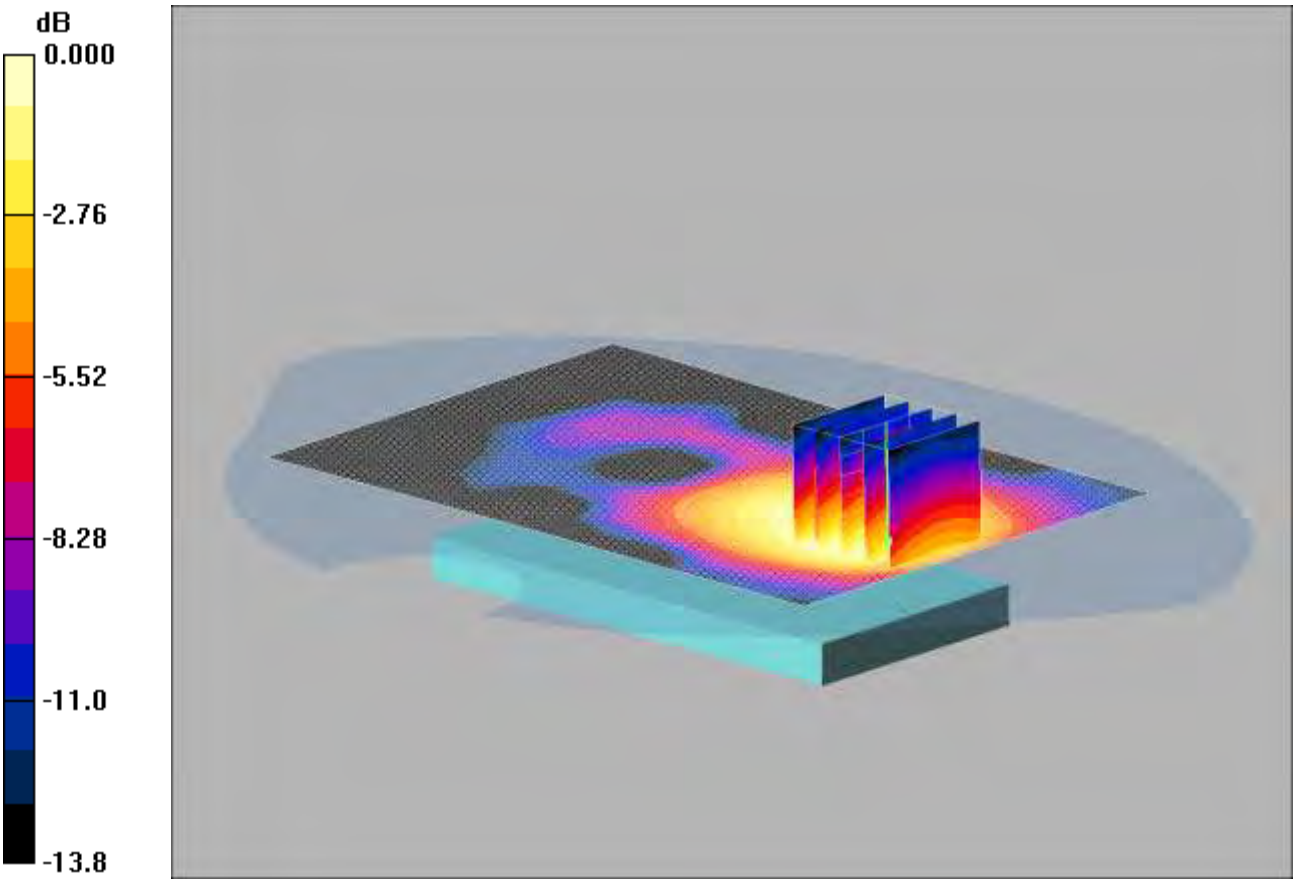
0 dB = 0.315mW/g

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 = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.317 mW/g
Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.99 V/m; Power Drift = 0.032 dB
Peak SAR (extrapolated) = 0.451 W/kg
SAR(1 g) = 0.289 mW/g; SAR(10 g) = 0.176 mW/g
Maximum value of SAR (measured) = 0.315 mW/g

SCN/92315JD03A/043: Back of EUT Facing Phantom PCS CH661
Date: 10/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



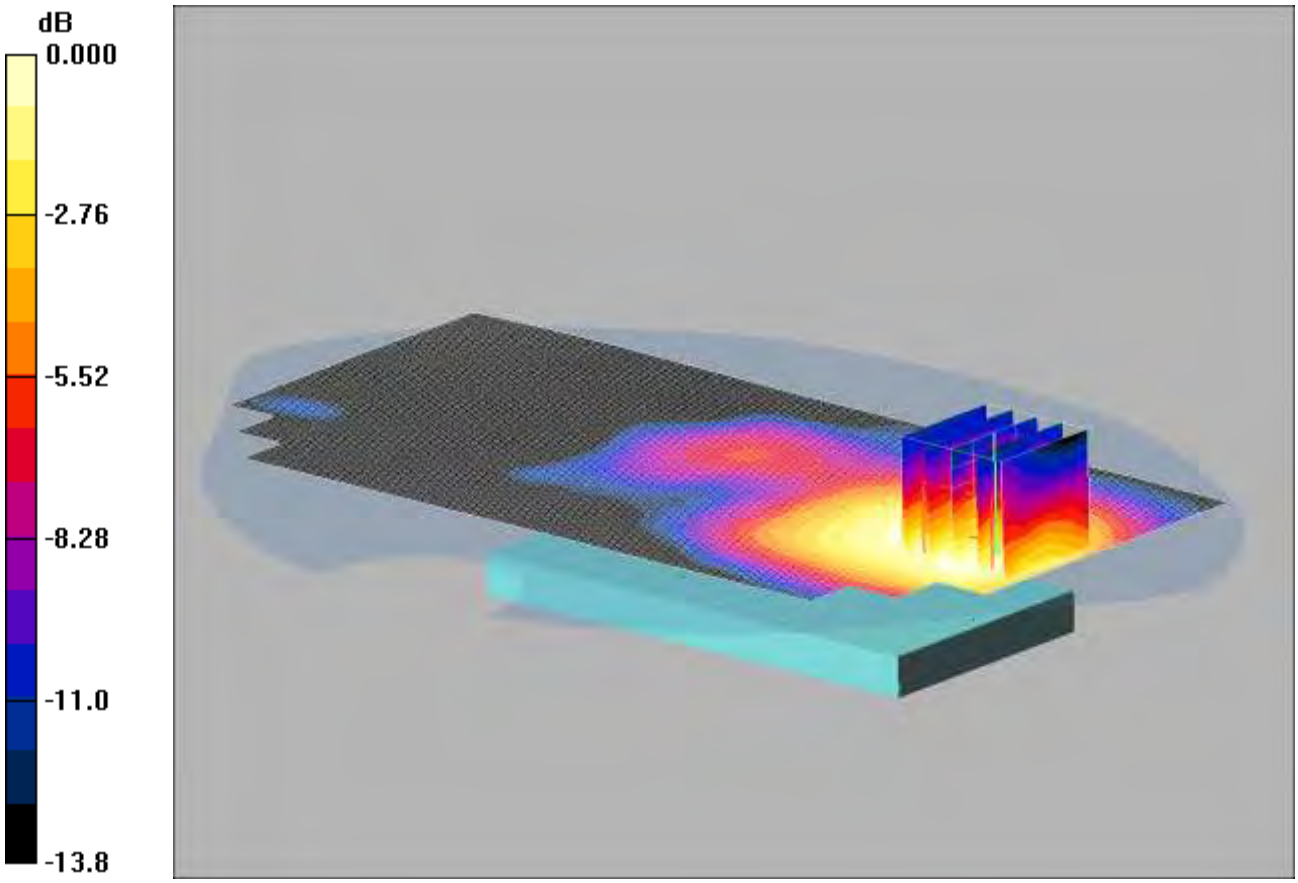
0 dB = 0.218mW/g

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 = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.209 mW/g
Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.68 V/m; Power Drift = -0.038 dB
Peak SAR (extrapolated) = 0.305 W/kg
SAR(1 g) = 0.199 mW/g; SAR(10 g) = 0.127 mW/g
Maximum value of SAR (measured) = 0.218 mW/g

SCN/92315JD03A/044: Back of EUT Facing Phantom Antenna Extended PCS CH661
Date: 10/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.218mW/g

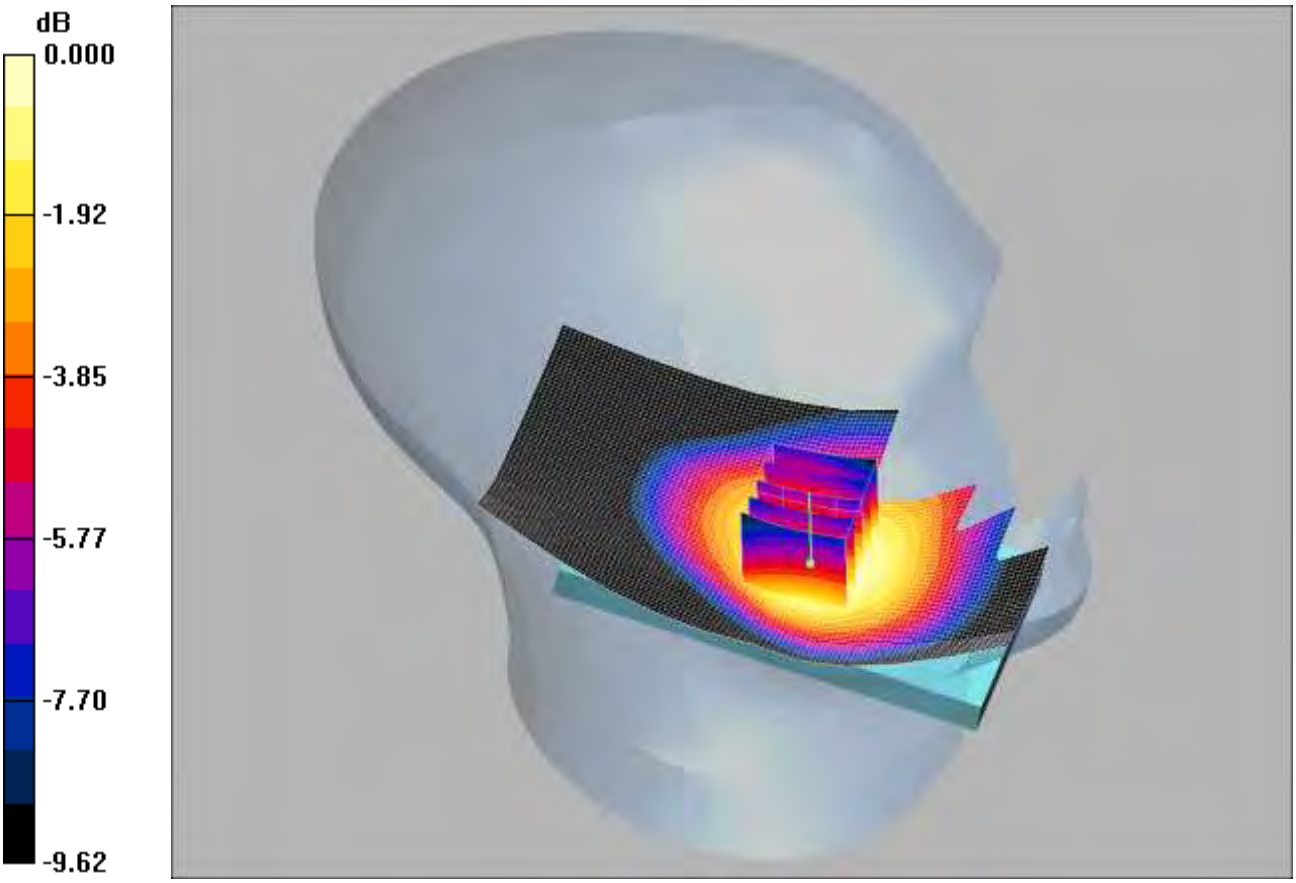
Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.231 mW/g

Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.72 V/m; Power Drift = 0.199 dB
Peak SAR (extrapolated) = 0.313 W/kg
SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.133 mW/g
Maximum value of SAR (measured) = 0.218 mW/g

SCN/92315JD03A/045: Touch Left UMTS FDD 5 CH4183
Date 03/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



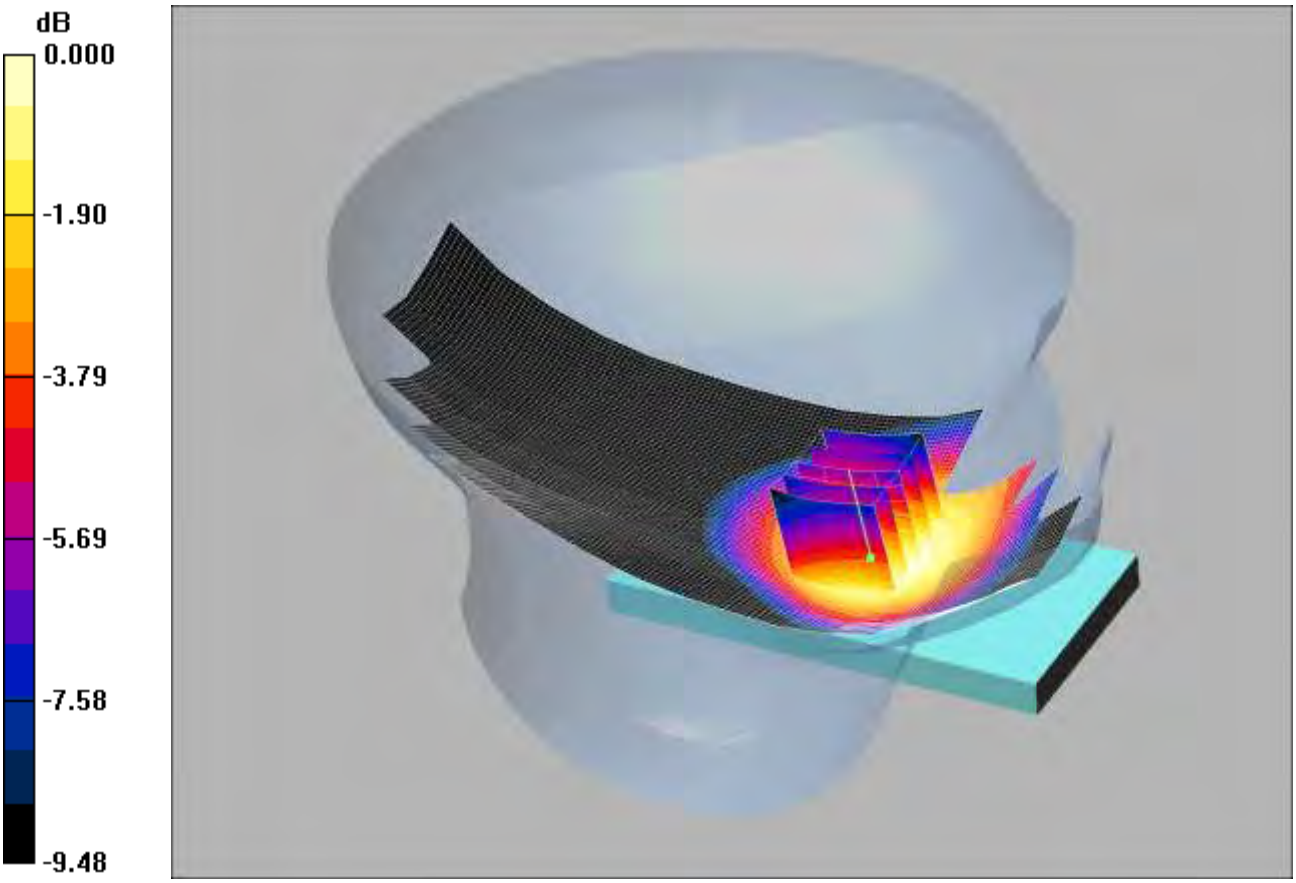
0 dB = 0.482mW/g

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 = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.487 mW/g
Touch Left - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.08 V/m; Power Drift = -0.017 dB
Peak SAR (extrapolated) = 0.581 W/kg
SAR(1 g) = 0.459 mW/g; SAR(10 g) = 0.345 mW/g
Maximum value of SAR (measured) = 0.482 mW/g

SCN/92315JD03A/046: Touch Left Antenna Extended UMTS FDD 5 CH4183
Date: 03/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.471mW/g

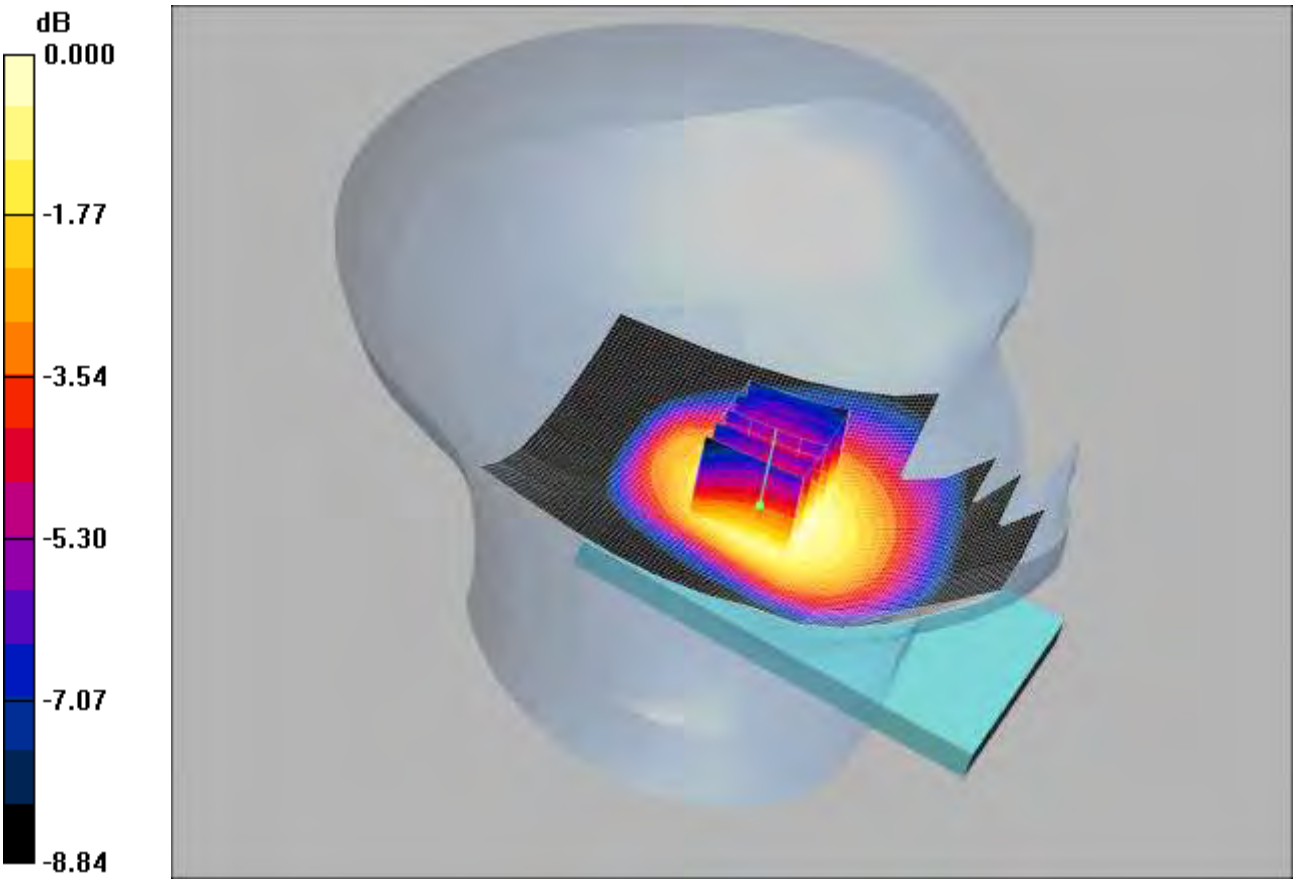
Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz HSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Left - Middle/Area Scan (71x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.481 mW/g

Touch Left - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.29 V/m; Power Drift = 0.178 dB
Peak SAR (extrapolated) = 0.557 W/kg
SAR(1 g) = 0.449 mW/g; SAR(10 g) = 0.341 mW/g
Maximum value of SAR (measured) = 0.471 mW/g

SCN/92315JD03A/047: Tilt Left UMTS FDD 5 CH4183
Date 03/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



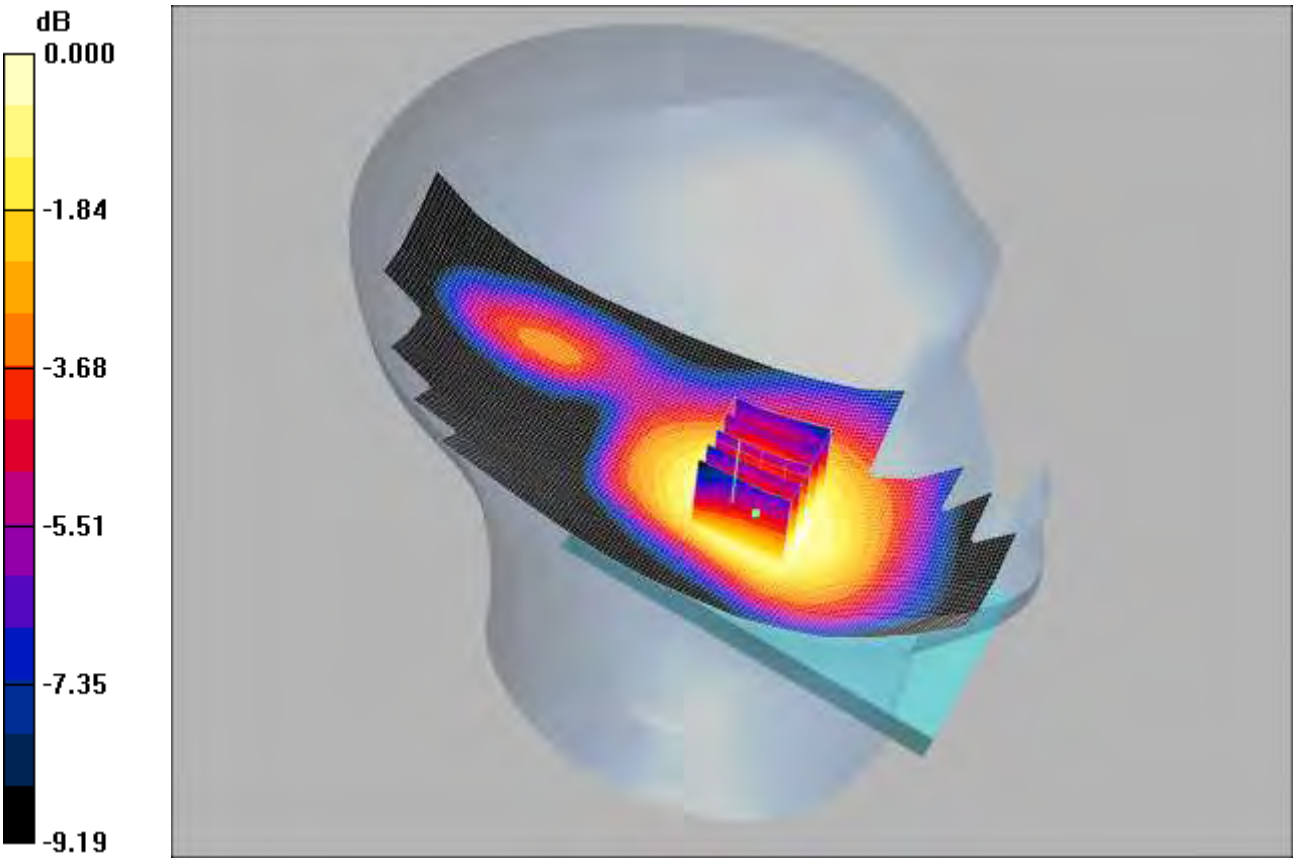
0 dB = 0.341mW/g

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 = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Left - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.333 mW/g
Tilt Left - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.4 V/m; Power Drift = -0.067 dB
Peak SAR (extrapolated) = 0.393 W/kg
SAR(1 g) = 0.324 mW/g; SAR(10 g) = 0.249 mW/g
Maximum value of SAR (measured) = 0.341 mW/g

SCN/92315JD03A/048: Tilt Left Antenna Extended UMTS FDD 5 CH4183
Date 03/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



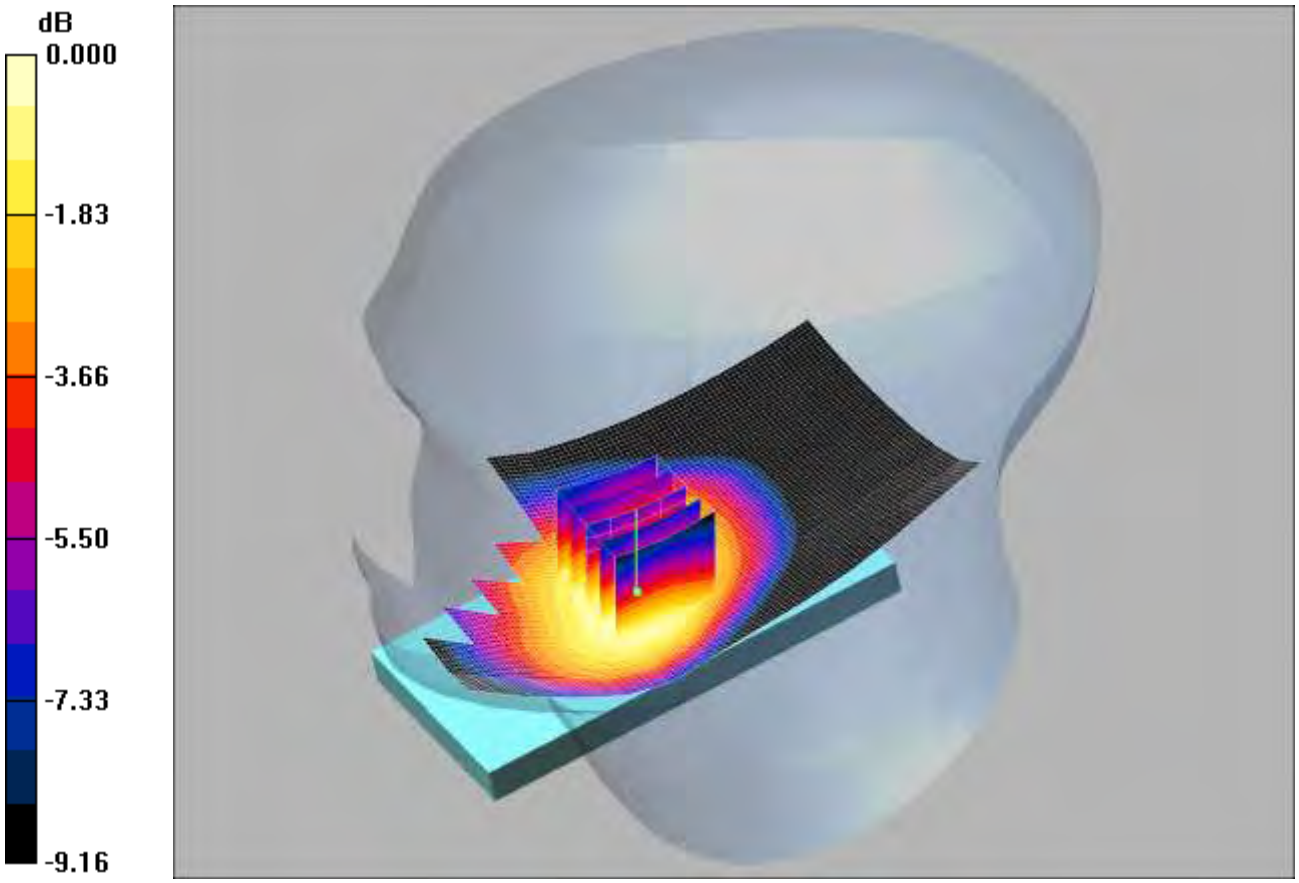
0 dB = 0.261mW/g

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 = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Left - Middle/Area Scan (71x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.265 mW/g
Tilt Left - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.2 V/m; Power Drift = -0.113 dB
Peak SAR (extrapolated) = 0.301 W/kg
SAR(1 g) = 0.251 mW/g; SAR(10 g) = 0.197 mW/g
Maximum value of SAR (measured) = 0.261 mW/g

SCN/92315JD03A/049: Touch Right UMTS FDD 5 CH4183
Date 03/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: P-03E(D31FS2); Serial: xxx



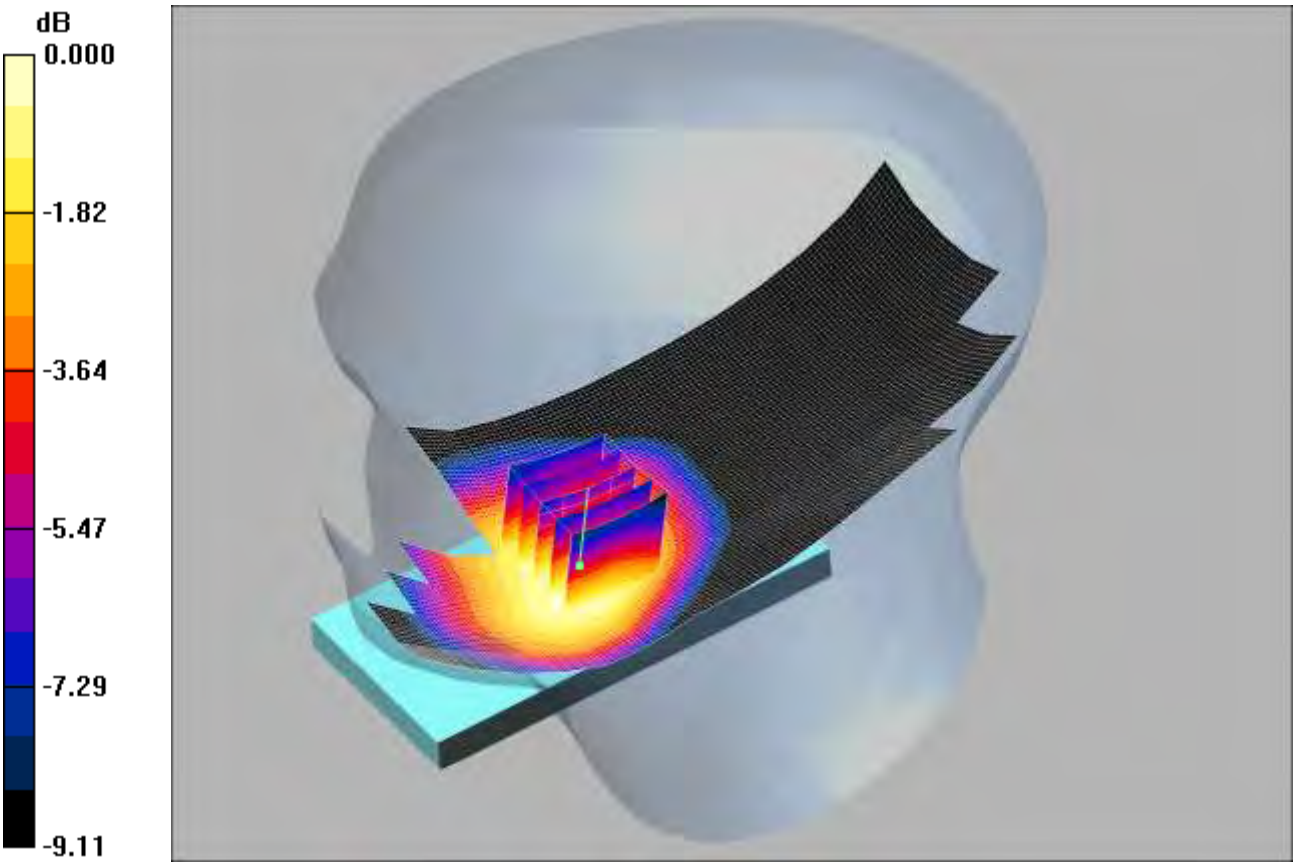
0 dB = 0.452mW/g

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 = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.461 mW/g
Touch Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.08 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 0.530 W/kg
SAR(1 g) = 0.432 mW/g; SAR(10 g) = 0.327 mW/g
Maximum value of SAR (measured) = 0.452 mW/g

SCN/92315JD03A/050: Touch Right Antenna Extended UMTS FDD 5 CH4183
Date 03/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



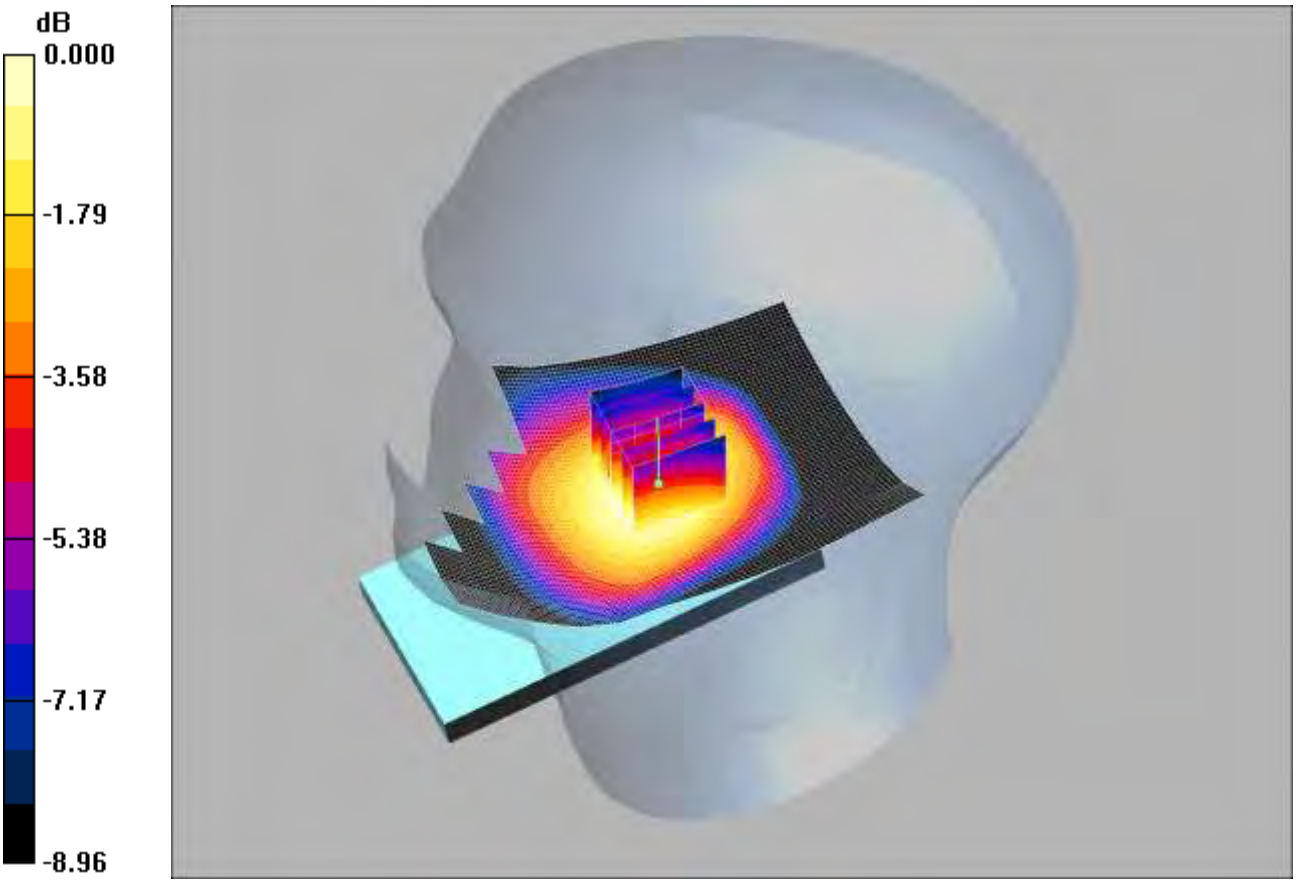
0 dB = 0.453mW/g

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 = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right Antenna Extended - Middle/Area Scan (71x171x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.454 mW/g
Touch Right Antenna Extended - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.74 V/m; Power Drift = 0.170 dB
Peak SAR (extrapolated) = 0.536 W/kg
SAR(1 g) = 0.431 mW/g; SAR(10 g) = 0.328 mW/g
Maximum value of SAR (measured) = 0.453 mW/g

SCN/92315JD03A/051: Tilt Right UMTS FDD 5 CH4183
Date 03/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



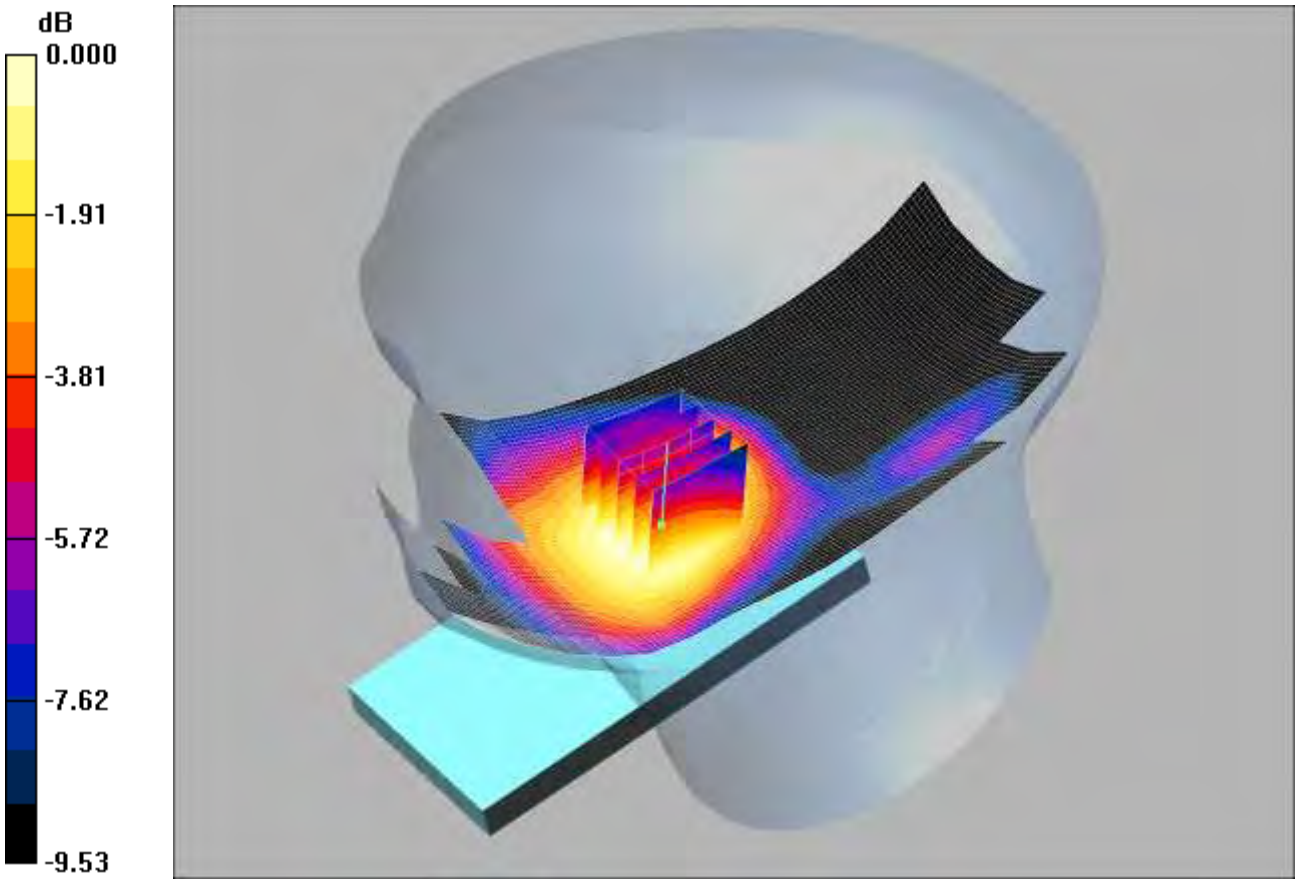
0 dB = 0.324mW/g

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 = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Right - Middle/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.333 mW/g
Tilt Right - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.8 V/m; Power Drift = 0.021 dB
Peak SAR (extrapolated) = 0.378 W/kg
SAR(1 g) = 0.309 mW/g; SAR(10 g) = 0.237 mW/g
Maximum value of SAR (measured) = 0.324 mW/g

SCN/92315JD03A/052: Tilt Right Antenna Extended UMTS FDD 5 CH4183
Date 03/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



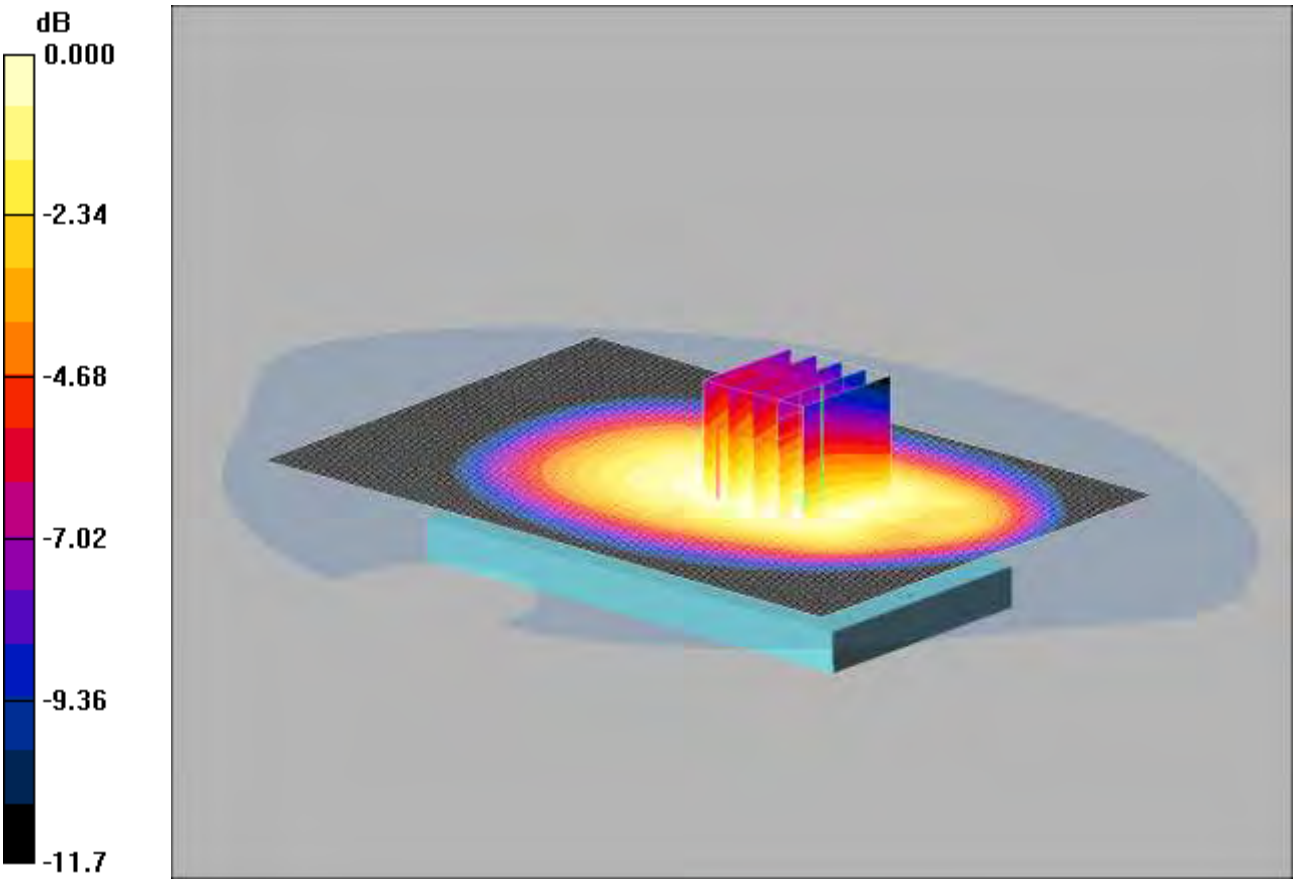
0 dB = 0.276mW/g

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 = 0.919 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.55, 9.55, 9.55); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Right Antenna Extended - Middle/Area Scan (71x171x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.289 mW/g
Tilt Right Antenna Extended - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.62 V/m; Power Drift = 0.157 dB
Peak SAR (extrapolated) = 0.325 W/kg
SAR(1 g) = 0.265 mW/g; SAR(10 g) = 0.204 mW/g
Maximum value of SAR (measured) = 0.276 mW/g

SCN/92315JD03A/053: Front of EUT Facing Phantom UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



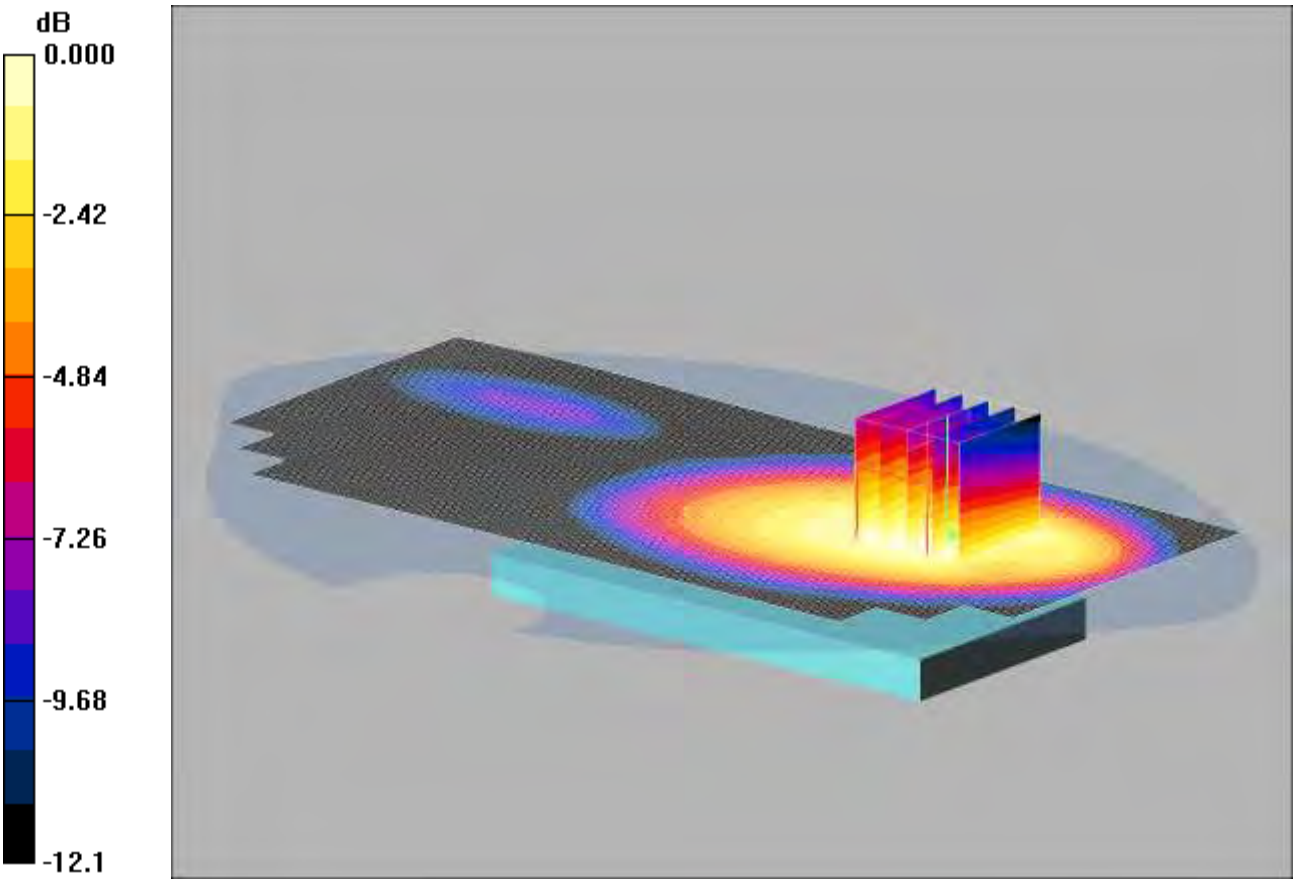
0 dB = 0.681mW/g

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 = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.683 mW/g
Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.2 V/m; Power Drift = 0.074 dB
Peak SAR (extrapolated) = 0.846 W/kg
SAR(1 g) = 0.640 mW/g; SAR(10 g) = 0.483 mW/g
Maximum value of SAR (measured) = 0.681 mW/g

SCN/92315JD03A/054: Front of EUT Facing Phantom Antenna Extended UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



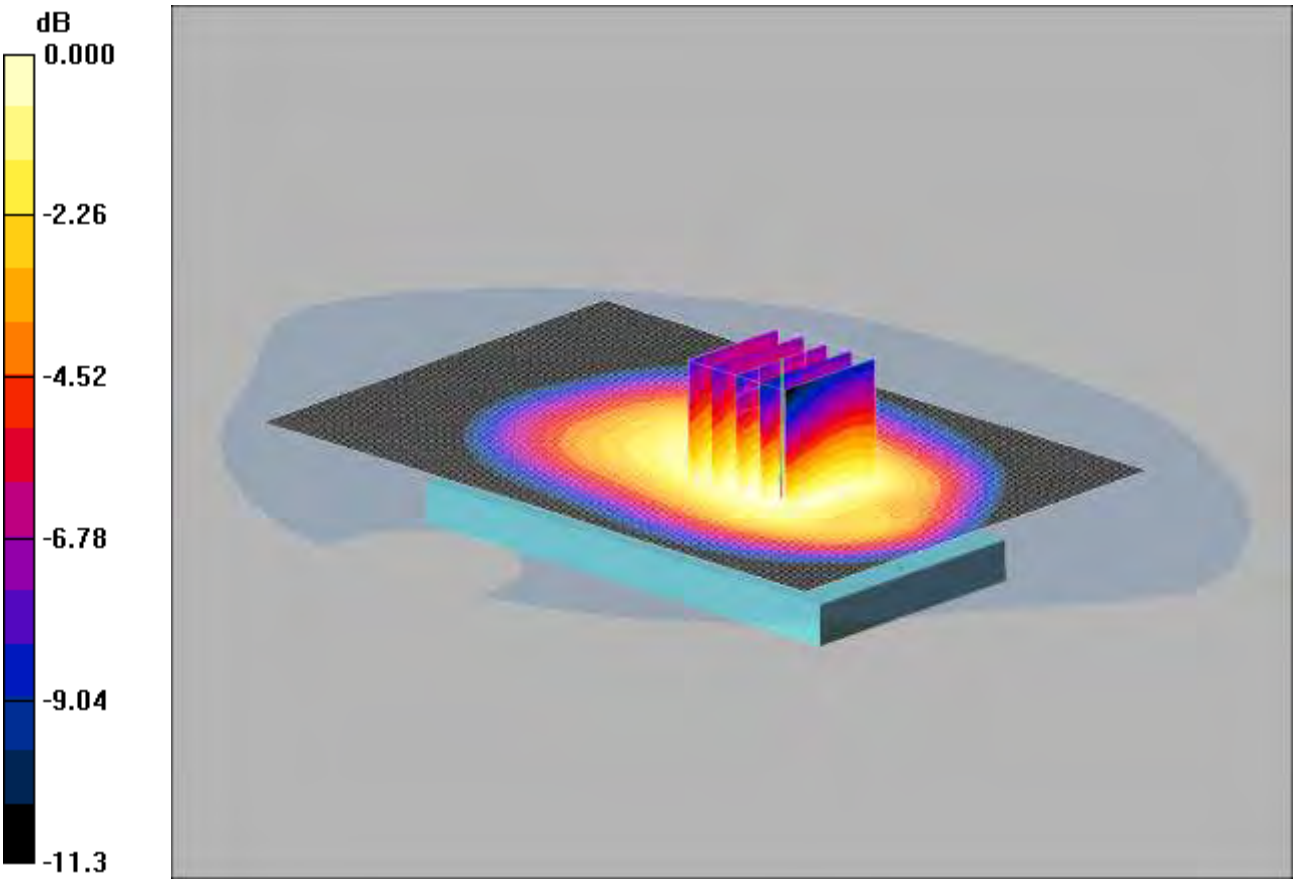
0 dB = 0.665mW/g

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 = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.670 mW/g
Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.4 V/m; Power Drift = -0.002 dB
Peak SAR (extrapolated) = 0.865 W/kg
SAR(1 g) = 0.626 mW/g; SAR(10 g) = 0.449 mW/g
Maximum value of SAR (measured) = 0.665 mW/g

SCN/92315JD03A/055: Back of EUT Facing Phantom UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



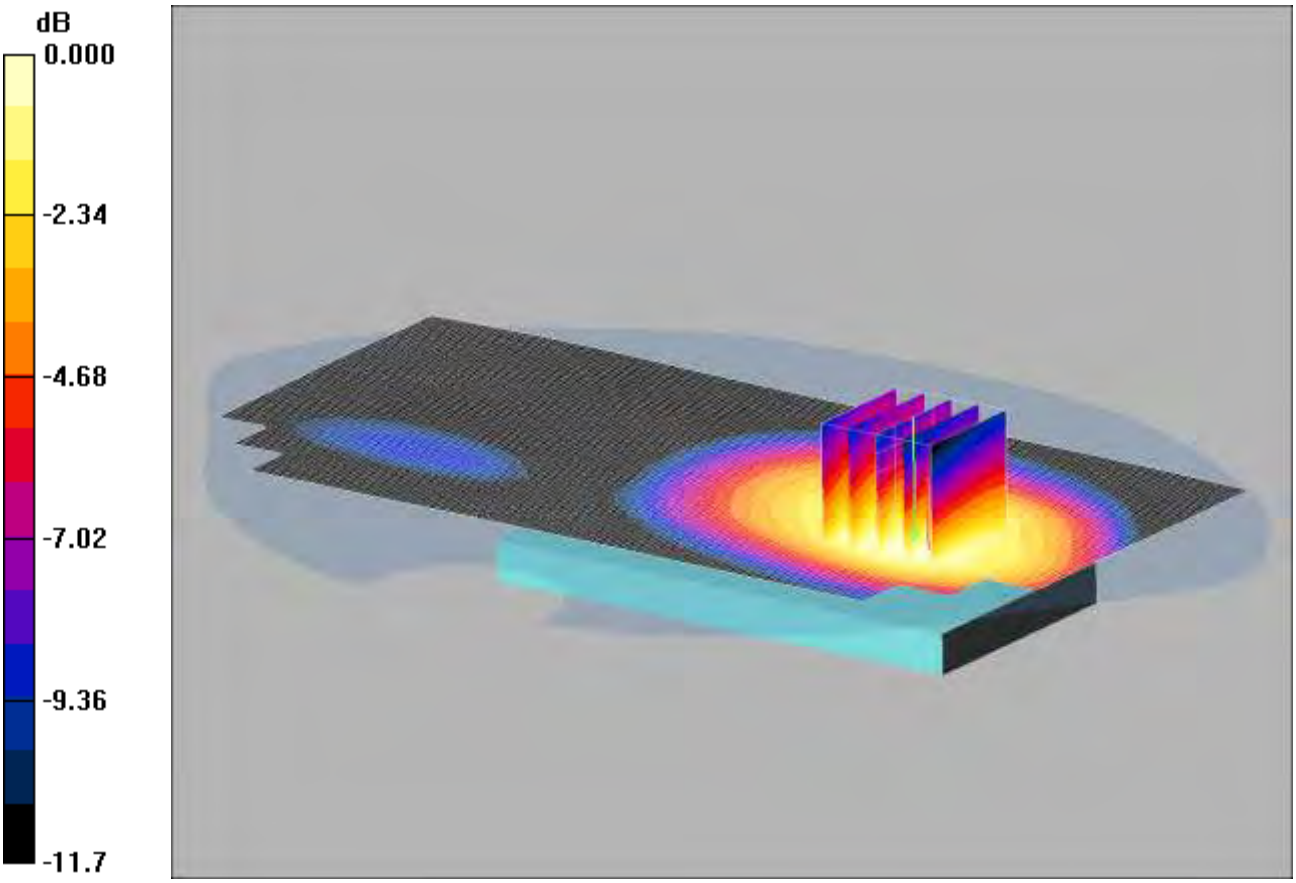
0 dB = 0.636mW/g

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 = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.647 mW/g
Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.9 V/m; Power Drift = 0.006 dB
Peak SAR (extrapolated) = 0.798 W/kg
SAR(1 g) = 0.609 mW/g; SAR(10 g) = 0.452 mW/g
Maximum value of SAR (measured) = 0.636 mW/g

SCN/92315JD03A/056: Back of EUT Facing Phantom Antenna Extended UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.685mW/g

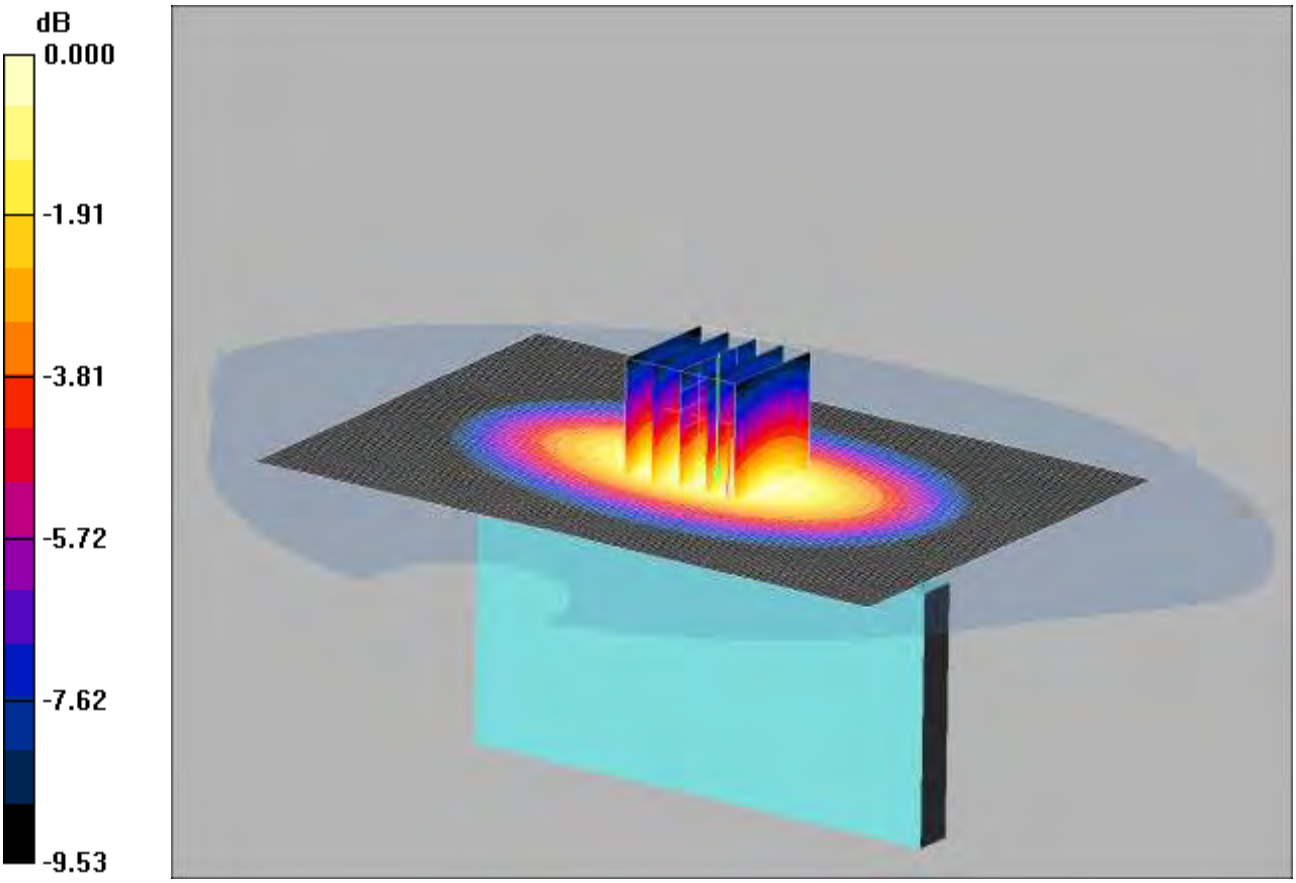
Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.693 mW/g

Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.7 V/m; Power Drift = 0.011 dB
Peak SAR (extrapolated) = 0.895 W/kg
SAR(1 g) = 0.647 mW/g; SAR(10 g) = 0.461 mW/g
Maximum value of SAR (measured) = 0.685 mW/g

SCN/92315JD03A/057: Left Hand Side of EUT Facing Phantom UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



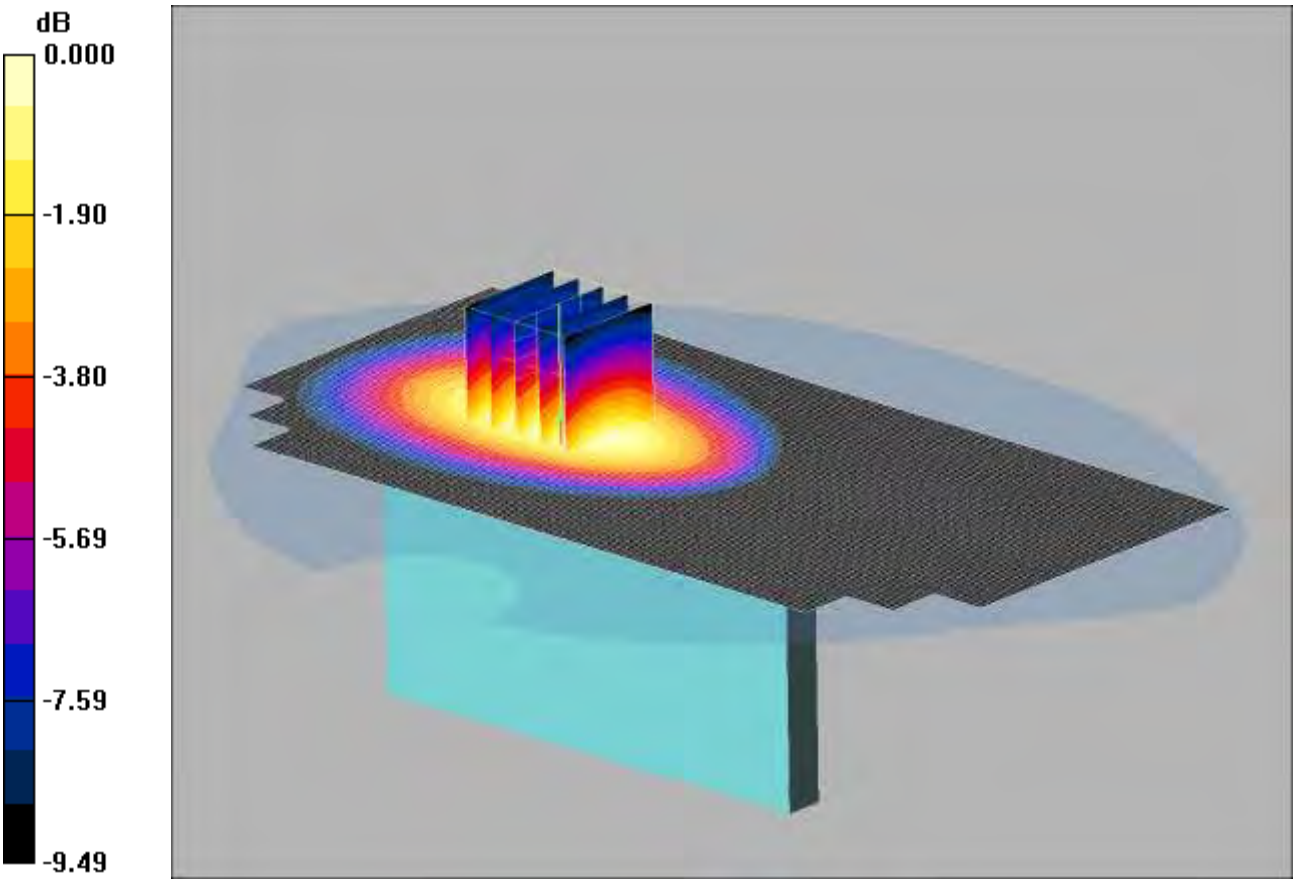
0 dB = 0.471mW/g

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 = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Left Hand Side of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.463 mW/g
Left Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.2 V/m; Power Drift = 0.083 dB
Peak SAR (extrapolated) = 0.615 W/kg
SAR(1 g) = 0.439 mW/g; SAR(10 g) = 0.302 mW/g
Maximum value of SAR (measured) = 0.471 mW/g

SCN/92315JD03A/058: Left Hand Side of EUT Facing Phantom Antenna Extended UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



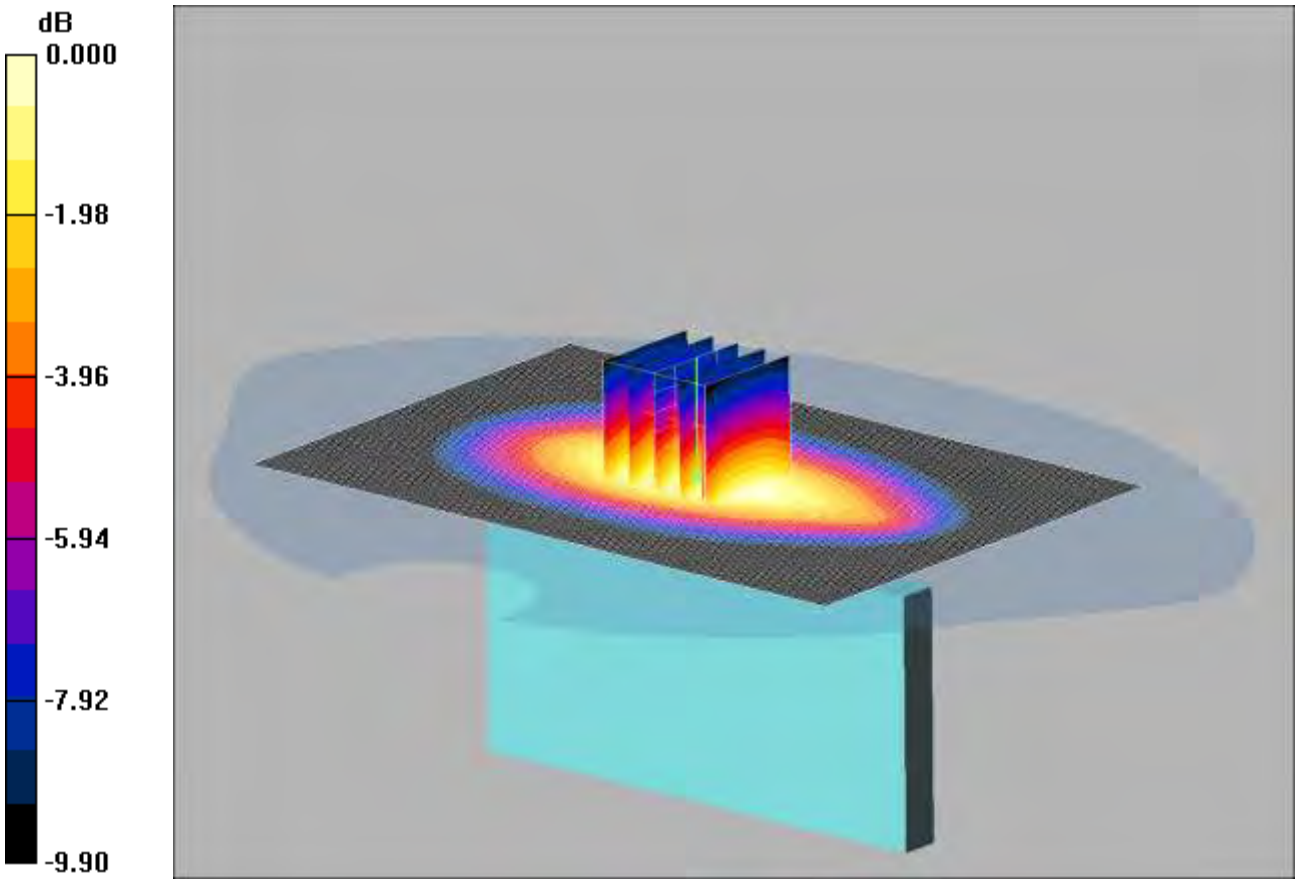
0 dB = 0.443mW/g

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 = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Left Hand Side of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.434 mW/g
Left Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.4 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 0.580 W/kg
SAR(1 g) = 0.413 mW/g; SAR(10 g) = 0.286 mW/g
Maximum value of SAR (measured) = 0.443 mW/g

SCN/92315JD03A/059: Right Hand Side of EUT Facing Phantom UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.319mW/g

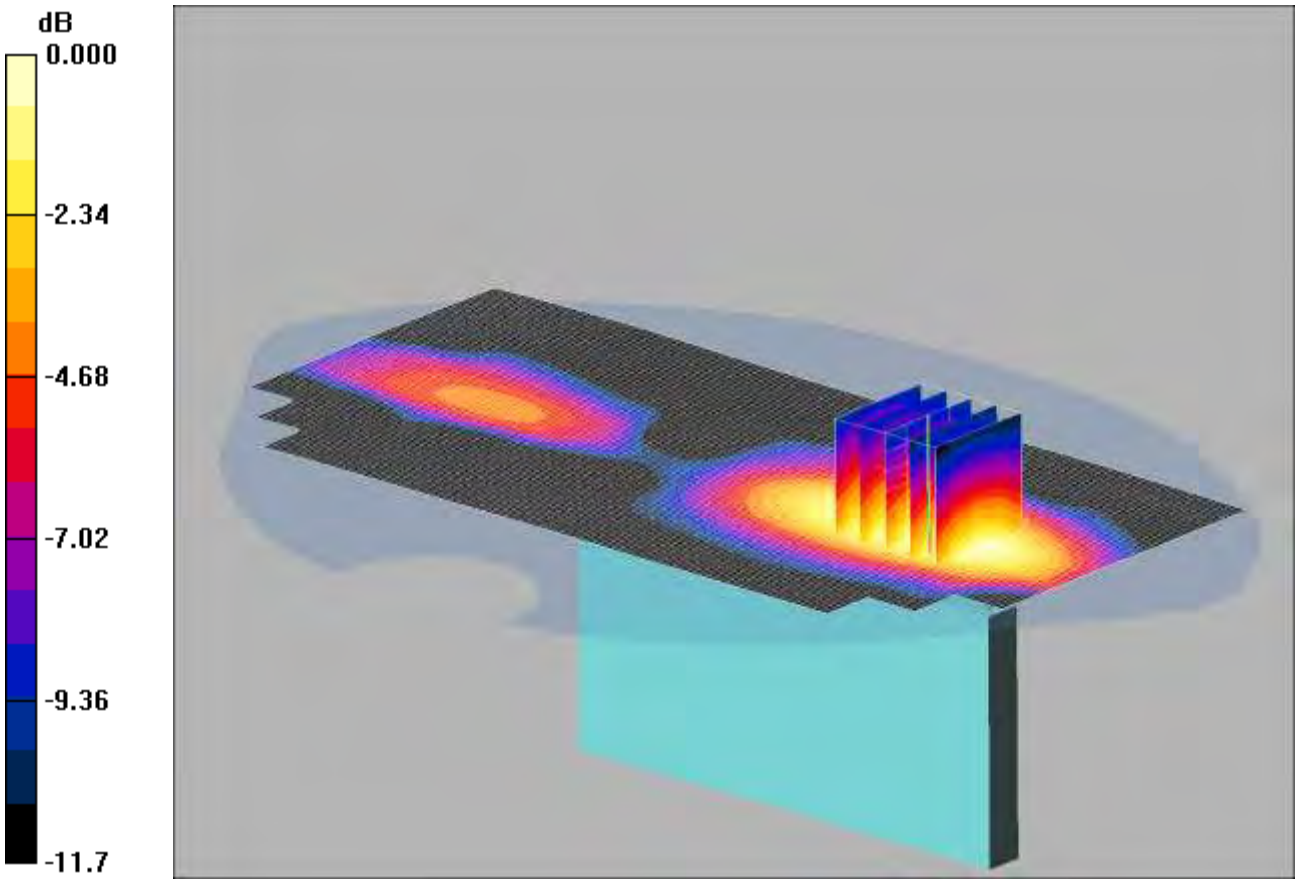
Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Right Hand Side of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.324 mW/g

Right Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 0.424 W/kg
SAR(1 g) = 0.298 mW/g; SAR(10 g) = 0.204 mW/g
Maximum value of SAR (measured) = 0.319 mW/g

SCN/92315JD03A/060: Right Hand Side of EUT Facing Phantom Antenna Extended UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.266mW/g

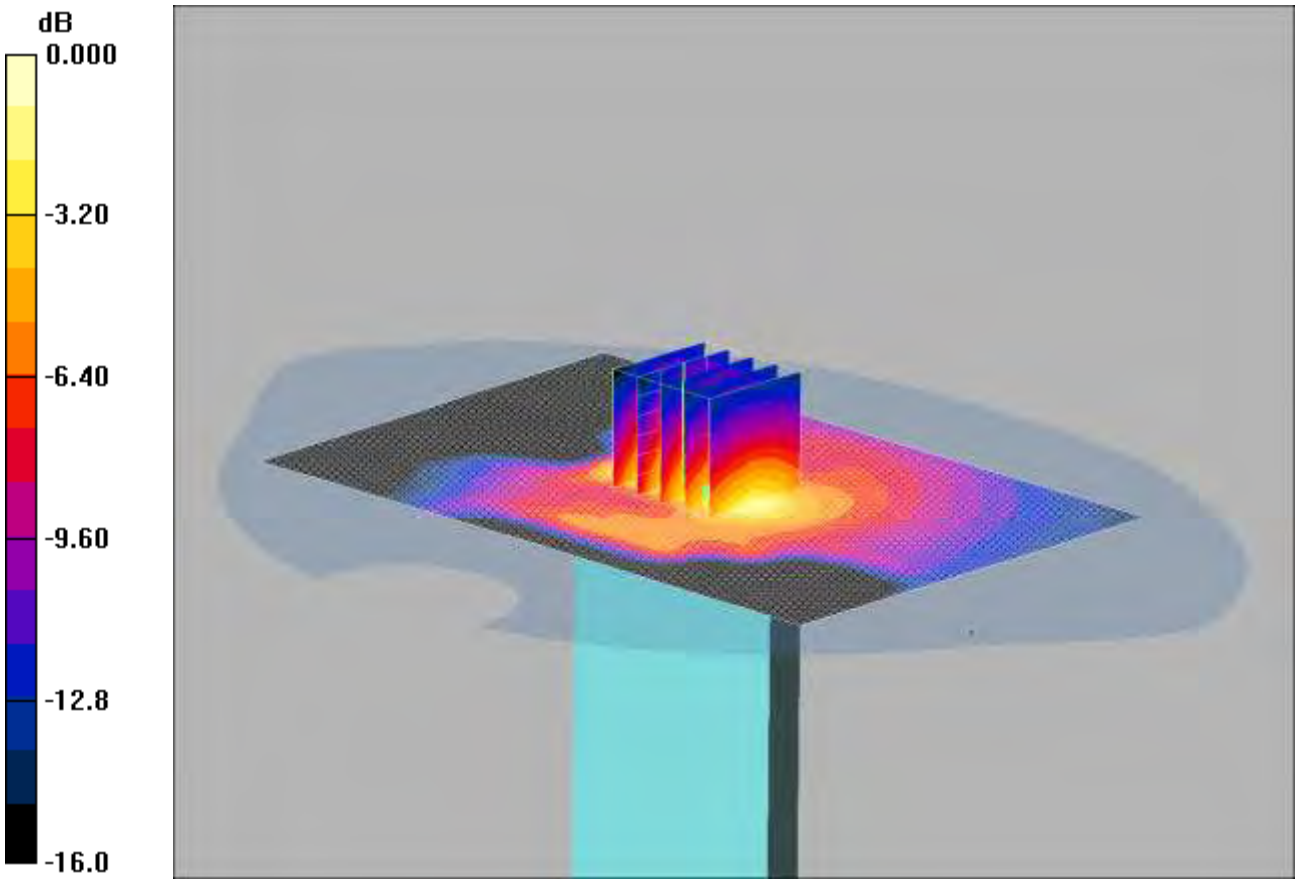
Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Right Hand Side of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.266 mW/g

Right Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.46 V/m; Power Drift = -0.127 dB
Peak SAR (extrapolated) = 0.367 W/kg
SAR(1 g) = 0.248 mW/g; SAR(10 g) = 0.163 mW/g
Maximum value of SAR (measured) = 0.266 mW/g

SCN/92315JD03A/061: Bottom of EUT Facing Phantom UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.190mW/g

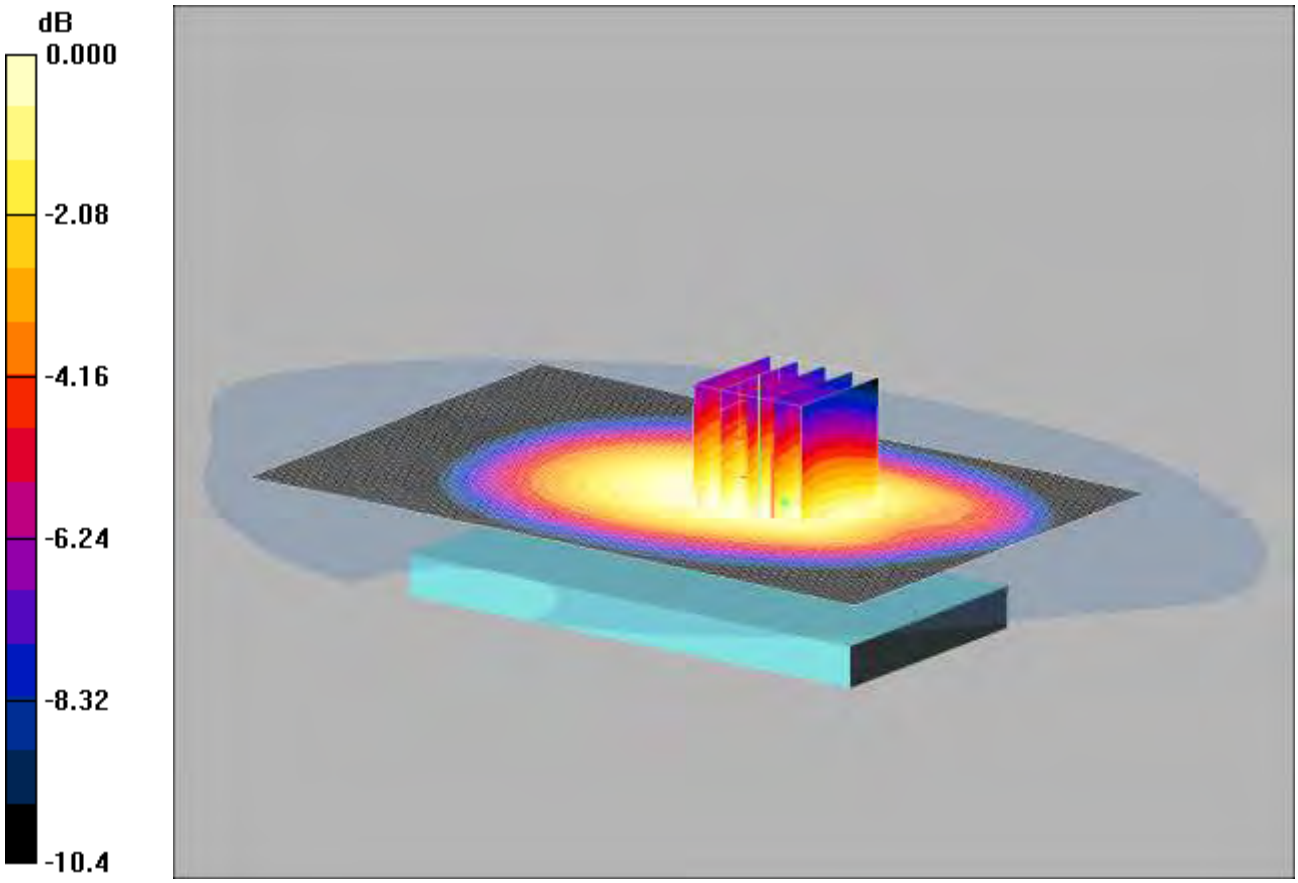
Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Bottom of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.180 mW/g

Bottom of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.2 V/m; Power Drift = 0.006 dB
Peak SAR (extrapolated) = 0.304 W/kg
SAR(1 g) = 0.171 mW/g; SAR(10 g) = 0.092 mW/g
Maximum value of SAR (measured) = 0.190 mW/g

SCN/92315JD03A/062: Front of EUT Facing Phantom at 15mm UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.507mW/g

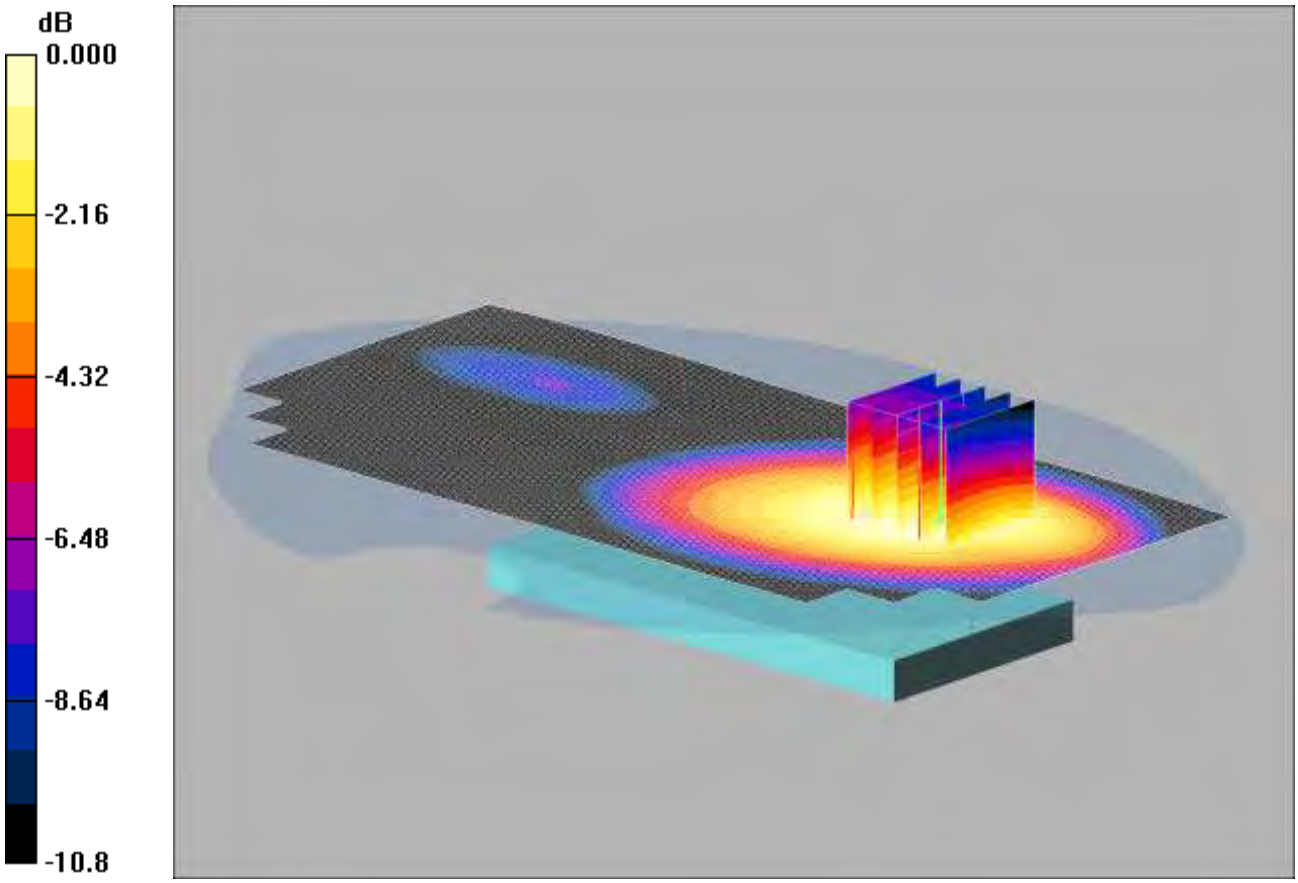
Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.505 mW/g

Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.0 V/m; Power Drift = -0.120 dB
Peak SAR (extrapolated) = 0.611 W/kg
SAR(1 g) = 0.484 mW/g; SAR(10 g) = 0.368 mW/g
Maximum value of SAR (measured) = 0.507 mW/g

SCN/92315JD03A/063: Front of EUT Facing Phantom Antenna Extended at 15mm UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.521mW/g

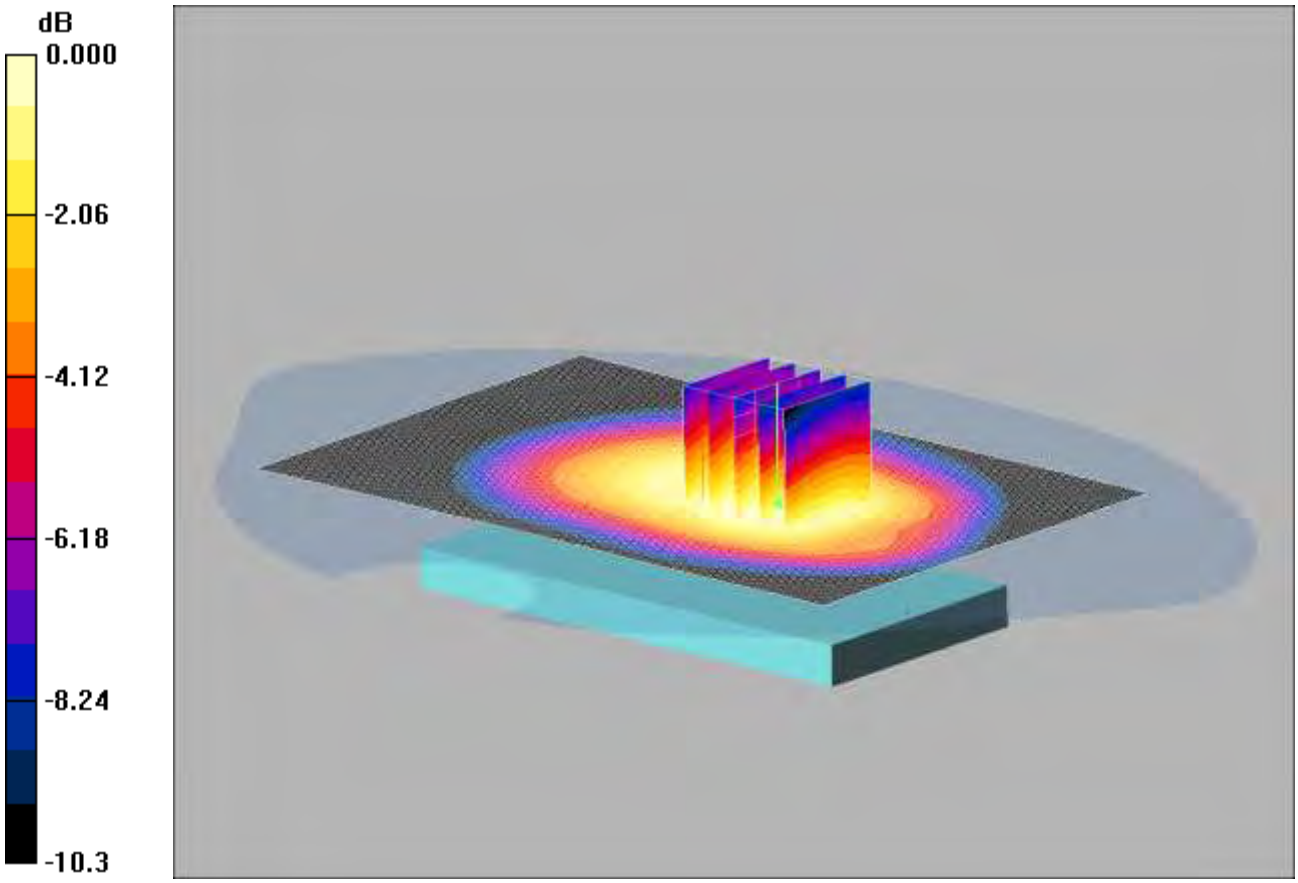
Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.528 mW/g

Front of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.7 V/m; Power Drift = 0.058 dB
Peak SAR (extrapolated) = 0.668 W/kg
SAR(1 g) = 0.491 mW/g; SAR(10 g) = 0.355 mW/g
Maximum value of SAR (measured) = 0.521 mW/g

SCN/92315JD03A/064: Back of EUT Facing Phantom at 15mm UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.463mW/g

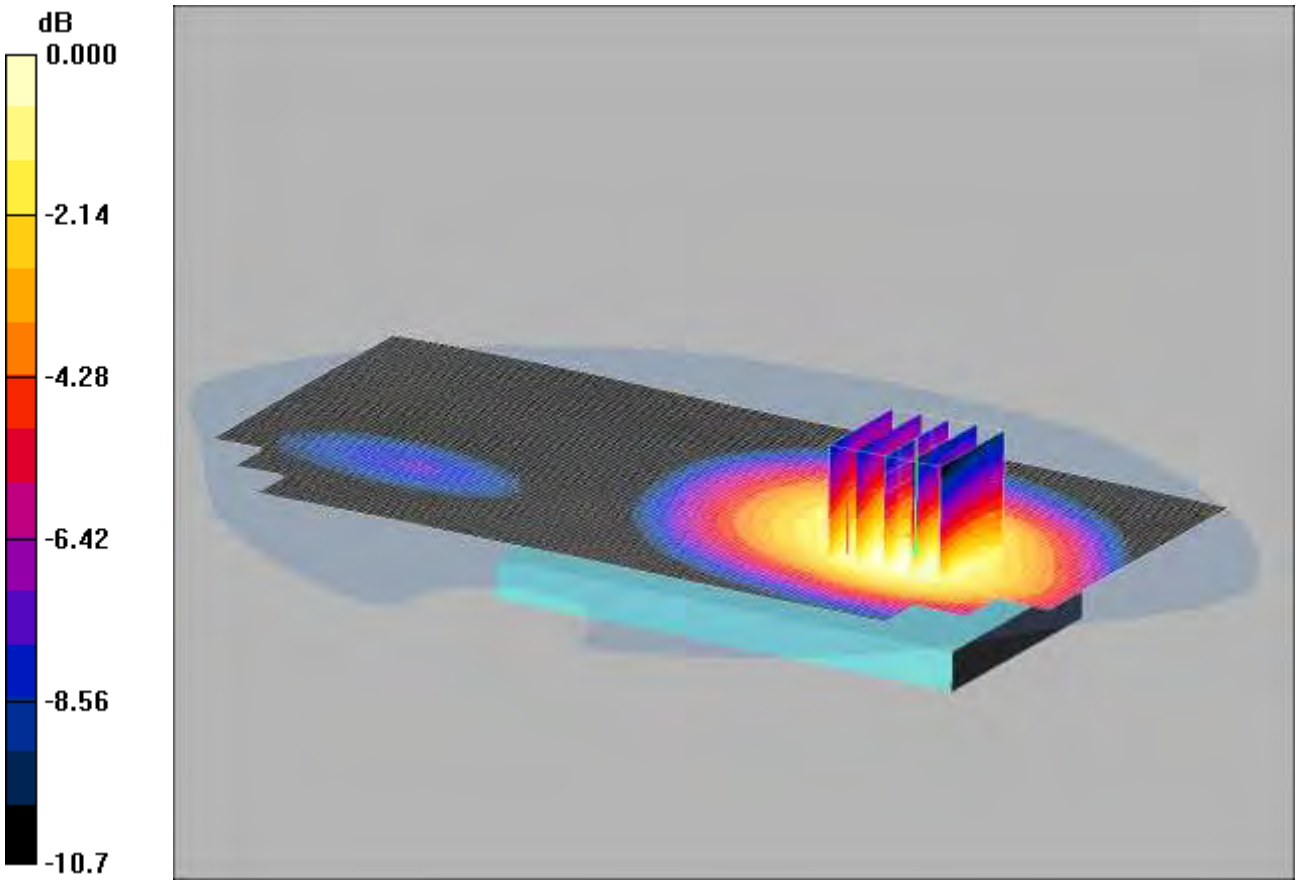
Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom - Middle/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.469 mW/g

Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.3 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 0.559 W/kg
SAR(1 g) = 0.441 mW/g; SAR(10 g) = 0.331 mW/g
Maximum value of SAR (measured) = 0.463 mW/g

SCN/92315JD03A/065: Back of EUT Facing Phantom Antenna Extended at 15mm UMTS FDD 5 CH4183
Date: 05/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.477mW/g

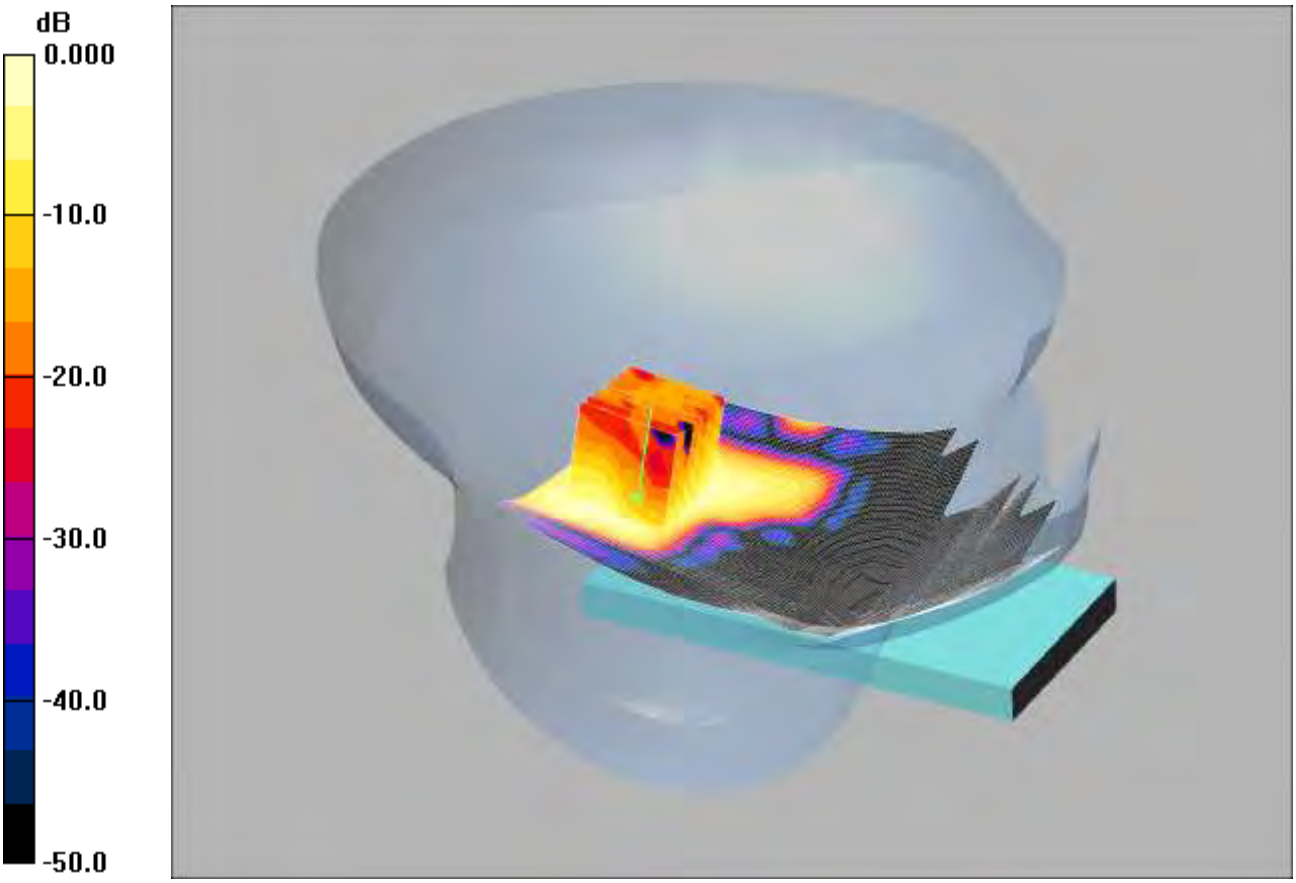
Communication System: UMTS-FDD 5; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.04 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.68, 9.68, 9.68); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom - Middle/Area Scan (81x161x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.481 mW/g
Back of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.42 V/m; Power Drift = -0.138 dB
Peak SAR (extrapolated) = 0.605 W/kg
SAR(1 g) = 0.449 mW/g; SAR(10 g) = 0.324 mW/g;

Maximum value of SAR (measured) = 0.477 mW/g

SCN/92315JD03A/066: Touch Left WiFi 802.11b 1Mpbs CH6
Date: 10/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.132mW/g

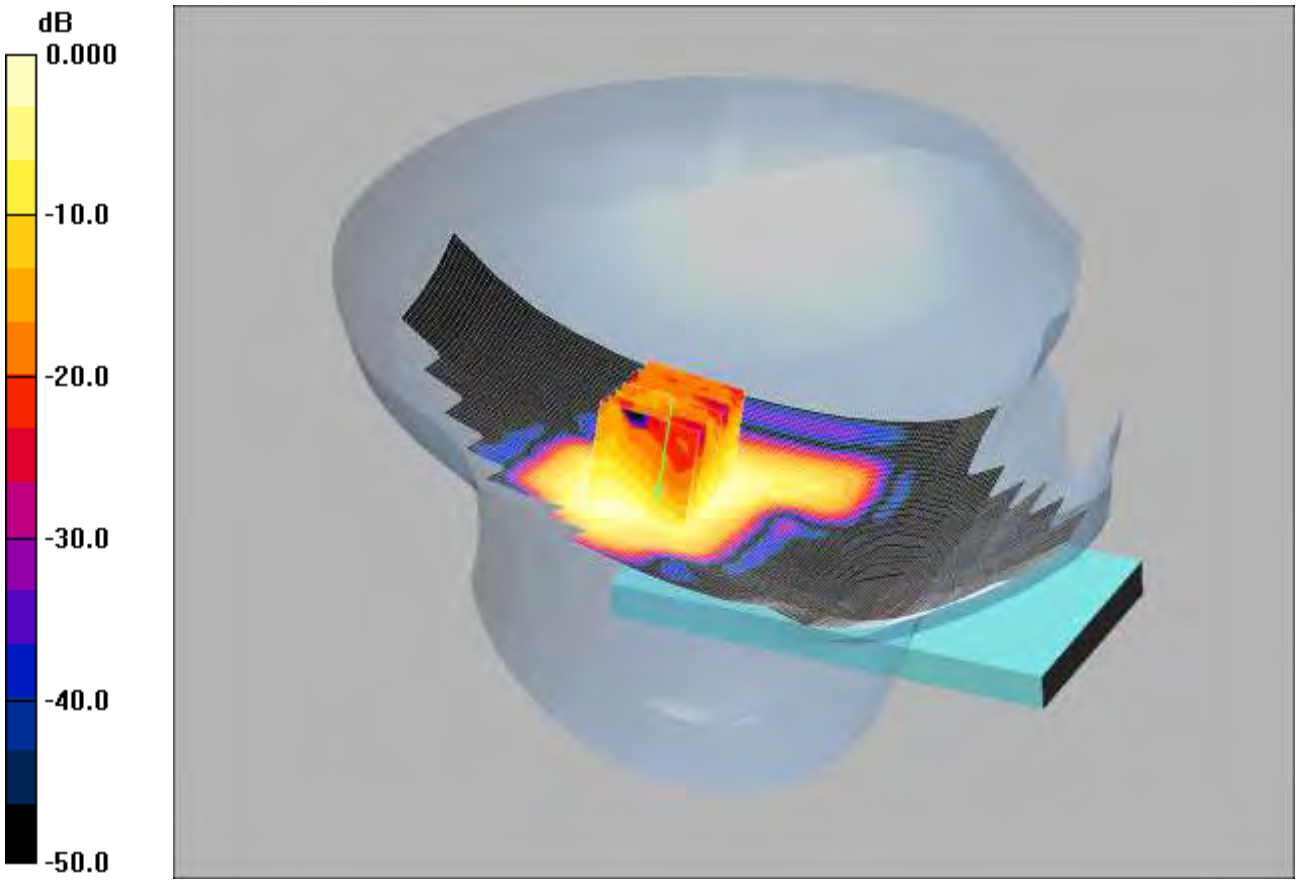
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.75 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.35, 7.35, 7.35); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Left- Middle 2/Area Scan (91x141x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.138 mW/g

Touch Left- Middle 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.22 V/m; Power Drift = 0.047 dB
Peak SAR (extrapolated) = 0.234 W/kg
SAR(1 g) = 0.119 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.132 mW/g

SCN/92315JD03A/067: Touch Left Antenna Extended WiFi 802.11b 1Mpbs CH6
Date: 10/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.133mW/g

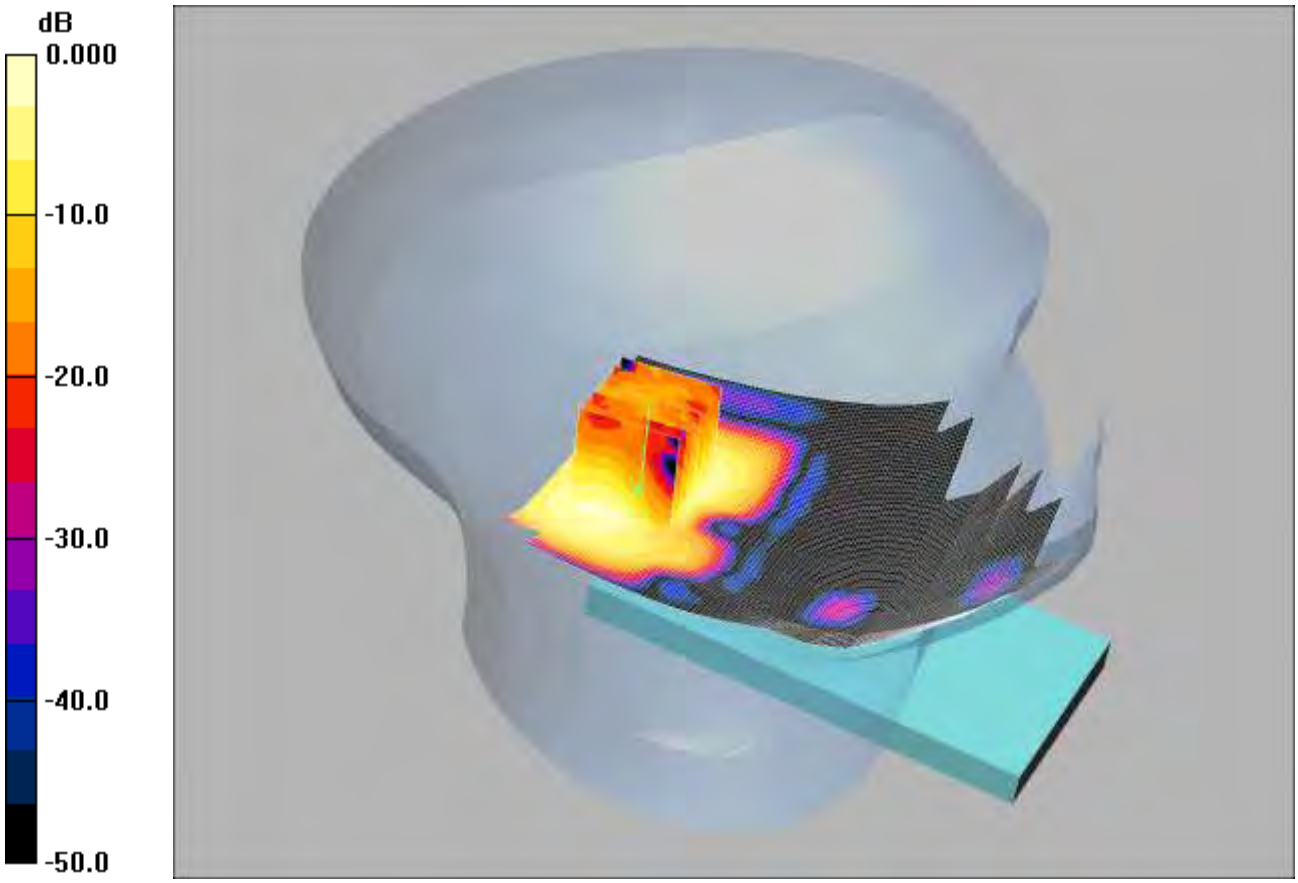
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.75 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.35, 7.35, 7.35); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Left- Middle/Area Scan (91x201x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.144 mW/g

Touch Left- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.30 V/m; Power Drift = 0.107 dB
Peak SAR (extrapolated) = 0.241 W/kg
SAR(1 g) = 0.121 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.133 mW/g

SCN/92315JD03A/068: Tilt Left WiFi 802.11b 1Mpbs CH6
Date: 10/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.131mW/g

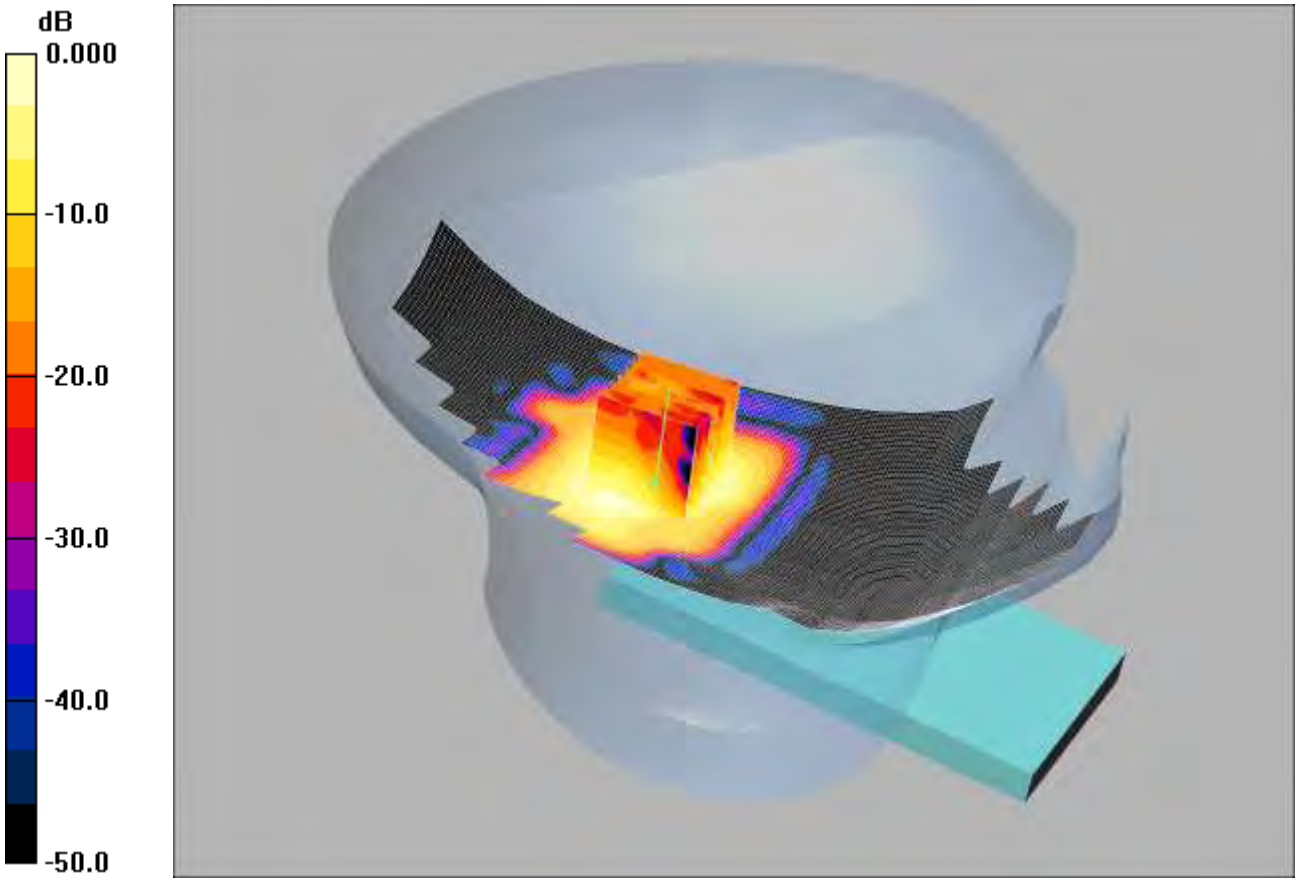
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.75 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.35, 7.35, 7.35); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Left- Middle/Area Scan (91x141x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.138 mW/g

Tilt Left- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.20 V/m; Power Drift = -0.024 dB
Peak SAR (extrapolated) = 0.224 W/kg
SAR(1 g) = 0.115 mW/g; SAR(10 g) = 0.057 mW/g
Maximum value of SAR (measured) = 0.131 mW/g

SCN/92315JD03A/069: Tilt Left Antenna Extended WiFi 802.11b 1Mpbs CH6
Date: 11/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.141mW/g

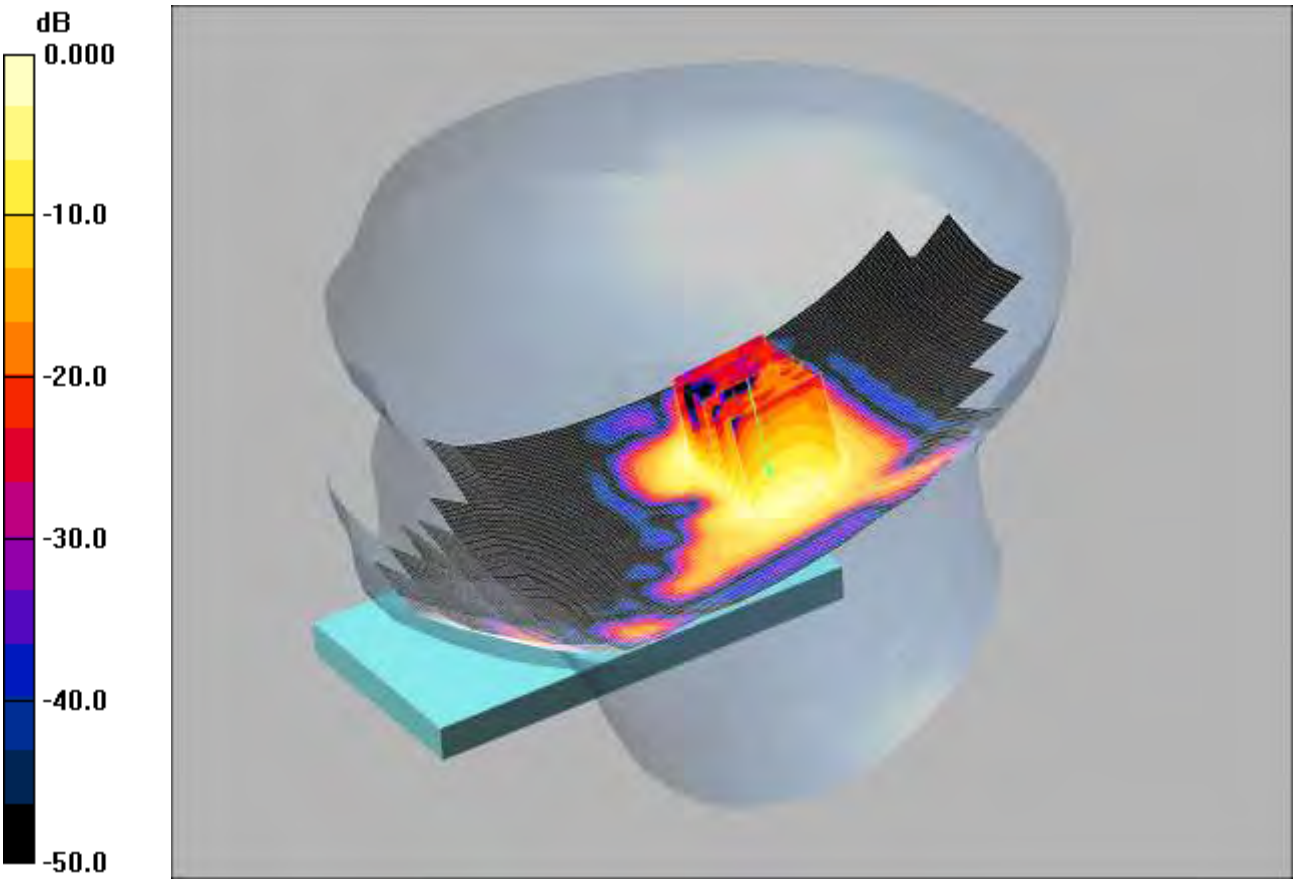
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.75 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.35, 7.35, 7.35); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Left- Middle/Area Scan (91x201x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.152 mW/g

Tilt Left- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.43 V/m; Power Drift = 0.063 dB
Peak SAR (extrapolated) = 0.260 W/kg
SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.061 mW/g
Maximum value of SAR (measured) = 0.141 mW/g

SCN/92315JD03A/070: Touch Right WiFi 802.11b 1Mpbs CH6
Date: 11/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.216mW/g

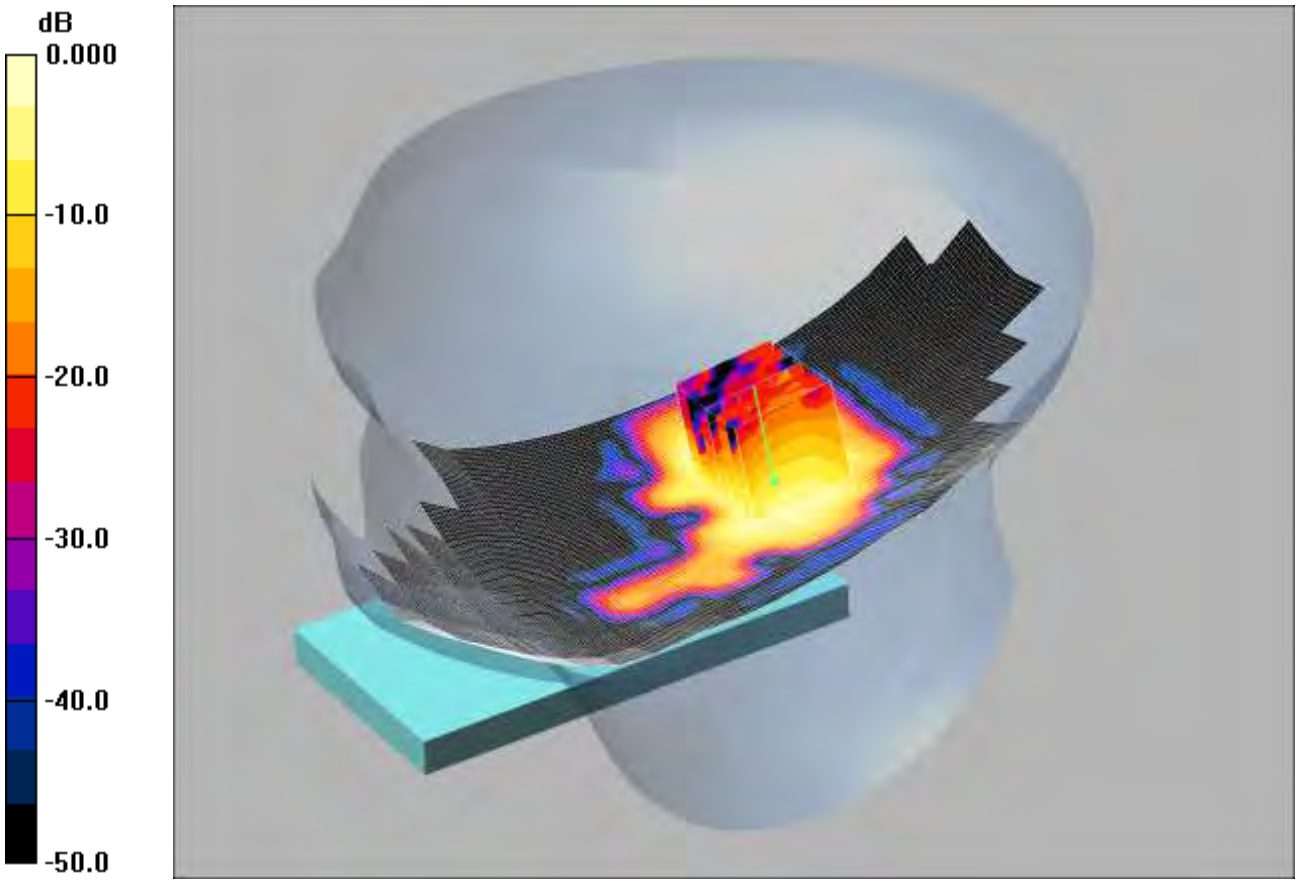
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.75 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.35, 7.35, 7.35); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right- Middle/Area Scan (91x201x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.222 mW/g

Touch Right- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.83 V/m; Power Drift = 0.006 dB
Peak SAR (extrapolated) = 0.470 W/kg
SAR(1 g) = 0.184 mW/g; SAR(10 g) = 0.076 mW/g
Maximum value of SAR (measured) = 0.216 mW/g

SCN/92315JD03A/071: Touch Right Antenna Extended WiFi 802.11b 1Mpbs CH6
Date: 11/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.220mW/g

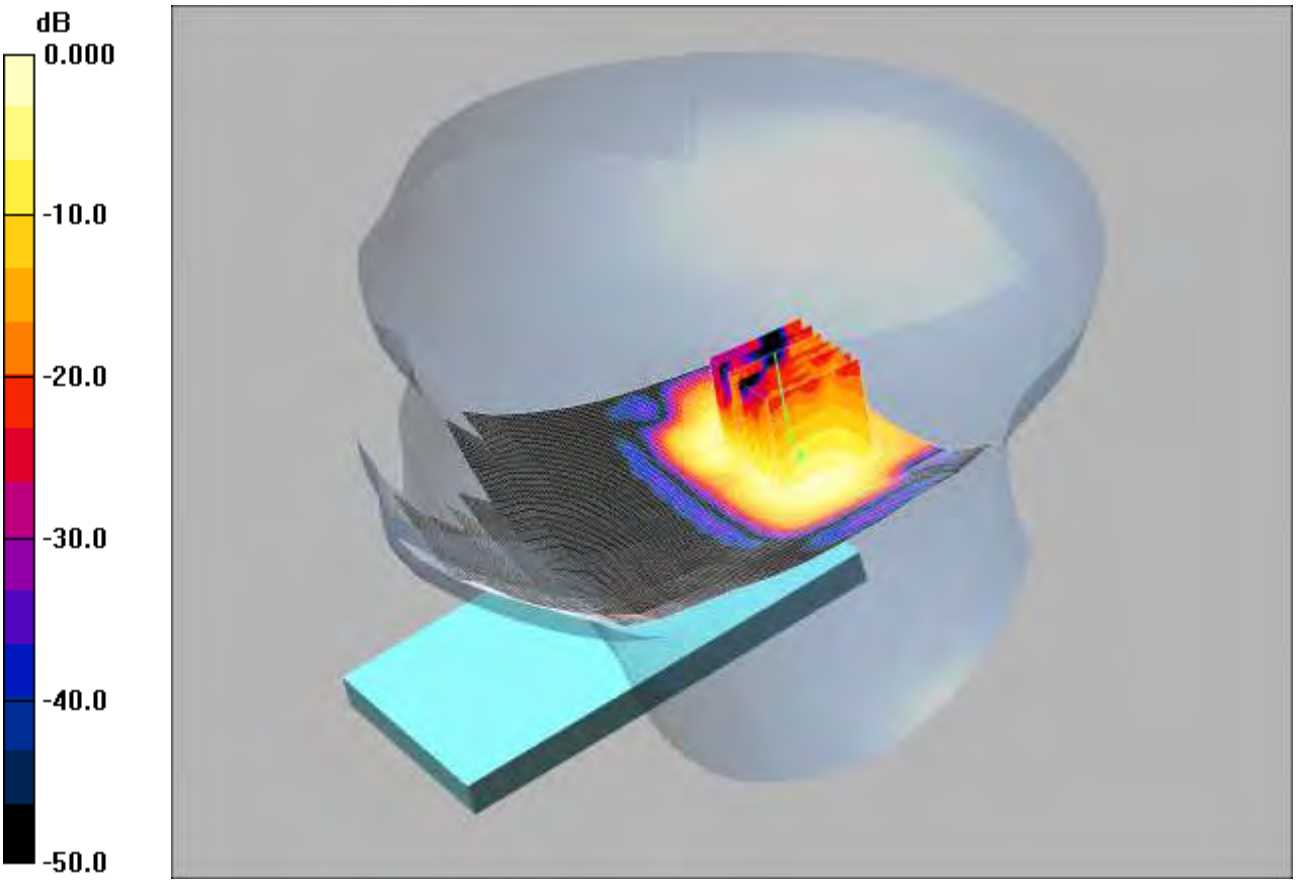
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.75 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.35, 7.35, 7.35); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right- Middle/Area Scan (91x201x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.223 mW/g

Touch Right- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.92 V/m; Power Drift = 0.145 dB
Peak SAR (extrapolated) = 0.478 W/kg
SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.078 mW/g
Maximum value of SAR (measured) = 0.220 mW/g

SCN/92315JD03A/072: Tilt Right WiFi 802.11b 1Mpbs CH6
Date: 11/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.203mW/g

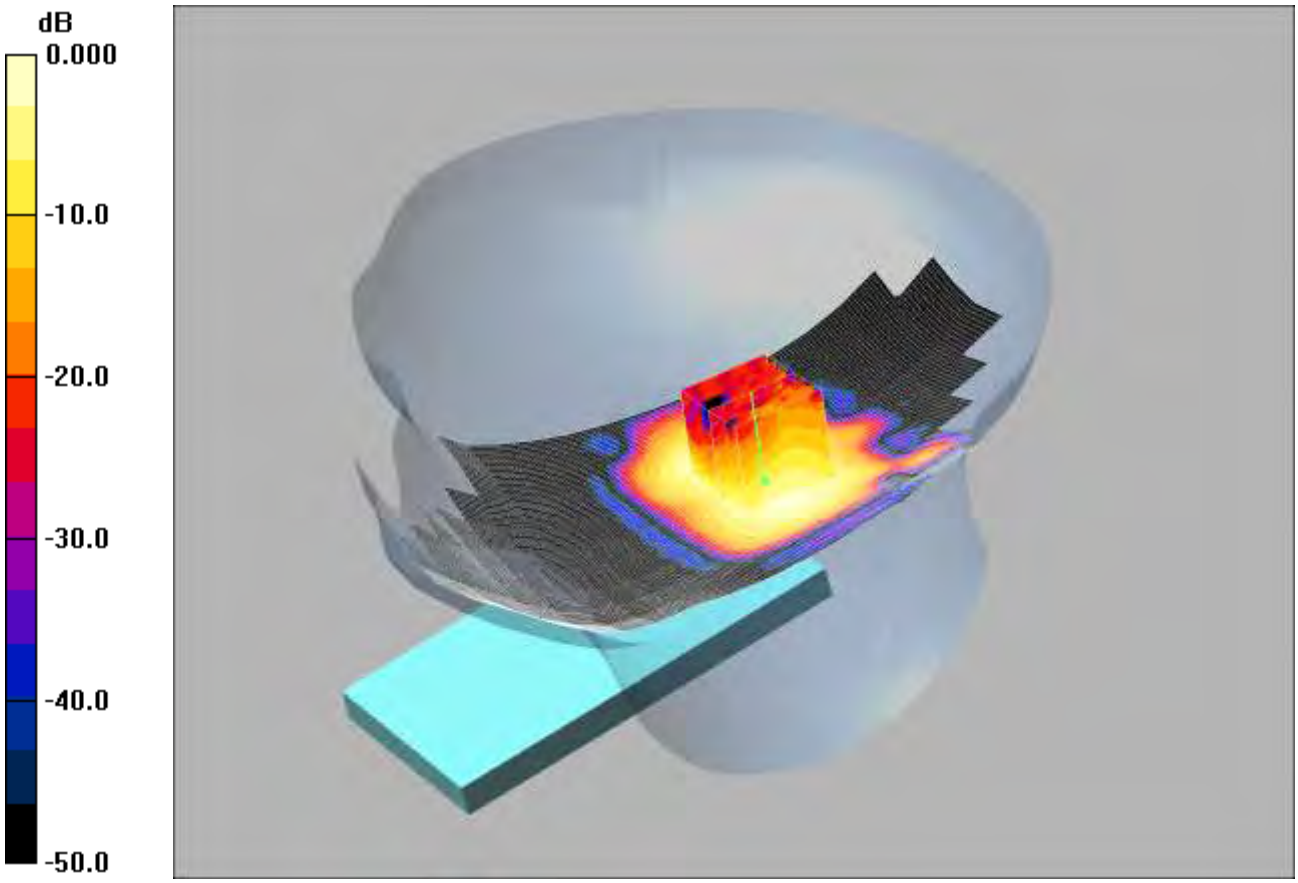
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.75 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.35, 7.35, 7.35); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Right- Middle/Area Scan (91x151x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.197 mW/g

Tilt Right- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.93 V/m; Power Drift = 0.165 dB
Peak SAR (extrapolated) = 0.393 W/kg
SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.076 mW/g
Maximum value of SAR (measured) = 0.203 mW/g

SCN/92315JD03A/073: Tilt Right Antenna Extended WiFi 802.11b 1Mpbs CH6
Date: 11/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.192mW/g

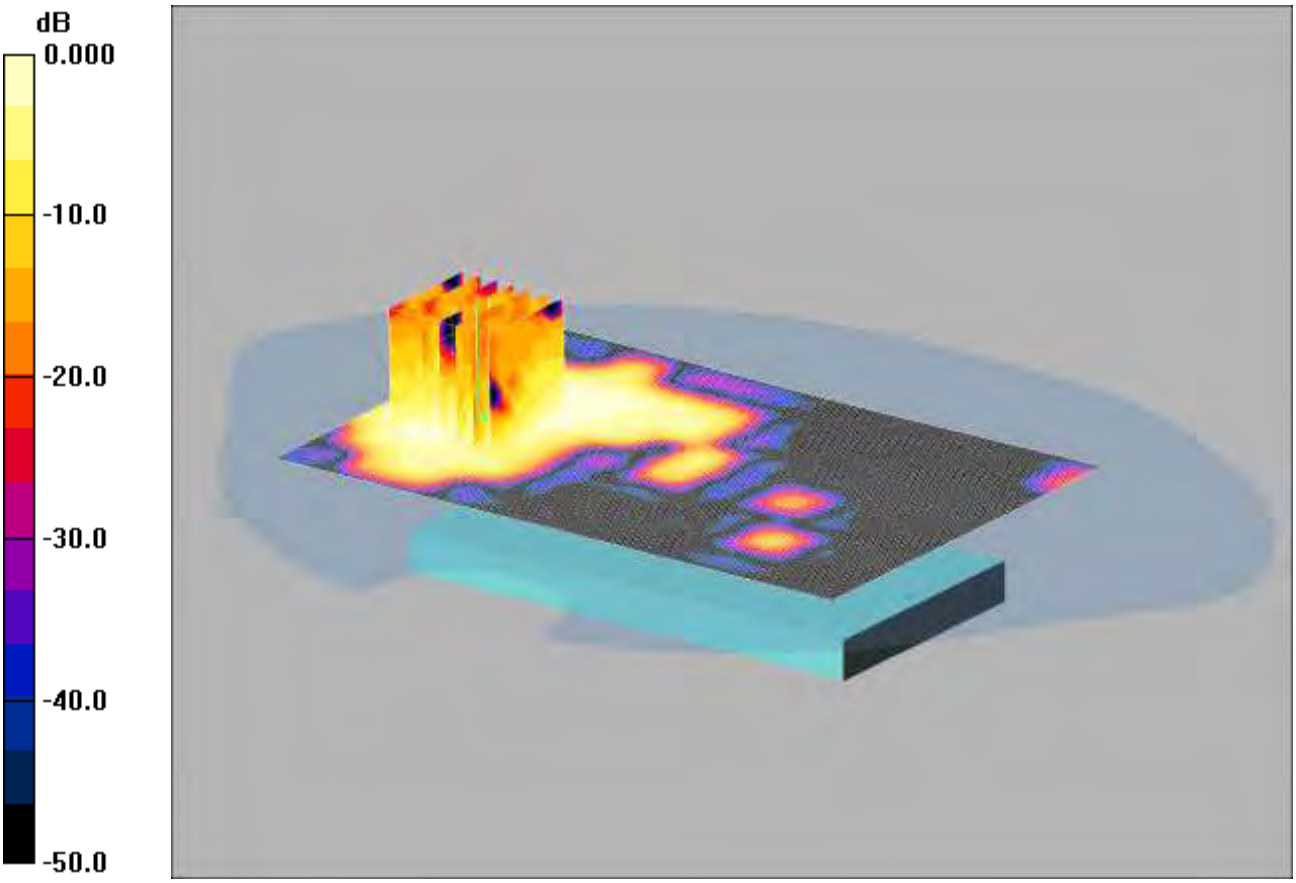
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.75 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.35, 7.35, 7.35); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Right- Middle/Area Scan (91x201x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.191 mW/g

Tilt Right- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.08 V/m; Power Drift = 0.193 dB
Peak SAR (extrapolated) = 0.704 W/kg
SAR(1 g) = 0.169 mW/g; SAR(10 g) = 0.074 mW/g
Maximum value of SAR (measured) = 0.192 mW/g

SCN/92315JD03A/074: Front of EUT Facing Phantom 802.11b 1Mbps CH6
Date: 11/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.042mW/g

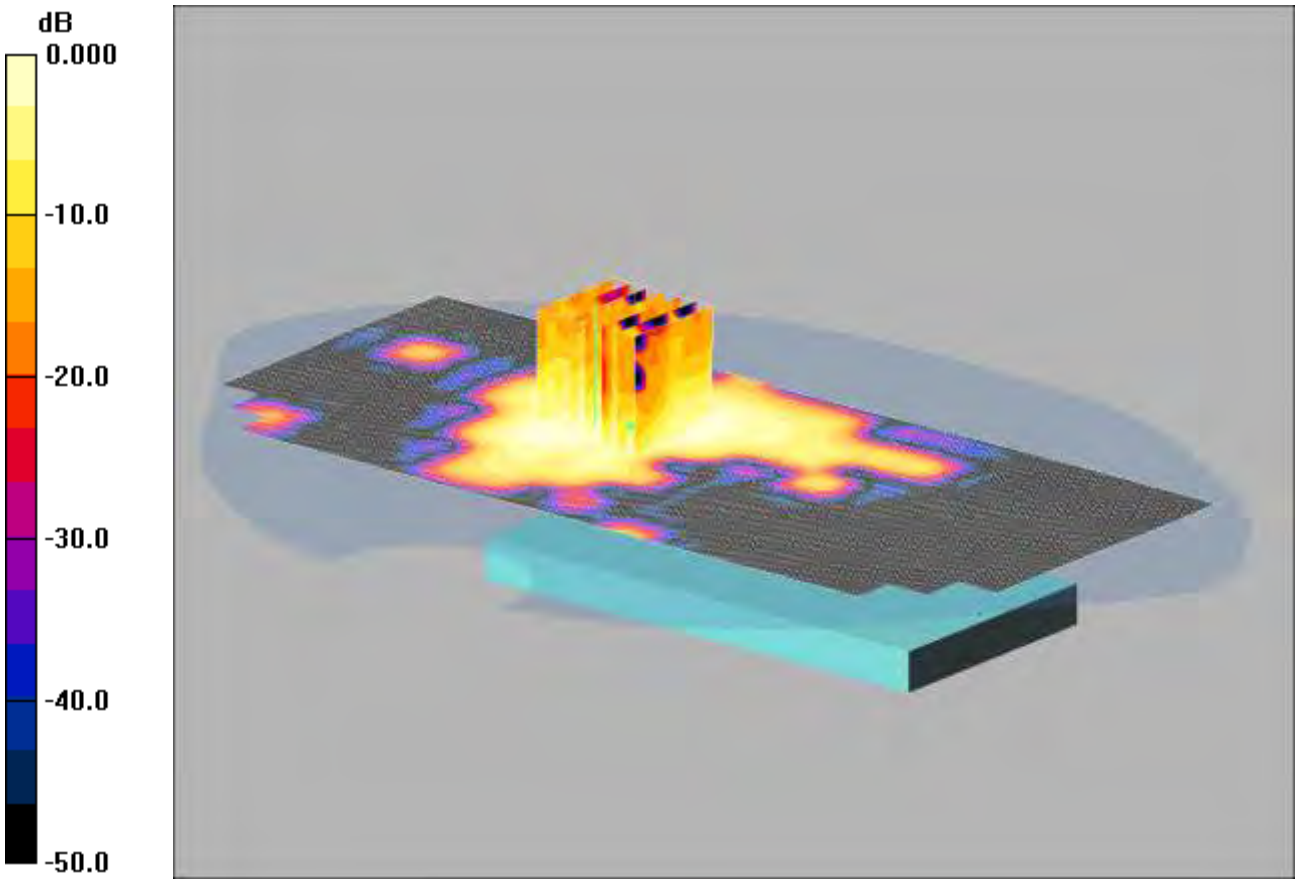
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom- Middle/Area Scan (91x141x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.043 mW/g

Front of EUT Facing Phantom- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.29 V/m; Power Drift = 0.182 dB
Peak SAR (extrapolated) = 0.067 W/kg
SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.042 mW/g

SCN/92315JD03A/075: Front of EUT Antenna Extended Facing Phantom 802.11b 1Mbps CH6
Date: 11/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.045mW/g

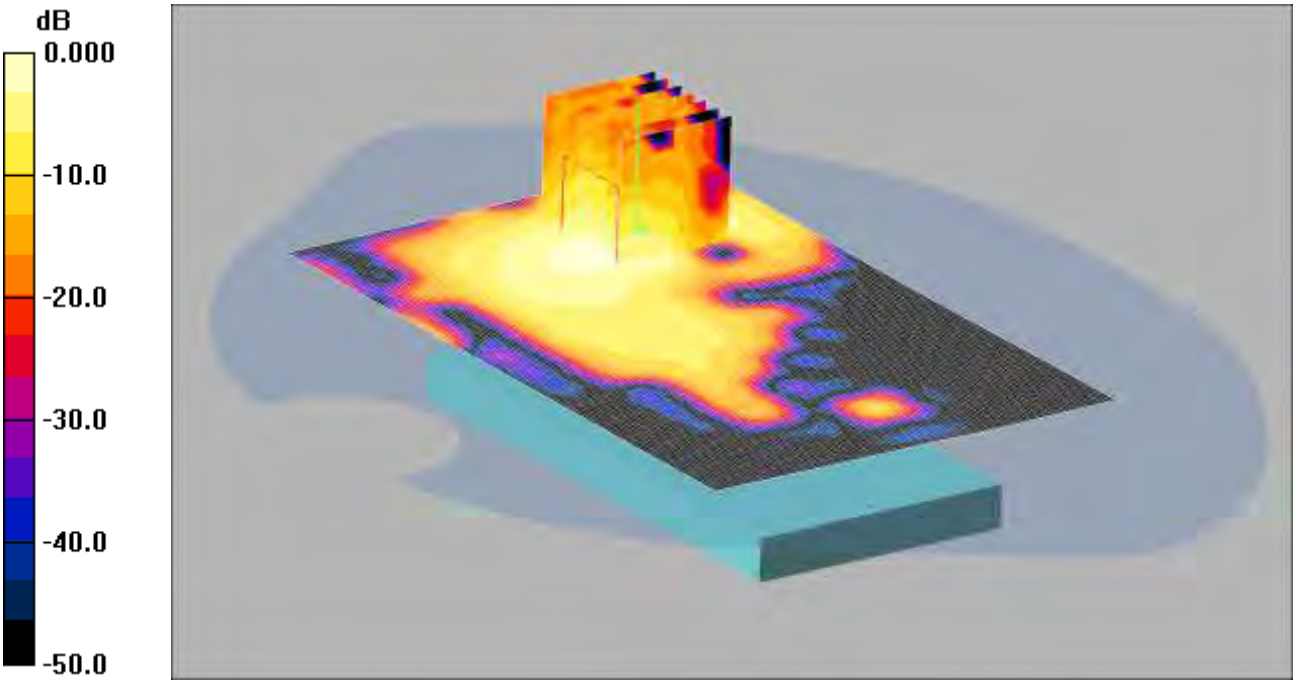
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom- Middle/Area Scan (91x201x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.044 mW/g

Front of EUT Facing Phantom- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.79 V/m; Power Drift = 0.073 dB
Peak SAR (extrapolated) = 0.070 W/kg
SAR(1 g) = 0.040 mW/g; SAR(10 g) = 0.021 mW/g
Maximum value of SAR (measured) = 0.045 mW/g

SCN/92315JD03A/076: Back of EUT Facing Phantom 802.11b 1Mbps CH6
Date: 11/05/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: P-03E(D31FS2 Pre Comp); Serial: 355335050003921



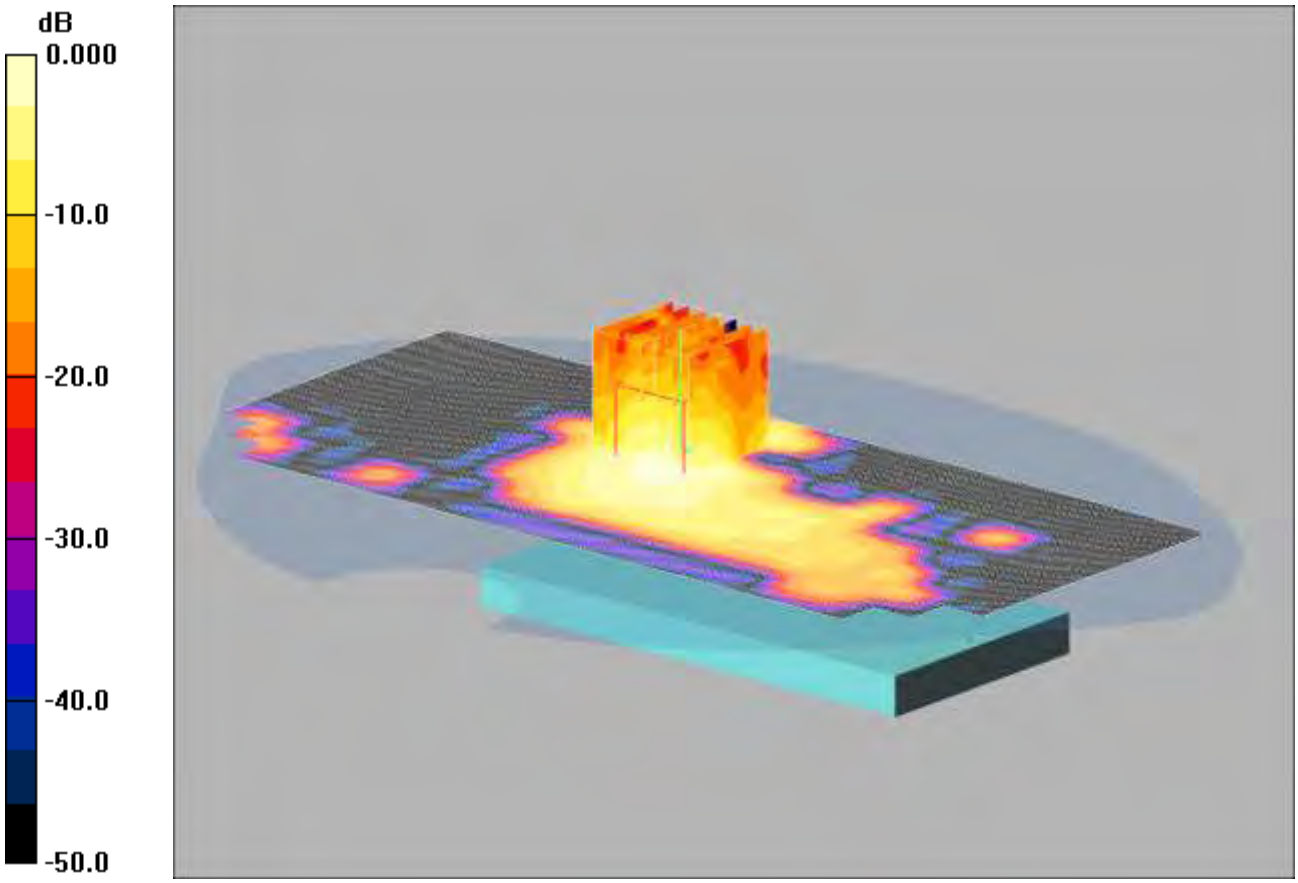
0 dB = 0.090mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom- Middle/Area Scan (91x141x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.094 mW/g

Back of EUT Facing Phantom- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.08 V/m; Power Drift = 0.054 dB
Peak SAR (extrapolated) = 0.160 W/kg
SAR(1 g) = 0.079 mW/g; SAR(10 g) = 0.036 mW/g
Maximum value of SAR (measured) = 0.090 mW/g

SCN/92315JD03A/077: Back of EUT Antenna Extended Facing Phantom 802.11b 1Mbps CH6
Date: 11/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.112mW/g

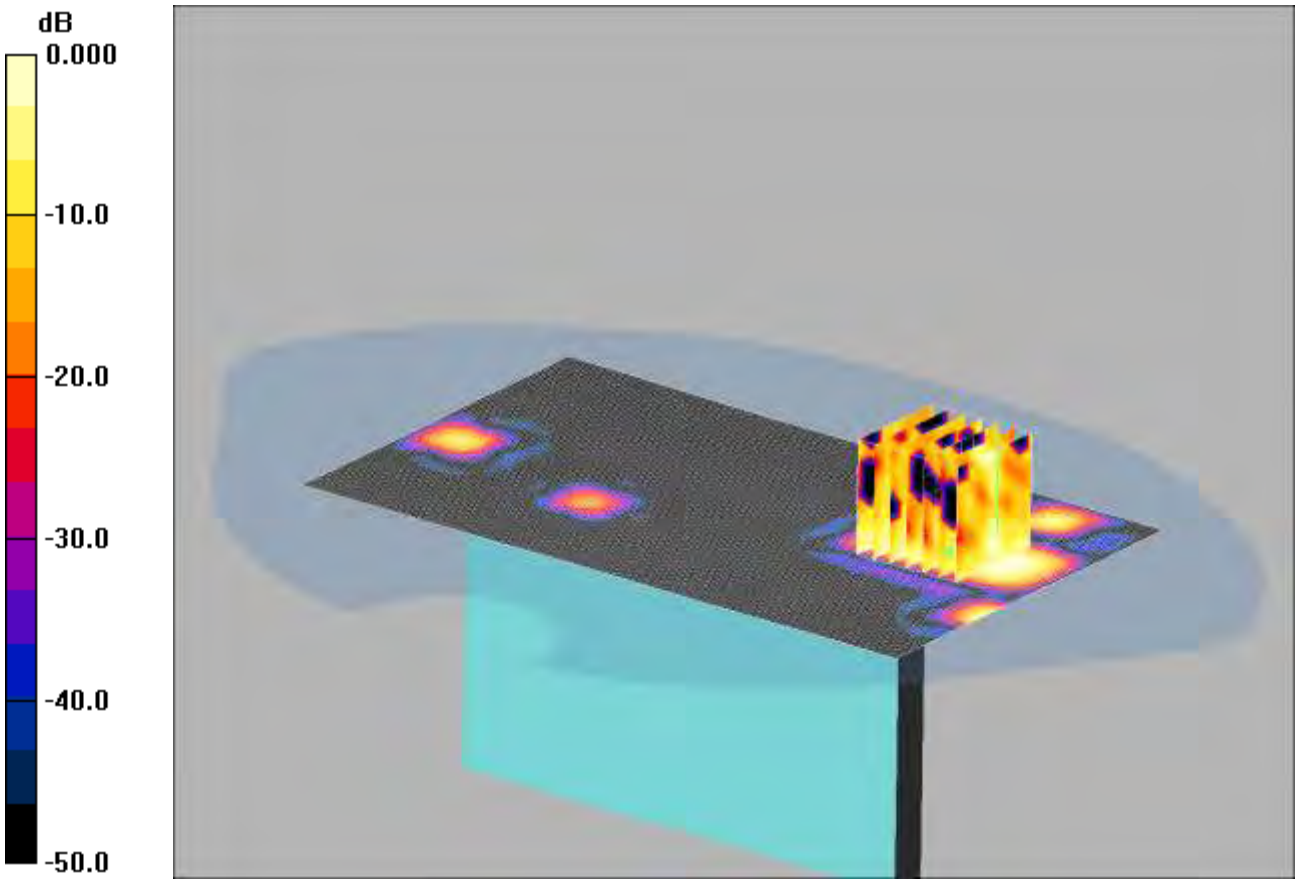
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom- Middle/Area Scan (91x201x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.118 mW/g

Back of EUT Facing Phantom- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.84 V/m; Power Drift = 0.079 dB
Peak SAR (extrapolated) = 0.209 W/kg
SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.044 mW/g
Maximum value of SAR (measured) = 0.112 mW/g

SCN/92315JD03A/078: Left Hand Side of EUT Facing Phantom 802.11b 1Mbps CH6
Date: 12/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



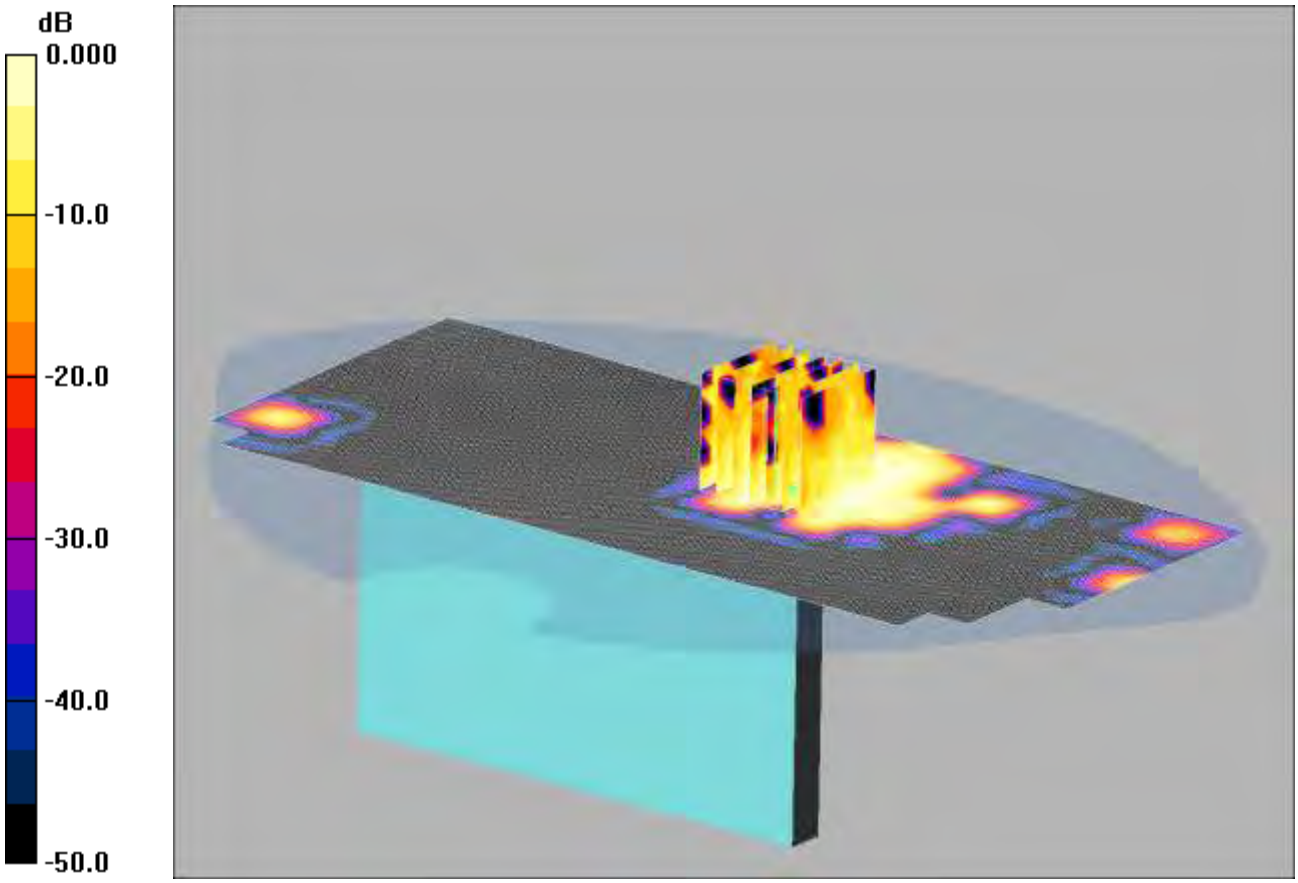
0 dB = 0.019mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Left Hand Side of EUT Facing Phantom- Middle 2 2/Area Scan 2 (91x151x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.032 mW/g
Left Hand Side of EUT Facing Phantom- Middle 2 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.27 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 0.021 W/kg
SAR(1 g) = 0.00338 mW/g; SAR(10 g) = 0.000778 mW/g
Maximum value of SAR (measured) = 0.019 mW/g

SCN/92315JD03A/079: Left Hand Side of EUT Antenna Extended Facing Phantom 802.11b 1Mbps CH6
Date: 12/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.017mW/g

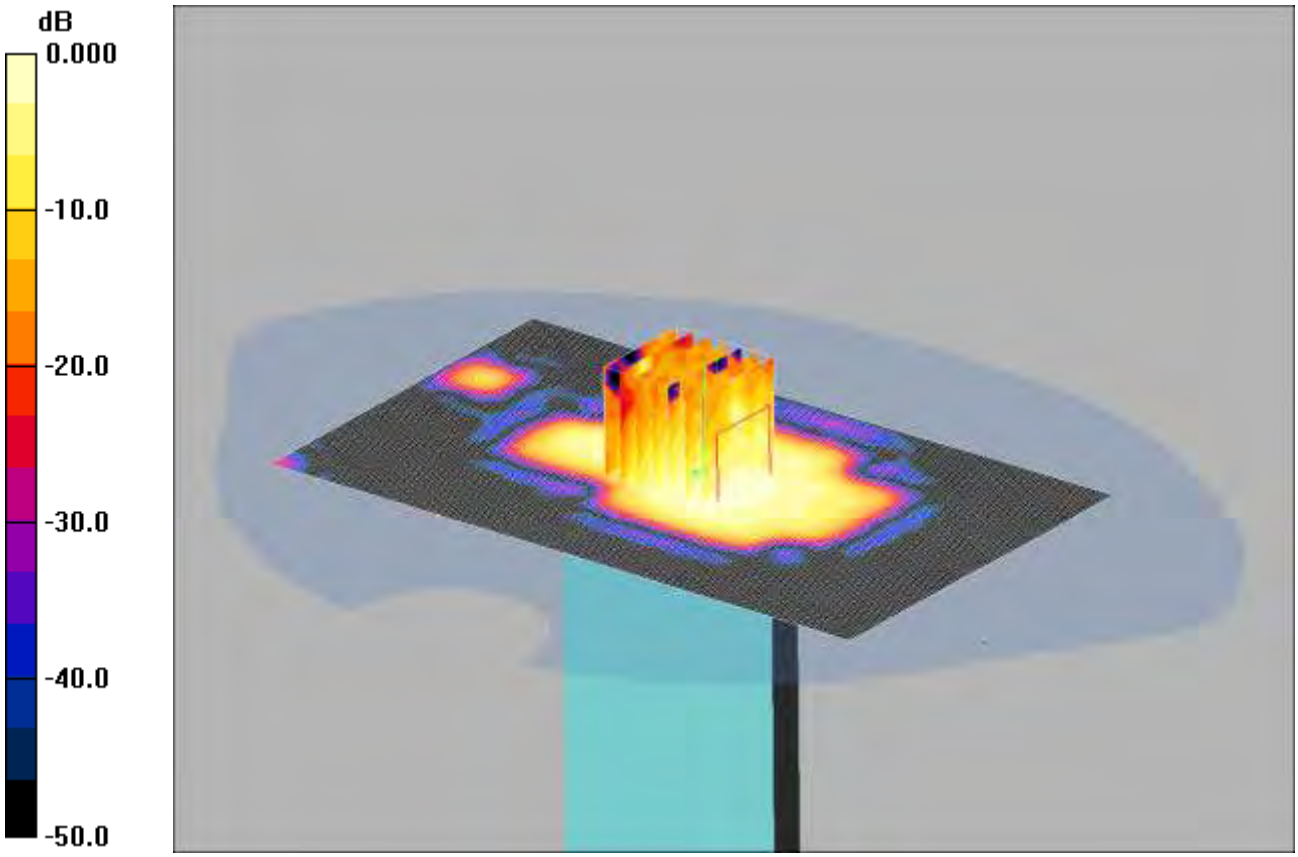
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Left Hand Side of EUT Facing Phantom- Middle 2 2/Area Scan 2 (91x201x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.035 mW/g

Left Hand Side of EUT Facing Phantom- Middle 2 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.55 V/m; Power Drift = -0.015 dB
Peak SAR (extrapolated) = 0.026 W/kg
SAR(1 g) = 0.015 mW/g; SAR(10 g) = 0.00715 mW/g
Maximum value of SAR (measured) = 0.017 mW/g

SCN/92315JD03A/080: Top of EUT Facing Phantom 802.11b 1Mbps CH6
Date: 12/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



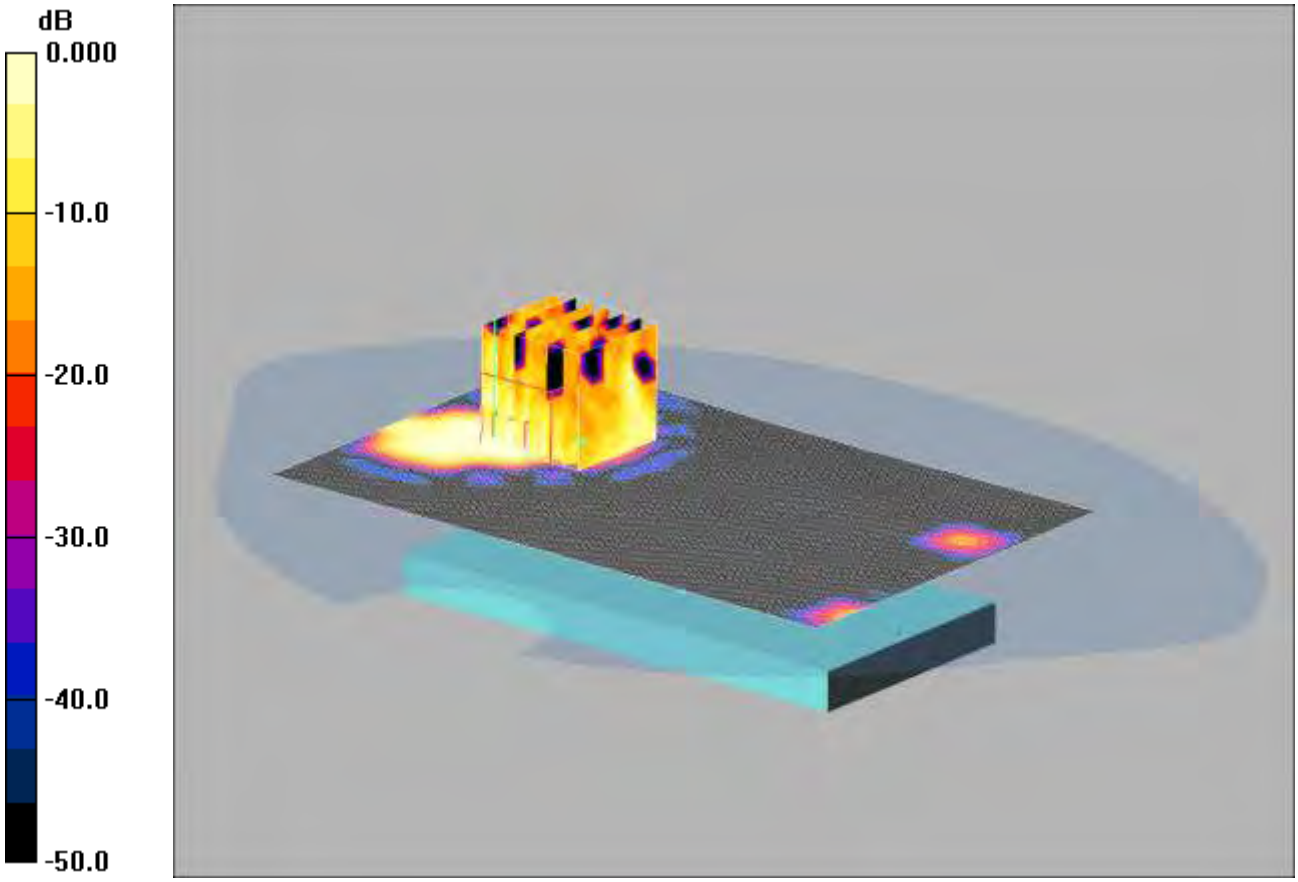
0 dB = 0.077mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Top of EUT Facing Phantom- Middle/Area Scan 2 (91x151x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.078 mW/g
Top of EUT Facing Phantom- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.02 V/m; Power Drift = -0.017 dB
Peak SAR (extrapolated) = 0.240 W/kg
SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.028 mW/g
Maximum value of SAR (measured) = 0.077 mW/g

SCN/92315JD03A/081: Front of EUT Facing Phantom at 15mm 802.11b 1Mbps CH6
Date: 12/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



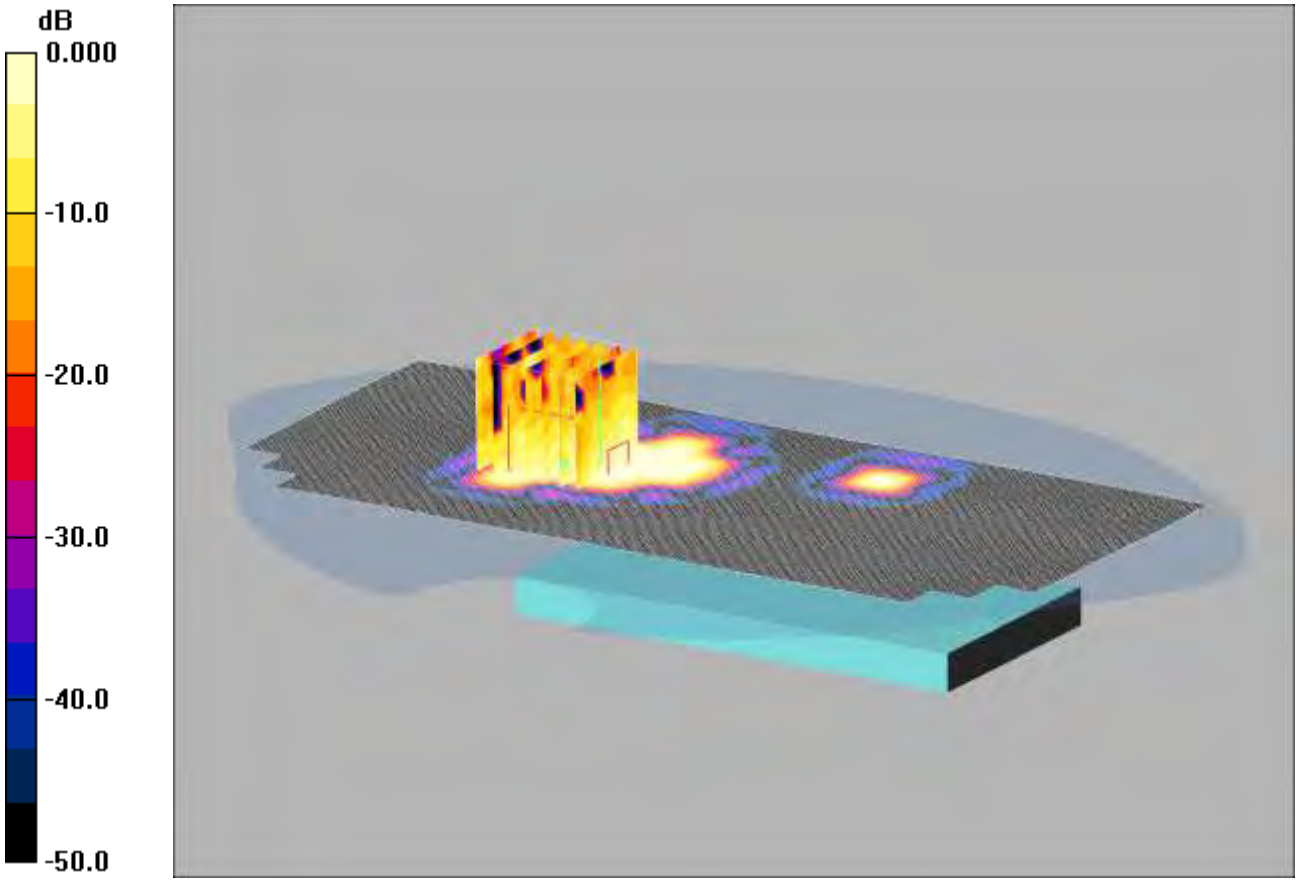
0 dB = 0.029mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom- Middle 2/Area Scan (91x141x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.034 mW/g

Front of EUT Facing Phantom- Middle 2/Zoom Scan (7x7x7) 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.96 V/m; Power Drift = -0.159 dB
Peak SAR (extrapolated) = 0.131 W/kg
SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.00826 mW/g
Maximum value of SAR (measured) = 0.029 mW/g

SCN/92315JD03A/082: Front of EUT Facing Phantom Antenna Extended at 15mm 802.11b 1Mbps CH6
Date: 12/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



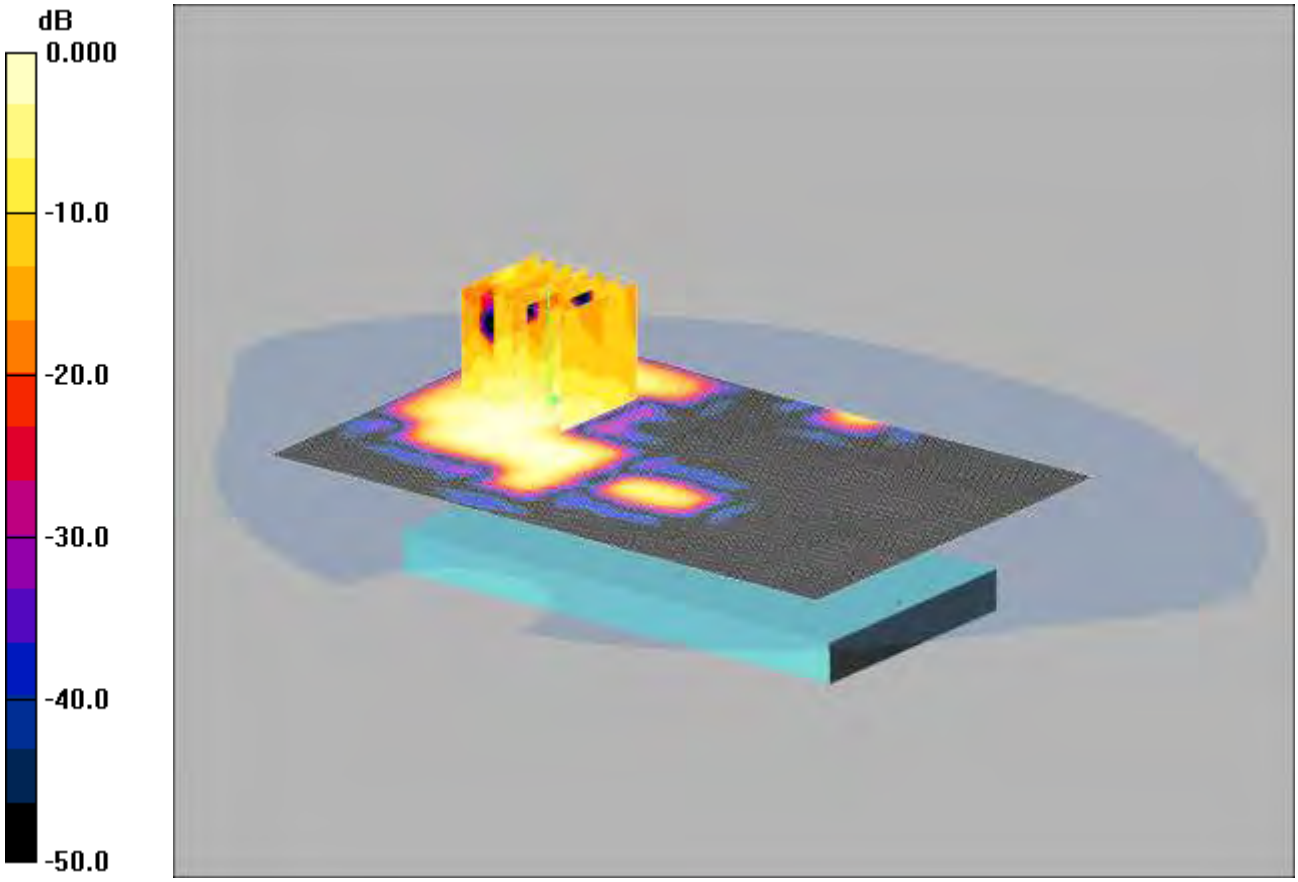
0 dB = 0.024mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Front of EUT Facing Phantom- Middle 2/Area Scan (91x201x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.045 mW/g

Front of EUT Facing Phantom- Middle 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.41 V/m; Power Drift = 0.098 dB
Peak SAR (extrapolated) = 0.113 W/kg
SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.00607 mW/g
Maximum value of SAR (measured) = 0.024 mW/g

SCN/92315JD03A/083: Back of EUT Facing Phantom at 15mm 802.11b 1Mbps CH6
Date: 12/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



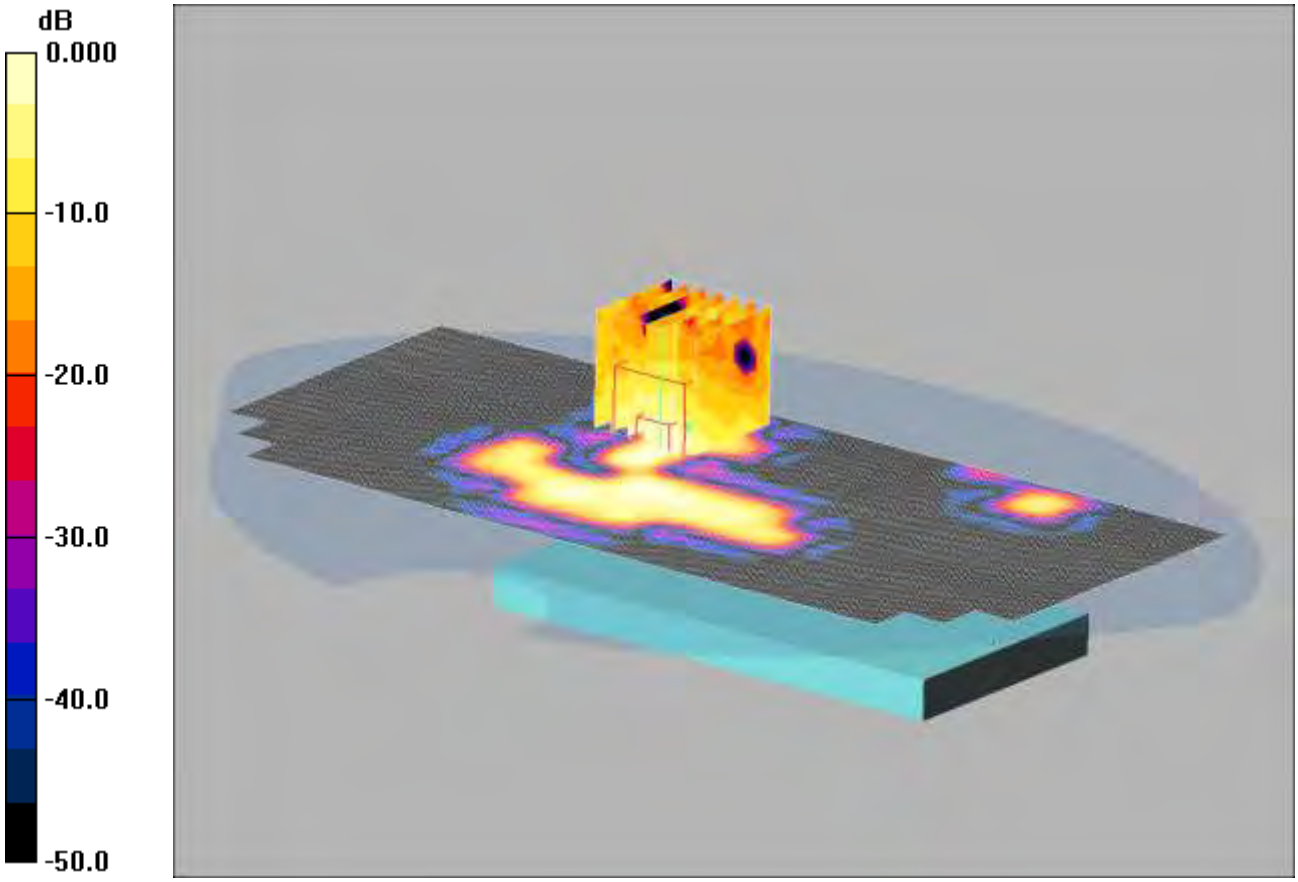
0 dB = 0.045mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom- Middle/Area Scan (91x141x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.079 mW/g

Back of EUT Facing Phantom- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.91 V/m; Power Drift = 0.103 dB
Peak SAR (extrapolated) = 0.070 W/kg
SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.012 mW/g
Maximum value of SAR (measured) = 0.045 mW/g

SCN/92315JD03A/084: Back of EUT Antenna Extended Facing Phantom at 15mm 802.11b 1Mbps CH6
Date: 12/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



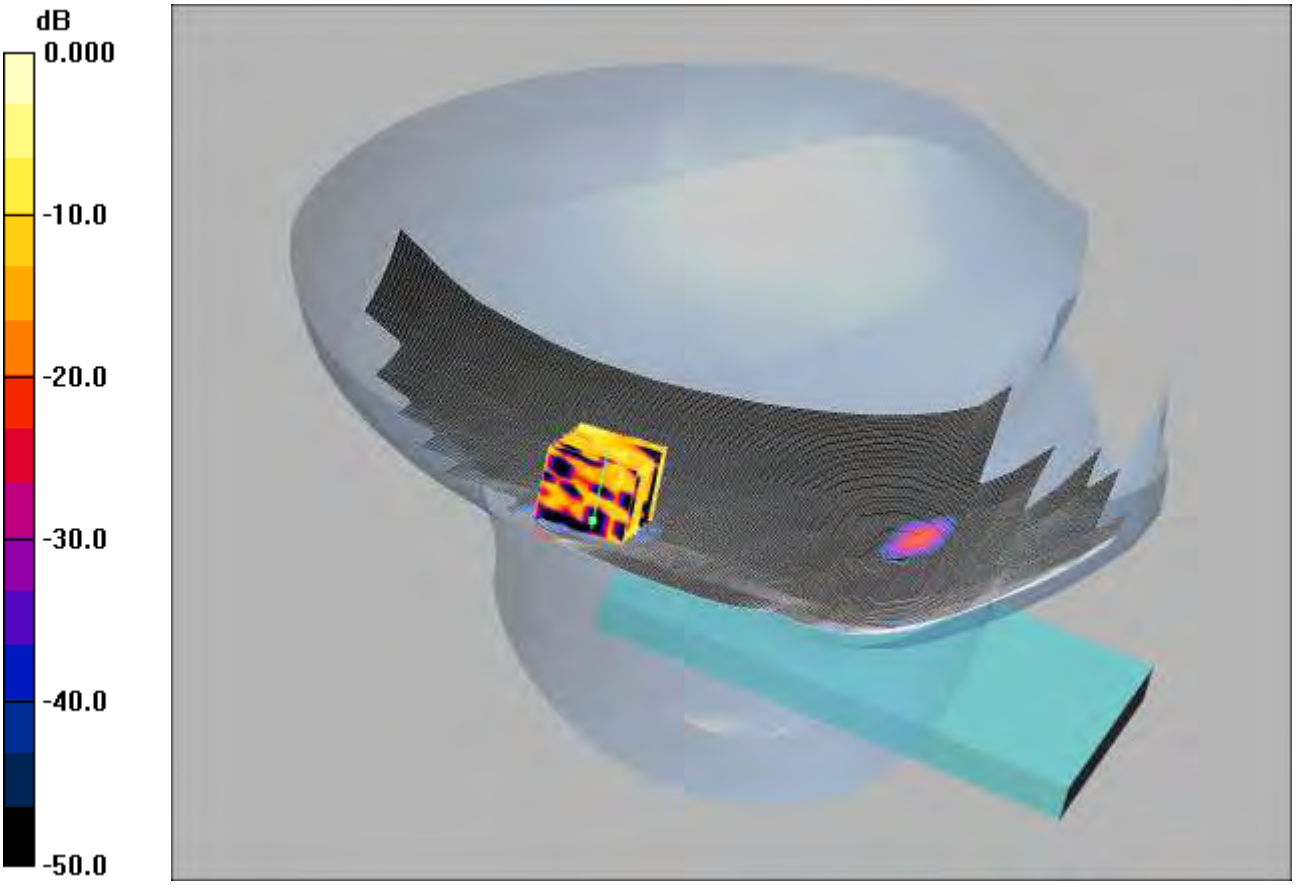
0 dB = 0.044mW/g

Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Back of EUT Facing Phantom- Middle/Area Scan (91x201x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.046 mW/g

Back of EUT Facing Phantom- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.99 V/m; Power Drift = -0.057 dB
Peak SAR (extrapolated) = 0.121 W/kg
SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.014 mW/g
Maximum value of SAR (measured) = 0.044 mW/g

SCN/92315JD03A/085: Tilt Left Antenna Extended WiFi 802.11a 6Mpbs CH36
Date: 15/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



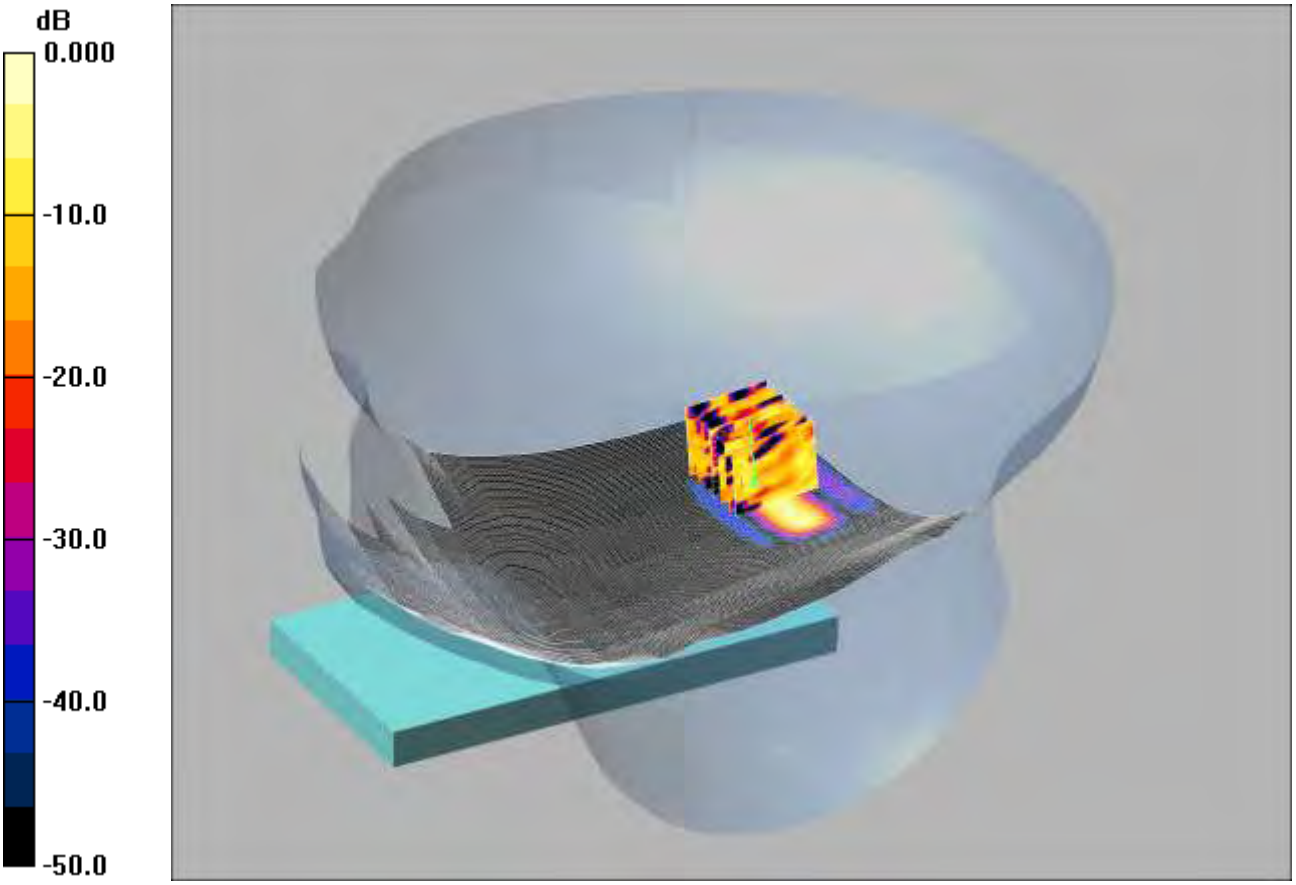
0 dB = 0.045mW/g

Communication System: WLAN 802.11a UNII; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium: 5200/5500 MHz HSL Medium parameters used (interpolated): f = 5180 MHz; σ = 4.57 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(5.18, 5.18, 5.18); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Left- Middle/Area Scan (111x241x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.022 mW/g

Tilt Left- Middle/Zoom Scan (7x7x12) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.93 V/m; Power Drift = 0.438 dB
Peak SAR (extrapolated) = 0.167 W/kg
SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.00547 mW/g
Maximum value of SAR (measured) = 0.045 mW/g

SCN/92315JD03A/086: Touch Right WiFi 802.11a 6Mpbs CH36
Date: 15/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



0 dB = 0.047mW/g

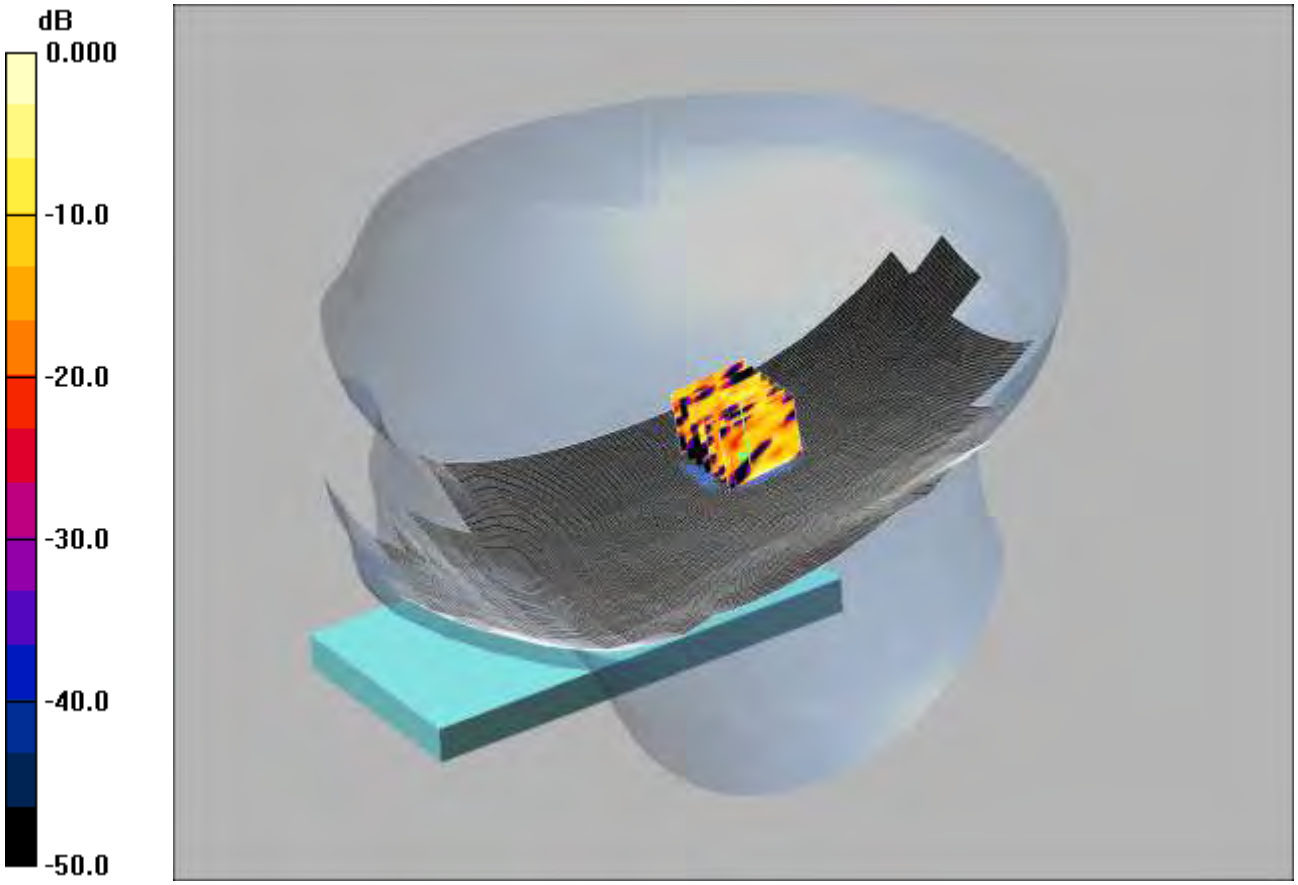
Communication System: WLAN 802.11a UNII; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium: 5200/5500 MHz HSL Medium parameters used (interpolated): f = 5180 MHz; σ = 4.57 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(5.18, 5.18, 5.18); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right- Middle/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.023 mW/g

Touch Right- Middle/Zoom Scan (7x7x12) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.88 V/m; Power Drift = 0.746 dB
Peak SAR (extrapolated) = 0.197 W/kg
SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.00473 mW/g

Maximum value of SAR (measured) = 0.047 mW/g

SCN/92315JD03A/087: Touch Right Antenna Extended WiFi 802.11a 6Mpbs CH36
Date: 16/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



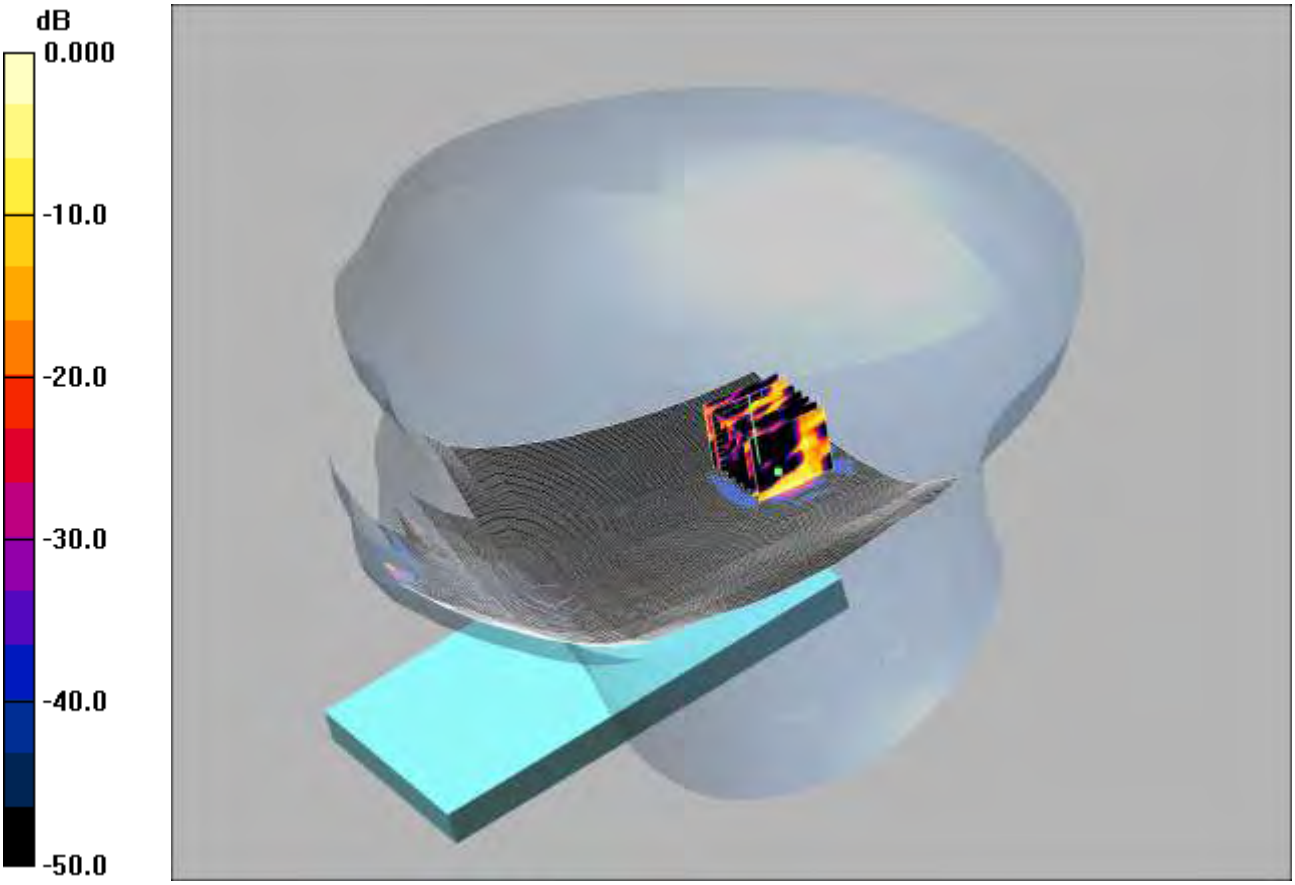
0 dB = 0.041mW/g

Communication System: WLAN 802.11a UNII; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium: 5200/5500 MHz HSL Medium parameters used (interpolated): f = 5180 MHz; σ = 4.57 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(5.18, 5.18, 5.18); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right- Middle/Area Scan (111x241x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.024 mW/g

Touch Right- Middle/Zoom Scan (7x7x12) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.75 V/m; Power Drift = 0.271 dB
Peak SAR (extrapolated) = 0.136 W/kg
SAR(1 g) = 0.017 mW/g; SAR(10 g) = 0.00364 mW/g
Maximum value of SAR (measured) = 0.041 mW/g

SCN/92315JD03A/088: Tilt Right WiFi 802.11a 6Mpbs CH36
Date: 16/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



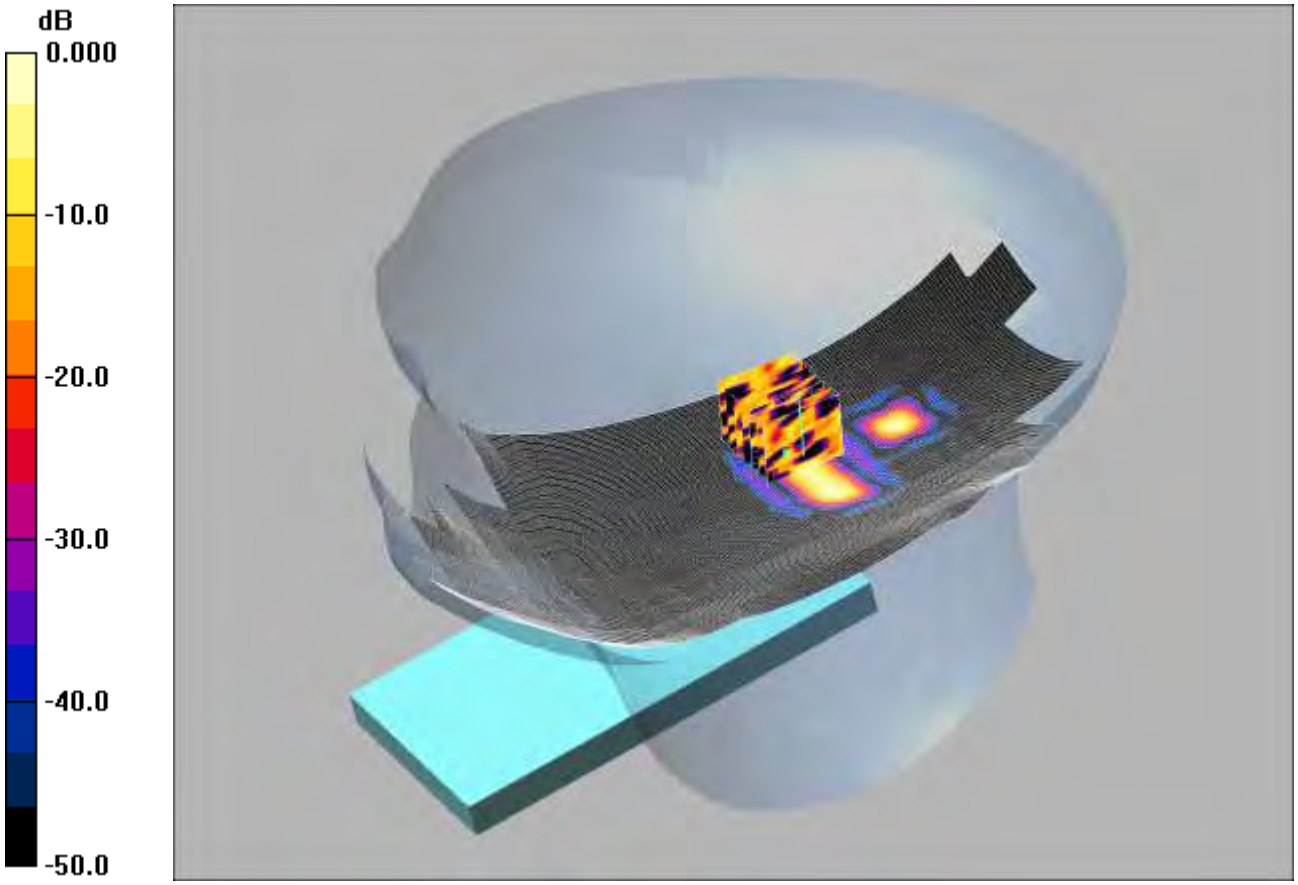
0 dB = 0.046mW/g

Communication System: WLAN 802.11a UNII; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium: 5200/5500 MHz HSL Medium parameters used (interpolated): f = 5180 MHz; σ = 4.57 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(5.18, 5.18, 5.18); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Right- Middle/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.030 mW/g

Tilt Right- Middle/Zoom Scan (7x7x12) 2 (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.08 V/m; Power Drift = -0.628 dB
Peak SAR (extrapolated) = 0.241 W/kg
SAR(1 g) = 0.020 mW/g; SAR(10 g) = 0.00386 mW/g
Maximum value of SAR (measured) = 0.046 mW/g

SCN/92315JD03A/089: Tilt Right Antenna Extended WiFi 802.11a 6Mpbs CH36
Date: 16/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



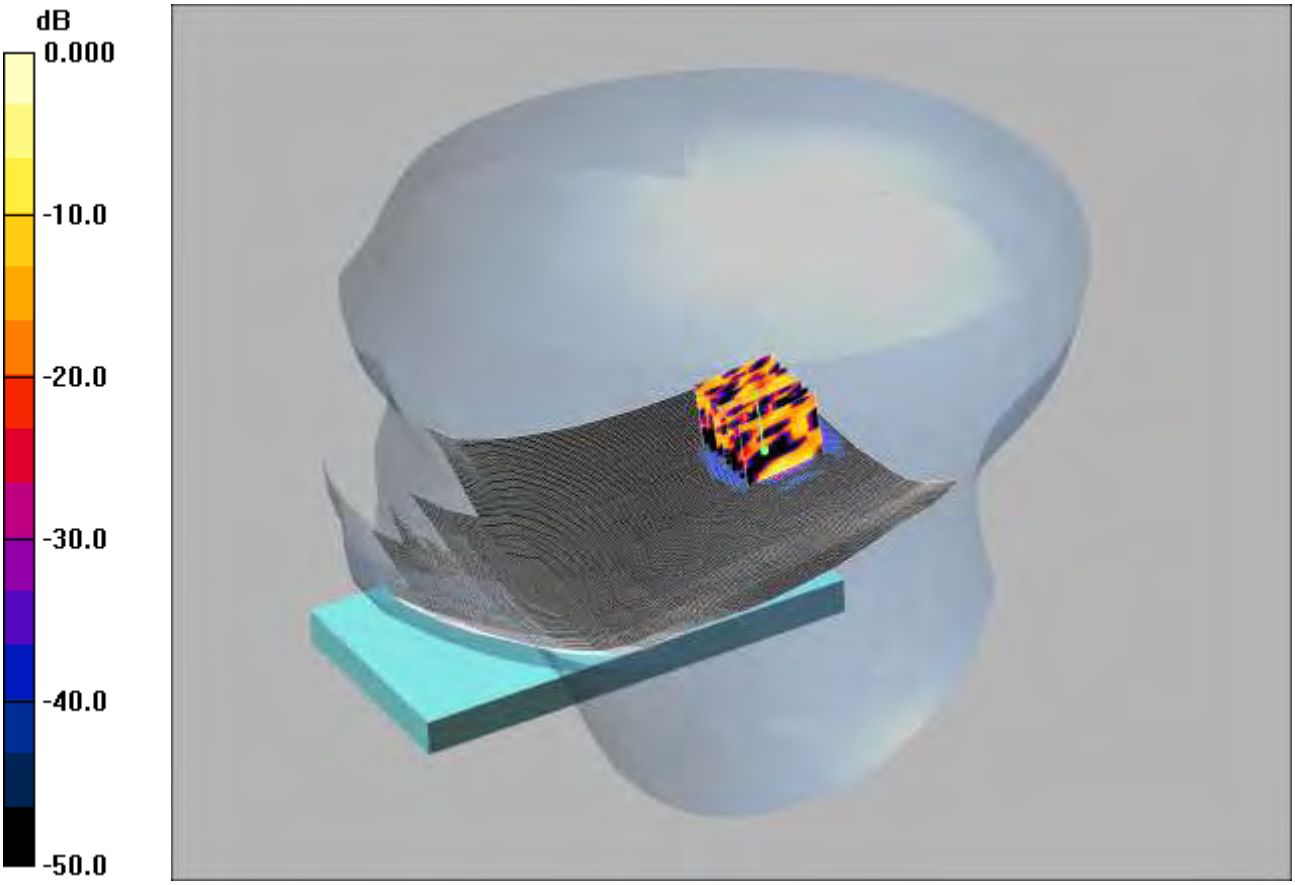
0 dB = 0.042mW/g

Communication System: WLAN 802.11a UNII; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium: 5200/5500 MHz HSL Medium parameters used (interpolated): f = 5180 MHz; σ = 4.57 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(5.18, 5.18, 5.18); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt Right- Middle/Area Scan (111x241x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.028 mW/g

Tilt Right- Middle/Zoom Scan (7x7x12) 2 (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.03 V/m; Power Drift = 2.55 dB
Peak SAR (extrapolated) = 0.113 W/kg
SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.00362 mW/g
Maximum value of SAR (measured) = 0.042 mW/g

SCN/92315JD03A/090: Touch Right WiFi 802.11a 6Mpbs CH64
Date: 16/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



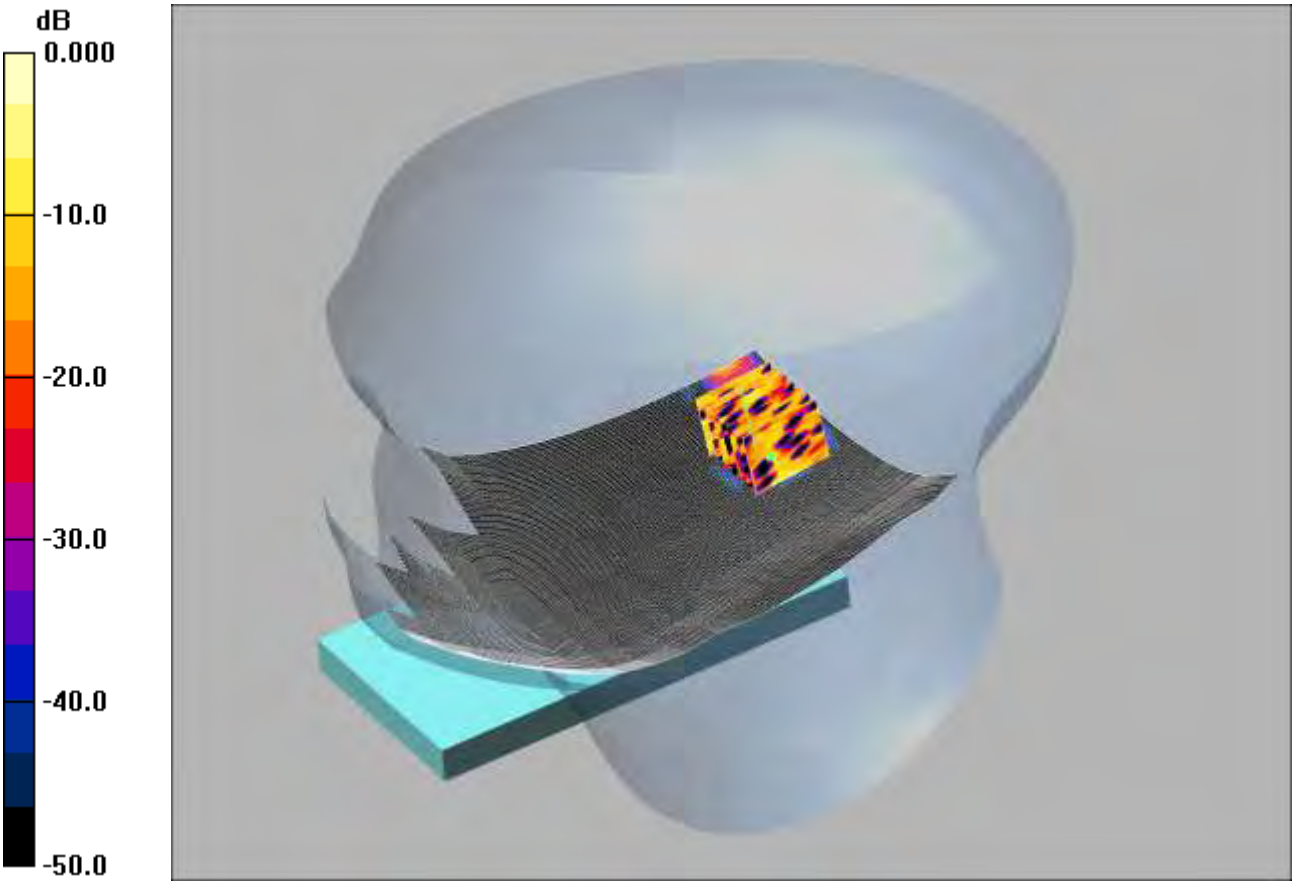
0 dB = 0.053mW/g

Communication System: WLAN 802.11a UNII; Frequency: 5320 MHz;Duty Cycle: 1:1
Medium: 5200/5500 MHz HSL Medium parameters used (interpolated): f = 5320 MHz; σ = 4.71 mho/m; ε_r = 35.2; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(4.92, 4.92, 4.92); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right- Middle/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.030 mW/g

Touch Right- Middle/Zoom Scan (7x7x12) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.16 V/m; Power Drift = -0.176 dB
Peak SAR (extrapolated) = 0.177 W/kg
SAR(1 g) = 0.023 mW/g; SAR(10 g) = 0.00522 mW/g
Maximum value of SAR (measured) = 0.053 mW/g

SCN/92315JD03A/091: Touch Right WiFi 802.11a 6Mpbs CH124
Date: 16/04/2013
DUT: Panasonic Mobile Comms Dev of Europe; Type: D31FS2 Comp; Serial: 355335050017251



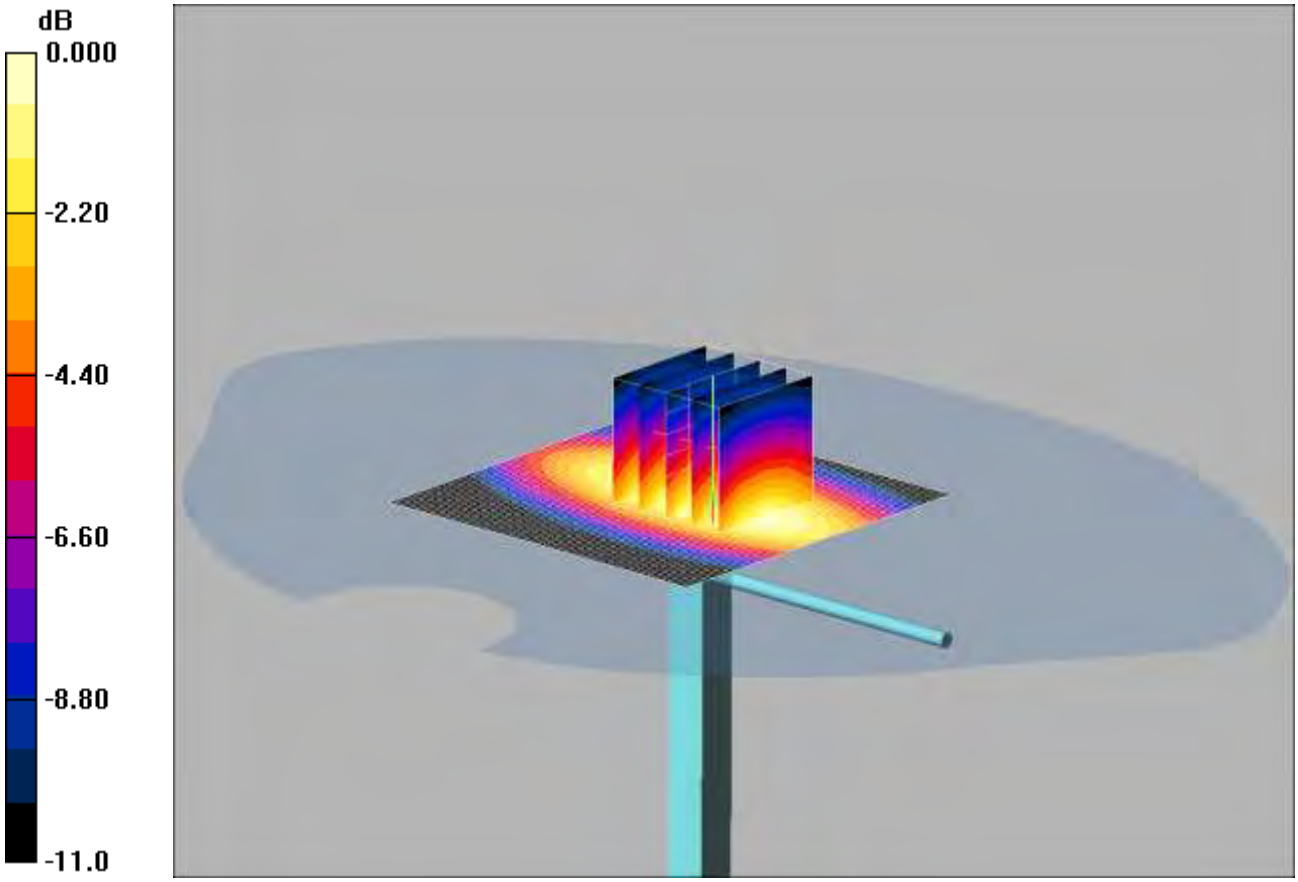
0 dB = 0.062mW/g

Communication System: WLAN 802.11a UNII; Frequency: 5620 MHz;Duty Cycle: 1:1
Medium: 5200/5500 MHz HSL Medium parameters used (interpolated): f = 5620 MHz; σ = 4.99 mho/m; ε_r = 34.8; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(4.49, 4.49, 4.49); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Touch Right- Middle 2/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.021 mW/g

Touch Right- Middle 2/Zoom Scan (7x7x12) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.03 V/m; Power Drift = 0.961 dB
Peak SAR (extrapolated) = 0.129 W/kg
SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.00649 mW/g
Maximum value of SAR (measured) = 0.062 mW/g

SCN/92315JD03A/092: System Performance Check 900MHz Head 02 04 13
Date: 02/04/2013
DUT: Dipole 900 MHz; SN: 035; Type: D900V2; Serial: SN035



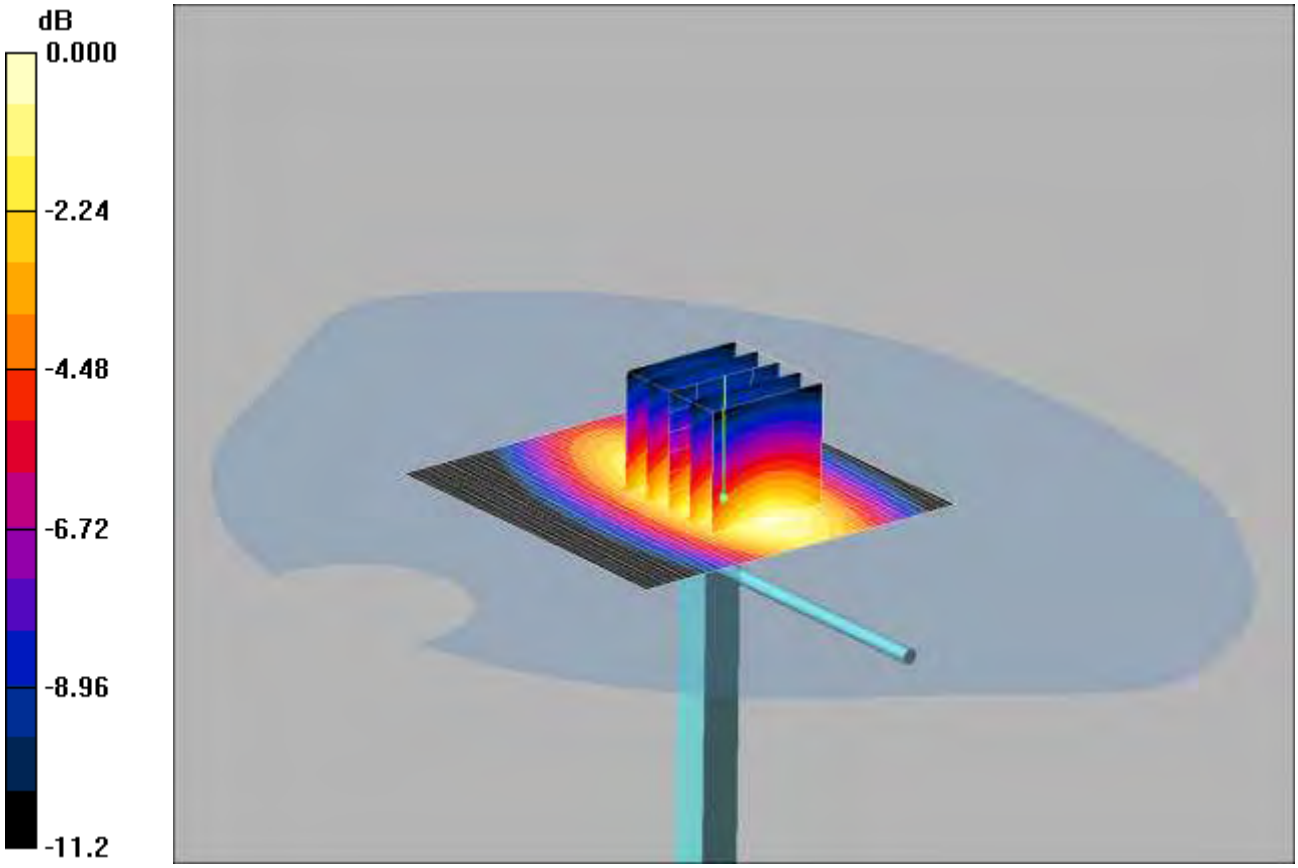
0 dB = 2.74mW/g

Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: 900 MHz HSL Medium parameters used: f = 900 MHz; σ = 0.967 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.51, 9.51, 9.51); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW 2/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.74 mW/g

d=15mm, Pin=250mW 2/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.4 V/m; Power Drift = 0.030 dB
Peak SAR (extrapolated) = 3.84 W/kg
SAR(1 g) = 2.53 mW/g; SAR(10 g) = 1.63 mW/g
Maximum value of SAR (measured) = 2.74 mW/g

SCN/92315JD03A/093: System Performance Check 900MHz Head 03 04 13
Date: 03/04/2013
DUT: Dipole 900 MHz; SN: 035; Type: D900V2; Serial: SN035



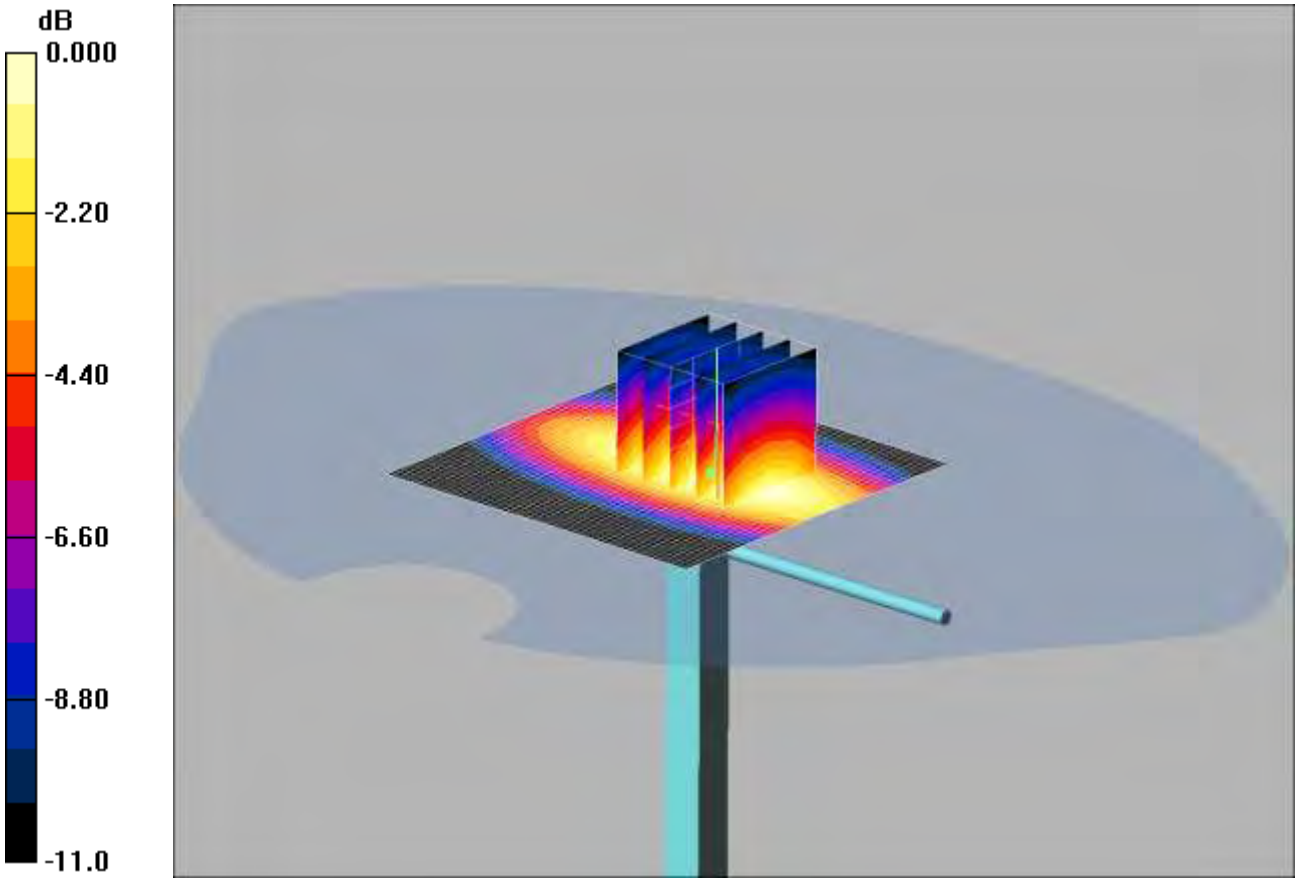
0 dB = 2.75mW/g

Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: 900 MHz HSL Medium parameters used: f = 900 MHz; σ = 0.967 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.51, 9.51, 9.51); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW 2/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.78 mW/g

d=15mm, Pin=250mW 2/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.7 V/m; Power Drift = -0.129 dB
Peak SAR (extrapolated) = 3.85 W/kg
SAR(1 g) = 2.54 mW/g; SAR(10 g) = 1.64 mW/g
Maximum value of SAR (measured) = 2.75 mW/g

SCN/92315JD03A/094: System Performance Check 900MHz Body 05 04 13
Date: 05/04/2013
DUT: Dipole 900 MHz; SN: 035; Type: D900V2; Serial: SN035



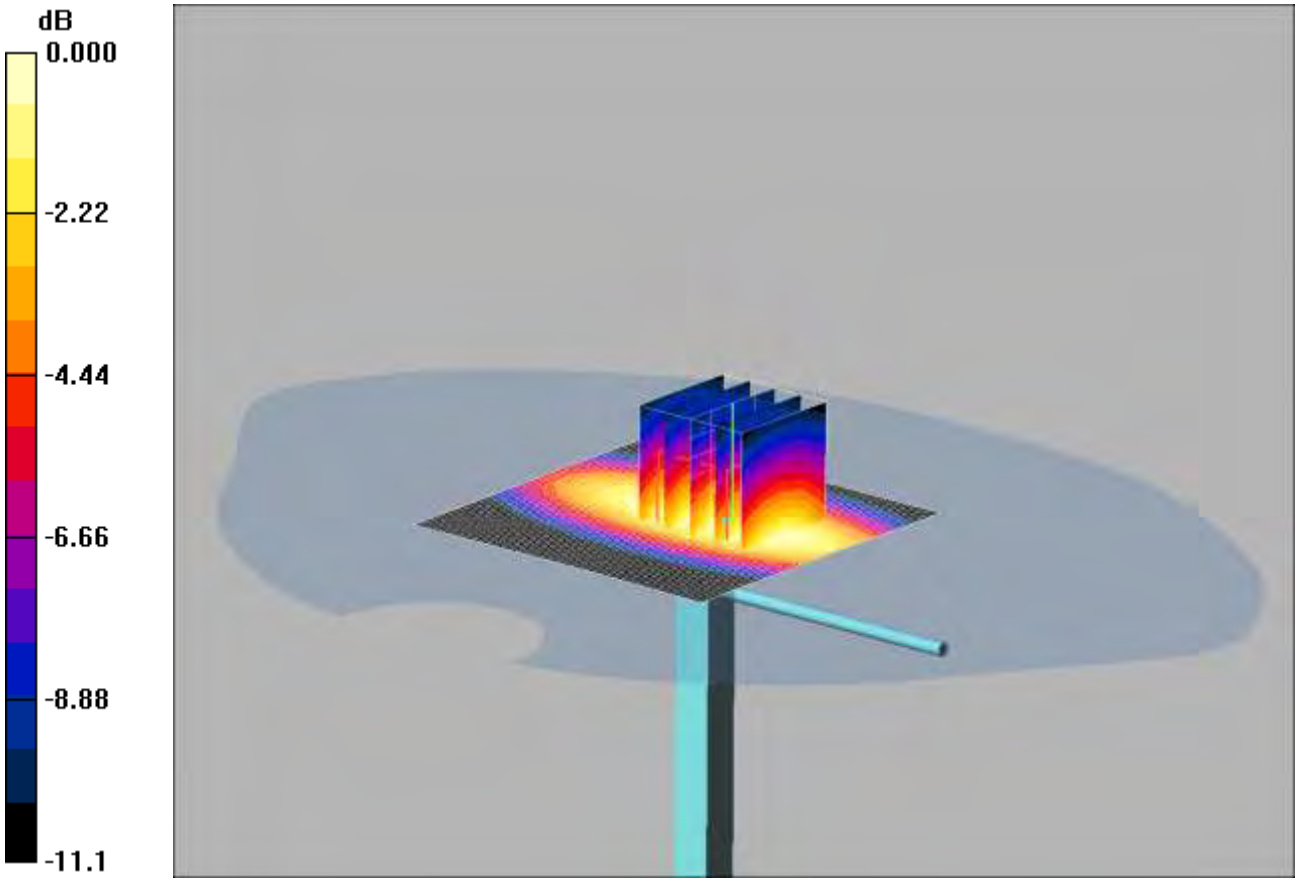
0 dB = 2.82mW/g

Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used: f = 900 MHz; σ = 1.08 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.62, 9.62, 9.62); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.84 mW/g

d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 51.2 V/m; Power Drift = -0.012 dB
Peak SAR (extrapolated) = 3.97 W/kg
SAR(1 g) = 2.61 mW/g; SAR(10 g) = 1.68 mW/g
Maximum value of SAR (measured) = 2.82 mW/g

SCN/92315JD03A/095: System Performance Check 900MHz Body 08 04 13
Date: 08/04/2013
DUT: Dipole 900 MHz; SN: 035; Type: D900V2; Serial: SN035



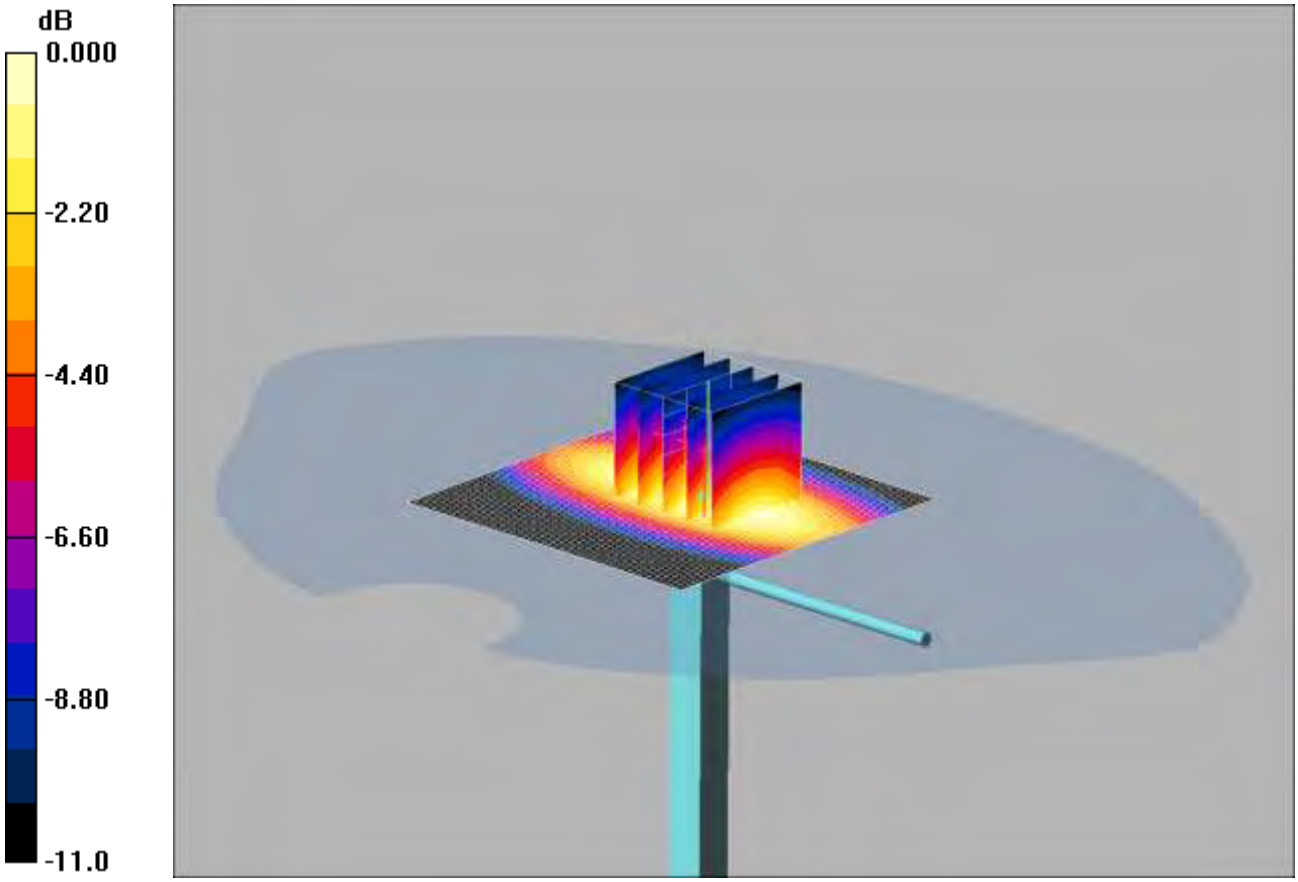
0 dB = 2.85mW/g

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 = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.62, 9.62, 9.62); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.83 mW/g

d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 52.2 V/m; Power Drift = 0.032 dB
Peak SAR (extrapolated) = 4.00 W/kg
SAR(1 g) = 2.64 mW/g; SAR(10 g) = 1.7 mW/g
Maximum value of SAR (measured) = 2.85 mW/g

SCN/92315JD03A/096: System Performance Check 900MHz Body 09 04 13
Date: 09/04/2013
DUT: Dipole 900 MHz; SN: 035; Type: D900V2; Serial: SN035



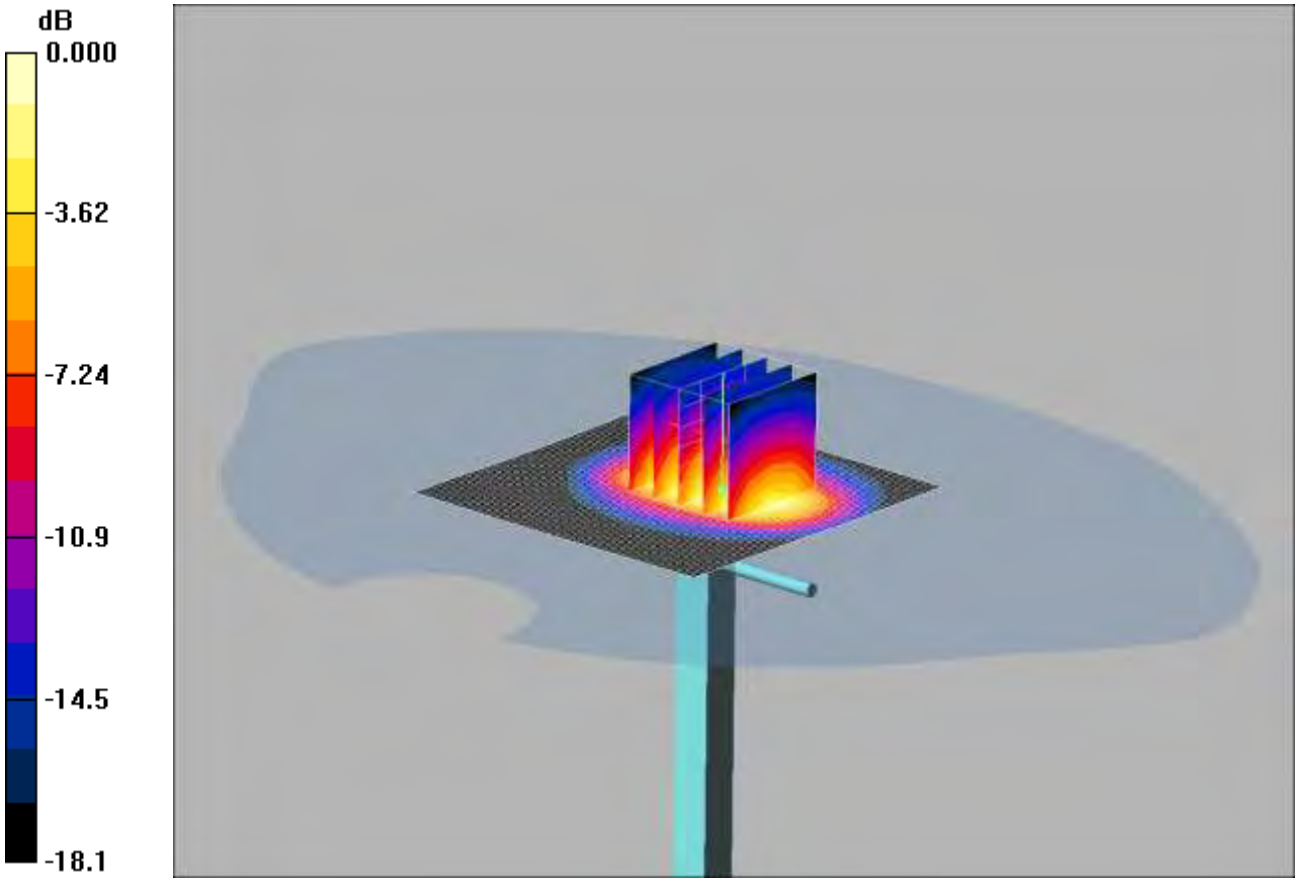
0 dB = 2.94mW/g

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 = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(9.62, 9.62, 9.62); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.94 mW/g

d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.4 V/m; Power Drift = -0.131 dB
Peak SAR (extrapolated) = 4.11 W/kg
SAR(1 g) = 2.71 mW/g; SAR(10 g) = 1.74 mW/g
Maximum value of SAR (measured) = 2.94 mW/g

SCN/92315JD03A/097: System Performance Check 1900MHz Head 28 03 13
Date: 28/03/2013
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: SN537



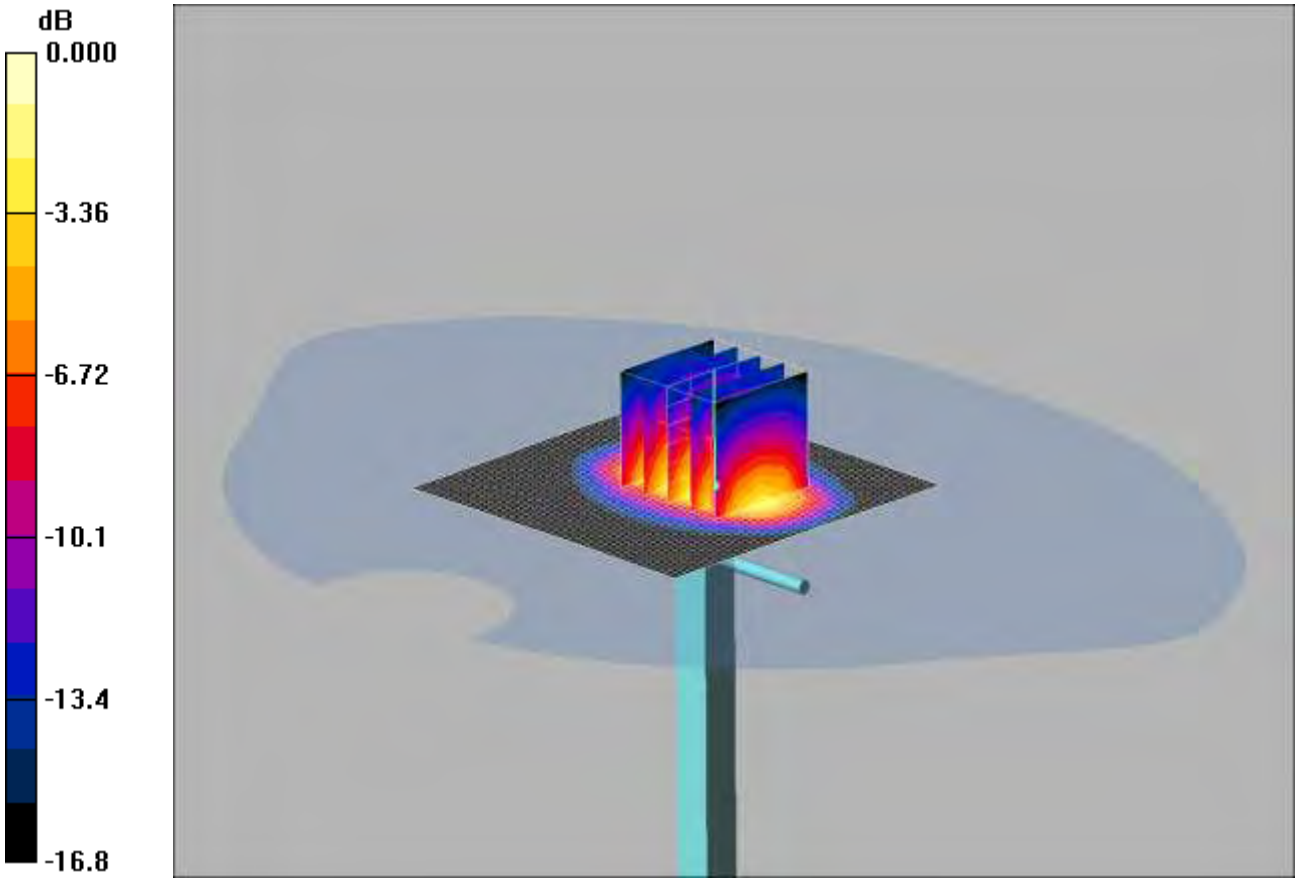
0 dB = 11.4mW/g

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 = 39; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(8.26, 8.26, 8.26); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.1 mW/g

d=10mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 87.0 V/m; Power Drift = -0.065 dB
Peak SAR (extrapolated) = 18.9 W/kg
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.25 mW/g
Maximum value of SAR (measured) = 11.4 mW/g

SCN/92315JD03A/098: System Performance Check 1900MHz Body 09 04 13
Date: 09/04/2013
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: SN537



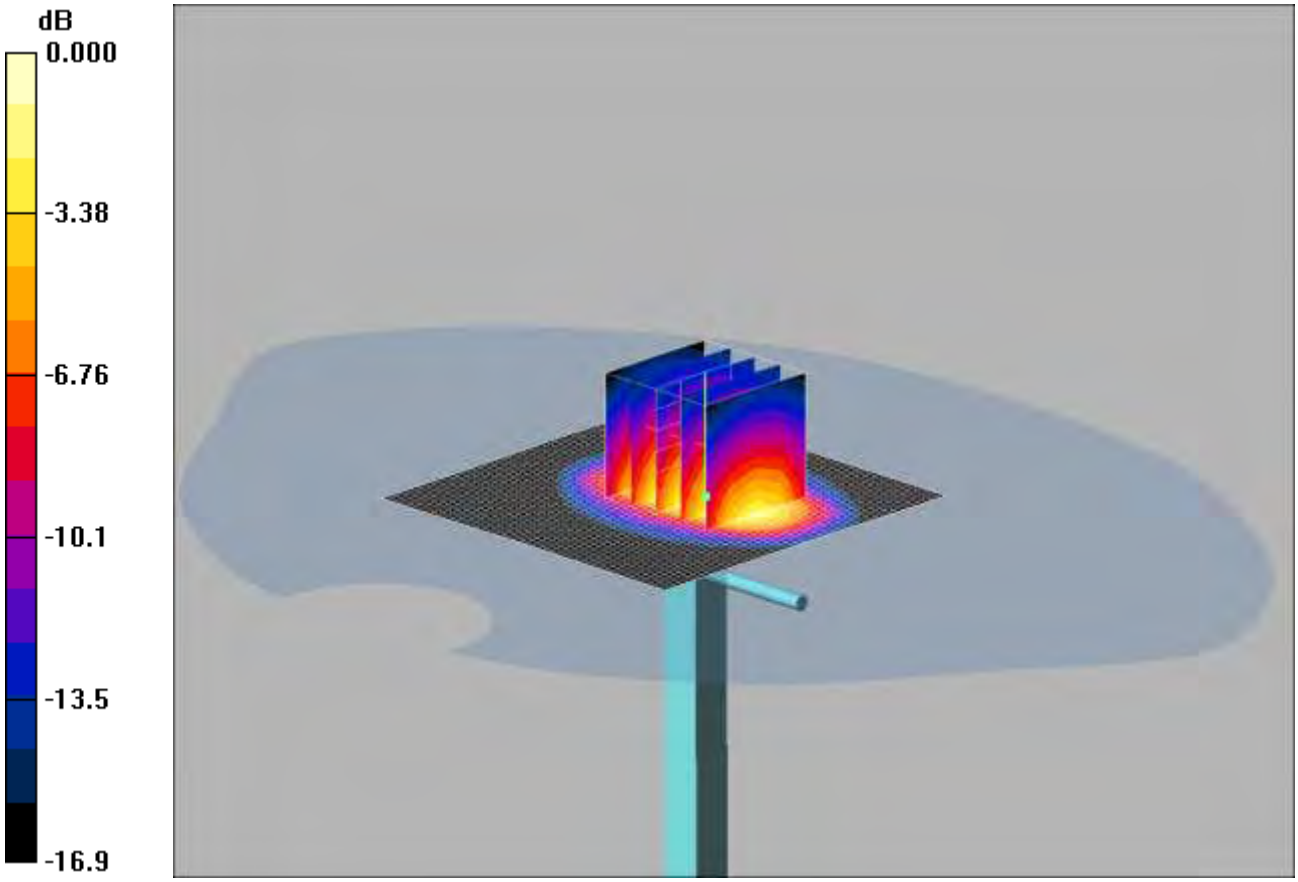
0 dB = 11.6mW/g

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 MHz MSL Medium parameters used: f = 1900 MHz; σ = 1.56 mho/m; ε_r = 51; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.5 mW/g

d=10mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 85.9 V/m; Power Drift = 0.000 dB
Peak SAR (extrapolated) = 18.6 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.37 mW/g
Maximum value of SAR (measured) = 11.6 mW/g

SCN/92315JD03A/099: System Performance Check 1900MHz Body 10 04 13
Date: 10/04/2013
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: SN537



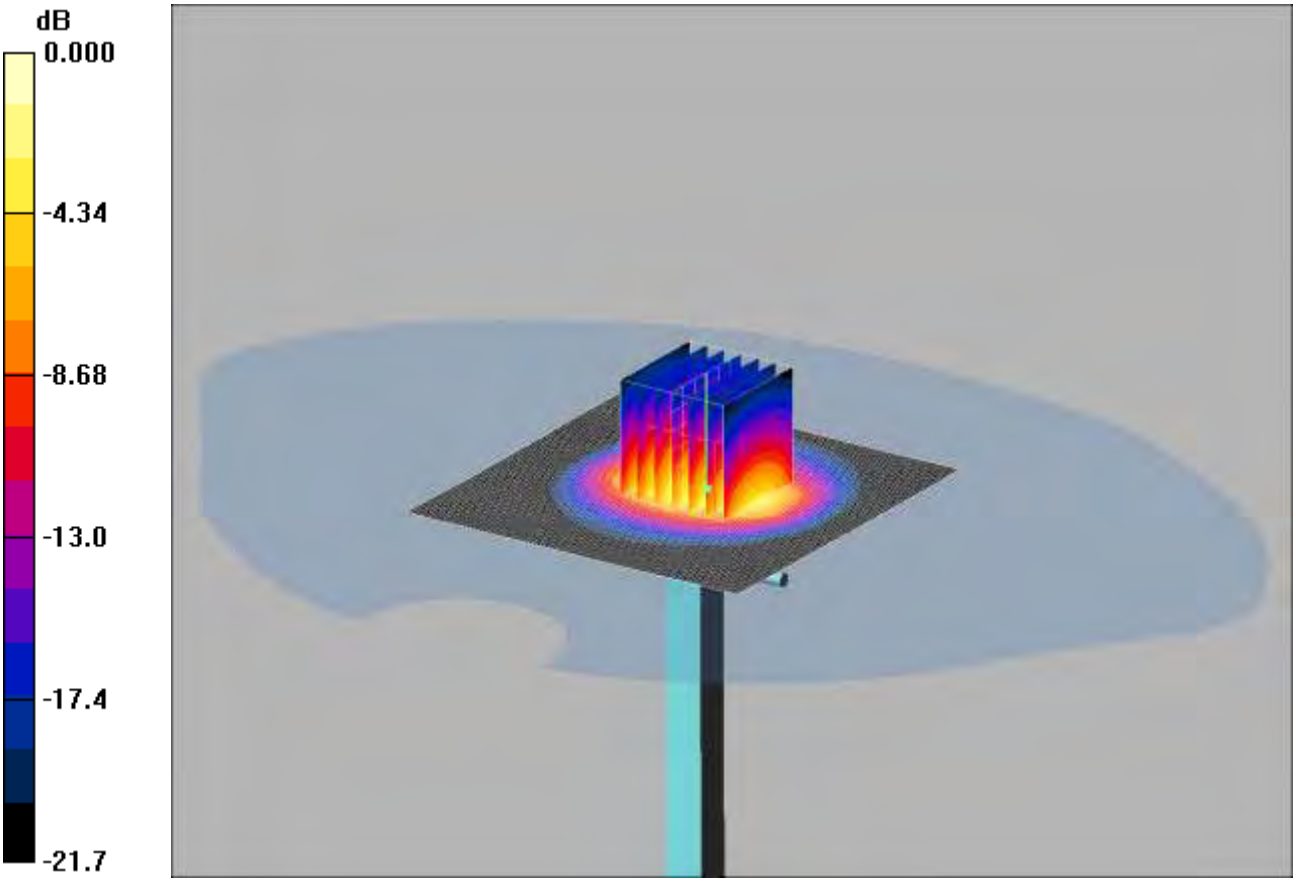
0 dB = 11.8mW/g

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 MHz MSL Medium parameters used: f = 1900 MHz; σ = 1.56 mho/m; ε_r = 51; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.83, 7.83, 7.83); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 14.1 mW/g

d=10mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 86.9 V/m; Power Drift = -0.150 dB
Peak SAR (extrapolated) = 19.0 W/kg
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.46 mW/g
Maximum value of SAR (measured) = 11.8 mW/g

SCN/92315JD03A/100: System Performance Check 2450MHz Head 10 04 13
Date: 10/04/2013
DUT: Dipole 2440 MHz; Type: D2440V2; Serial: D2440V2 - SN:701



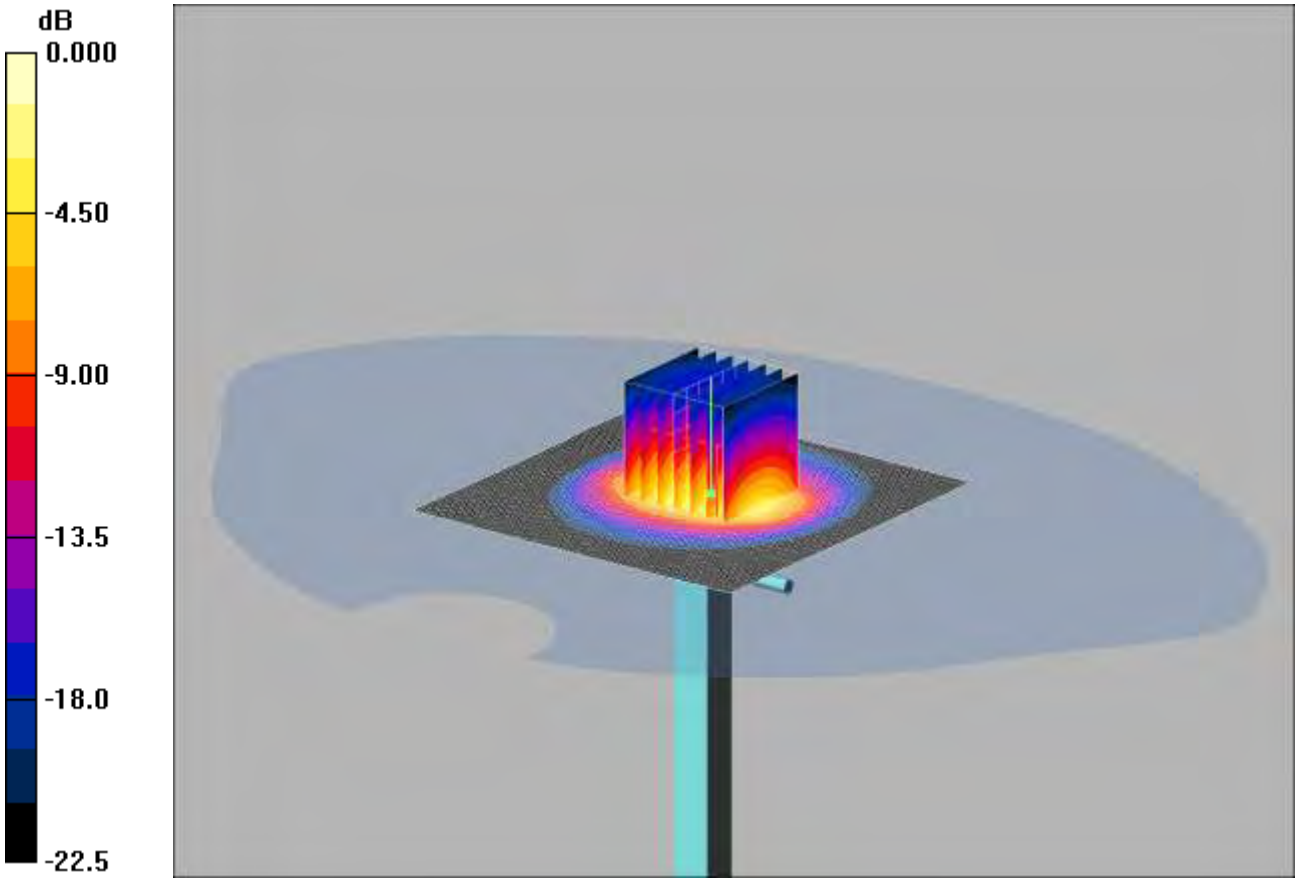
0 dB = 15.2mW/g

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used: f = 2450 MHz; σ = 1.77 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.35, 7.35, 7.35); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW 2/Area Scan (81x81x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 15.8 mW/g

d=10mm, Pin=250mW 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.7 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 27.5 W/kg
SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.15 mW/g
Maximum value of SAR (measured) = 15.2 mW/g

SCN/92315JD03A/101: System Performance Check 2450MHz Head 11 04 13
Date: 11/04/2013
DUT: Dipole 2440 MHz; Type: D2440V2; Serial: D2440V2 - SN:701



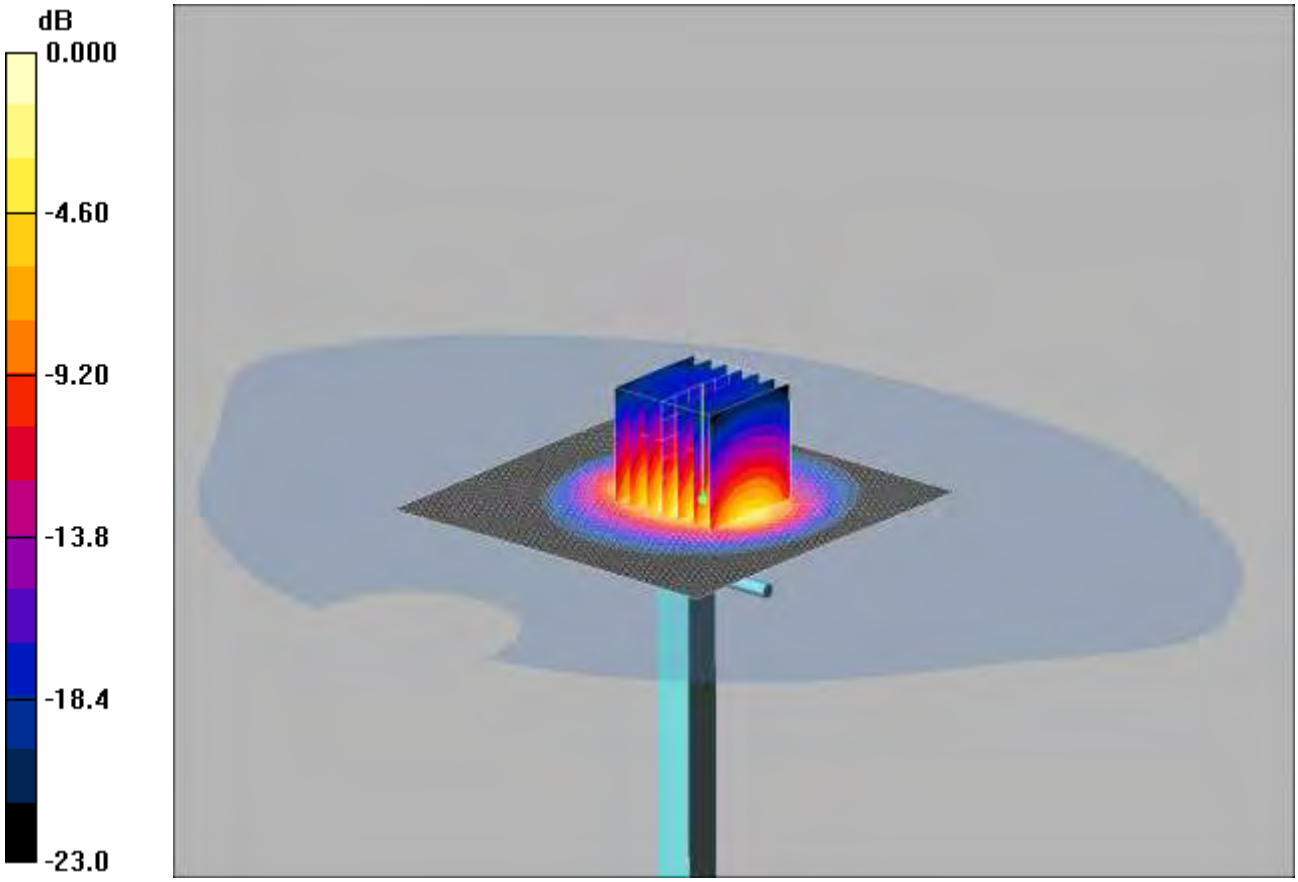
0 dB = 15.4mW/g

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 MHz HSL Medium parameters used: f = 2450 MHz; σ = 1.77 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.35, 7.35, 7.35); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW 2/Area Scan (81x81x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 16.2 mW/g

d=10mm, Pin=250mW 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.4 V/m; Power Drift = -0.231 dB
Peak SAR (extrapolated) = 28.7 W/kg
SAR(1 g) = 13.6 mW/g; SAR(10 g) = 6.2 mW/g
Maximum value of SAR (measured) = 15.4 mW/g

SCN/92315JD03A/102: System Performance Check 2450MHz Body 11 04 13
Date: 11/04/2013
DUT: Dipole 2440 MHz; Type: D2440V2; Serial: D2440V2 - SN:701



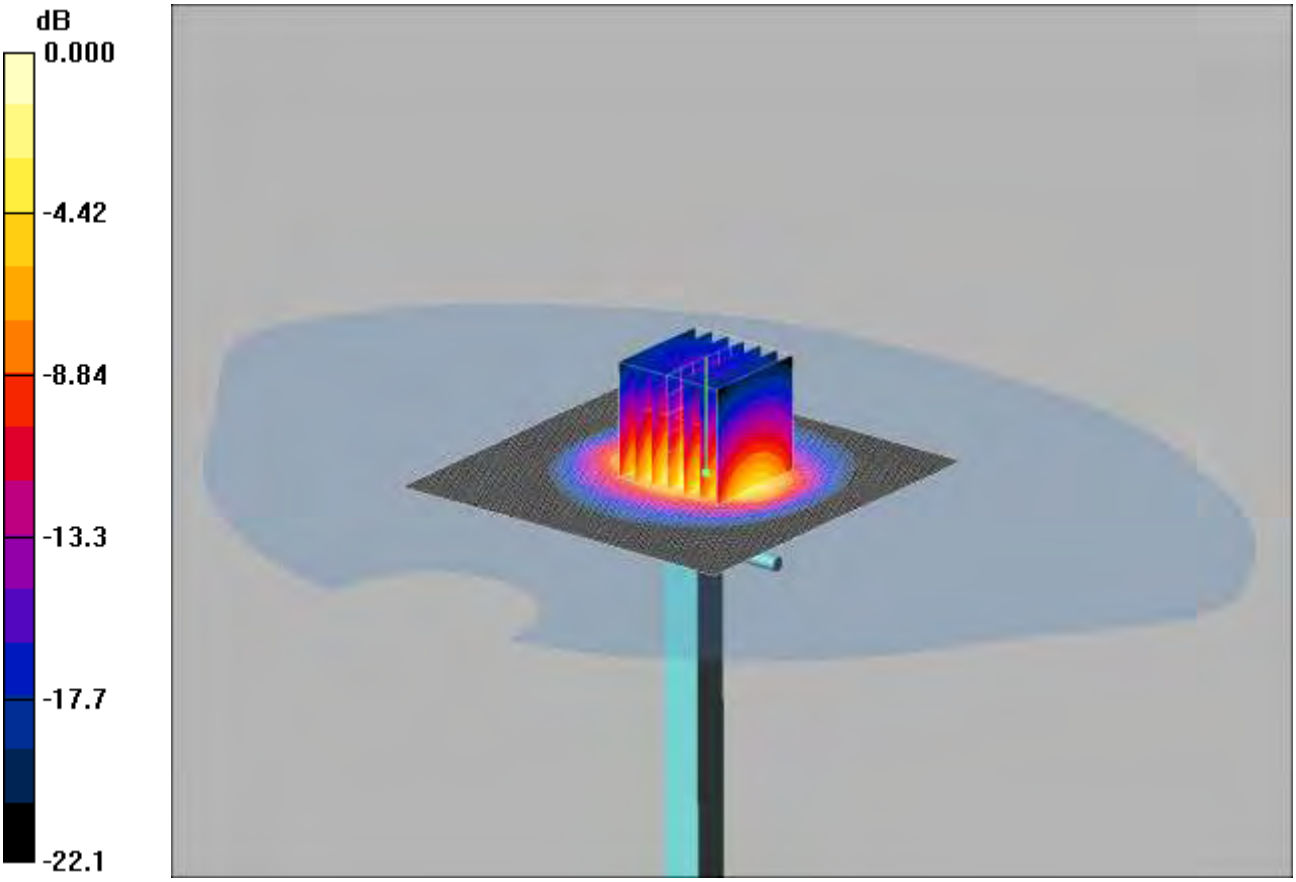
0 dB = 15.4mW/g

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used: f = 2450 MHz; σ = 2 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW 2/Area Scan (81x81x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 16.5 mW/g

d=10mm, Pin=250mW 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.8 V/m; Power Drift = -0.024 dB
Peak SAR (extrapolated) = 28.6 W/kg
SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.03 mW/g
Maximum value of SAR (measured) = 15.4 mW/g

SCN/92315JD03A/103: System Performance Check 2450MHz Body 12 04 13
Date: 12/04/2013
DUT: Dipole 2440 MHz; Type: D2440V2; Serial: D2440V2 - SN:701



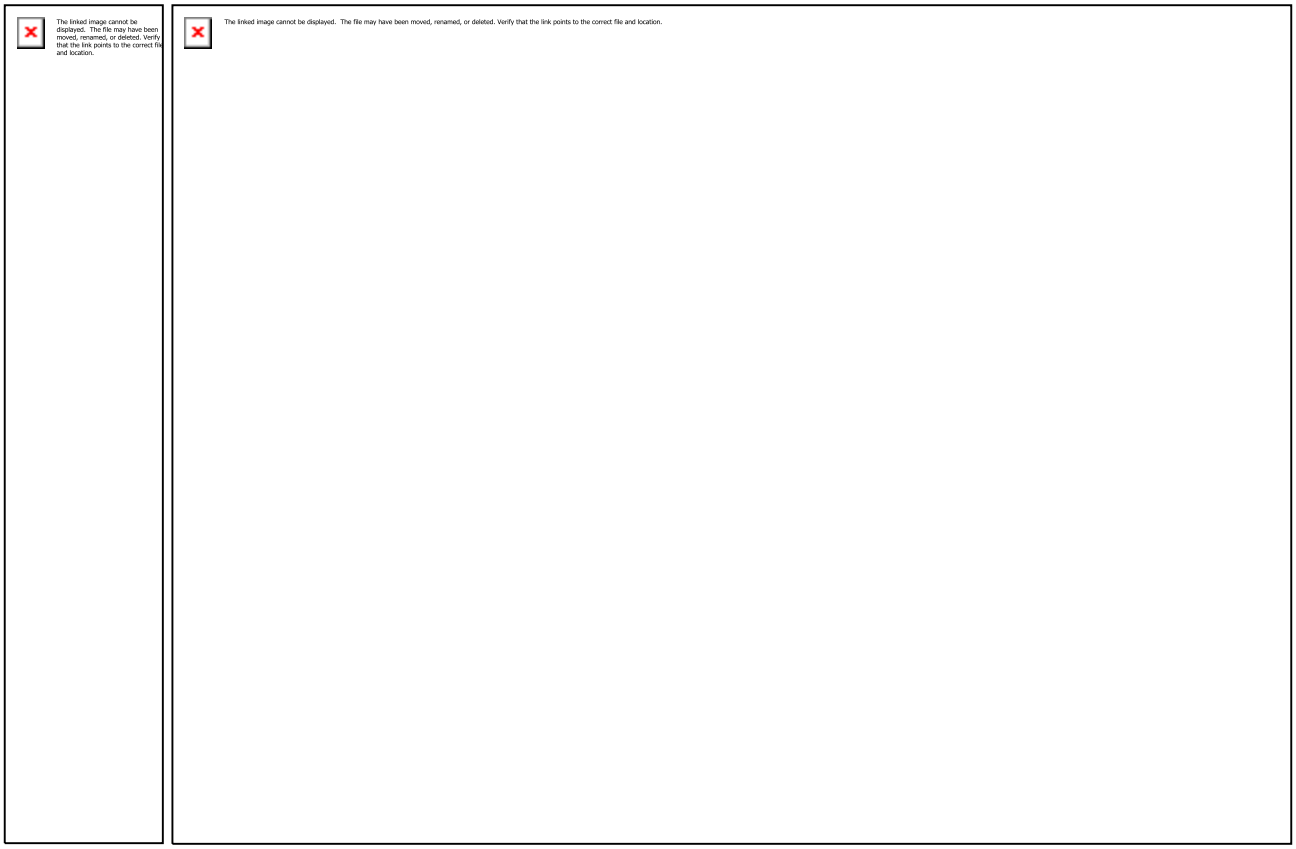
0 dB = 15.5mW/g

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used: f = 2450 MHz; σ = 2 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(7.44, 7.44, 7.44); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12b (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW 2/Area Scan (81x81x1): **Measurement grid: dx=12mm, dy=12mm**
Maximum value of SAR (interpolated) = 16.6 mW/g

d=10mm, Pin=250mW 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: **Measurement grid: dx=5mm, dy=5mm, dz=5mm**
Reference Value = 88.7 V/m; Power Drift = -0.161 dB
Peak SAR (extrapolated) = 27.8 W/kg
SAR(1 g) = 13.4 mW/g; SAR(10 g) = 6.13 mW/g
Maximum value of SAR (measured) = 15.5 mW/g

SCN/92315JD03A/104: System Performance Check 5200MHz Head 15 04 13
Date: 15/04/2013
DUT: 5GHz Dipole; Type: D5GHzV2; Serial: SN 1016

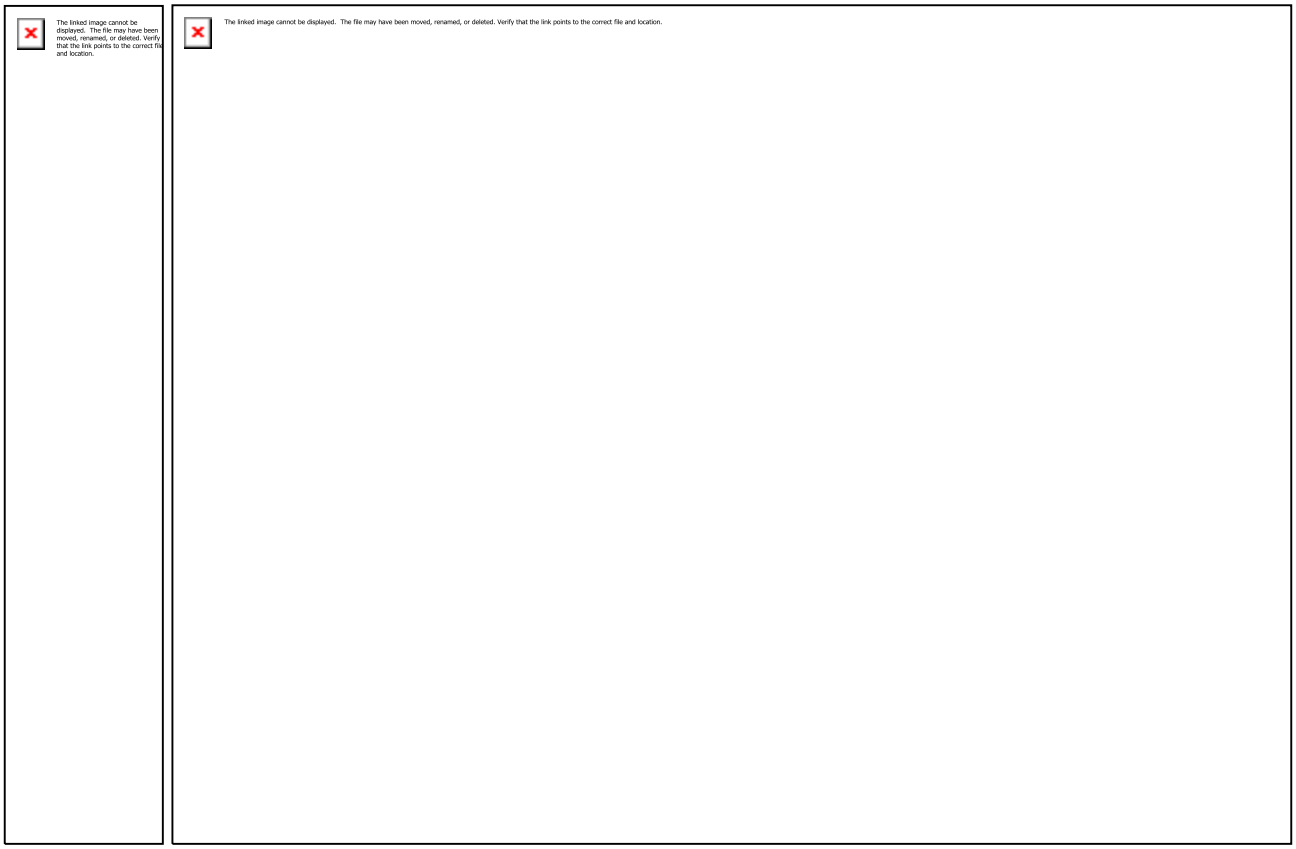


0 dB = 16.9mW/g

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: 5200/5500 MHz HSL Medium parameters used: f = 5200 MHz; σ = 4.6 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(5.18, 5.18, 5.18); Calibrated: 20/08/2012
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=100mW 2 2 2 2 2/Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 18.2 mW/g
d=10mm, Pin=100mW 2 2 2 2 2/Zoom Scan (7x7x12) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 63.5 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 33.5 W/kg
SAR(1 g) = 8.03 mW/g; SAR(10 g) = 2.28 mW/g
Maximum value of SAR (measured) = 16.9 mW/g

SCN/92315JD03A/105: System Performance Check 5200MHz Head 16 04 13
Date: 16/04/2013
DUT: 5GHz Dipole; Type: D5GHzV2; Serial: SN 1016



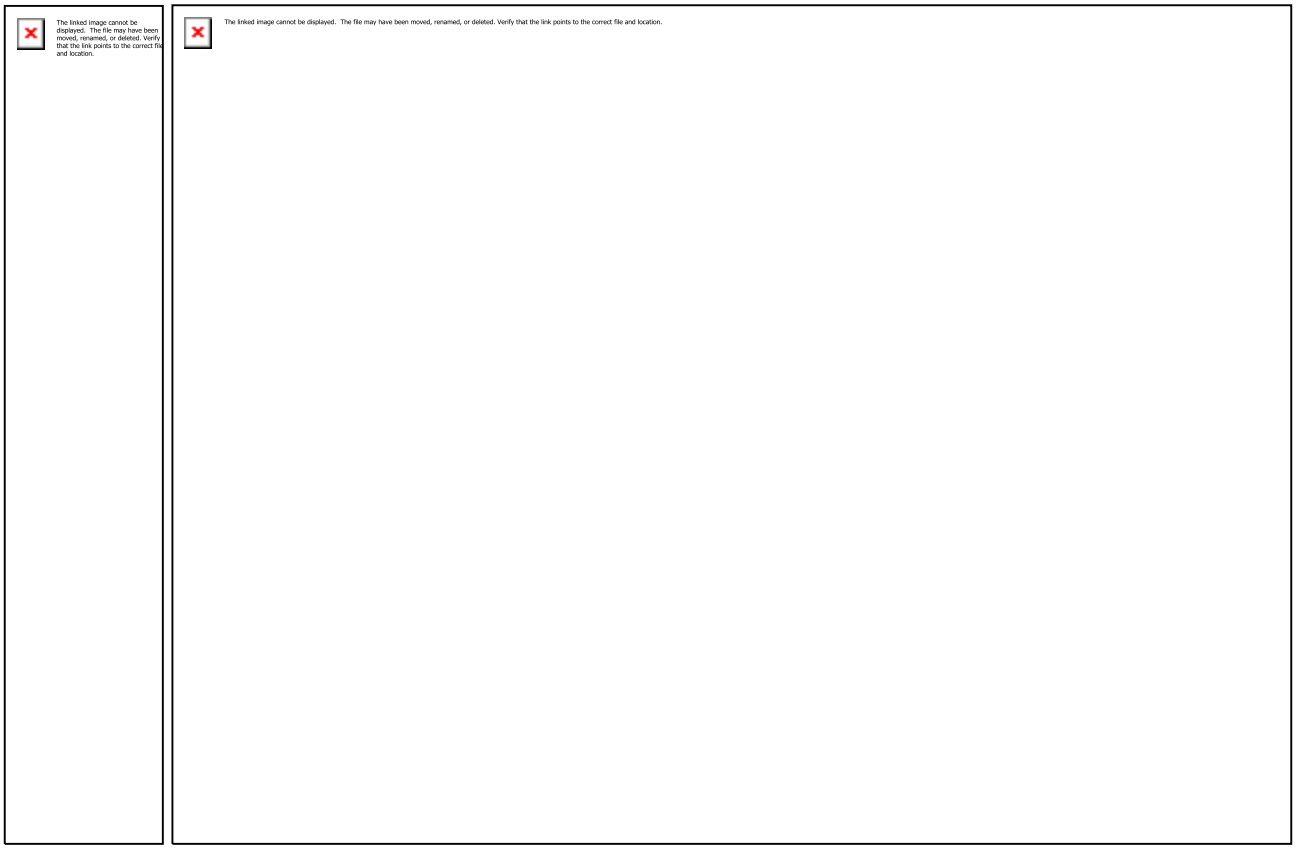
0 dB = 15.9mW/g

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: 5200/5500 MHz HSL Medium parameters used: f = 5200 MHz; σ = 4.6 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(5.18, 5.18, 5.18); Calibrated: 20/08/2012
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=100mW 2/Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 16.1 mW/g

d=10mm, Pin=100mW 2/Zoom Scan (7x7x12) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 61.4 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 31.4 W/kg
SAR(1 g) = 7.76 mW/g; SAR(10 g) = 2.23 mW/g
Maximum value of SAR (measured) = 15.9 mW/g

SCN/92315JD03A/106: System Performance Check 5500MHz Head 16 04 13
Date: 16/04/2013
DUT: 5GHz Dipole; Type: D5GHzV2; Serial: SN 1016



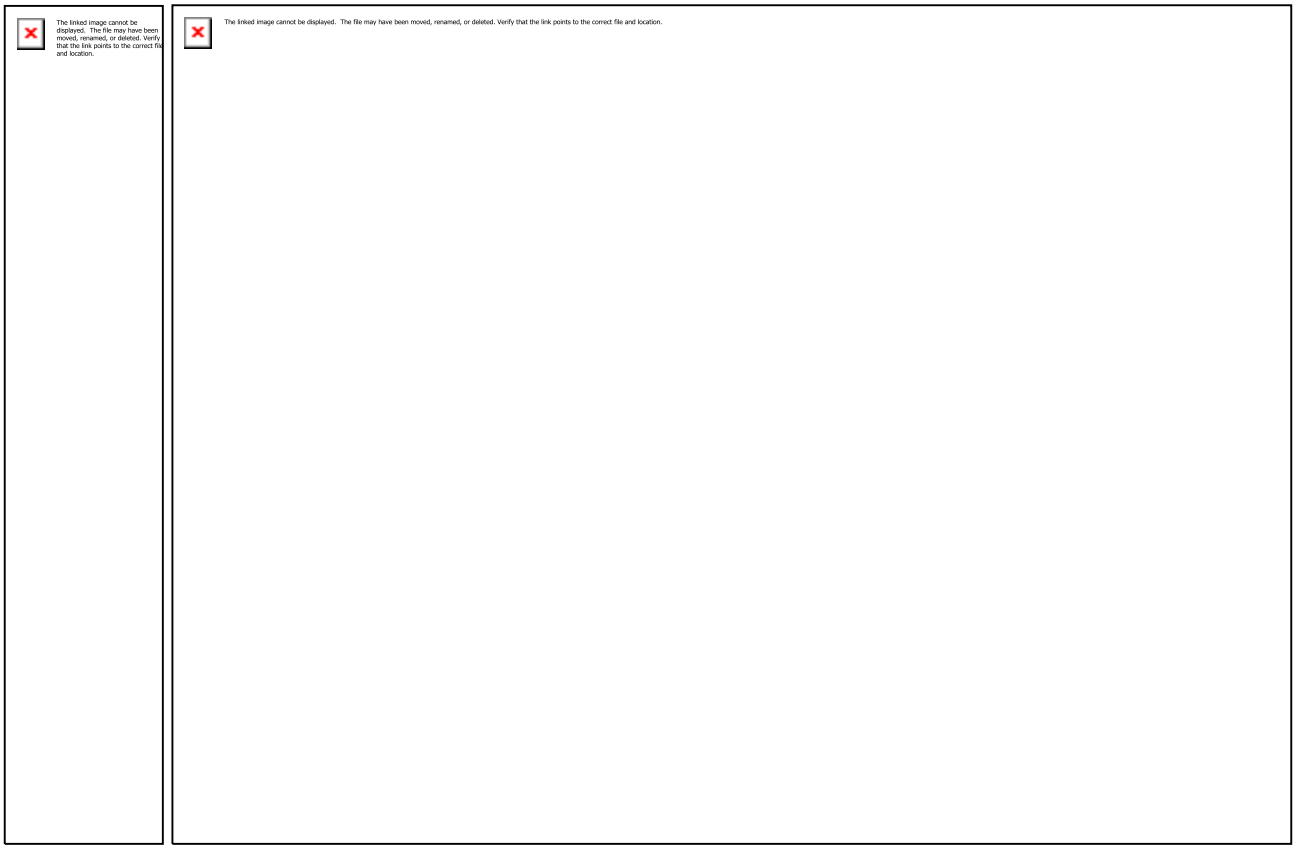
0 dB = 17.6mW/g

Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: 5200/5500 MHz HSL Medium parameters used: f = 5500 MHz; σ = 4.87 mho/m; ε_r = 34.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(4.75, 4.75, 4.75); Calibrated: 20/08/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=100mW/Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 9.29 mW/g

d=10mm, Pin=100mW/Zoom Scan (7x7x12) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 42.6 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 35.7 W/kg
SAR(1 g) = 8.35 mW/g; SAR(10 g) = 2.33 mW/g
Maximum value of SAR (measured) = 17.6 mW/g

SCN/92315JD03A/107: System Performance Check 5800MHz Head 16 04 13
Date: 16/04/2013
DUT: 5GHz Dipole; Type: D5GHzV2; Serial: SN 1016



0 dB = 15.9mW/g

Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: 5200/5500 MHz HSL Medium parameters used: f = 5800 MHz; σ = 5.18 mho/m; ε_r = 34.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3871; ConvF(4.53, 4.53, 4.53); Calibrated: 20/08/2012
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn431; Calibrated: 20/09/2012
- Phantom: SAM 12a (Site 56); Type: SAM 4.0; Serial: TP:1020
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=100mW/Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 15.9 mW/g

d=10mm, Pin=100mW/Zoom Scan (7x7x12) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 39.8 V/m; Power Drift = 0.066 dB
Peak SAR (extrapolated) = 32.3 W/kg
SAR(1 g) = 7.73 mW/g; SAR(10 g) = 2.19 mW/g
Maximum value of SAR (measured) = 15.9 mW/g