SAR TEST REPORT

Report No. 2012SAR256

FCC ID:	Q78-MOVISTARNOVUS
Applicant:	ZTE Corporation
Product:	WCDMA/GSM (GPRS) Dual-Mode Digital Mobile Phone
Model:	Movistar Novus/ZTE V877P
HW Version:	p8kB
SW Version:	MOVISTAR_P772A21V1.0.0B03
Issue Date:	2012-07-25

Prepared by: _____ **Reviewed by:** _____ **Approved by:** _____

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Remark: This report details the results of the testing carried out on the samples specified in this report, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. The report shall be reproduced except in full, without written approval of the Company.

Standards

Applicable Limit Regulations	**ANSI/IEEE C95.1-2005** Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields. 3 kHz to 300 GHz
	ANSI/IEEE C95.3-2002 Recommended Practice For Measurements and Computations of Radio Frequency Electromagnetic Fields with Respect to Human Exposure to such Fields. 100 kHz-300 GHz
Applicable Standards	**IEEE Std 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
	OET Bulletin 65-(Edition 97-01) Supplement C（edition01-01） Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields---Additional Supplement C (Edition 01-01)Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions

Conclusion

Localized Specific Absorption Rate (SAR) of this equipment has been measured in all cases requested by the relevant standards above. Maximum localized SAR is below exposure limits as well.

Change History

Version	Change Contents	Author	Date
V1.0	First edition	Yinxiaoming	2012-07-05
V2.0	Page 14:Update the picture of antennas. Page 34: Update the Dielectric Performance of 835MHz head Tissue Simulating Liquid.	Yinxiaoming	2012-07-25

CONTENTS:

1. Administrative Information

1.1 Project Information

Date of start test	2012-06-14
Date of end test:	2012-06-29

1.2 Test Laboratory Information

Company:	Shanghai Tejet Communications Technology Co., Ltd Testing Center
Address:	Room 6205-6208, Building 6, No.399 Cailun Rd. Zhangjiang Hi-Tech Park, Shanghai, China
Post Code:	210203
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Website:	www.tejet.cn

1.3 Test Environment

Temperature:	20℃～25 ℃
Relative Humidity:	20%～70%

2. Client Information

2.1 Applicant information

Company Name:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
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2.2 Manufacturer Information

Company Name:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
City:	Shenzhen
Postal Code:	518057
Country:	China
Telephone:	+86-21-68895196
Fax:	+86-21-61460600

3. Equipment Under Test (EUT) and Accessory Equipment (AE)

3.1 Information of EUT

Device Type	Portable device	
Product	WCDMA/GSM（GPRS） Dual-Mode Digital Mobile Phone	
Model	Movistar Novus/ZTE V877P	
Exposure Category	Uncontrolled environment / general population	
Device operation configuration:		
Operating Mode(s):	GSM850	
	PCS1900	
	WCDMA BAND II/V	
Test Modulation	(GSM)GMSK，（WCDMA）QPSK	
GPRS Operation Class	B	
GPRS Multislot Class	12	
EDGE Class	12	
DTM Support	/	
AP Support	Yes	
Rated Output Power	GSM 850:33dBm	
	PCS1900: 30dBm	
	WCDMA BAND II/V: 24dBm	
Antenna Type:	Internal antenna	
Operating Frequency Range(s):	Band	Tx(MHz)
	GSM850	824.2～848.8
	PCS1900	1850.2～1909.8
	WCDMA BAND II	1852.4～1907.6
	WCDMA BAND V	826.4～846.6
Power Class	GSM850: 4,test with power level 5	
	PCS1900: 1,test with power level 0	
	WCDMA BAND II/V：3，test with maximum output power	

3.2 Identification of EUT

EUT ID	SN or IMEI	HW Version	SW Version	Received Date
TN11	004401782404525	p8kB	MOVISTAR_P772A21V1.0.0B03	2012-06-13

*EUT ID: identify the test sample in the lab internally.

3.3 Identification of AE

AE ID*	Description
AE1	Battery
AE2	Travel Adaptor
AE3	Earphone

AE1

Model	Li3716T42P3h594650
Manufacturer	ZTE CORPORATION
Capacitance	1600mAh
Nominal Voltage	3.7V

AE2

Model	STC-A22O50I700USBA-Z
Manufacturer	DOKOCOM
Length of DC line	120cm

AE3

Model	HMZ4-C4-OMTP
Manufacturer	ZTE CORPORATION
Length of DC line	165cm

*AE ID: identify the test sample in the lab internally.

4. Operational Conditions during Test

4.1 General description of test procedures

A communication link is set up with a system simulator by air link， and a call is established. The absolute radio frequency channel is allocated to low, middle and high respectively in the case of each band. The EUT is commanded to operate at maximum transmitting power.

Connection to the EUT is established via air interface with CMU200, and the EUT is set to maximum output power by CMU200. The antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30dB.

4.2 GSM Test Configuration

SAR test for GSM 850/1900, a communication link is set up with a system simulator by air link. Using CMU200 the power level is set to “5” in SAR of GSM850，set to “0” in SAR of GSM 1900， The tests in the band of GSM850/1900 are performed in the mode of data transfer function.

4.3 WCDMA Test Configuration

SAR test for WCDMA BANDII/ V, a communication link is set up with a system simulator by air link. Using CMU200 the power level is set to “3” in SAR of WCDMA BAND II/ V,. The tests in the band of WCDMA BAND II/ V, are performed in the mode of RMC 12.2kbps transfer function.

SAR for body exposure configurations in voice and data modes is measured using 12.2kbps RMC with TPC bits configured to all “1’s”. SAR for other spreading codes and multiple DPDCHn , when supported by the DYT, are not required when the maximum average output of each RF channel, for each spreading code and DPDCHn configuration, are lessthan 1/4 dB higher than those measured in 12.2 kbps RMC. Otherwise , SAR is measured on the maximum output channel with an applicable RMC configuration for the corresponding spreading code or DPDCHn using the exposure configuration that results in the highest SAR with 12.2 kbps RMC. When more than 2 DPDCHn are supported by the DUT, it may be necessary to configure additional DPDCHn for a DUT using FTM(Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384kbps and 968 kbps RMC.

HSDPA Test Configuration

Body SAR is also measured for HSDPA when the maximum average output of each RF channel with HSDPA active is at least 1/4 dB higher than that measured without HSDPA using 12.2 kbps RMC or the maximum SAR 12.2 kbps RMC is above75% of the SAR limit. Body SAR is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1 , using the highest body SAR configuration in 12.2 kbps RMC without HSDPA.

HSDPA should be configured according to the UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HARQ processes , minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set f. To maintain a consistent test configuration and stable transmission condition, QPSK is user in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DODCH gain factors(β c,β d), and HS_DPCCH power offset parameters(△ACK, △NACK, △CQI) should be set according to values indicated in the Table below. The CQI value is determined by the UE category, transport block size, number of HS_PDSCHs and modulation used in the H-set.

Table 1:Subtest for UMTS Release 5 HSDPA

Sub-set	β c	β d	B d（SF）	B c/β d	β hs	CM(dB)
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15	15/15	64	12/15	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: △ACK, △NACK, △CQI=8⇔Ahs=β hs/β c=30/15⇔β hs=30/15c Note 2: CM=1 forβ c/β d=12/15, β hs/β c=24/15 Note 3: For subset 2 theβ cβ d ratio of 12/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factor for the reference TFC (TFC1,TF1) toβ c=11/15 andβ d=15/15.						

Table 2:Settings of required H-set 1 QPSK in HSDPA mode

Parameter	Unit	Value
Nominal Avg.Inf.Bit Rate	Kbps	534
Inter-TTI Distance	TTI's	3
Number of HARQ Processes	Processes	2
Information Bit Payload	Bitw	3202
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bots	4800
Total Avaliable SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	9600
Coding Rate	/	0.67
Number of Physical Channel Codes	Codes	5
Modulation	/	QPSK

Table 3：HSDPA UE category

HS-DSCH Category	Maximum HS_DSCH Codes Received	Minimum Inter-TTI Interval	Maximum Transport Bits/HS-DSCH	Total Channel
1	5	3	7298	19200
2	5	3	7298	28800
3	5	2	7298	28800
4	5	2	7298	38400
5	5	1	7298	57600
6	5	1	7298	67200
7	10	1	14411	115200
8	10	1	14411	134400
9	15	1	25251	172800
1 2	15	1	27952	172800
1 1	5	2	3630	14400
1 2	5	1	3630	28800
1 3	15	1	34800	259200
1 4	15	1	42196	259200
1 5	15	1	23370	345600
1 6	15	1	27952	345600

HSUPA Test Configuration

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs}(1)	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM(2) (dB)	MPR (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	30/15	β_{ed1}: 47/15 β_{ed2}: 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15(4)	15/15(4)	64	15/15(4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 8 ⇔ $A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR 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 signaled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_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 signaled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_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: β_{ed} can not be set directly; it is set by Absolute Grant Value.

applicable only if Maximum Power Reduction (MPR) is implemented according to Cubic Metric (CM) requirements.[37]

4.4 Bluetooth Test Configuration

The Bluetooth transmitter of the device under test can be excluded from stand-alone and simultaneous SAR evaluation, per the requirements from FCC KDB 648474, as follows:

1. The separation between the Bluetooth antenna and the main antenna is 8.6 cm>5cm
2. The maximum conducted output power of Bluetooth is 1.17mW <2· P(Ref)=24mW.
3. The maximum conducted output power of Bluetooth is 1.17mW <60/f=24.49mW

According to FCC KDB648474, stand along SAR and Simultaneous Transmission SAR are not required.

4.5 Wi-Fi Test Configuration

The Wi-Fi is set to different data rate and channels by the software.
According to KDB648474:

1. The separation between the Wi-Fi antenna and the main antenna is 8.6 cm≥5cm
2.The maximum conducted output power of Wi-Fi is 33.3mW＞2· P(Ref)=24mW.
So stand along SAR is needed。

According to KDB248227

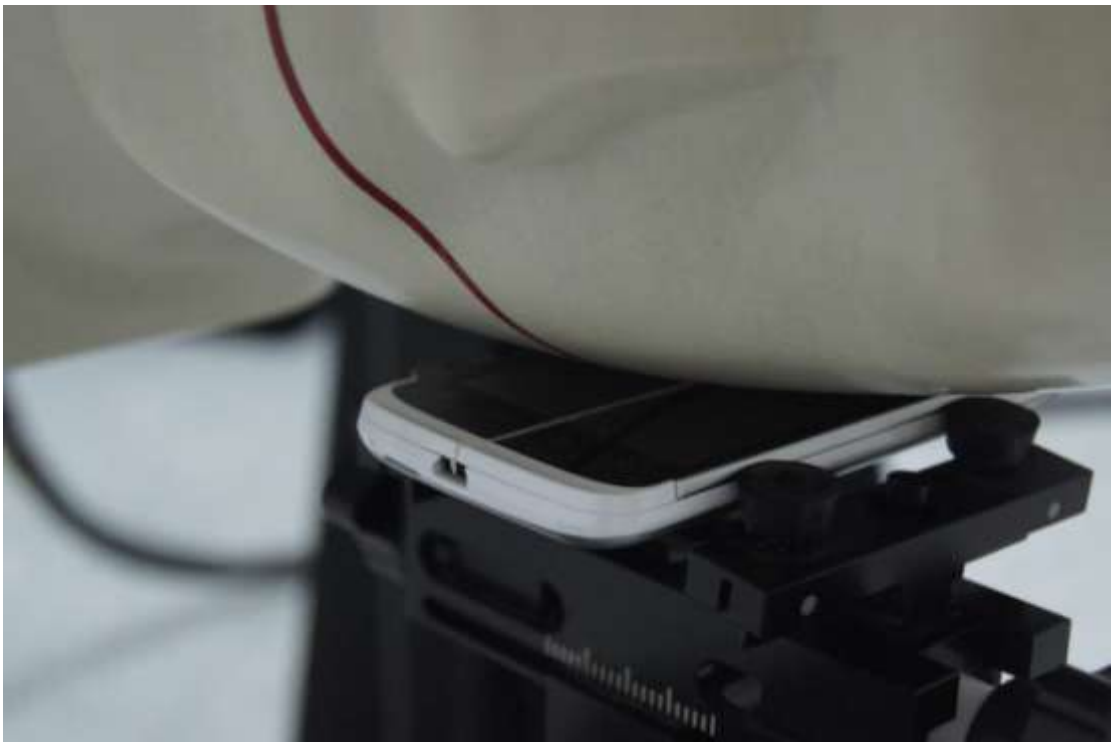
SAR is not required for 802.11g channels when the maximum average output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels.

The AP is supported，
According to KDB941225 D06,

1. The device size is 12.1 cm x 6.3 cm > 9 cm x 5 cm, so test separation distance was 10mm.
2. SAR must be tested for all surfaces and edges with a transmit antenna within 2.5cm, at a test separation distance of 10mm. And also the worst position of head are tested with Wi-Fi keep transmitting.

Picture of antennas

4.6 Definition of Test Positions



POSITION OF LEFT HEAD TOUCH

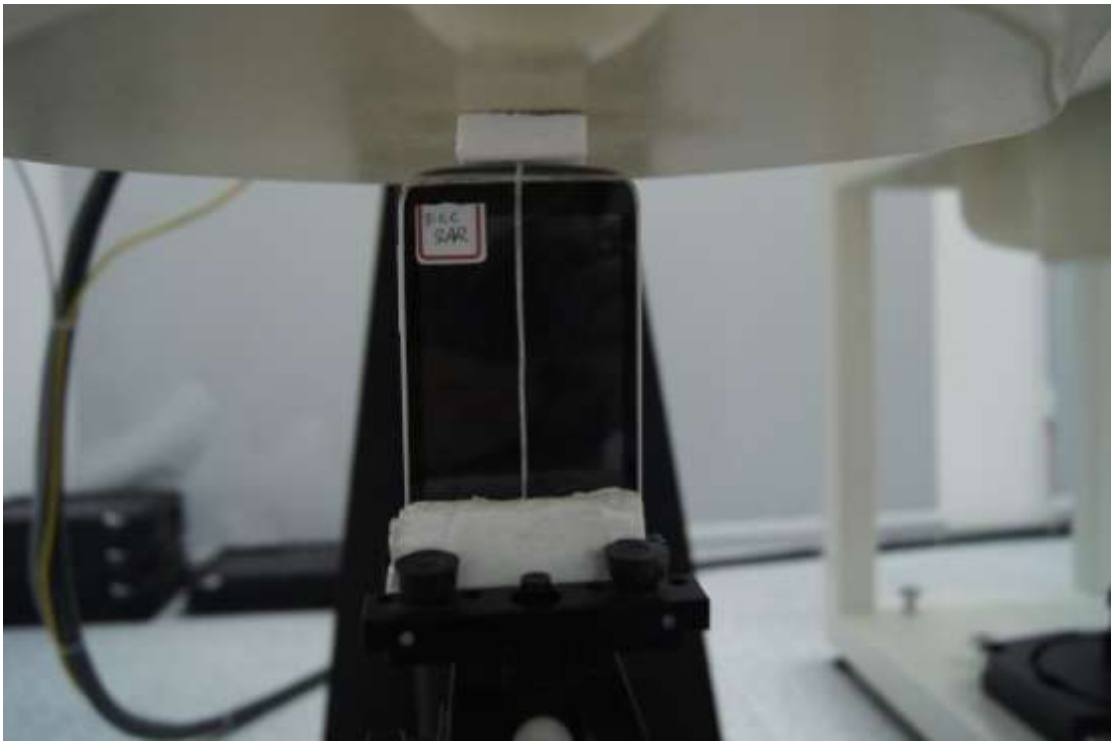
POSITION OF LEFT HEAD TILT

POSITION OF RIGHT HEAD TOUCH

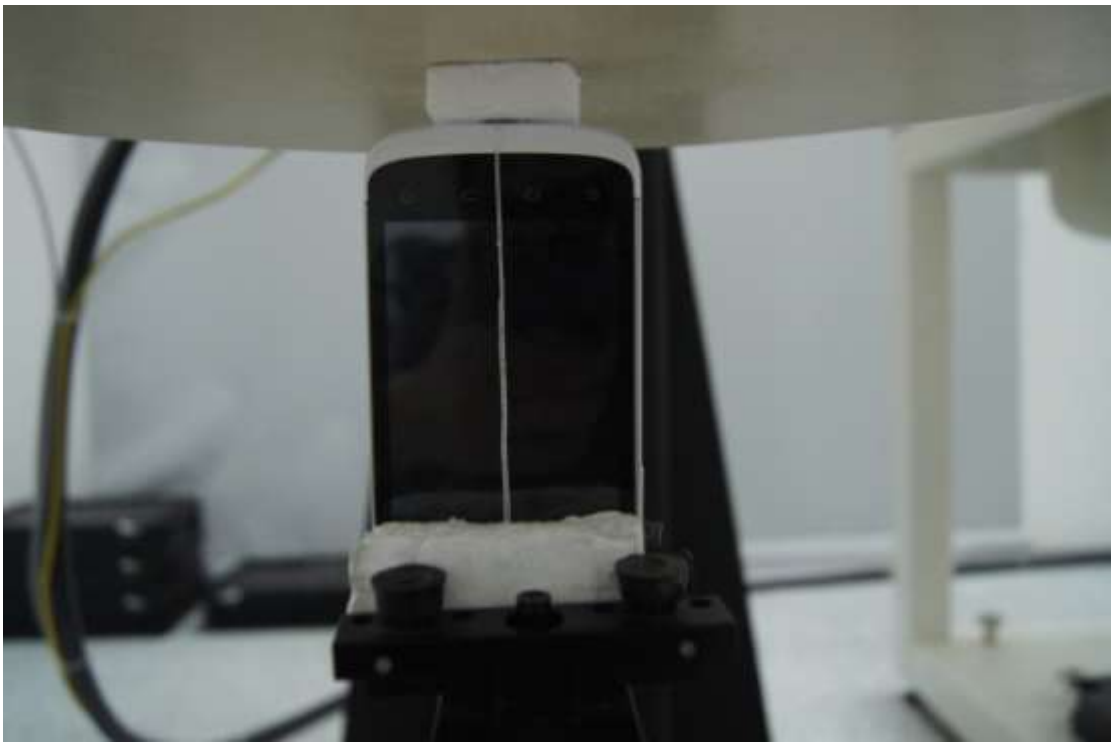
POSITION OF RIGHT HEAD TILT

POSITION OF BODY TOWARDS PHANTOM WITH 10mm DISTANCE

POSITION OF BODY TOWARDS GROUND WITH 10mm DISTANCE



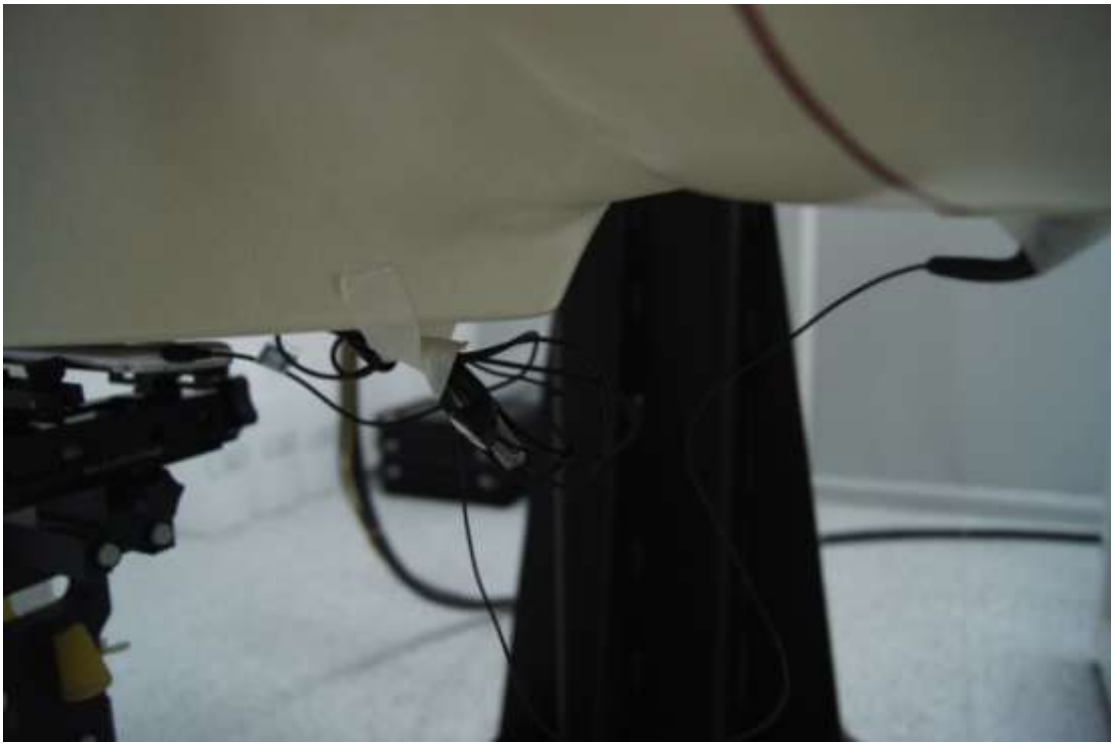
POSITION OF BODY BACK WITH 10mm DISTANCE



POSITION OF BODY FRONT 10mm DISTANCE

POSITION OF BODY left side WITH 10mm DISTANCE

POSITION OF BODY right side WITH 10mm DISTANCE



POSITION OF BODY TOWARDS GROUND WITH 10mm DISTANCE (WITH EARPHONE)

5. SAR Measurements system configuration

5.1 SAR Measurement set-up

The DASY5 system for performing compliance tests consists of the following items:

·A standard high precision 6-axis robot (Staubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
·An isotropic _field probe optimized and calibrated for the targeted measurement.
·A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
·The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
·The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
·The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
·A computer running WinXP and the DASY5 software.
·Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
·The generic twin phantom enabling the testing of left-hand and right-hand usage.
·The device holder for handheld mobile phones.
·Tissue simulating liquid mixed according to the given recipes.
·System validation dipoles allowing to validate the proper functioning of the system.

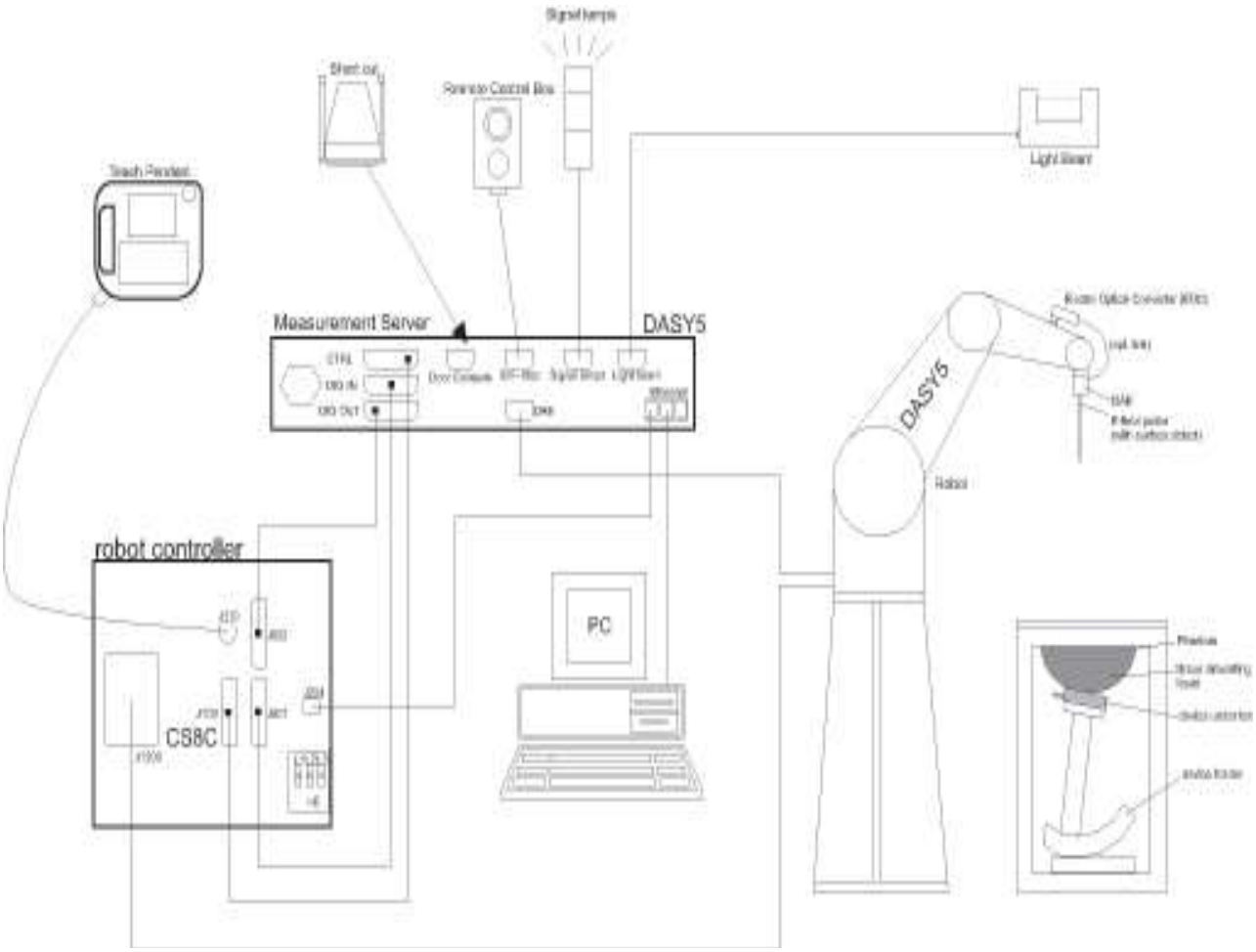


Figure 5-1 SAR Lab Test Measurement Set-up

5.2 DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe ES3DV3 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

5.2.1 Es3DV3 Probe Specification

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 850 and HSL 1750 Additional CF for other liquids and frequencies upon request
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)

Dynamic Range	10 μW/g to > 100 mW/g Linearity: ± 0.2dB (noise: typically < 1 μW/g)
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

Figure 5-2.ES3DV3 E-field Probe

Figure 5-3. ES3DV3 E-field probe

5.2.2 E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than ±10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C\frac{\Delta T}{\Delta t}$$

Where: Δt = Exposure time (30 seconds),
C = Heat capacity of tissue (brain or muscle),
ΔT = Temperature increase due to RF exposure.

Or

$$SAR = \frac{|E|^2 \sigma}{\rho}$$

Where:
σ = Simulated tissue conductivity,
ρ = Tissue density (kg/m3).

5.3 Other Test Equipment

5.3.1 Device Holder for Transmitters

The DASY5 device holder is designed to cope with the die rent positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the inference of the clamp on the test results could thus be lowered.

Figure 5-4.Device Holder

5.3.2 Phantom

The Generic Twin Phantom is constructed of a fiberglass shell integrated in a wooden Figure. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

Shell Thickness	2±0.1 mm
Filling Volume	Approx. 20 liters
Dimensions	810 x l000 x 500 mm (H x L x W)
Aailable	Special

Figure 5-5.Generic Twin Phantom

5.4 Scanning procedure

The DASY5 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

• The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT’s output power and should vary max. ±5%.

• The “surface check” measurement tests the optical surface detection system of the DASY5 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ± 30°.)

• Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot. Before starting the area scan a grid spacing of 15 mm x 15 mm is set. During the scan the distance of the probe to the phantom remains unchanged.
After finishing area scan, the field maxima within a range of 2 dB will be ascertained.

• Zoom Scan

Zoom Scans are used to estimate the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan is done by 7x7x7 points within a cube whose base is centered around the maxima found in the preceding area scan.

• Spatial Peak Detection

The procedure for spatial peak SAR evaluation has been implemented and can determine values of masses of 1g and 10g, as well as for user-specific masses. The DASY5 system allows evaluations that combine measured data and robot positions, such as:
• maximum search
• extrapolation
• boundary correction
• peak search for averaged SAR

During a maximum search, global and local maxima searches are automatically performed in 2-D after each Area Scan measurement with at least 6 measurement points. It is based on the evaluation of the local SAR gradient calculated by the Quadratic Shepard's method. The algorithm will find the global maximum and all local maxima within -2 dB of the global maxima for all SAR distributions.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space.

They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1g and 10g cubes.

• A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

5.5 Data Storage and Evaluation

5.5.1 Data Storage

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

5.5.2 Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	Dcp_i
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	
	- Density	

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.
The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly

compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot c f / d c p_i$$

With V_i = compensated signal of channel i (i = x, y, z)

U_i = input signal of channel i (i = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcp_i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes: $E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$

H-field probes: $H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f^2) / f$

With V_i = compensated signal of channel i (i = x, y, z)

$Norm_i$ = sensor sensitivity of channel i (i = x, y, z)

[mV/(V/m)^2] for E-field Probes

$ConvF$ = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_x^2 + E_Y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (E_{tot}^2 \cdot \quad) / (\quad \cdot 1000)$$

with SAR = local specific absorption rate in mW/g

E_{tot} = total field strength in V/m

= conductivity in [mho/m] or [Siemens/m]

= equivalent tissue density in g/cm3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$P_{pwe} = E_{tot}^2 / 3770$ or $\boldsymbol{P_{pwe} = H_{tot}^2 \cdot 37.7}$

with P_{pwe} = equivalent power density of a plane wave in mW/cm²

$\boldsymbol{E_{tot}}$ = total electric field strength in V/m

$\boldsymbol{H_{tot}}$ = total magnetic field strength in A/m

5.6 System check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured every day using the dielectric probe kit and the network analyzer. A system check measurement was made following the determination of the dielectric parameters of the simulates, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the 6.2.1 and6.2.2

System check results have to be equal or near the values determined during dipole calibration with the relevant liquids and test system (±10 %).
System check is performed regularly on all frequency bands where tests are performed with the DASY 5 system.

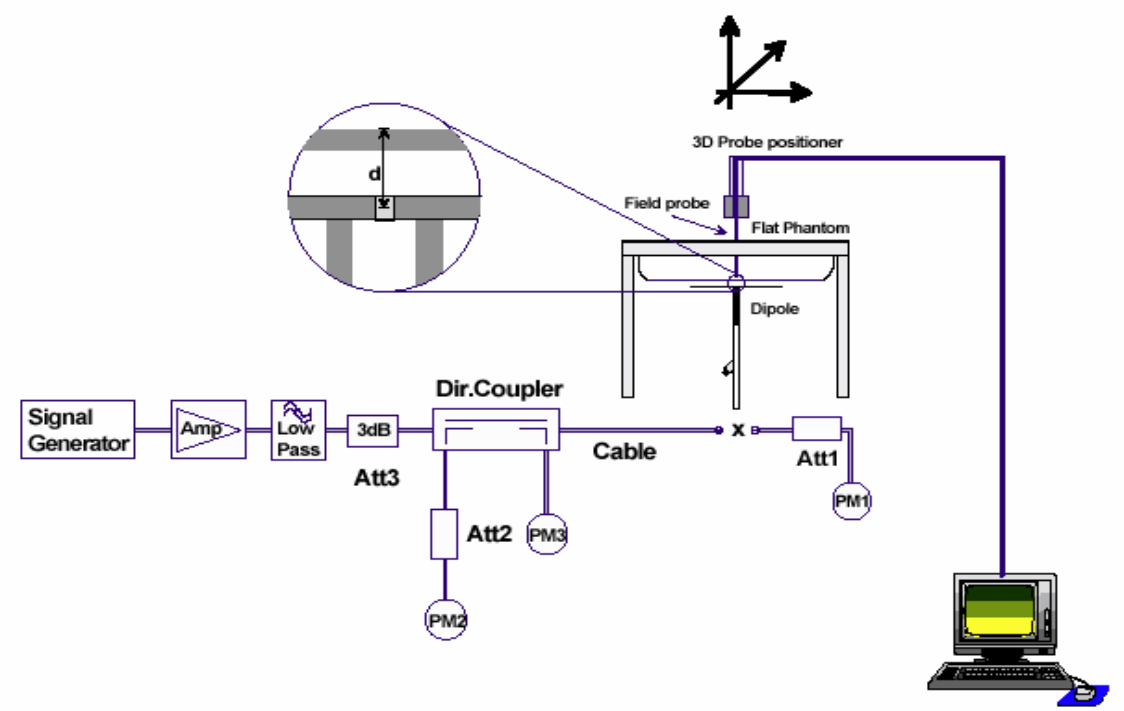


Figure 5-6. System Check Set-up

5.7 Equivalent Tissues

The liquid is consisted of water, salt, Glycol, Sugar, Preventol and Cellulose. The liquid has previously been proven to be suited for worst-case. The Table show the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the OET 65.

MIXTURE%	FREQUENCY(head) 835MHz
Water	40.4
Sugar	56
Salt	2.5
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=835MHz ε=41.5 σ=0.90
MIXTURE%	FREQUENCY(head)1900MHz
Water	55.242
Glycol monobutyl	44.452
Salt	0.306
Dielectric Parameters Target Value	f=1900MHz ε=40.0 σ=1.40

MIXTURE%	FREQUENCY(body) 835MHz
Water	52.5
Sugar	45
Salt	1.4
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=835MHz ε=55.2 σ=0.97
MIXTURE%	FREQUENCY(body)1900MHz
Water	69.91
Glycol monobutyl	29.96
Salt	0.13
Dielectric Parameters Target Value	f=1900MHz ε=53.3 σ=1.52

MIXTURE%	FREQUENCY(head)2450MHz
Water	56
Glycol monobutyl	44
Salt	0.00
Dielectric Parameters Target Value	f=2450MHz ε=39.2 σ=1.8
MIXTURE%	FREQUENCY(body)2450MHz
Water	70
Glycol monobutyl	30
Salt	0
Dielectric Parameters Target Value	f=2450MHz ε=52.7 σ=1.95

6. Summary of Test Results

6.1 Conducted Output Power Measurement

6.1.1 Summary

The DUT is tested using a CMU200 communications tester as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted power.
Conducted output power was measured using an integrated RF connector and attached RF cable.
This result contains conducted output power for the EUT.

6.1.2 Conducted Power Results

GSM850		Conducted output power (dBm)						
		low	middle	high				
		CH128	CH189	CH251				
		824.2MHz	836.6MHz	848.6MHz				
GSM		32.1	32.3	32.5	(dB)	CH128	CH189	CH251
GPRS	1 TX-slot result	32.1	32.3	32.4	-9.03	23.07	23.27	23.37
	2 TX-slot result	29.7	29.9	30.0	-6.02	23.68	23.88	23.98
	3 TX-slot result	27.8	28.0	28.1	-4.26	23.54	23.74	23.84
	4 TX-slot result	26.7	26.9	27.0	-3.01	**23.69**	**23.89**	**23.99**
EDGE (GMSK)	1 TX-slot result	32	32.3	32.4	-9.03	22.97	23.27	23.37
	2 TX-slot result	29.6	29.9	29.9	-6.02	23.58	23.88	23.88
	3 TX-slot result	27.6	27.9	27.7	-4.26	23.38	23.71	23.44
	4 TX-slot result	26.7	26.9	26.9	-3.01	**23.69**	**23.89**	**23.89**

GSM1900		Conducted output power（dBm）						
		low	middle	high				
		CH512	CH661	CH810				
		1850.2MHz	1880MHz	1909.8MHz				
GSM		29.3	29.4	29.1	(dB)	CH512	CH661	CH810
GPRS	1 TX-slot result	29.4	29.5	29.2	-9.03	20.37	20.47	20.17
	2 TX-slot result	27.4	27.4	27.2	-6.02	21.38	21.38	21.18
	3 TX-slot result	25.4	25.5	25.3	-4.26	21.14	21.24	21.04
	4 TX-slot result	24.4	24.4	24.3	-3.01	**21.39**	**21.39**	**21.29**
EDGE (GMSK)	1 TX-slot result	29.4	29.5	29.2	-9.03	20.37	20.47	20.17
	2 TX-slot result	27.4	27.5	27.2	-6.02	21.38	21.48	21.18
	3 TX-slot result	25.5	25.5	25.3	-4.26	21.24	21.24	21.04
	4 TX-slot result	24.4	24.5	24.3	-3.01	**21.39**	**21.49**	**21.29**

Note:

To average the power, the division factor is as follows:

1 TX-slot =1 transmit time slot of 8 time slots

=>conducted power divided by (8/1) =>-9.03dB

2 TX-slot =2 transmit time slot of 8 time slots

=>conducted power divided by (8/2) =>-6.02dB

3 TX-slot =3 transmit time slot of 8 time slots

=>conducted power divided by (8/3) =>-4.26dB

4 TX-slot =4 transmit time slot of 8 time slots

=>conducted power divided by (8/4) =>-3.01dB

WCDMA BAND II		Conducted Output power（dBm）		
		low	middle	high
		CH9262	CH9400	CH9538
		1852.4MHz	1800MHz	1907.6MHz
12.2kbps RMC		22.32	22.31	22.38
HSDPA	SUB-TEST 1	22.04	22.14	22.29
	SUB-TEST 2	20.98	21.34	19.82
	SUB-TEST 3	19.3	19.58	19.69
	SUB-TEST 4	19.34	19.41	19.76
HSUPA	SUB-TEST 1	21.62	21.65	21.71
	SUB-TEST 2	19.94	20.32	19.70
	SUB-TEST 3	20.99	20.98	21.05
	SUB-TEST 4	20.17	20.23	20.58
	SUB-TEST 5	21.83	21.85	21.91

WCDMA BAND V		Conducted Output power（dBm）		
		low	middle	high
		CH4132	CH4183	CH4233
		826.4 MHz	836.6MHz	846.6MHz
12.2kbps RMC		22.71	22.64	22.51
HSDPA	SUB-TEST 1	22.56	22.45	22.34
	SUB-TEST 2	21.19	21.09	20.98
	SUB-TEST 3	19.94	20.56	19.72
	SUB-TEST 4	19.55	19.96	19.76
HSUPA	SUB-TEST 1	21.94	21.86	21.83
	SUB-TEST 2	20.01	20.37	20.48
	SUB-TEST 3	21.40	21.50	21.22
	SUB-TEST 4	20.35	20.49	20.53
	SUB-TEST 5	22.18	22.13	22.11

Wi-Fi Average Output Power

802.11b（dBm）

Channel\data rate	1Mbps	2Mbps	5.5Mbps	11Mbps
1	14.65	14.61	14.60	14.57
6	15.15	15.06	15.09	15.07
11	14.82	14.58	14.80	14.76

802.11g（dBm）

Channel\data rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
1	13.49	13.45	13.42	13.43	12.58	12.38	12.21	12.31
6	13.64	13.63	13.59	13.56	13.57	12.73	12.63	12.77
11	13.37	13.36	13.32	13.34	12.49	12.36	12.10	12.29

802.11n 20M（dBm）

Channel\data rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
1	11.85	11.71	11.76	10.91	10.42	10.30	10.28	10.29
6	12.09	11.89	11.88	11.08	10.97	10.89	10.87	10.91
11	11.72	11.56	11.61	10.78	10.23	10.13	10.11	10.10

6.2 Test Results

6.2.1. Dielectric Performance

Dielectric Performance of Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters εr	σ(s/m)	temp ℃
835MHz (head)	Target value 5% window	41.5 39.43-43.58	0.90 0.89- 0.99	/
	Measurement value 2012-06-14	43.1	0.91	21.8
	Measurement value 2012-06-20	43	0.91	21.6
	Measurement value 2012-06-21	43.1	0.91	21.7
835MHz (body)	Target value 5% window	55.2 52.44-57.96	0.97 0.92-1.02	/
	Measurement value 2012-06-21	54.1	0.967	21.7
	Measurement value 2012-06-25	54.3	0.96	22.1
	Measurement value 2012-06-26	54.2	0.97	22.0
	Measurement value 2012-06-27	54.3	0.97	21.9
1900MHz (head)	Target value 5% window	40.0 38-42	1.40 1.33 -1.47	/
	Measurement value 2012-06-15	39.3	1.38	21.9
	Measurement value 2012-06-28	39.4	1.37	21.5
1900MHz (body)	Target value 5% window	53.3 50.63-55.96	1.52 1.44 — 1.60	/
	Measurement value 2012-06-18	52.4	1.49	22.2
	Measurement value 2012-06-25	52.5	1.48	22.1
	Measurement value 2012-06-26	52.4	1.47	22.0
2450MHz (head)	Target value 5% window	39.2 37.24-41.16	1.8 1.71-1.89	/

	Measurement value 2012-06-19	37.86	1.785	21.7
2450MHz (body)	Target value 5% window	52.7 50.06-55.33	1.95 1.85 — 2.05	/
	Measurement value 2012-06-20	51.9	1.93	21.6
	Measurement value 2012-06-29	51.8	1.92	21.4

6.2.2. System Check Results

System Check for tissue simulation liquid

Frequency	Description	SAR(W/kg)		Dielectric Parameters εr	σ (s/m)	Temp ℃
		10g	1g			
835 MHz (head)	Recommended result ±10% window	1.51 1.36-1.66	2.3 2.07-2.53	41.5	0.90	/
	Measurement value 2012-06-14	1.53	2.32	40.8	0.92	21.8
	Measurement value 2012-06-20	1.46	2.24	40.7	0.93	21.6
	Measurement value 2012-06-21	1.42	2.17	40.7	0.92	21.7
835MHz (body)	Recommended result ±10% window	1.6 1.44-1.76	2.43 2.19-2.67	55.2	0.97	/
	Measurement value 2012-06-21	1.47	2.26	54.1	0.967	21.7
	Measurement value 2012-06-25	1.53	2.36	54.3	0.96	22.1
	Measurement value 2012-06-26	1.58	2.43	54.2	0.97	22.0
	Measurement value 2012-06-27	1.53	2.36	54.3	0.97	21.9

1900MHz (head)	Recommended result ±10% window	5.09 4.58-5.60	9.65 8.75-10.60	40.0	1.40	/
	Measurement value 2012-06-15	5.32	10.5	39.3	1.38	21.9
	Measurement value 2012-06-28	5.34	10.5	39.4	1.37	21.5
1900MHz (body)	Recommended result ±10% window	5.3 4.77-5.83	10. 9.00-11.00	53.3	1.52	/
	Measurement value 2012-06-18	4.82	9.42	52.4	1.49	22.2
	Measurement value 2012-06-25	4.89	9.52	52.5	1.48	22.1
	Measurement value 2012-06-26	5.14	10.1	52.4	1.47	22.0
2450MHz (head)	Recommended result ±10% window	6.41 5.77-7.05	13.8 12.42-15.18	39.2	1.8	/
	Measurement value 2012-06-19	6.52	14.4	37.86	1.785	21.7
2450MHz (body)	Recommended result ±10% window	6.02 5.42-6.62	13 11.7-14.3	52.7	1.95	/
	Measurement value 2012-06-20	6.36	14.1	51.9	1.93	21.6
	Measurement value 2012-06-29	6	13.4	51.8	1.92	21.4

Note: 1. the graph results see ANNEX B.1.

2 .Recommended Values used derive from the calibration certificate and 250 mW is used as feeding power to the calibrated dipole.

6.2.3 Test Results

6.2.3.1 Summary of Measurement Results (GSM850)

SAR Values (GSM850)

Test Case		Measurement Result(W/kg)	Power Drift(dB)	Note
Different Test Position	Channel	1 g		
		Average		
Test position of Head				
Left head, Touch cheek	middle	0.286	-0.058	
Left head, Tilt 15 Degree	middle	0.195	-0.108	
Right head, Touch cheek	middle	0.223	0.139	
Right head, Tilt 15 Degree	middle	0.135	0.00571	
Left head, Touch cheek	low	**0.309**	-0.145	**max**
	high	0.206	-0.135	
Test position of Body with GPRS(4UP) (Distance 10mm)				
Towards phantom	middle	0.414	-0.17	
Towards Ground	middle	**0.593**	0.02	**max**
Front	middle	0.140	0.05	
Left side	middle	0.425	0.10	
Right side	middle	0.321	-0.01	
Towards Ground	low	0.489	0.04	
	high	0.312	0.08	
Worst case position of Body with (Distance 10mm)				
Towards Ground	middle	0.469	-0.01	Earphone
Towards Ground	middle	0.566	-0.10	EDGE(4up)

6.2.3.2 Summary of Measurement Results (PCS1900)

SAR Values (PCS1900)

Test Case		Measurement Result(W/kg)	Power Drift(dB)	Note
Different Test Position	Channel	1 g		
		Average		
Test position of Head				
Left head, Touch cheek	middle	0.113	0.10	
Left head, Tilt 15 Degree	middle	0.035	-0.04	
Right head, Touch cheek	middle	0.146	0.15	
Right head, Tilt 15 Degree	middle	0.039	-0.16	
Right head, Touch cheek	low	0.181	0.08	
	high	**0.201**	-0.03	**max**
Test position of Body with GPRS(4UP) (Distance 10mm)				
Towards phantom	middle	0.443	-0.04	
Towards Ground	middle	0.622	-0.04	
Front	middle	0.404	0.10	
Left side	middle	0.097	-0.06	
Right side	middle	0.068	-0.05	
Towards Ground	low	0.668	0.05	
	high	0.683	-0.07	
Worst case position of Body with (Distance 10mm)				
Towards Ground	high	**0.736**	-0.07	Earphone **max**
Towards Ground	high	0.699	-0.04	EDGE(4up)

6.2.3.3 Summary of Measurement Results (WCDMA BAND II)

SAR Values (WCDMA BANDII)

Test Case		Measurement Result(W/kg)	Power Drift(dB)	Note
Different Test Position	Channel	1 g Average		
Test position of Head				
Left head, Touch cheek	middle	0.280	0.075	
Left head, Tilt 15 Degree	middle	0.080	0.100	
Right head, Touch cheek	middle	0.285	0.174	
Right head, Tilt 15 Degree	middle	0.102	-0.00641	
Right head, Touch cheek	low	0.313	0.170	
	high	**0.329**	-0.157	**max**
Test position of Body (Distance 10mm)				
Towards phantom	middle	0.930	-0.01	
Towards Ground	middle	0.906	0.04	
Front	middle	0.709	0.05	
Left side	middle	0.163	0.16	
Right side	middle	0.102	0.03	
Towards phantom	low	0.509	-0.17	
	high	0.523	-0.00	
Towards Ground	low	0.885	-0.02	
	high	0.628	0.03	
Worst case position of Body with (Distance 10mm)				
Towards Ground	middle	**1.19**	-0.13	Earphone **max**
Towards Ground	middle	1.01	0.16	HSDPA
Towards Ground	middle	1.02	0.04	HSUPA

6.2.3.4 Summary of Measurement Results (WCDMA BAND V)

SAR Values (WCDMA BAND V)

Test Case		Measurement Result(W/kg)	Power Drift(dB)	Note
Different Test Position	Channel	1 g		
		Average		
Test position of Head				
Left head, Touch cheek	middle	0.217	-0.023	
Left head, Tilt 15 Degree	middle	0.138	0.091	
Right head, Touch cheek	middle	**0.251**	0.012	**max**
Right head, Tilt 15 Degree	middle	0.155	-0.058	
Left head, Tilt 15 Degree	low	0.168	-0.051	
	high	0.125	0.141	
Test position of Body (Distance 10mm)				
Towards phantom	middle	0.298	-0.16	
Towards Ground	middle	0.527	0.11	
Front	middle	0.056	0.01	
Left side	middle	0.283	0.13	
Right side	middle	0.263	0.06	
Towards Ground	low	**0.533**	-0.02	**max**
	high	0.430	0.17	
Worst case position of Body with (Distance 10mm)				
Towards Ground	low	0.423	0.11	Earphone
Towards Ground	low	0.432	0.00	HSDPA
Towards Ground	low	0.436	0.12	HSUPA

6.2.3.5 Summary of Measurement Results (802.11b/g/n)

SAR Values (802.11b/g/n)

Test Case		Measurement Result(W/kg)	Power Drift(dB)	Note
Different Test Position	Channel	1 g		
		Average		
Test position of Head				
Left head, Touch cheek	middle	**0.151**	0.148	**max**
Left head, Tilt 15 Degree	middle	0.120	0.190	
Right head, Touch cheek	middle	0.068	0.083	
Right head, Tilt 15 Degree	middle	0.053	0.206	
Left head, Tilt 15 Degree	low	0.131	-0.085	
	high	0.098	0.321	
Left head, Tilt 15 Degree	middle	0.063	0.083	802.11g
Left head, Tilt 15 Degree	middle	0.053	0.276	802.11n
Test position of Body (Distance 10mm)				
Towards phantom	middle	0.022	0.52	
Towards Ground	middle	**0.140**	-0.04	**max**
Back	middle	0.047	0.02	
Left side	middle	0.027	-0.59	
Right side	middle	0.049	0.03	
Towards Ground	low	0.085	-0.49	
	high	0.044	0.51	
Towards Ground	middle	0.049	-0.52	802.11g
Towards Ground	middle	0.057	0.07	802.11n

Note: 1.The value with blue color is the maximum SAR Value of test case of head and body in each test band.

2. Upper and lower frequencies were measured at the worst position.
3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8W/kg), testing at the high and low channels is optional.

6.2.4 Maximum SAR

TEST BAND	Worst Position		CHANNAL	Maximum SAR(1g) (W/kg)	Limit of SAR(1g)
GSM900	Head	Left head, Touch cheek	low	0.309	1.6
	Body	Towards Ground	middle	0.593	1.6
PCS1900	Head	Right head, Touch cheek	high	0.201	1.6
	Body	Towards Ground with Earphone	high	0.736	1.6
WCDMA BAND II	Head	Right head, Touch cheek	high	0.329	1.6
	Body	Towards Ground with Earphone	middle	1.19	1.6
WCDMA BAND V	Head	Right head, Touch cheek	middle	0.251	1.6
	Body	Towards Ground	low	0.533	1.6
Wi-Fi	Head	Left head, Touch cheek	middle	0.151	1.6
	Body	Towards Ground	middle	0.140	1.6

Evaluation for Simultaneous SAR							
TEST MODE	Wi-Fi		Main Mode SAR(1g) (W/kg)	Wi-Fi SAR(1g) (W/kg)	Summation SAR(1g) (W/kg)	SAR –to-peak-location Separation Ratio	Simultaneous Measurement Required?
GSM850	802.11b	Head	0.309	0.151	＜1.6	/	No
		Body	0.593	0.140	＜1.6	/	No

GSM1900	**802.11b**	Head	0.201	0.151	＜1.6	/	No
		Body	0.736	0.140	＜1.6	/	No
WCDMA BAND II	**802.11b**	Head	0.329	0.151	＜1.6	/	No
		Body	1.19	0.140	＜1.6	/	No
WCDMA BAND V	**802.11b**	Head	0.251	0.151	＜1.6	/	No
		Body	0.533	0.140	＜1.6	/	No

General Judgment： PASS

7. Test Equipments Utilized

No.	Name	Type	S/N	Calibration Date	Valid Period
01	Network analyzer	Agilent E5071E	MY46109425	Oct 14th，2011	One year
02	Dielectric Probe Kit	Agilent 85070E	MY44300524	No Calibration Requested	
03	Power meter	Agilent E4418B	MY50000852	Oct 14th，2011	One year
04	Power sensor	Agilent E9200B	MY50300011	Oct 14th，2011	One year
05	Signal Generator	Agilent N5182A	MY49071248	Oct 14th，2011	One year
06	Amplifier	ZHL-42W	QA1020005	No Calibration Requested	
07	BTS	CMU200	121464	Oct 14th，2011	One year
08	E-field Probe	ES3DV3	3241	Sep 27th，2011	One year
09	E-field Probe	ES3DV3	3297	Apr 10th，2012	One year
10	DAE	DAE4	1327	Apr 11th，2012	One year
11	DAE	DAE4	914	Dec 8th，2012	One year
12	Validation Kit 835MHz	D835V2	4d120	July 19th，2011	One year
13	Validation Kit 1900MHz	D1900V2	5d155	April 03th，2012	One year
14	Validation Kit 2450MHz	D2450V2	869	July 15th，2011	One year

8. Measurement Uncertainty

No.	source	type	Uncertainty Value (%)	Probability Distribution	k	c_i	Standard ncertainty u_i (%	Degree of freedom V_{eff} or v_i
1	-System repetivity	A	0.3	N	1	1	0.5	9
Measurement system								
2	－probe calibration	B	7	N	2	1	3.5	∞
3	－axial isotropy of the probe	B	4.7	R	$\sqrt{3}$	0.5	4.3	∞
4	－Hemispherical isotropy of the probe	B	9.4	R	$\sqrt{3}$	1	0	∞
5	－probe linearity	B	4.7	R	$\sqrt{3}$	1	2.7	∞
6	－System detection limits	B	1.0	R	$\sqrt{3}$	1	0.6	∞
7	－boundary effect	B	11.0	R	$\sqrt{3}$	1	6.4	∞
8	－response time	B	0	R	$\sqrt{3}$	1	0	∞
9	－noise	B	0	N	$\sqrt{3}$	1	0	∞
10	－integration time	B	5.0	R	$\sqrt{3}$	1	2.9	∞
11	-readout Electronics	B	0.4	R	$\sqrt{3}$	1	0.2	∞
12	－-phantom	B	2.9	R	$\sqrt{3}$	1	1.7	∞
13	－Probe Positioning with respect to Phantom Shell	B	2.9	R	$\sqrt{3}$	1	1.7	∞
14	－Device Holder Uncertainty	A	4.9	R	1	1	4.9	5
物理参数								
15	-liquid density	B	0	R	$\sqrt{3}$	1	0	∞
16	-liquid conductivity (deviation from target)	B	5.0	R	$\sqrt{3}$	0.5	2.9	∞
17	-liquid conductivity (measurement uncertainty)	A	0.23	N	1	1	0.23	9

18	-liquid permittivity (deviation from target)	B	5.0	R	$\sqrt{3}$	0.5	2.9	∞
19	-liquid permittivity (measurement uncertainty)	A	0.46	N	1	1	0.46	9
20	－Probe Positioner Mechanical Tolerance	B	5.0	R	$\sqrt{3}$	1	2.9	∞
21	－Environment	B	3.0	R	$\sqrt{3}$	1	1.7	∞
22	－Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	B	3.9	R	$\sqrt{3}$	1	2.3	∞
Combined standard uncertainty		$u_c^{'} = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$					12.2	88.7
Expanded uncertainty (confidence interval of95 %)		$u_e = 2u_c$		N	K=2		24.4	

ANNEX A: Photograph

EUT


ZTE中兴
锂离子电池 1600mAh(6.0Wh)
标称电压:3.7V
充电限制电压:4.2V
型号:Li3716T42P3h594650
执行标准:GB/T 18287-2000
中兴通讯股份有限公司
BATTERY LITHIUM-ION 1600mAh(6.0Wh)
NOMINAL VOLTAGE:3.7V
CHARGE UP VOLTAGE:4.2V
MODEL:Li3716T42P3h594650
STANDARD:GB/T 18287-2000
ZTE CORPORATION

BATTERY

Travel Adaptor

Earphone

ANNEX B: Detailed Test Results

Annex B.1 System Check Results

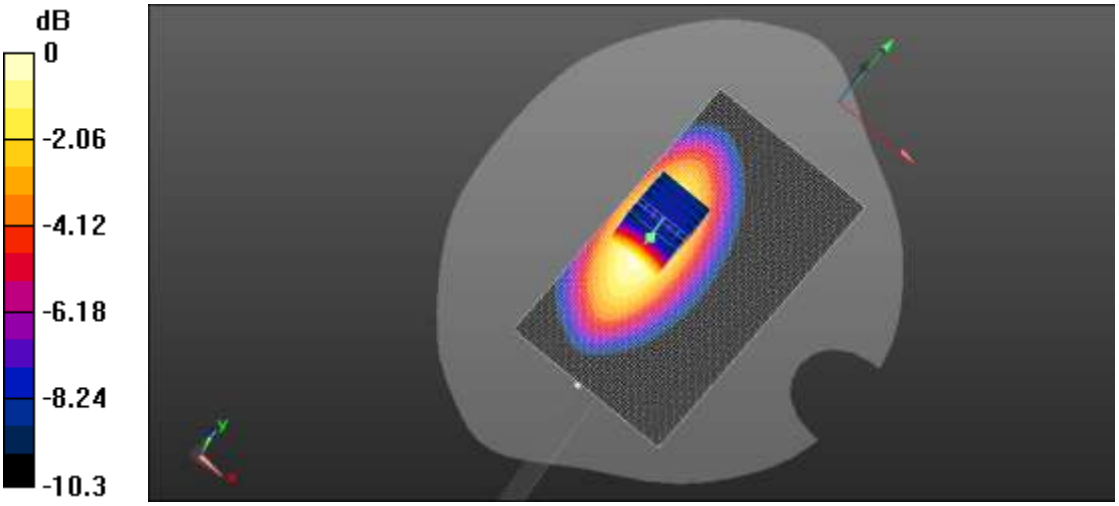
System check 835head

Date/Time: 6/14/2012 2:11:35 PM
Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 08/12/2011
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, V52.2 Build 0; Postprocessing SW: SEMCAD X, V14.2 Build 2Version 14.2.2 (1685) (Deployment Build)

835head/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-head/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.68 mW/g

835head/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-head/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 38.5 V/m; Power Drift = 0.170 dB
Peak SAR (extrapolated) = 3.44 W/kg
SAR(1 g) = 2.32 mW/g; SAR(10 g) = 1.53 mW/g
Maximum value of SAR (measured) = 2.7 mW/g



0 dB = 2.7mW/g

System check 835 head

Date/Time: 6/20/2012 9:23:13 PM

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 08/12/2011
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, V52.2 Build 0; Postprocessing SW: SEMCAD X, V14.2 Build 2Version 14.2.2 (1685) (Deployment Build)

835head/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-head/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.6 mW/g

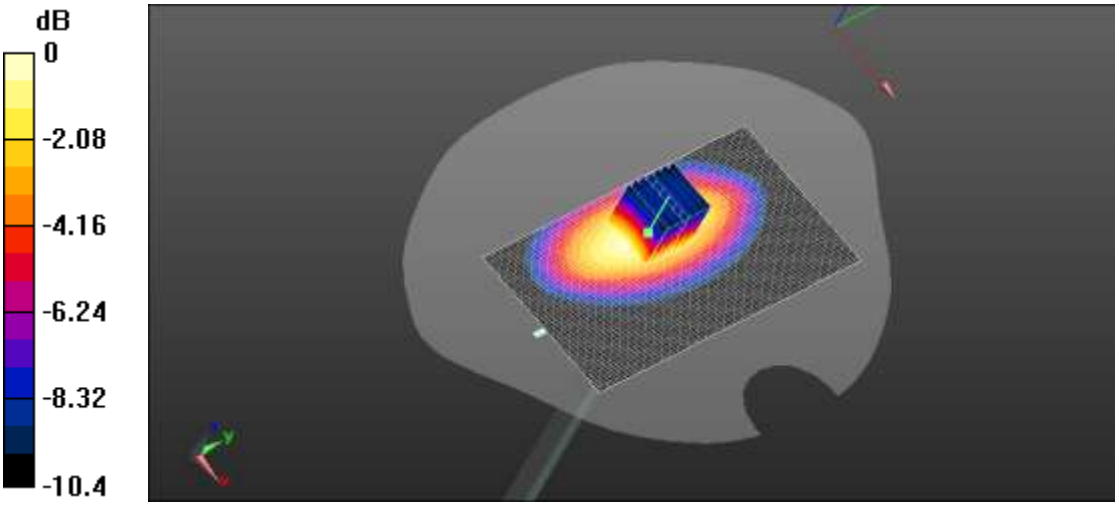
835head/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-head/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 45.2 V/m; Power Drift = 0.135 dB

Peak SAR (extrapolated) = 3.4 W/kg

SAR(1 g) = 2.24 mW/g; SAR(10 g) = 1.46 mW/g

Maximum value of SAR (measured) = 2.63 mW/g



0 dB = 2.63mW/g

System check 835 head

Date/Time: 6/21/2012 9:05:53 AM

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 08/12/2011
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, V52.2 Build 0; Postprocessing SW: SEMCAD X, V14.2 Build 2Version 14.2.2 (1685) (Deployment Build)

835head/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-head/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.52 mW/g

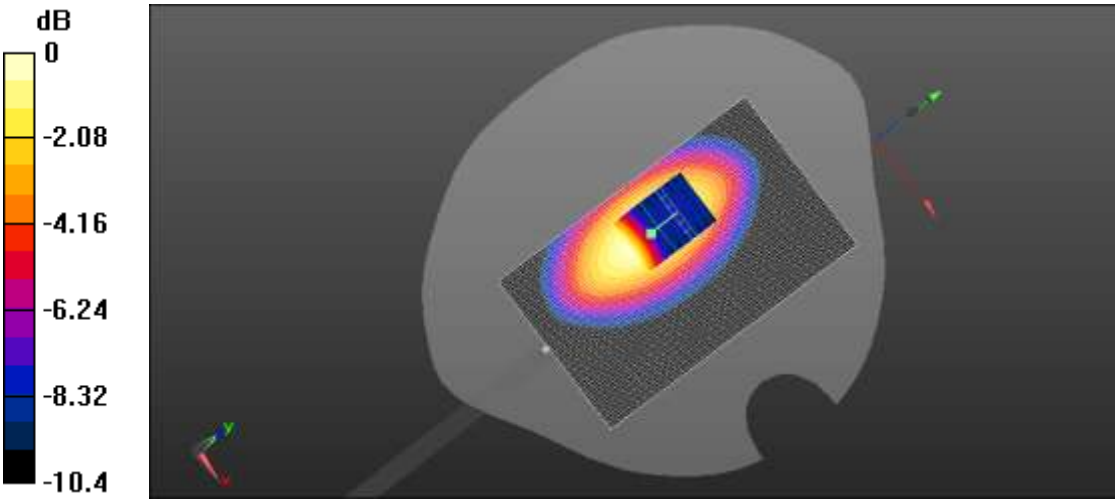
835head/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-head/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 41.8 V/m; Power Drift = 0.147 dB

Peak SAR (extrapolated) = 3.23 W/kg

SAR(1 g) = 2.17 mW/g; SAR(10 g) = 1.42 mW/g

Maximum value of SAR (measured) = 2.54 mW/g



0 dB = 2.54mW/g

System check 835 body

Date/Time: 21/06/2012 08:08:16

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 835 MHz; σ = 0.948 mho/m; ε_r = 54.255; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.68 mW/g

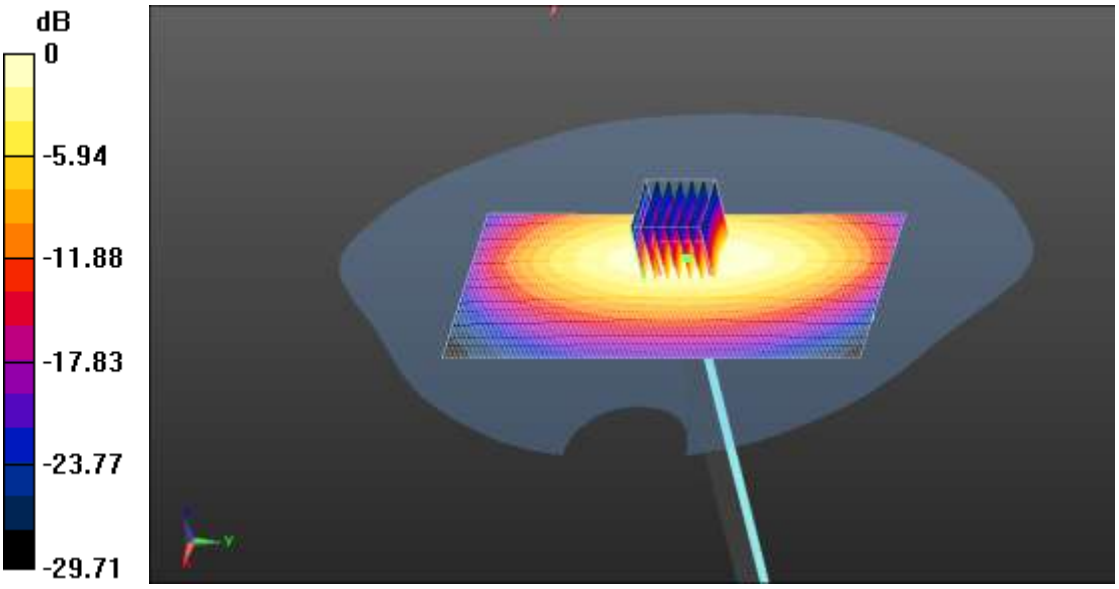
835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 43.009 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 3.496 mW/g

SAR(1 g) = 2.26 mW/g; SAR(10 g) = 1.47 mW/g

Maximum value of SAR (measured) = 2.66 mW/g



0 dB = 2.68 mW/g = 8.56 dB mW/g

System check 835 body

Date/Time: 25/06/2012 10:04:41

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 835 MHz; σ = 0.948 mho/m; ε_r = 54.255; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.77 mW/g

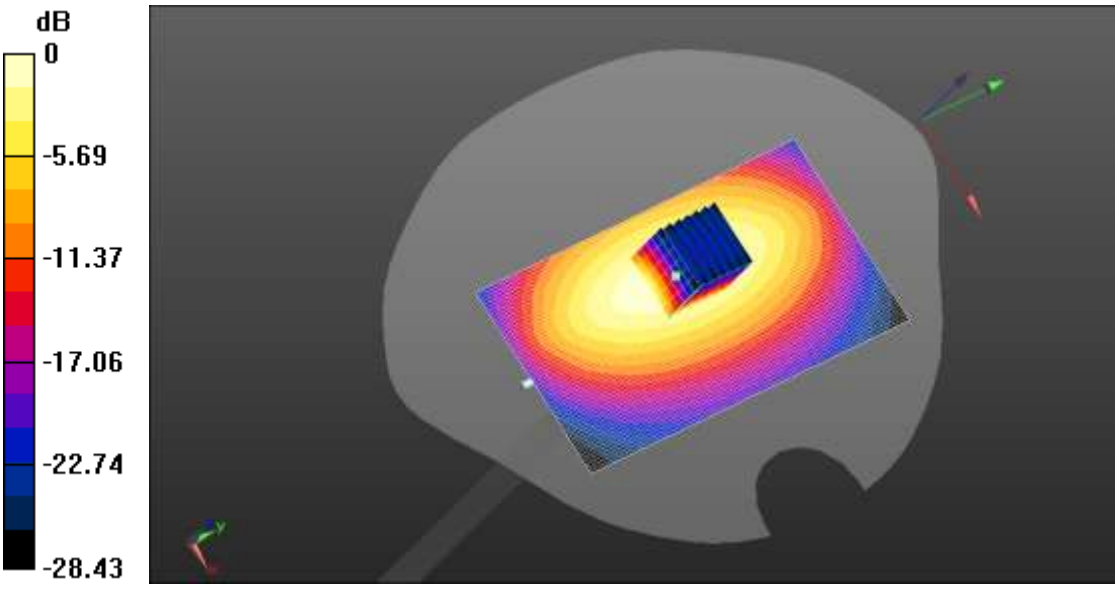
835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 48.263 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 3.642 mW/g

SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.53 mW/g

Maximum value of SAR (measured) = 2.77 mW/g



0 dB = 2.77 mW/g = 8.84 dB mW/g

System check 835 body

Date/Time: 26/06/2012 18:11:48

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 835 MHz; σ = 0.948 mho/m; ε_r = 54.255; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.85 mW/g

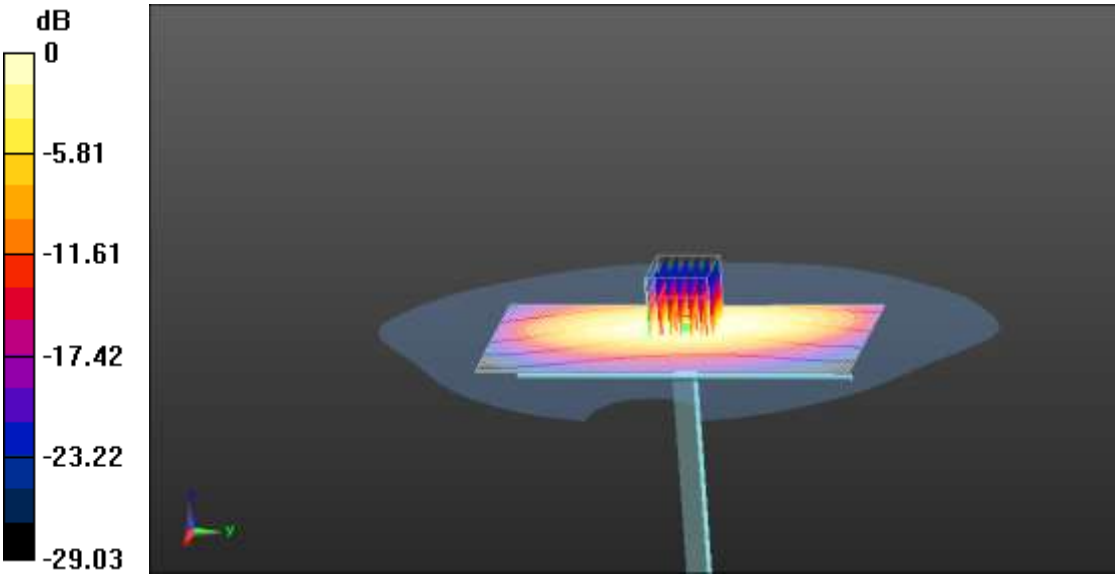
835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 45.648 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 3.762 mW/g

SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.58 mW/g

Maximum value of SAR (measured) = 2.85 mW/g



0 dB = 2.85 mW/g = 9.09 dB mW/g

System check 835 body

Date/Time: 27/06/2012 09:26:28

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 835 MHz; σ = 0.948 mho/m; ε_r = 54.255; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 08/12/2011
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.77 mW/g

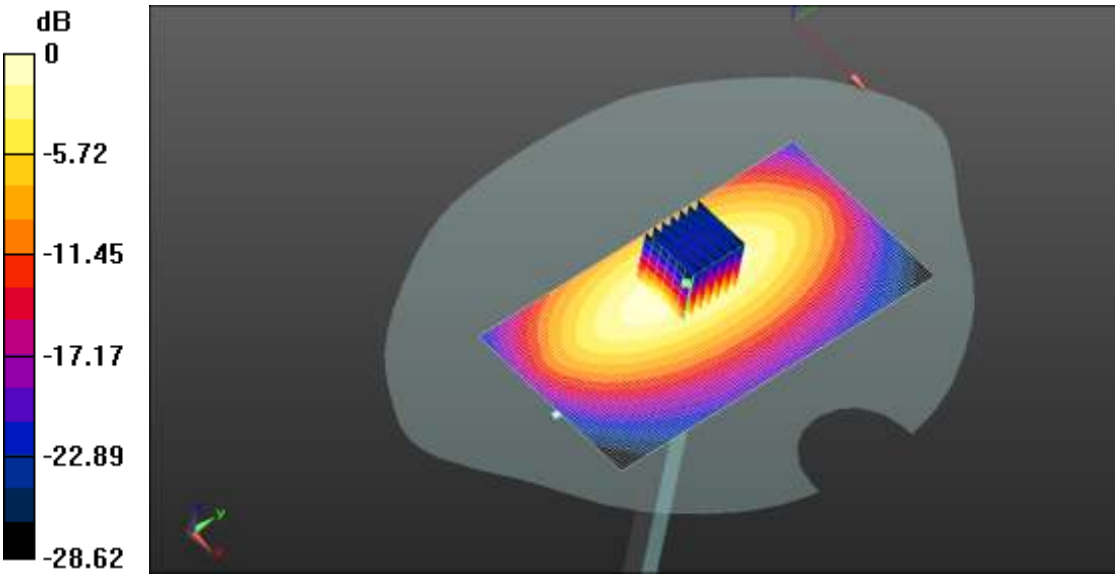
835body/d=15mm, Pin=250 mW, dist=3.0mm (ES-Probe)-BODY/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 47.982 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 3.676 mW/g

SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.53 mW/g

Maximum value of SAR (measured) = 2.79 mW/g



0 dB = 2.77 mW/g = 8.85 dB mW/g

System check 1900 head

Date/Time: 15/06/2012 08:14:34

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1900 MHz; σ = 1.36 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

1900head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 13.5 mW/g

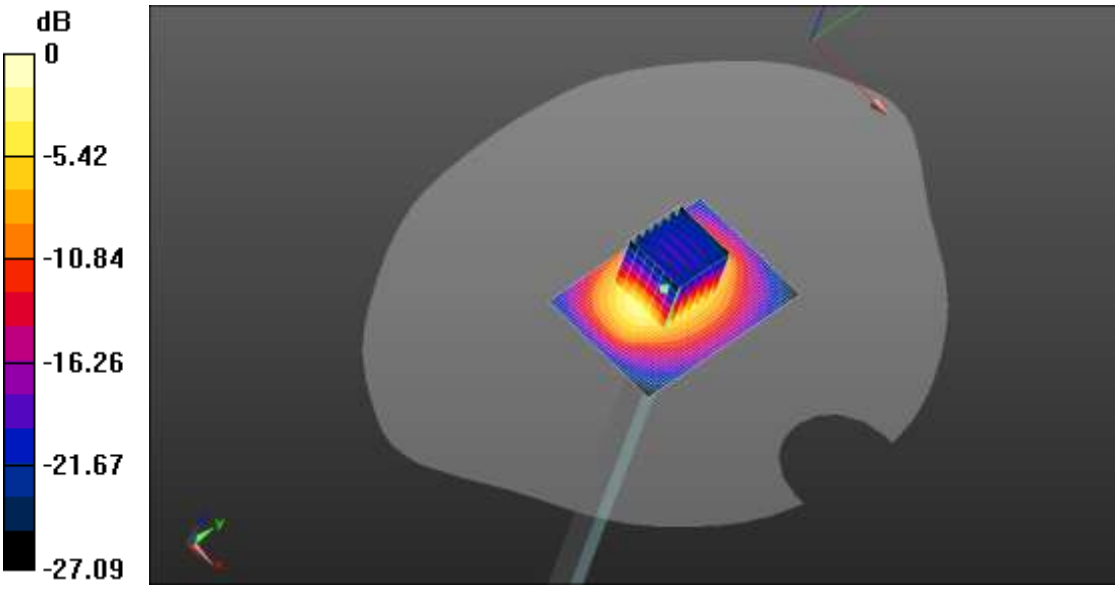
1900head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.589 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 19.632 mW/g

SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.32 mW/g

Maximum value of SAR (measured) = 13.4 mW/g



0 dB = 13.5 mW/g = 22.61 dB mW/g

System check 1900 head

Date/Time: 28/6/2012 11:08:39

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1900 MHz; σ = 1.38 mho/m; ε_r = 39; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 8/12/2011
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, V52.2 Build 0; Postprocessing SW: SEMCAD X, V14.2 Build 2Version 14.2.2 (1685) (Deployment Build)

1900head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 13.8 mW/g

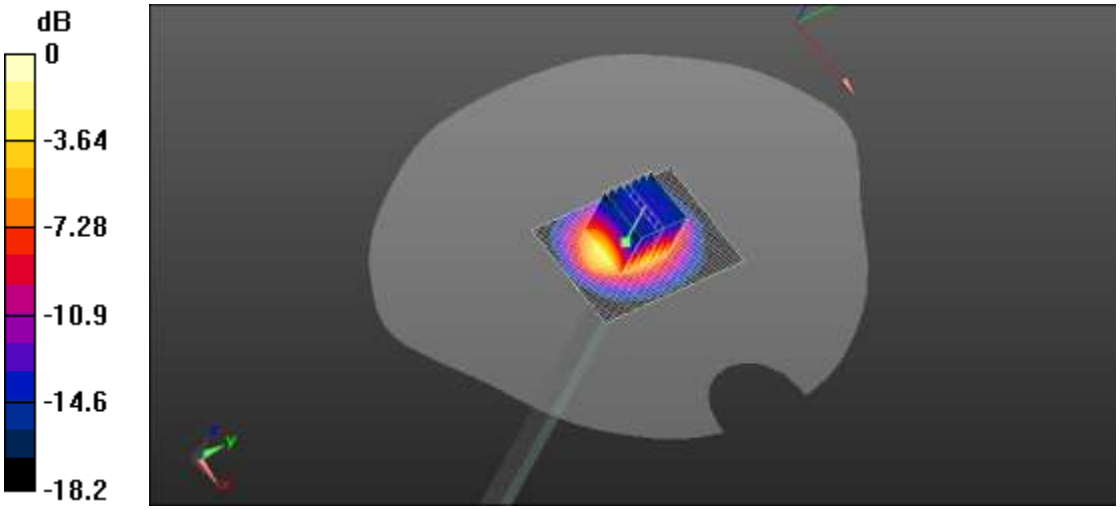
1900head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.2 V/m; Power Drift = 0.156 dB

Peak SAR (extrapolated) = 19.5 W/kg

SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.34 mW/g

Maximum value of SAR (measured) = 13.4 mW/g



0 dB = 13.4mW/g

System check 1900 body

Date/Time: 18/06/2012 14:22:35

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1900 MHz; σ = 1.495 mho/m; ε_r = 52.357; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

1900body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 12.2 mW/g

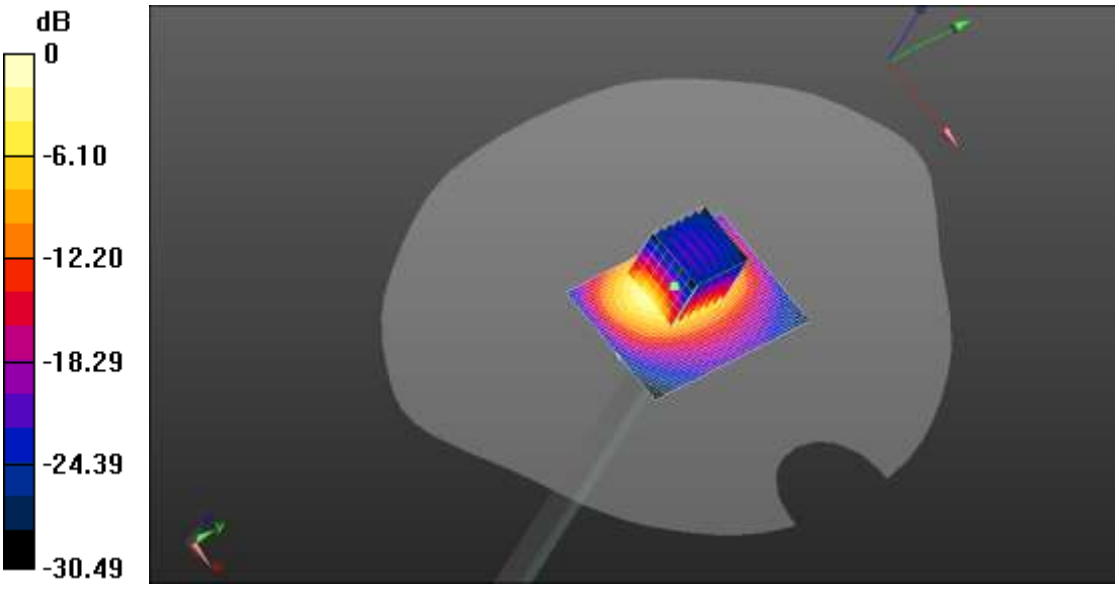
1900body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 60.538 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 17.256 mW/g

SAR(1 g) = 9.42 mW/g; SAR(10 g) = 4.82 mW/g

Maximum value of SAR (measured) = 12.0 mW/g



0 dB = 12.2 mW/g = 21.74 dB mW/g

System check 1900 body

Date/Time: 25/06/2012 14:37:59

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1900 MHz; σ = 1.495 mho/m; ε_r = 52.357; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

1900body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 13.3 mW/g

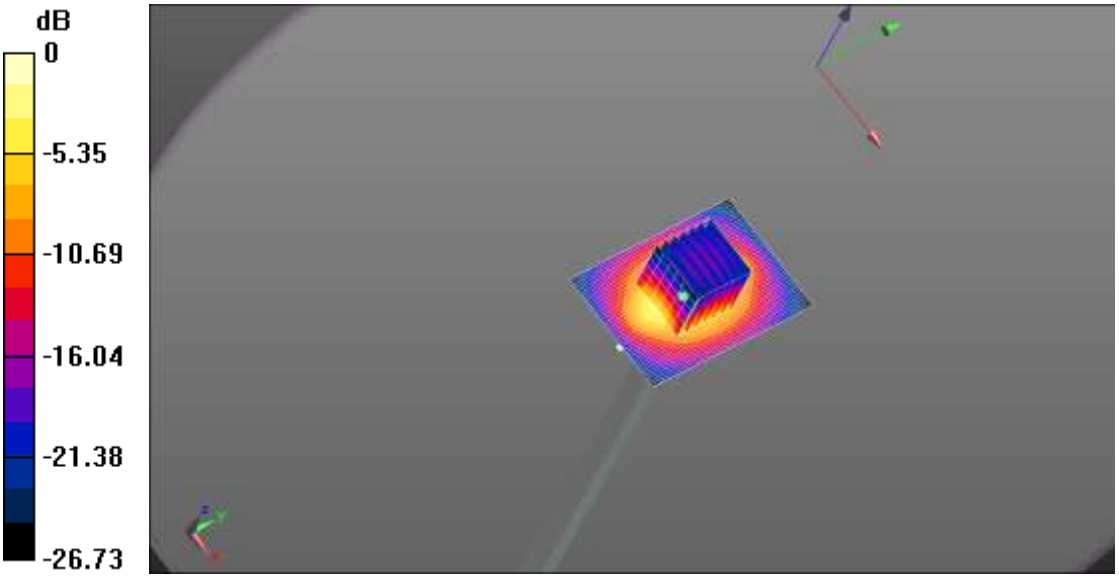
1900body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.282 V/m; Power Drift = -0.27 dB

Peak SAR (extrapolated) = 17.110 mW/g

SAR(1 g) = 9.52 mW/g; SAR(10 g) = 4.89 mW/g

Maximum value of SAR (measured) = 12.1 mW/g



0 dB = 13.3 mW/g = 22.45 dB mW/g

System check 1900 body

Date/Time: 26/06/2012 10:24:59

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 1900 MHz; σ = 1.495 mho/m; ε_r = 52.357; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

1900body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 13.3 mW/g

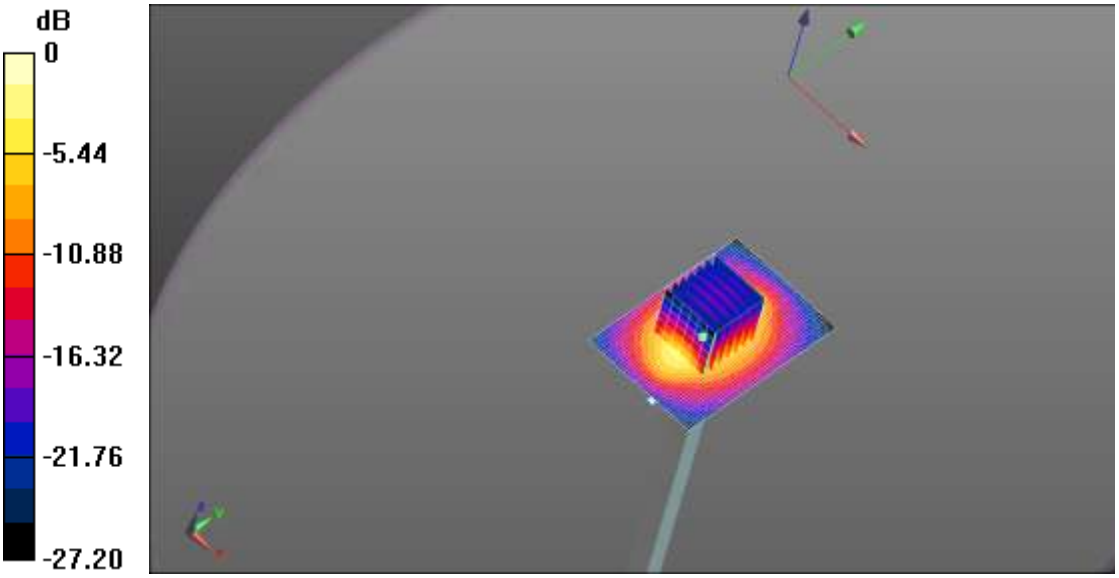
1900body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.362 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 18.218 mW/g

SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.14 mW/g

Maximum value of SAR (measured) = 12.9 mW/g



0 dB = 13.3 mW/g = 22.46 dB mW/g

System check 2450 head

Date/Time: 6/19/2012 8:39:38 AM

Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2450 MHz; σ = 1.78 mho/m; ε_r = 37.9; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59);
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 08/12/2011
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, V52.2 Build 0; Postprocessing SW: SEMCAD X, V14.2 Build 2Version 14.2.2 (1685) (Deployment Build)

2450head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 20 mW/g

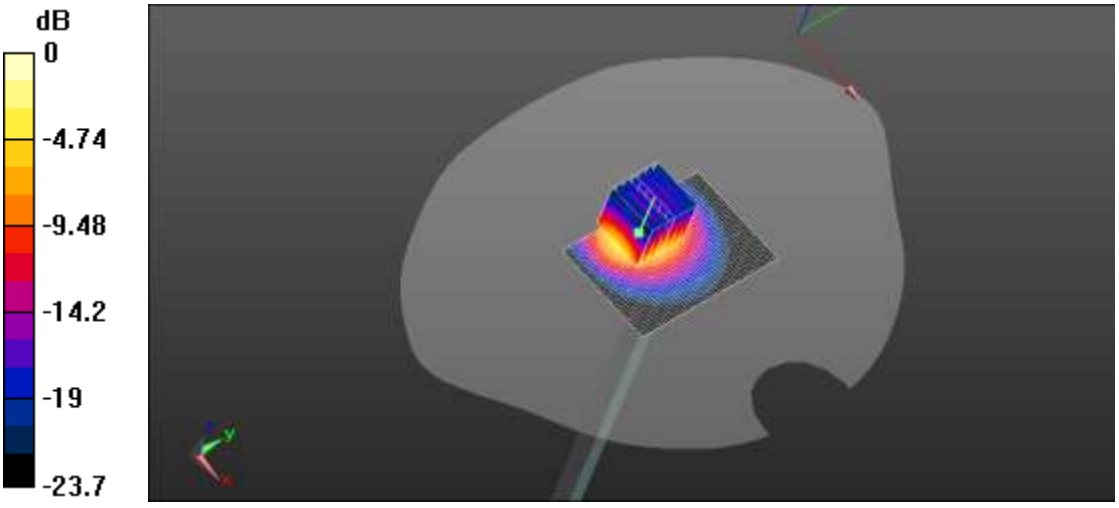
2450head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 39.6 V/m; Power Drift = 0.152 dB

Peak SAR (extrapolated) = 30.8 W/kg

SAR(1 g) = 14.4 mW/g; SAR(10 g) = 6.52 mW/g

Maximum value of SAR (measured) = 19 mW/g



0 dB = 19mW/g

System check 2450 body

Date/Time: 20/06/2012 10:20:34

Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2450 MHz; σ = 1.921 mho/m; ε_r = 51.932; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.29, 4.29, 4.29); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

2450body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 19.2 mW/g

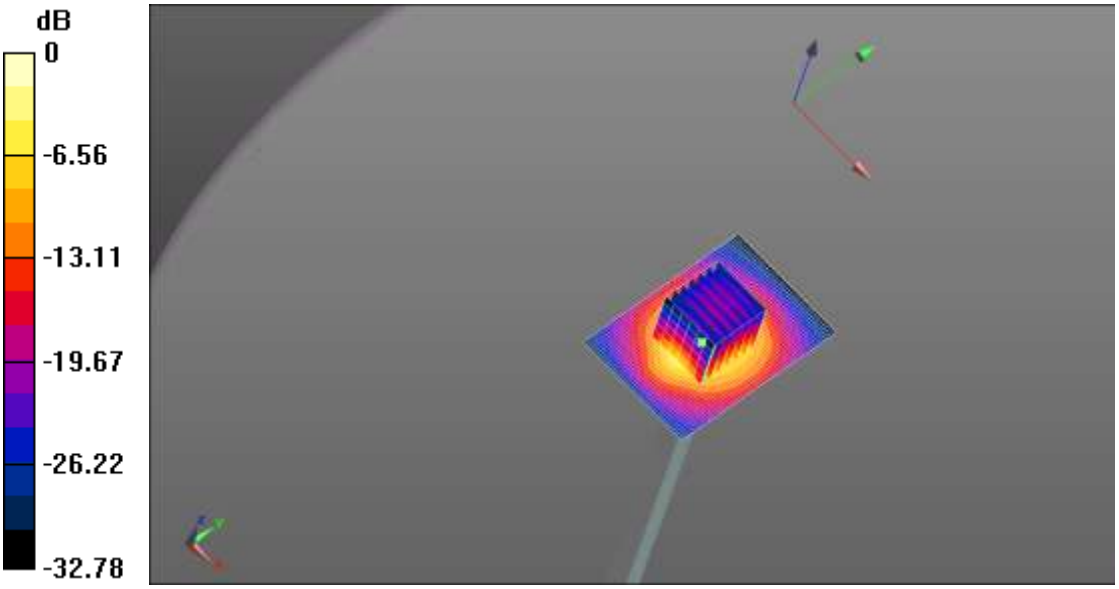
2450body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 101.5 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 29.382 mW/g

SAR(1 g) = 14.1 mW/g; SAR(10 g) = 6.36 mW/g

Maximum value of SAR (measured) = 18.4 mW/g



0 dB = 19.2 mW/g = 25.69 dB mW/g

System check 2450 body

Date/Time: 29/06/2012 08:20:11

Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB

Medium parameters used: f = 2450 MHz; σ = 1.921 mho/m; ε_r = 51.932; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.29, 4.29, 4.29); Calibrated: 27/09/2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 08/12/2011
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

2450body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 19.3 mW/g

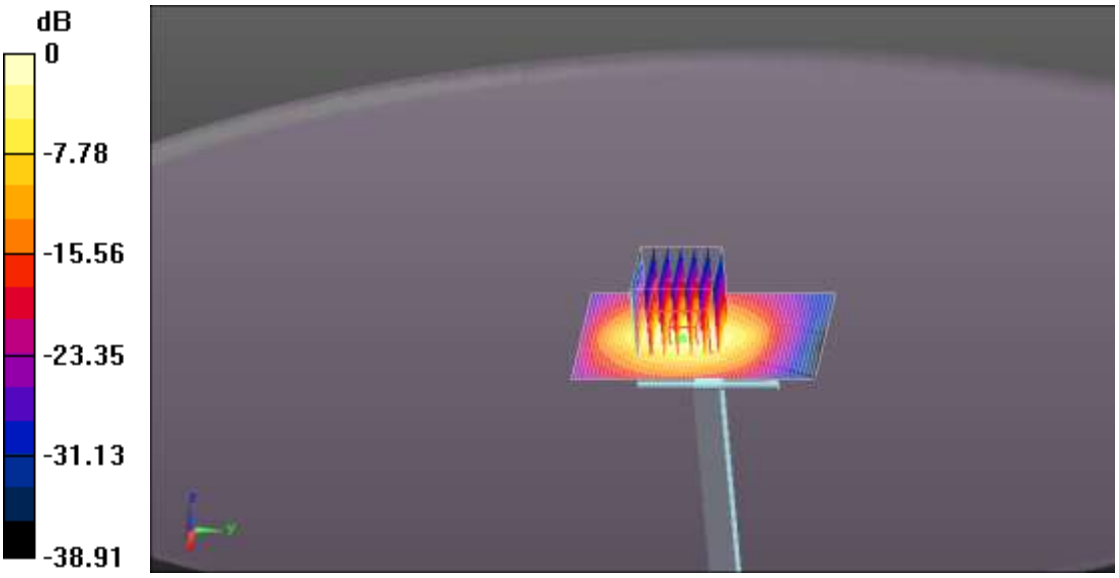
2450body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.098 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 28.183 mW/g

SAR(1 g) = 13.4 mW/g; SAR(10 g) = 6 mW/g

Maximum value of SAR (measured) = 17.8 mW/g



0 dB = 19.3 mW/g = 25.70 dB mW/g

Annex B.2 Graph Result

GSM850 left touch mid

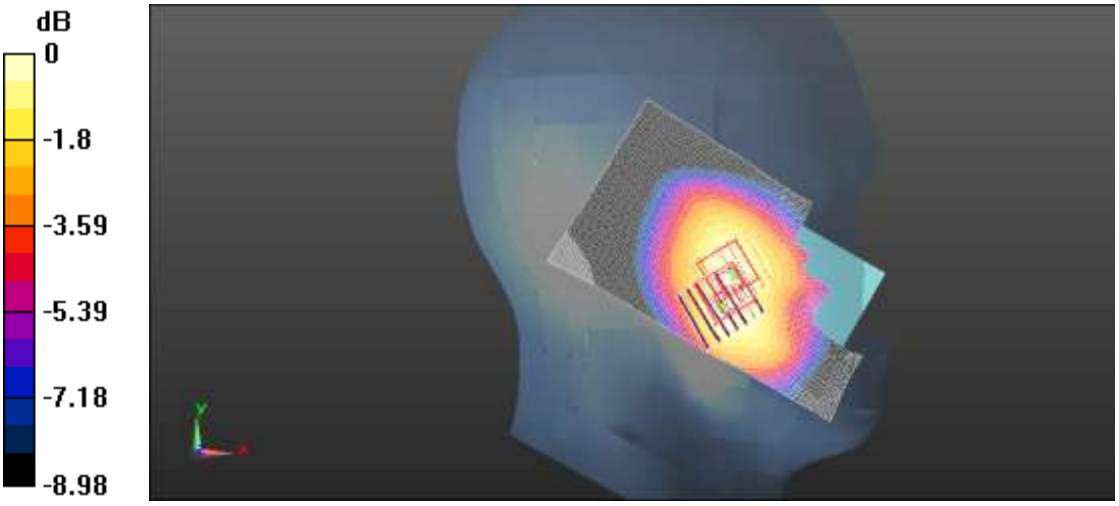
Date/Time: 6/14/2012 8:34:32 PM
Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 9.191 dB
Medium parameters used: f = 837 MHz; σ = 0.914 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Touch Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.303 mW/g

left/Touch Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.22 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 0.396 W/kg
SAR(1 g) = 0.286 mW/g; SAR(10 g) = 0.204 mW/g
Maximum value of SAR (measured) = 0.307 mW/g

left/Touch Position - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.22 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 0.390 W/kg
SAR(1 g) = 0.283 mW/g; SAR(10 g) = 0.212 mW/g
Maximum value of SAR (measured) = 0.310 mW/g



0 dB = 0.310mW/g

GSM850 left tilt mid

Date/Time: 6/14/2012 9:20:03 PM

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 9.191 dB

Medium parameters used: f = 837 MHz; σ = 0.914 mho/m; ε_r = 43; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Tilt Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.205 mW/g

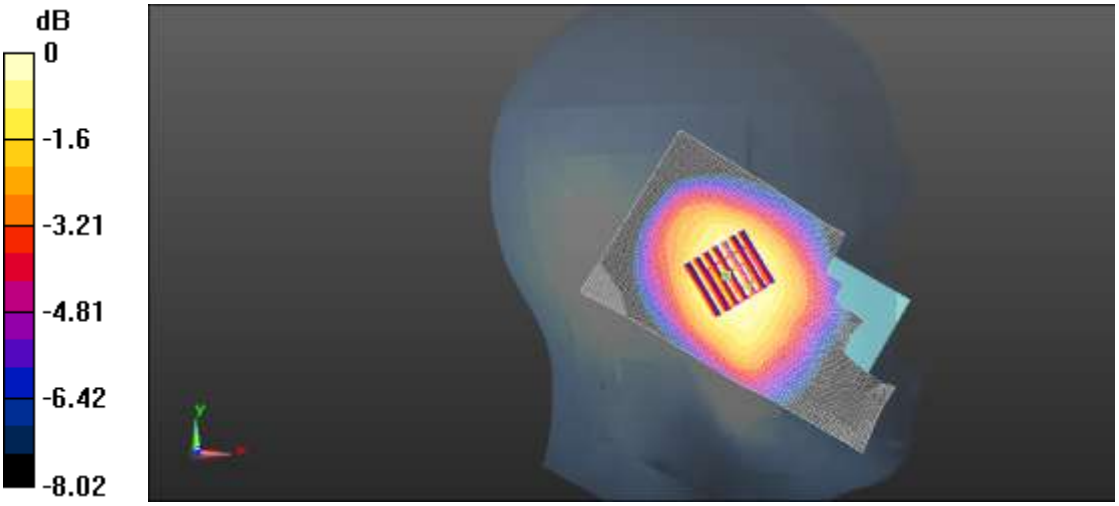
left/Tilt Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.5 V/m; Power Drift = -0.108 dB

Peak SAR (extrapolated) = 0.237 W/kg

SAR(1 g) = 0.195 mW/g; SAR(10 g) = 0.150 mW/g

Maximum value of SAR (measured) = 0.208 mW/g



0 dB = 0.208mW/g

GSM850 right touch mid

Date/Time: 6/14/2012 7:53:06 PM

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 9.191 dB

Medium parameters used: f = 837 MHz; σ = 0.914 mho/m; ε_r = 43; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Touch Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.241 mW/g

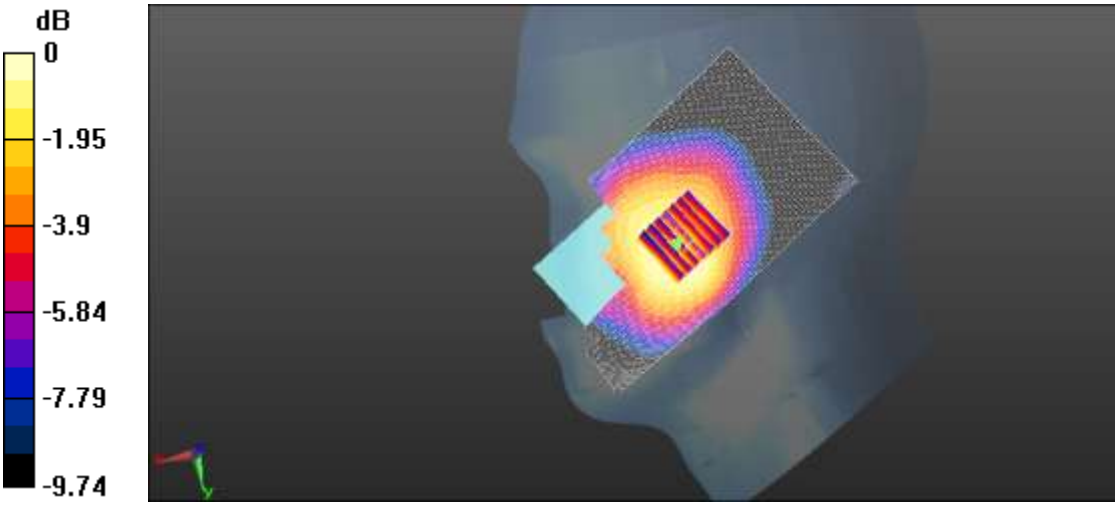
right/Touch Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.37 V/m; Power Drift = 0.139 dB

Peak SAR (extrapolated) = 0.276 W/kg

SAR(1 g) = 0.223 mW/g; SAR(10 g) = 0.169 mW/g

Maximum value of SAR (measured) = 0.243 mW/g



0 dB = 0.243mW/g

GSM850 right tilt mid

Date/Time: 6/14/2012 7:20:13 PM,

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 9.191 dB

Medium parameters used: f = 837 MHz; σ = 0.914 mho/m; ε_r = 43; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Tilt Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.144 mW/g

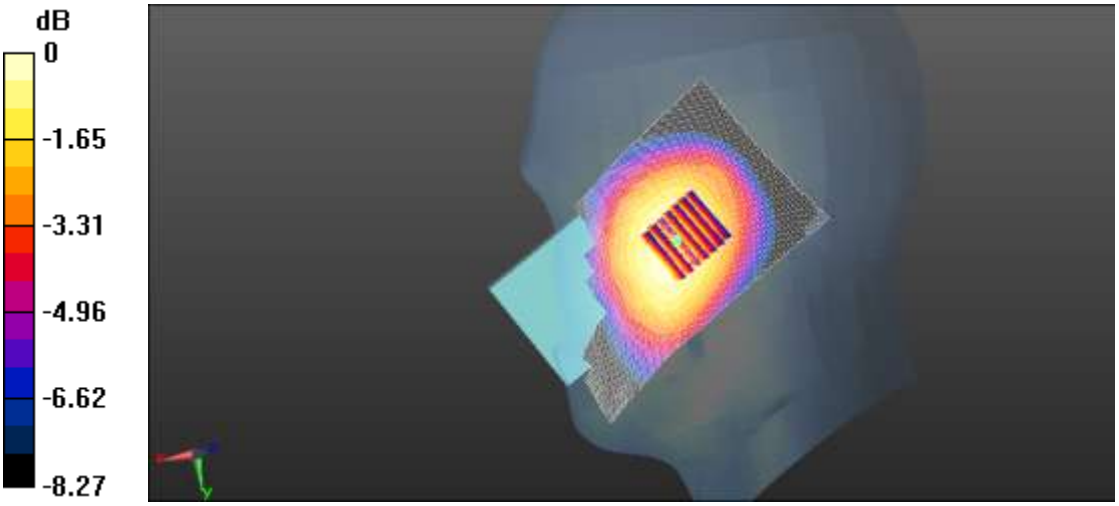
right/Tilt Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.59 V/m; Power Drift = 0.00571 dB

Peak SAR (extrapolated) = 0.167 W/kg

SAR(1 g) = 0.135 mW/g; SAR(10 g) = 0.105 mW/g

Maximum value of SAR (measured) = 0.144 mW/g



0 dB = 0.144mW/g

GSM850 left touch low

Date/Time: 6/14/2012 9:49:56 PM,

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 824.2 MHz; Communication System PAR: 9.191 dB

Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.899 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Touch Position - low/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.338 mW/g

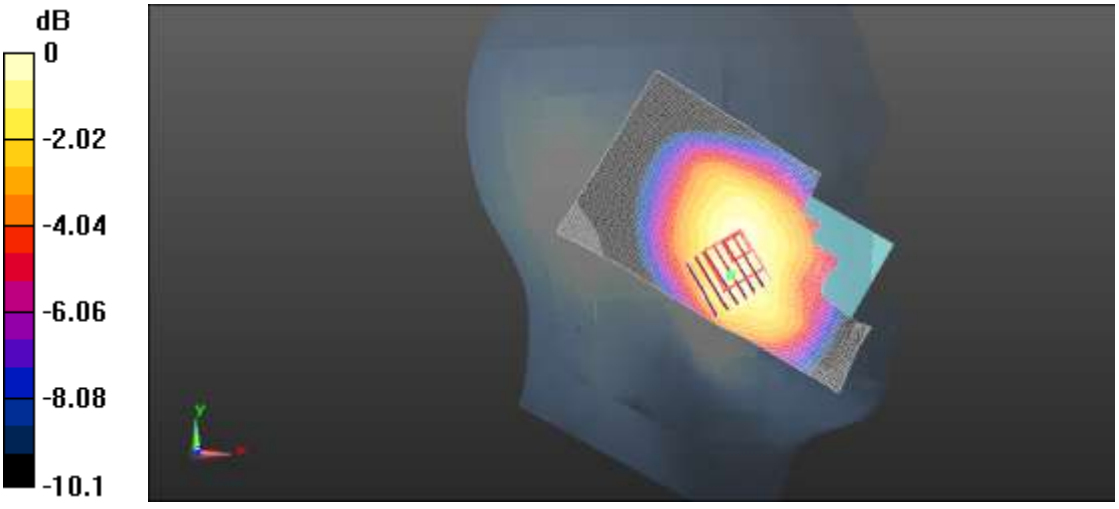
left/Touch Position - low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.82 V/m; Power Drift = -0.145 dB

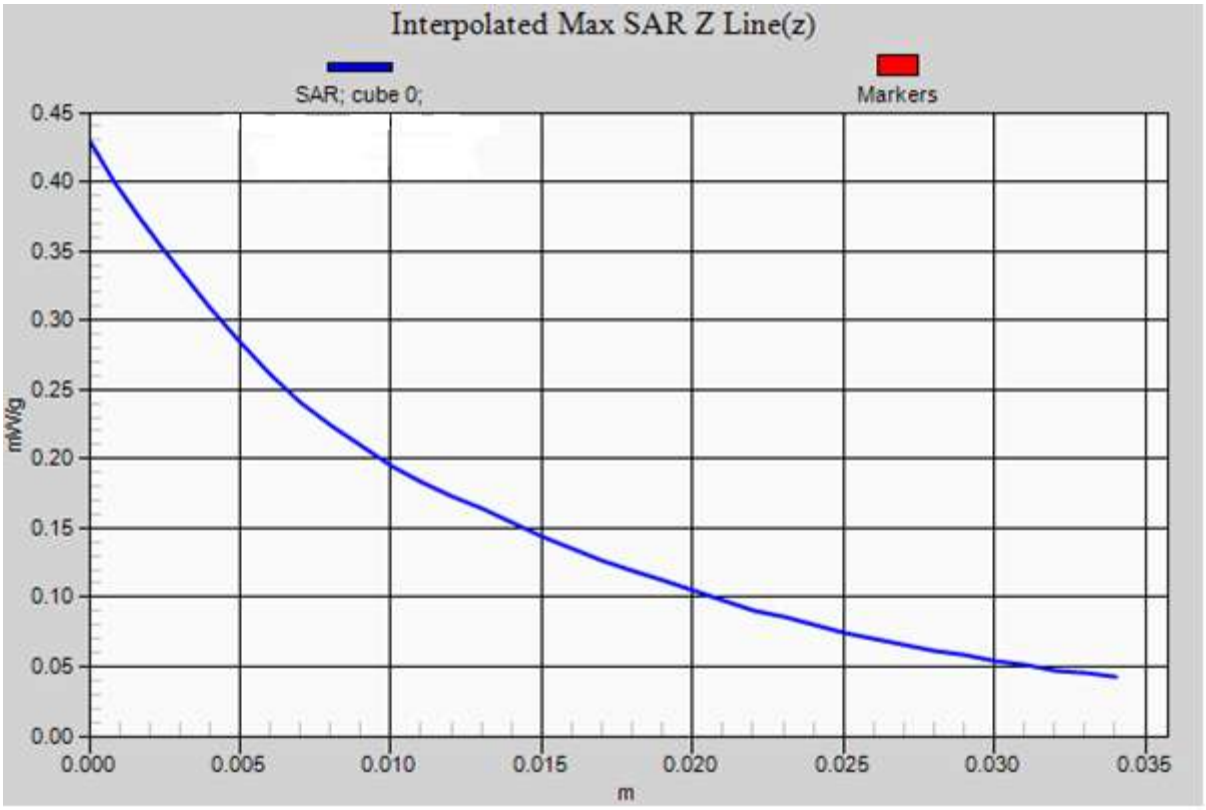
Peak SAR (extrapolated) = 0.429 W/kg

SAR(1 g) = 0.309 mW/g; SAR(10 g) = 0.222 mW/g

Maximum value of SAR (measured) = 0.333 mW/g



0 dB = 0.333mW/g


Interpolated Max SAR Z Line(z)
SAR; cube 0;
Markers
mW/g
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

GSM850 left touch high

Date/Time: 6/14/2012 10:19:10 PM,

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 848.6 MHz; Communication System PAR: 9.191 dB

Medium parameters used: f = 849 MHz; σ = 0.924 mho/m; ε_r = 42.8; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Touch Position - high/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.219 mW/g

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

Reference Value = 5.8 V/m; Power Drift = -0.135 dB

Peak SAR (extrapolated) = 0.277 W/kg

SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.143 mW/g

Maximum value of SAR (measured) = 0.220 mW/g

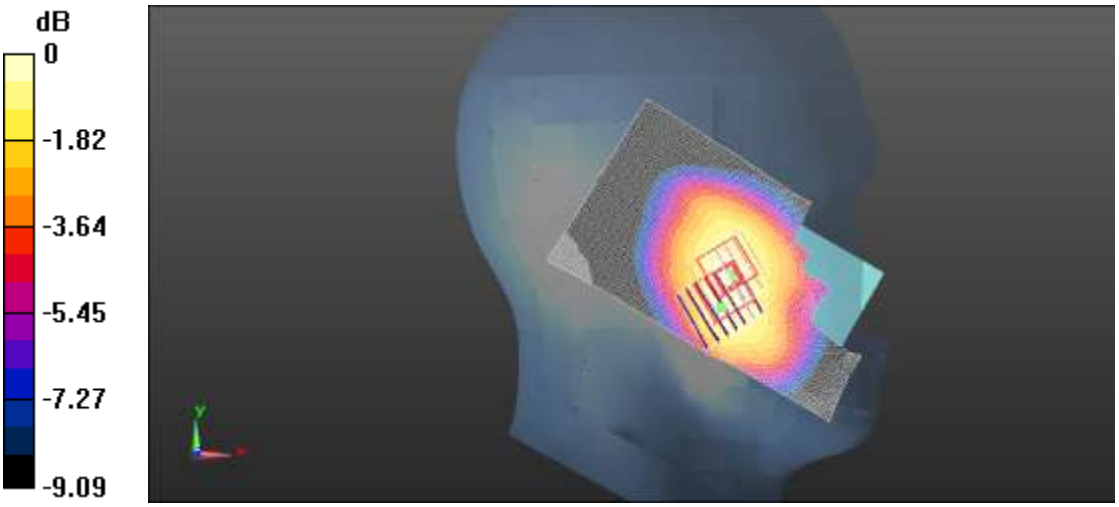
left/Touch Position - high/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.8 V/m; Power Drift = -0.135 dB

Peak SAR (extrapolated) = 0.282 W/kg

SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.152 mW/g

Maximum value of SAR (measured) = 0.222 mW/g



0 dB = 0.222mW/g

GSM850 Towards phantom - mid

Date/Time: 21/06/2012 17:40:45

Communication System: GPRS/EGPRS(4UP); Communication System Band: GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards phantom - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.451 mW/g

body/Towards phantom - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.411 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.654 mW/g

SAR(1 g) = 0.414 mW/g; SAR(10 g) = 0.287 mW/g

Maximum value of SAR (measured) = 0.442 mW/g

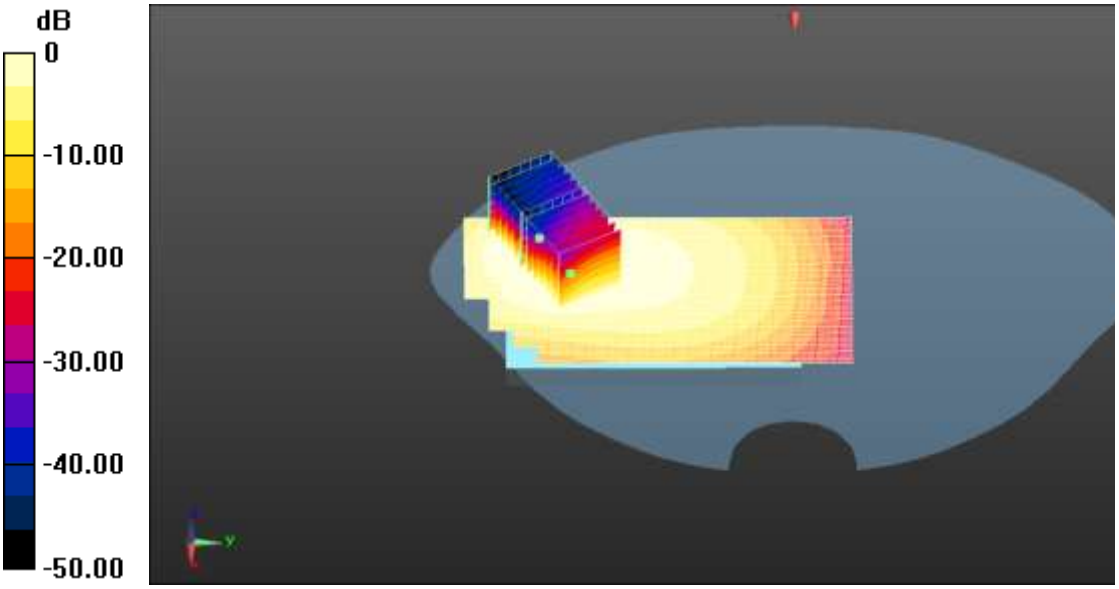
body/Towards phantom - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.411 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.818 mW/g

SAR(1 g) = 0.411 mW/g; SAR(10 g) = 0.242 mW/g

Maximum value of SAR (measured) = 0.449 mW/g



0 dB = 0.451 mW/g = -6.92 dB mW/g

GSM850 Towards ground - mid

Date/Time: 21/06/2012 18:30:56

Communication System: GPRS/EGPRS(4UP); Communication System Band: GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.642 mW/g

body/Towards ground - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.582 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.785 mW/g

SAR(1 g) = 0.593 mW/g; SAR(10 g) = 0.434 mW/g

Maximum value of SAR (measured) = 0.629 mW/g

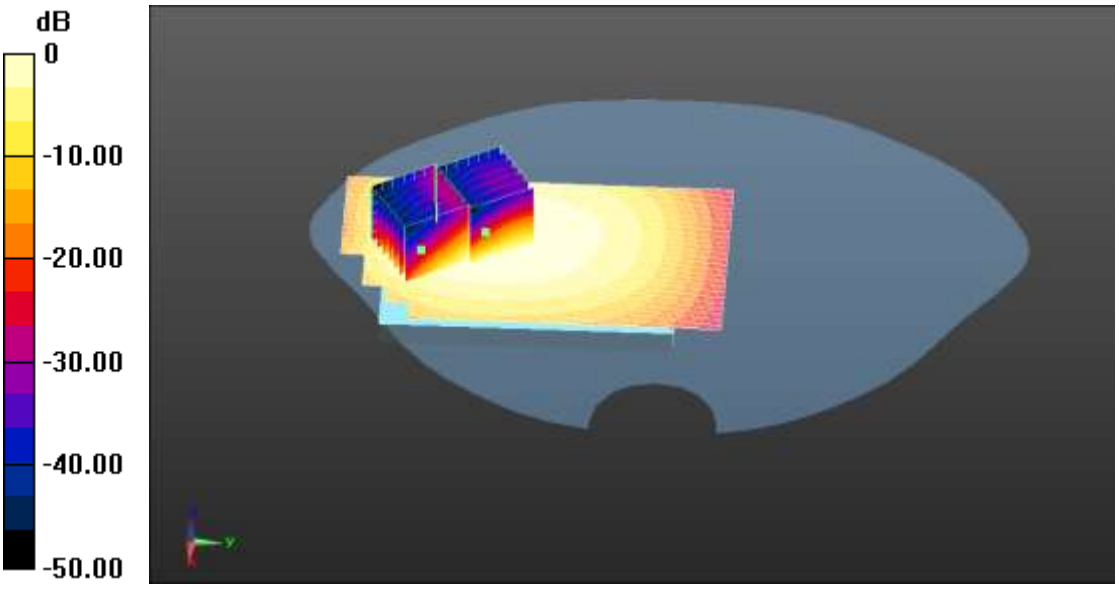
body/Towards ground - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.582 V/m; Power Drift = 0.02 dB

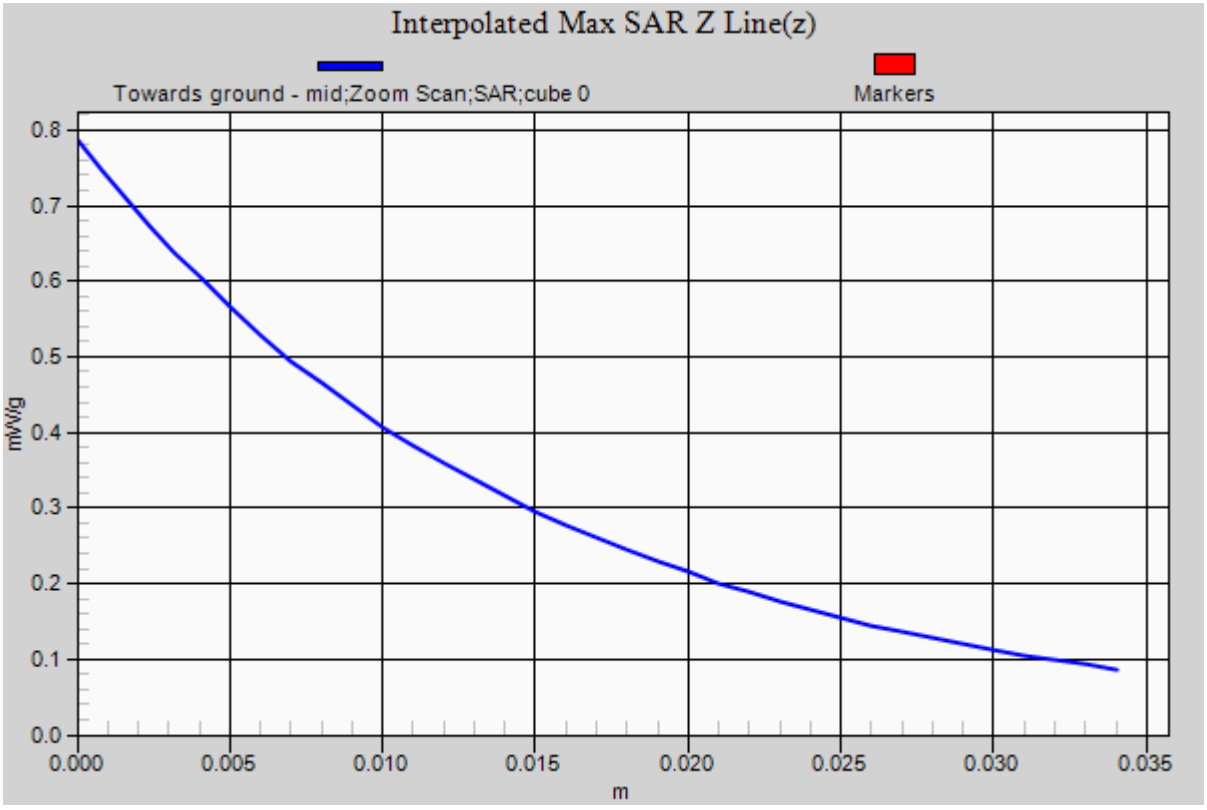
Peak SAR (extrapolated) = 0.743 mW/g

SAR(1 g) = 0.461 mW/g; SAR(10 g) = 0.291 mW/g

Maximum value of SAR (measured) = 0.553 mW/g



0 dB = 0.642 mW/g = -3.84 dB mW/g



GSM850 front - mid

Date/Time: 21/06/2012 21:23:10

Communication System: GPRS/EGPRS(4UP); Communication System Band: GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/front - mid/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.147 mW/g

body/front - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.508 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.342 mW/g

SAR(1 g) = 0.140 mW/g; SAR(10 g) = 0.071 mW/g

Maximum value of SAR (measured) = 0.156 mW/g

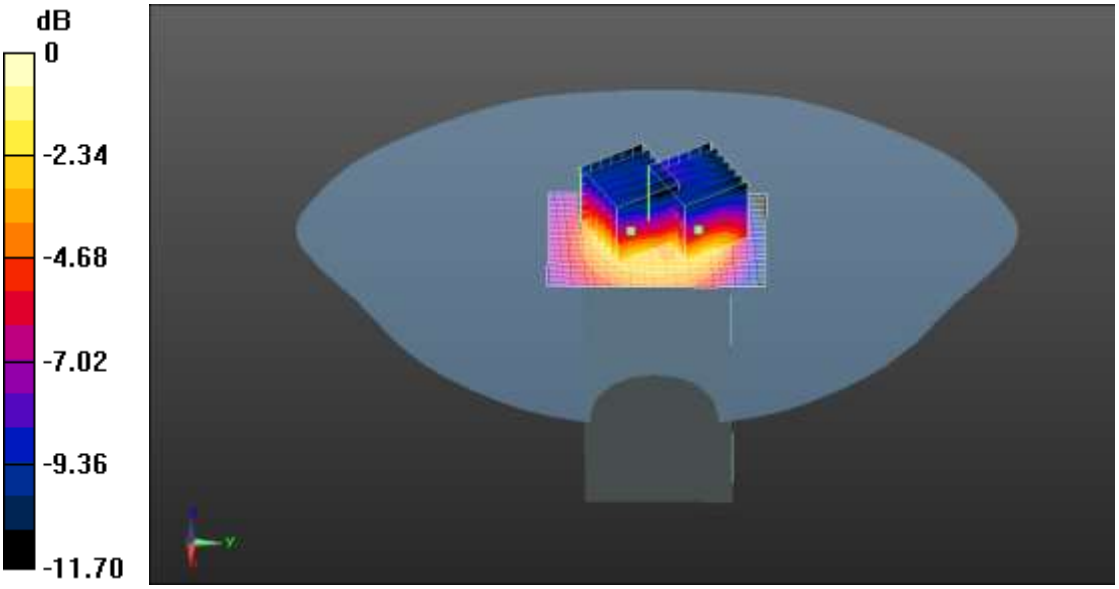
body/front - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.508 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.295 mW/g

SAR(1 g) = 0.131 mW/g; SAR(10 g) = 0.066 mW/g

Maximum value of SAR (measured) = 0.149 mW/g



0 dB = 0.147 mW/g = -16.62 dB mW/g

GSM850 left side - mid

Date/Time: 21/06/2012 20:18:04

Communication System: GPRS/EGPRS(4UP); Communication System Band: GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body 2/left side - mid/Area Scan (61x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.380 mW/g

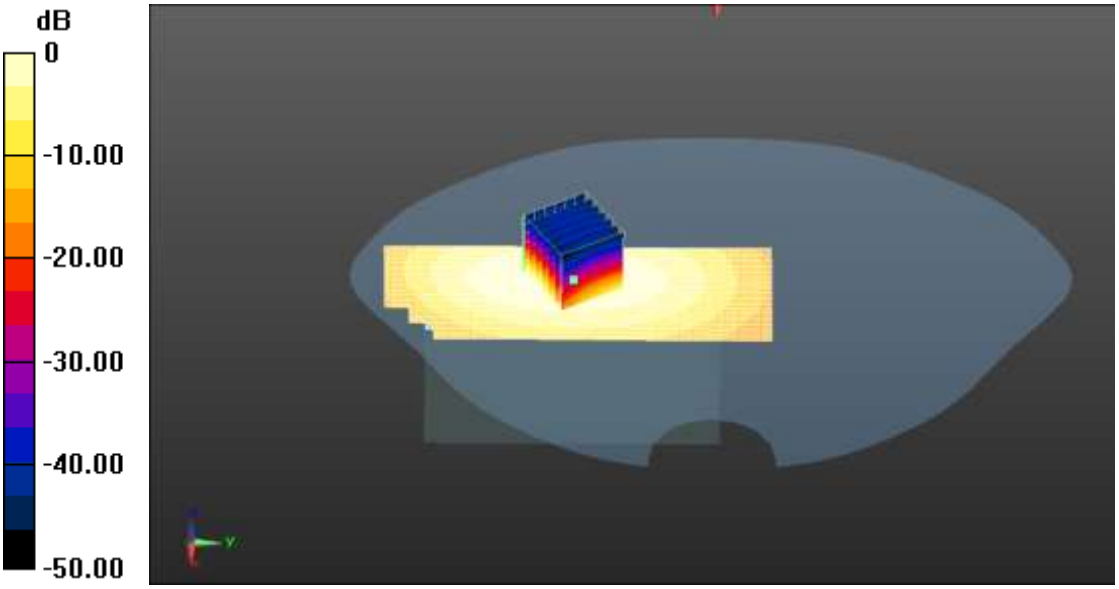
body 2/left side - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.143 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.633 mW/g

SAR(1 g) = 0.425 mW/g; SAR(10 g) = 0.283 mW/g

Maximum value of SAR (measured) = 0.455 mW/g



0 dB = 0.380 mW/g = -8.40 dB mW/g

GSM850 right side - mid

Date/Time: 21/06/2012 19:51:08

Communication System: GPRS/EGPRS(4UP); Communication System Band: GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body 2/right side - mid/Area Scan (61x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.338 mW/g

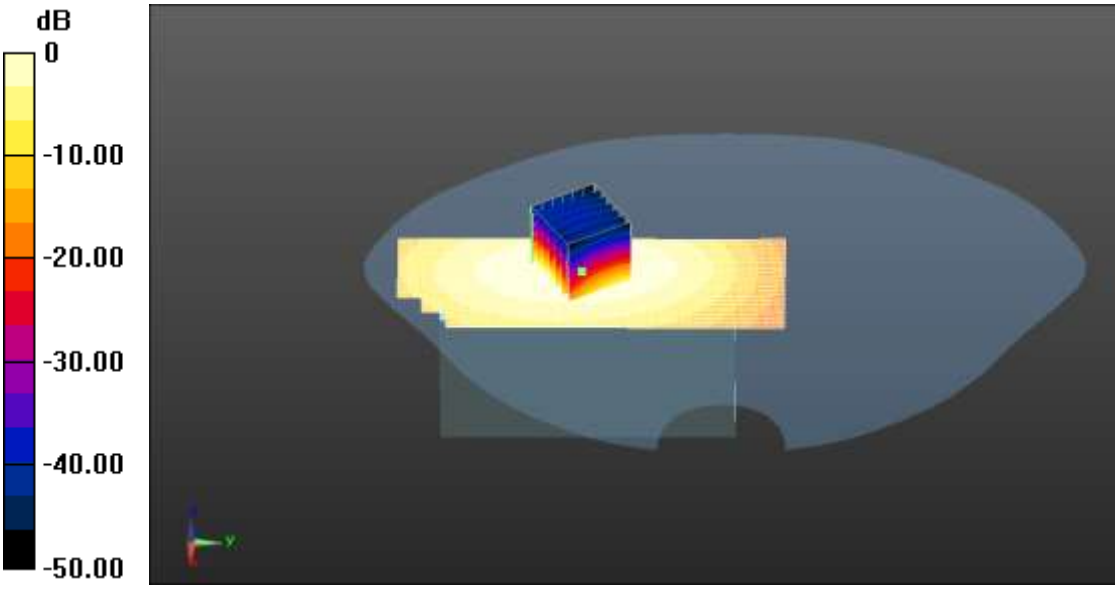
body 2/right side - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.817 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.477 mW/g

SAR(1 g) = 0.321 mW/g; SAR(10 g) = 0.217 mW/g

Maximum value of SAR (measured) = 0.344 mW/g



0 dB = 0.338 mW/g = -9.43 dB mW/g

GSM850 Towards ground - low

Date/Time: 21/06/2012 22:01:58

Communication System: GPRS/EGPRS(4UP); Communication System Band: GSM850; Frequency: 824.2 MHz; Communication System PAR: 3.18 dB

Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.933 mho/m; ε_r = 54.311; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - low/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.541 mW/g

body/Towards ground - low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.929 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.764 mW/g

SAR(1 g) = 0.489 mW/g; SAR(10 g) = 0.341 mW/g

Maximum value of SAR (measured) = 0.527 mW/g

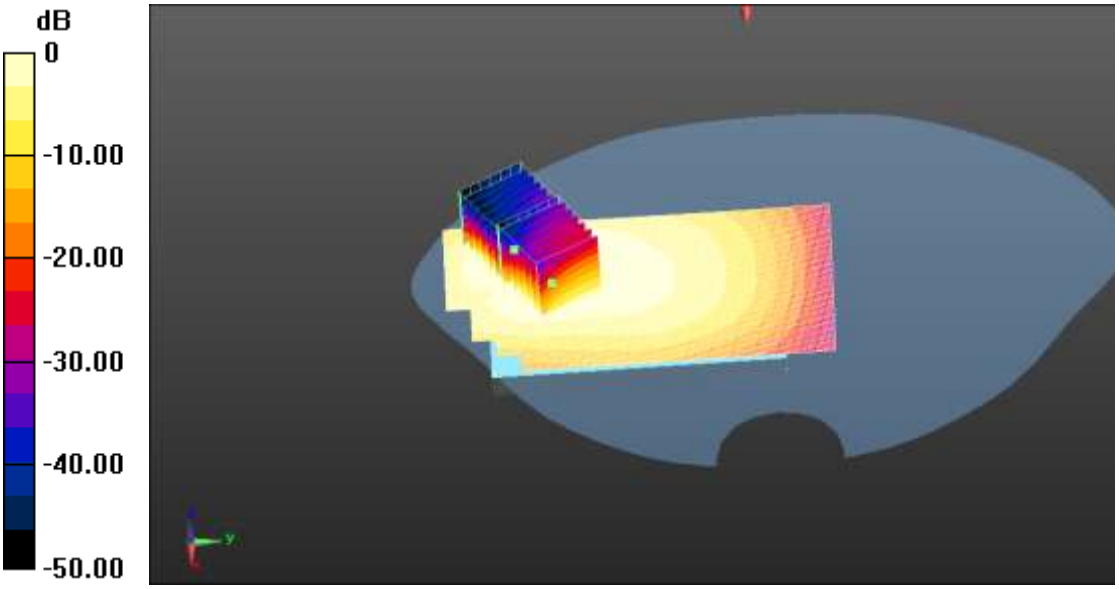
body/Towards ground - low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.929 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.927 mW/g

SAR(1 g) = 0.479 mW/g; SAR(10 g) = 0.289 mW/g

Maximum value of SAR (measured) = 0.522 mW/g



0 dB = 0.541 mW/g = -5.33 dB mW/g

GSM850 Towards ground - high

Date/Time: 21/06/2012 22:51:48

Communication System: GPRS/EGPRS(4UP); Communication System Band: GSM850; Frequency: 848.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 849 MHz; σ = 0.967 mho/m; ε_r = 54.15; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - high/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.330 mW/g

body/Towards ground - high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.482 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.484 mW/g

SAR(1 g) = 0.312 mW/g; SAR(10 g) = 0.214 mW/g

Maximum value of SAR (measured) = 0.333 mW/g

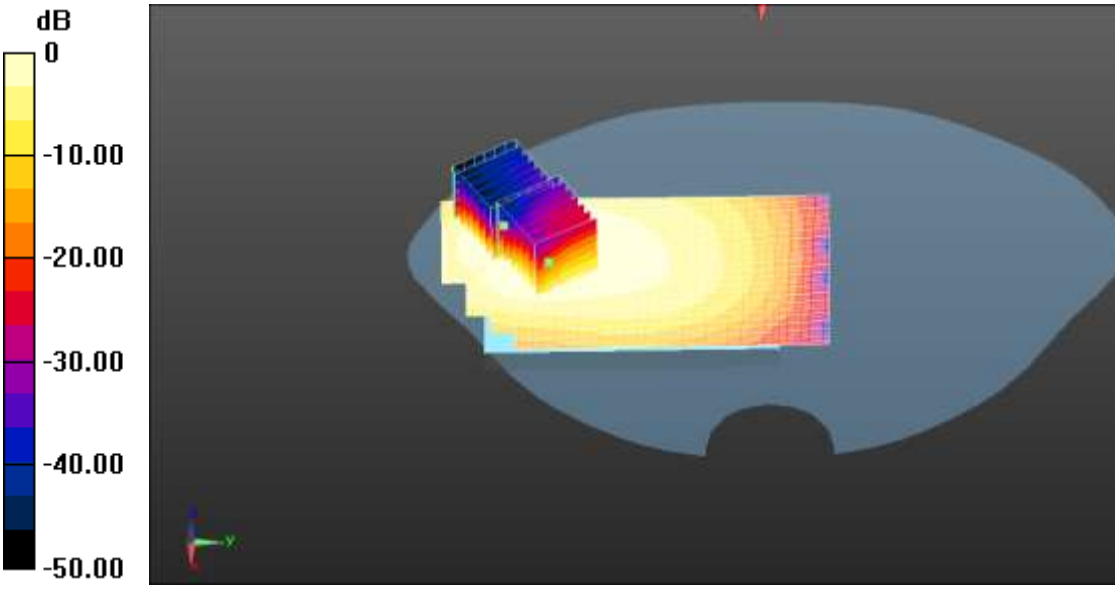
body/Towards ground - high/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.482 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.580 mW/g

SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.172 mW/g

Maximum value of SAR (measured) = 0.327 mW/g



0 dB = 0.330 mW/g = -9.64 dB mW/g

GSM850 Towards ground - mid with earphone

Date/Time: 25/06/2012 10:49:39

Communication System: GPRS/EGPRS(4UP); Communication System Band: GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - mid with earphone/Area Scan (91x161x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.496 mW/g

body/Towards ground - mid with earphone/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.950 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.644 mW/g

SAR(1 g) = 0.469 mW/g; SAR(10 g) = 0.334 mW/g

Maximum value of SAR (measured) = 0.498 mW/g

body/Towards ground - mid with earphone/Zoom Scan (7x7x7)/Cube 1:

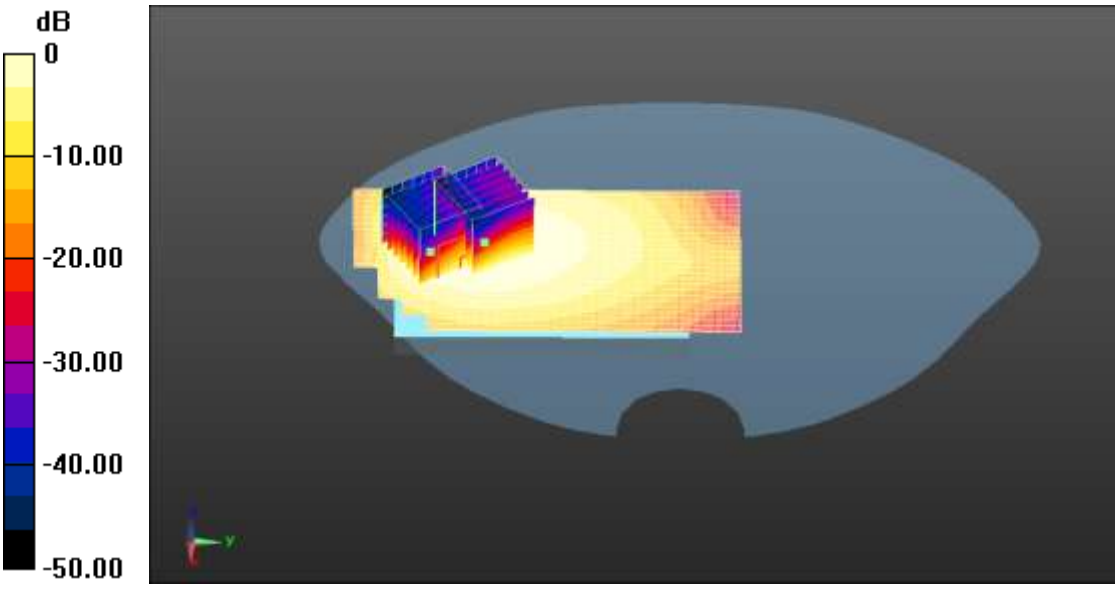
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.950 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.807 mW/g

SAR(1 g) = 0.417 mW/g; SAR(10 g) = 0.272 mW/g

Maximum value of SAR (measured) = 0.479 mW/g



0 dB = 0.496 mW/g = -6.09 dB mW/g

GSM850 Towards ground - mid with EDGE

Date/Time: 25/06/2012 12:22:43

Communication System: GPRS/EGPRS(4UP); Communication System Band: GSM850; Frequency: 836.6 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - mid with EDGE/Area Scan (91x161x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.619 mW/g

body/Towards ground - mid with EDGE/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.759 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.746 mW/g

SAR(1 g) = 0.566 mW/g; SAR(10 g) = 0.413 mW/g

Maximum value of SAR (measured) = 0.598 mW/g

body/Towards ground - mid with EDGE/Zoom Scan (7x7x7)/Cube 1:

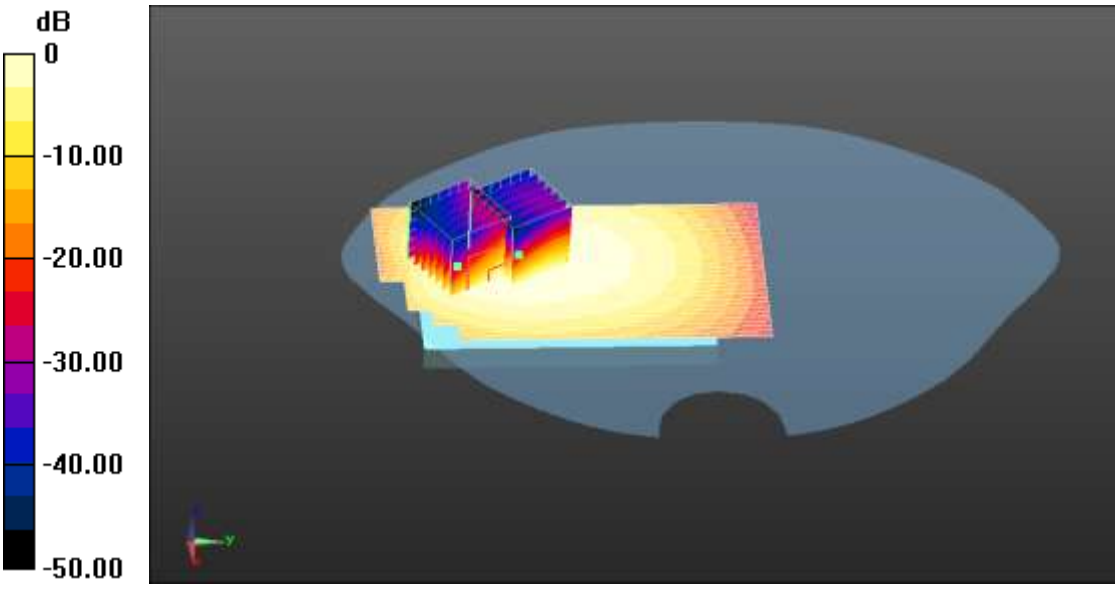
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.759 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.742 mW/g

SAR(1 g) = 0.468 mW/g; SAR(10 g) = 0.297 mW/g

Maximum value of SAR (measured) = 0.547 mW/g



0 dB = 0.619 mW/g = -4.17 dB mW/g

GSM1900 left touch mid

Date/Time: 15/06/2012 19:24:26

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.191 dB

Medium parameters used (extrapolated): f = 1880 MHz; σ = 1.34 mho/m; ε_r = 39.84; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Touch Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.129 mW/g

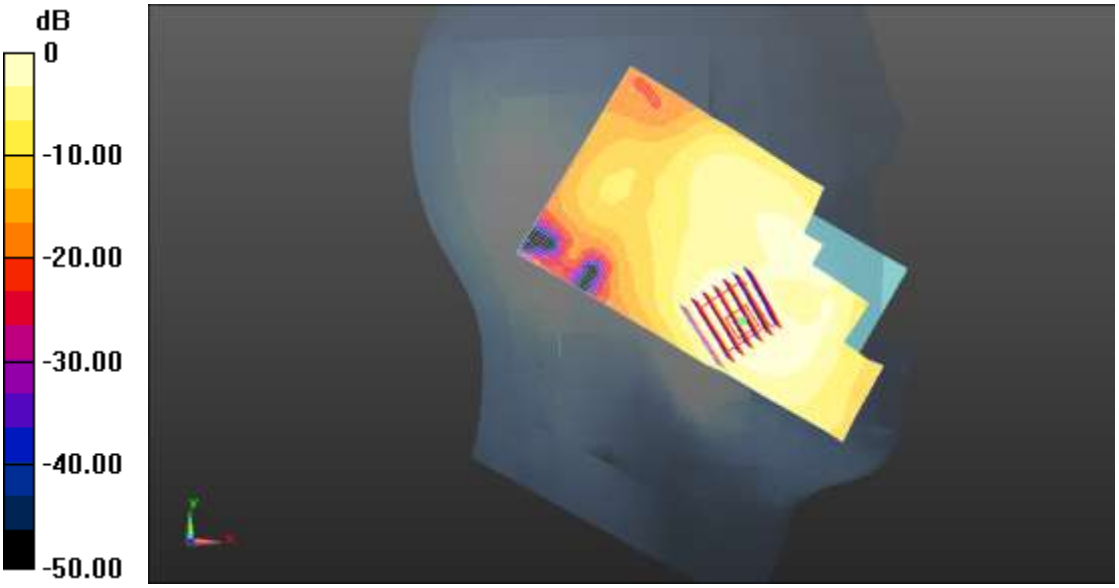
left/Touch Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.446 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.182 mW/g

SAR(1 g) = 0.113 mW/g; SAR(10 g) = 0.066 mW/g

Maximum value of SAR (measured) = 0.127 mW/g



0 dB = 0.129 mW/g = -17.76 dB mW/g

GSM1900 left tilt mid

Date/Time: 15/06/2012 19:57:30

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.191 dB

Medium parameters used (extrapolated): f = 1880 MHz; σ = 1.34 mho/m; ε_r = 39.84; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Tilt Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0377 mW/g

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

Reference Value = 5.397 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.060 mW/g

SAR(1 g) = 0.035 mW/g; SAR(10 g) = 0.020 mW/g

Maximum value of SAR (measured) = 0.0384 mW/g

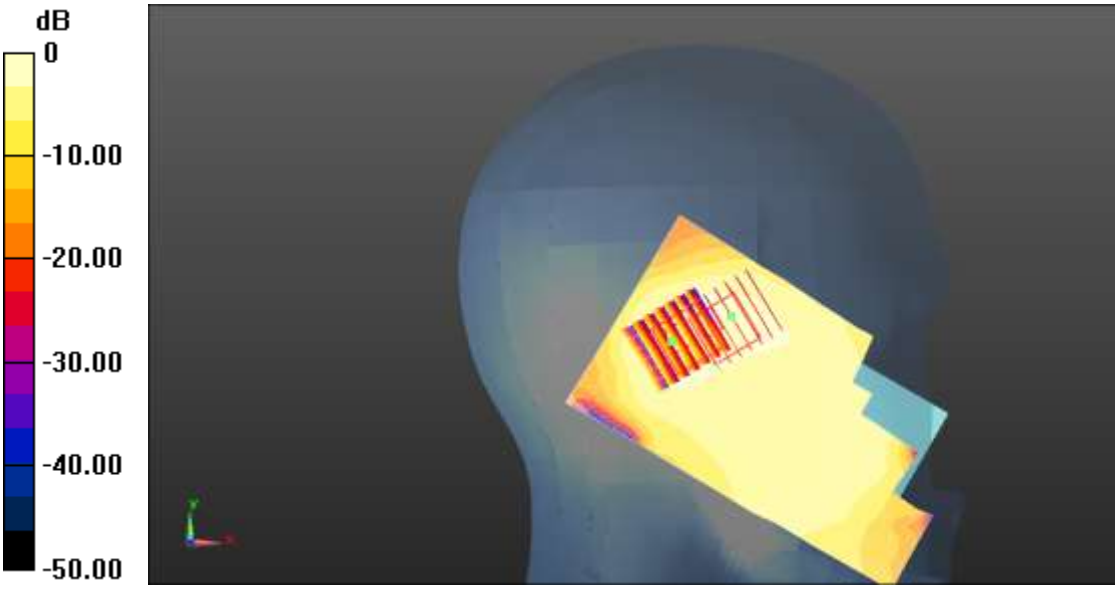
left/Tilt Position - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.397 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.047 mW/g

SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.016 mW/g

Maximum value of SAR (measured) = 0.0328 mW/g



0 dB = 0.0377 mW/g = -28.48 dB mW/g

GSM1900 right touch mid

Date/Time: 15/06/2012 18:14:22

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.191 dB

Medium parameters used (extrapolated): f = 1880 MHz; σ = 1.34 mho/m; ε_r = 39.84; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Touch Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.164 mW/g

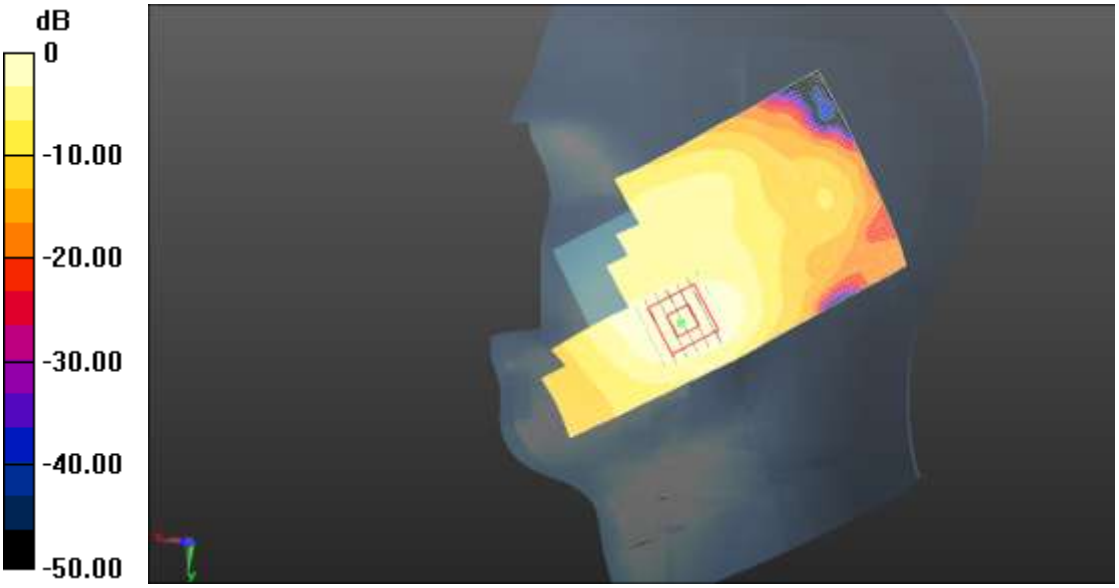
right/Touch Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.708 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.223 mW/g

SAR(1 g) = 0.146 mW/g; SAR(10 g) = 0.087 mW/g

Maximum value of SAR (measured) = 0.162 mW/g



0 dB = 0.164 mW/g = -15.73 dB mW/g

GSM1900 right tilt mid

Date/Time: 15/06/2012 18:44:00

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.191 dB

Medium parameters used (extrapolated): f = 1880 MHz; σ = 1.34 mho/m; ε_r = 39.84; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Tilt Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0437 mW/g

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

Reference Value = 5.907 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.066 mW/g

SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.022 mW/g

Maximum value of SAR (measured) = 0.0435 mW/g

0 dB = 0.0437 mW/g = -27.19 dB mW/g

GSM1900 right touch low

Date/Time: 15/06/2012 20:56:42

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1850.2 MHz; Communication System PAR: 9.191 dB

Medium parameters used (extrapolated): f = 1850.2 MHz; σ = 1.31 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Touch Position - low/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.204 mW/g

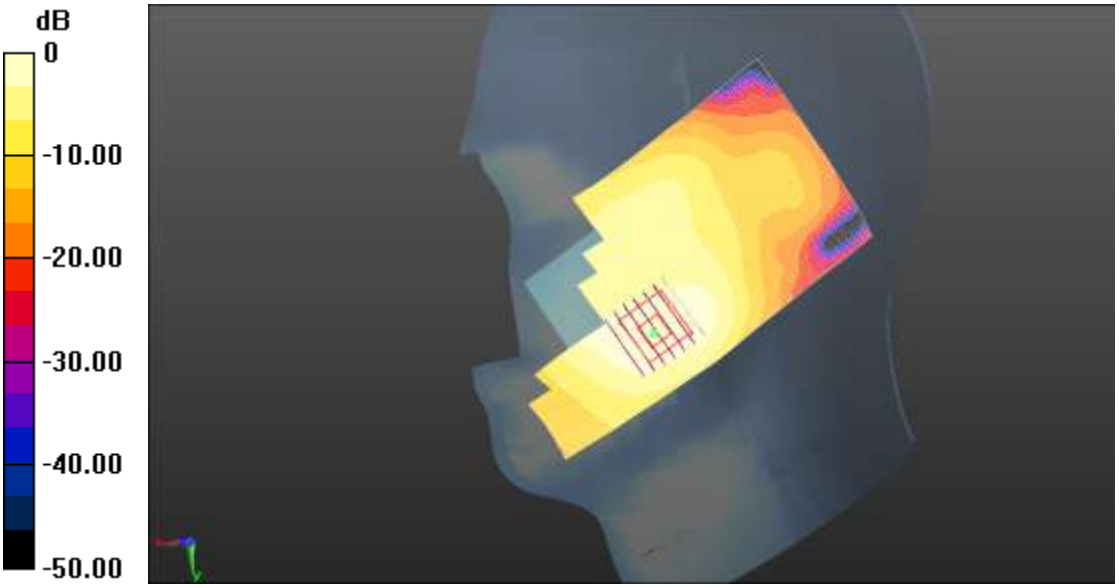
right/Touch Position - low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.396 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.271 mW/g

SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.108 mW/g

Maximum value of SAR (measured) = 0.199 mW/g



0 dB = 0.204 mW/g = -13.82 dB mW/g

GSM1900 right touch high

Date/Time: 15/06/2012 21:52:47

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1909.8 MHz; Communication System PAR: 9.191 dB

Medium parameters used (interpolated): f = 1909.8 MHz; σ = 1.37 mho/m; ε_r = 39.78; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Touch Position - high/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.224 mW/g

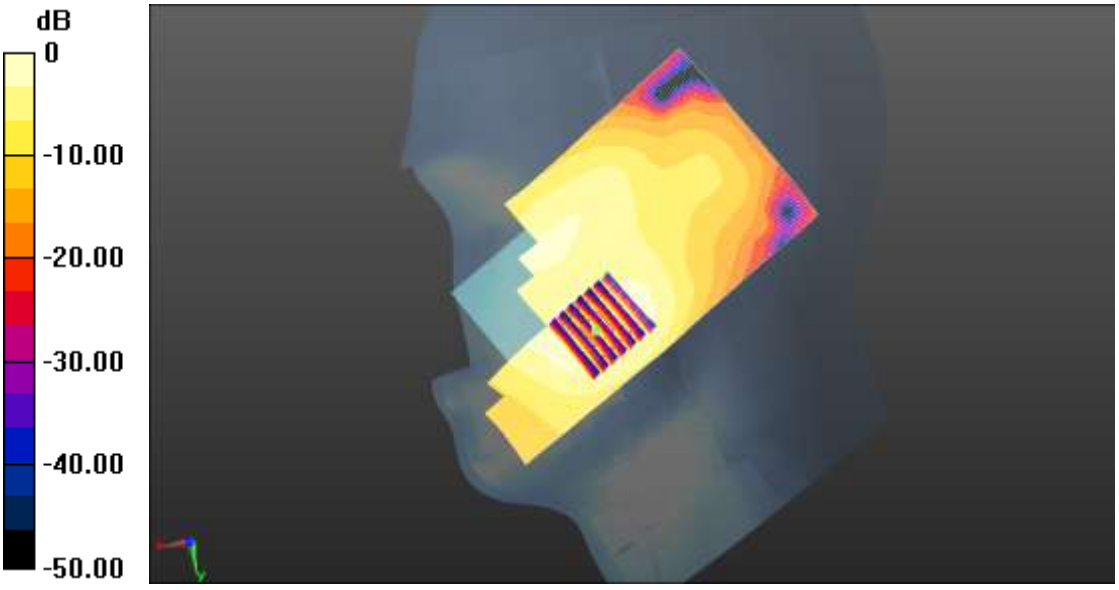
right/Touch Position - high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.542 V/m; Power Drift = -0.03 dB

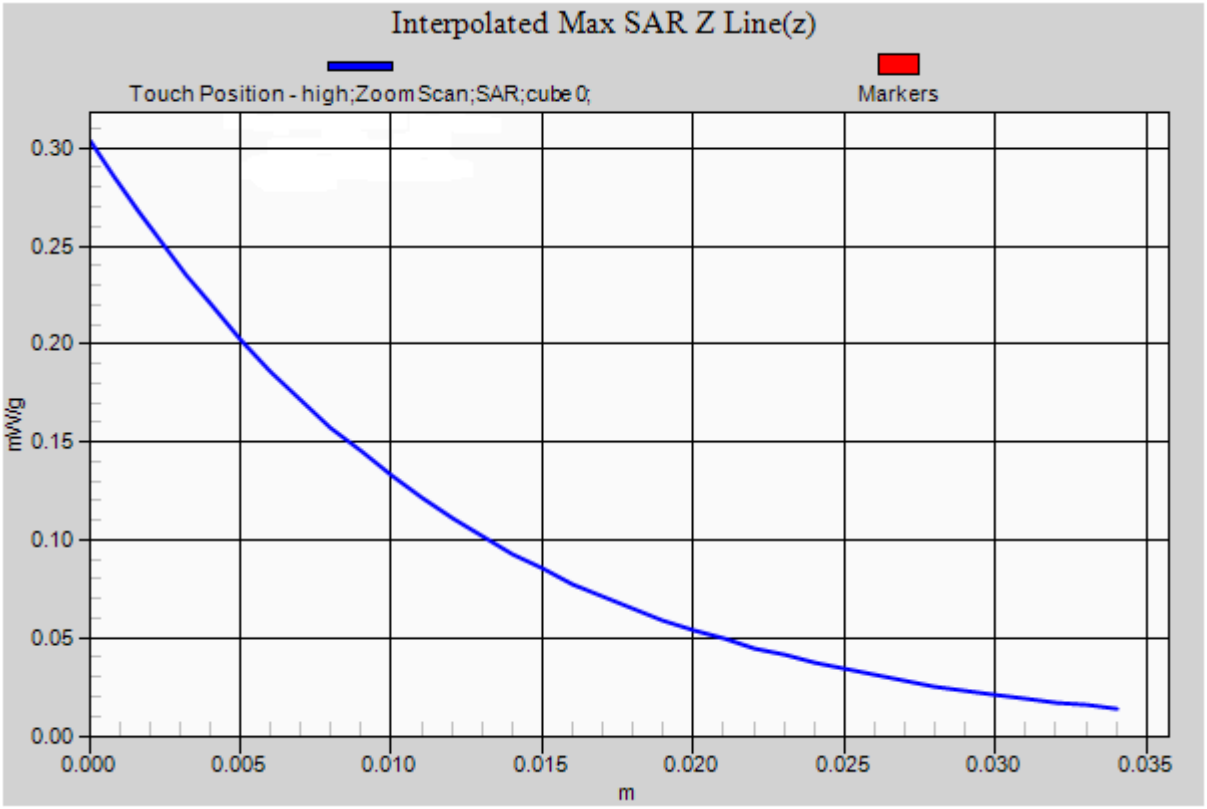
Peak SAR (extrapolated) = 0.303 mW/g

SAR(1 g) = 0.201 mW/g; SAR(10 g) = 0.119 mW/g

Maximum value of SAR (measured) = 0.223 mW/g



0 dB = 0.224 mW/g = -13.00 dB mW/g


Interpolated Max SAR Z Line(z)
Touch Position - high;Zoom Scan;SAR;cube 0;
Markers
mW/g
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

GSM1900 Towards phantom - mid

Date/Time: 18/06/2012 15:45:37

Communication System: GPRS/EGPRS(4UP); Communication System Band: PCS1900; Frequency: 1880 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards phantom - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.527 mW/g

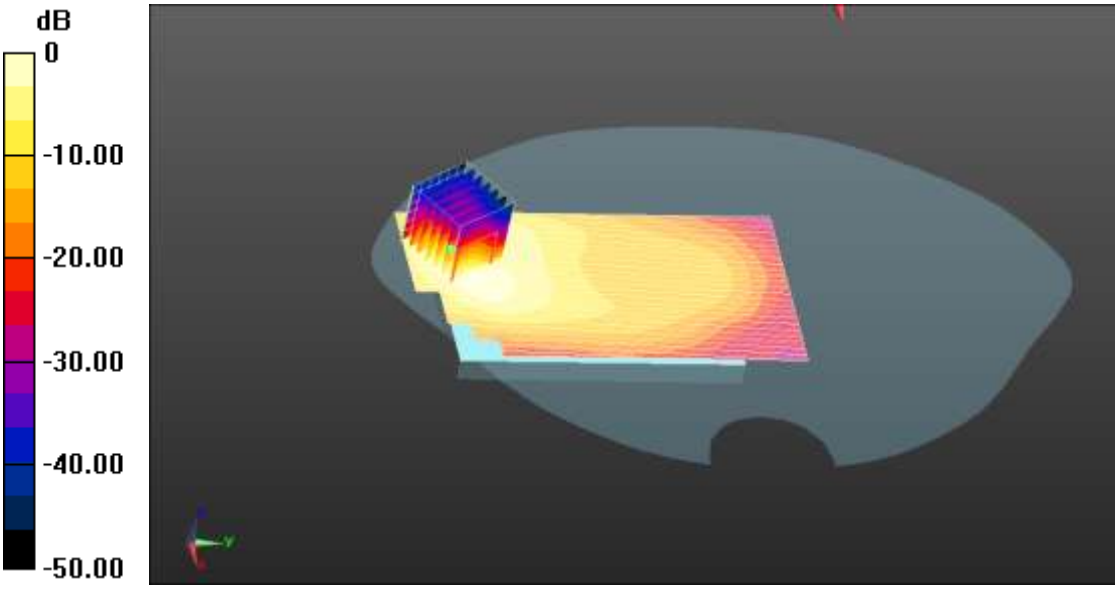
body/Towards phantom - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.359 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.852 mW/g

SAR(1 g) = 0.443 mW/g; SAR(10 g) = 0.238 mW/g

Maximum value of SAR (measured) = 0.509 mW/g



0 dB = 0.527 mW/g = -5.57 dB mW/g

GSM1900 Towards ground - mid

Date/Time: 18/06/2012 16:20:48

Communication System: GPRS/EGPRS(4UP); Communication System Band: PCS1900; Frequency: 1880 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.746 mW/g

body/Towards ground - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.911 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.209 mW/g

SAR(1 g) = 0.622 mW/g; SAR(10 g) = 0.314 mW/g

Maximum value of SAR (measured) = 0.734 mW/g

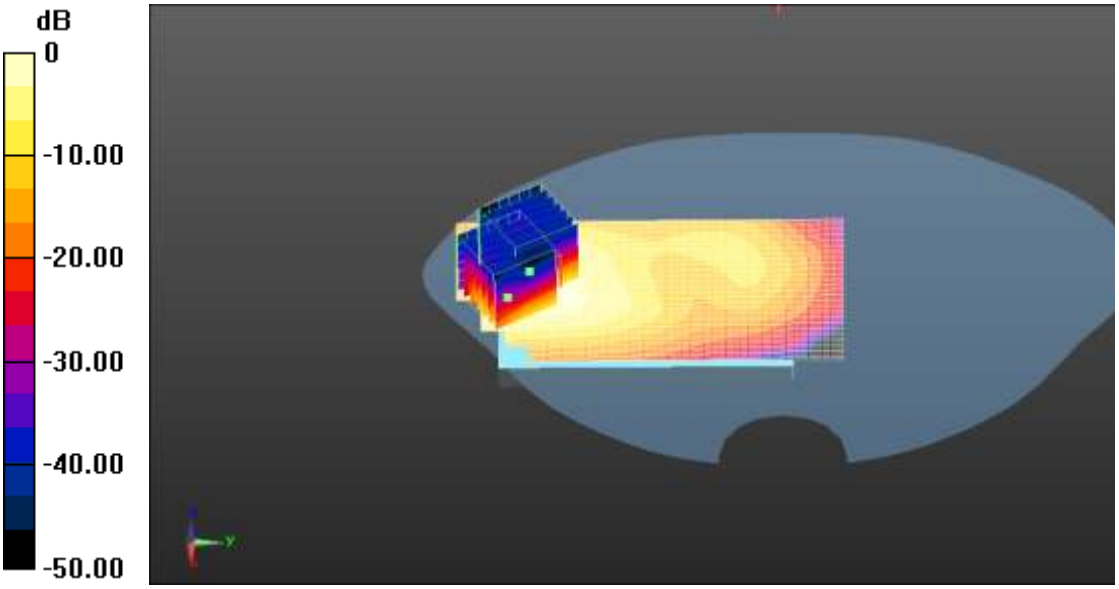
body/Towards ground - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.911 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.186 mW/g

SAR(1 g) = 0.537 mW/g; SAR(10 g) = 0.288 mW/g

Maximum value of SAR (measured) = 0.709 mW/g



0 dB = 0.746 mW/g = -2.54 dB mW/g

GSM1900 front - mid

Date/Time: 18/06/2012 18:43:53

Communication System: GPRS/EGPRS(4UP); Communication System Band: PCS1900; Frequency: 1880 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/front - mid/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.458 mW/g

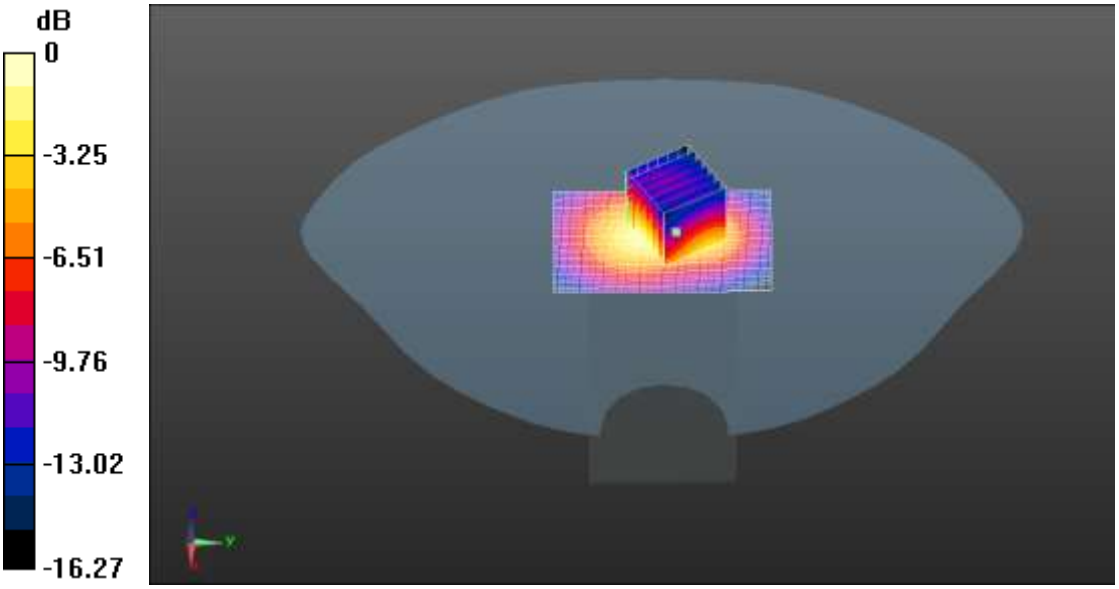
body/front - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.701 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.715 mW/g

SAR(1 g) = 0.404 mW/g; SAR(10 g) = 0.220 mW/g

Maximum value of SAR (measured) = 0.453 mW/g



0 dB = 0.458 mW/g = -6.77 dB mW/g

GSM1900 left side - mid

Date/Time: 18/06/2012 17:52:32

Communication System: GPRS/EGPRS(4UP); Communication System Band: PCS1900; Frequency: 1880 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/left side - mid/Area Scan (61x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.112 mW/g

body2/left side - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.441 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.177 mW/g

SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.055 mW/g

Maximum value of SAR (measured) = 0.109 mW/g

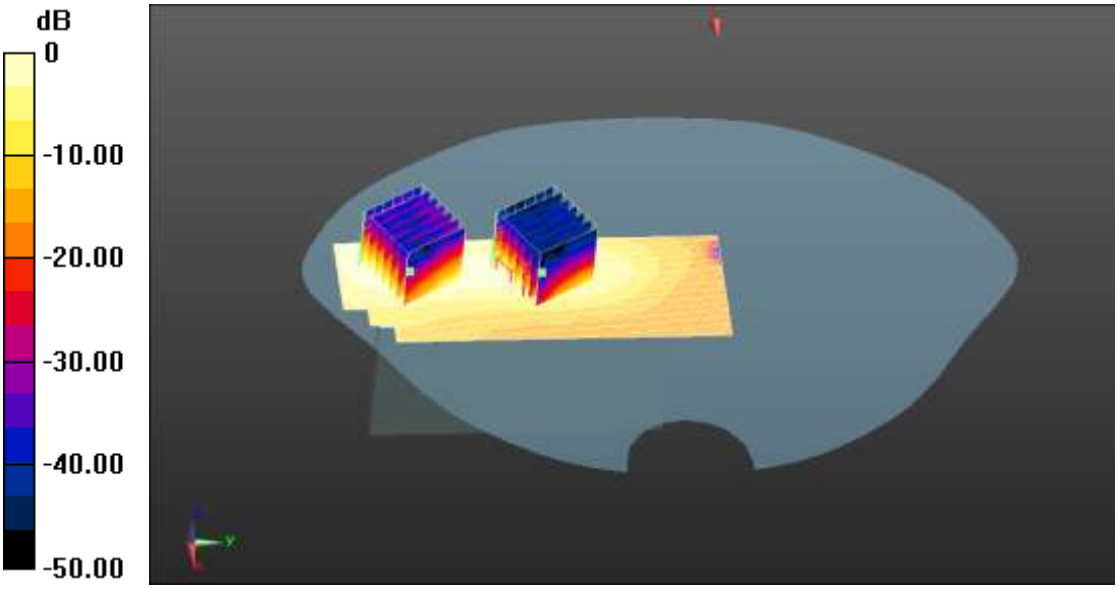
body2/left side - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.441 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.122 mW/g

SAR(1 g) = 0.072 mW/g; SAR(10 g) = 0.041 mW/g

Maximum value of SAR (measured) = 0.0801 mW/g



0 dB = 0.112 mW/g = -18.99 dB mW/g

GSM1900 right side - mid

Date/Time: 18/06/2012 17:10:47

Communication System: GPRS/EGPRS(4UP); Communication System Band: PCS1900; Frequency: 1880 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/right side - mid/Area Scan (61x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0768 mW/g

body2/right side - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.958 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.117 mW/g

SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.041 mW/g

Maximum value of SAR (measured) = 0.0748 mW/g

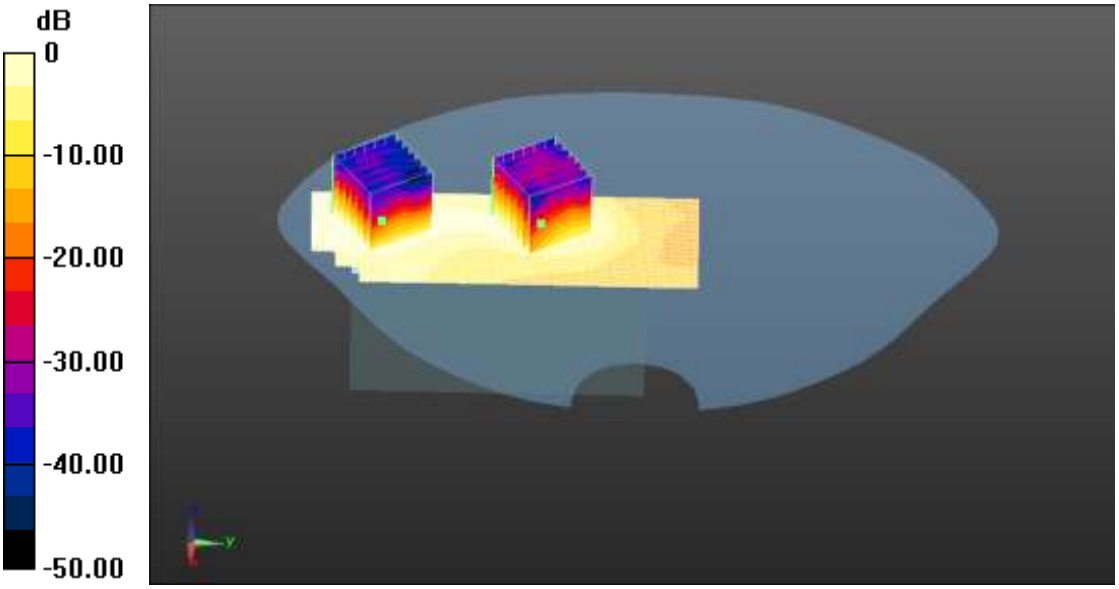
body2/right side - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.958 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.112 mW/g

SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.036 mW/g

Maximum value of SAR (measured) = 0.0721 mW/g



0 dB = 0.0768 mW/g = -22.29 dB mW/g

GSM1900 Towards ground - low

Date/Time: 18/06/2012 19:14:12

Communication System: GPRS/EGPRS(4UP); Communication System Band: PCS1900; Frequency: 1850.2 MHz; Communication System PAR: 3.18 dB

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.448 mho/m; ε_r = 52.486; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - low/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.796 mW/g

body/Towards ground - low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.852 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.270 mW/g

SAR(1 g) = 0.668 mW/g; SAR(10 g) = 0.342 mW/g

Maximum value of SAR (measured) = 0.778 mW/g

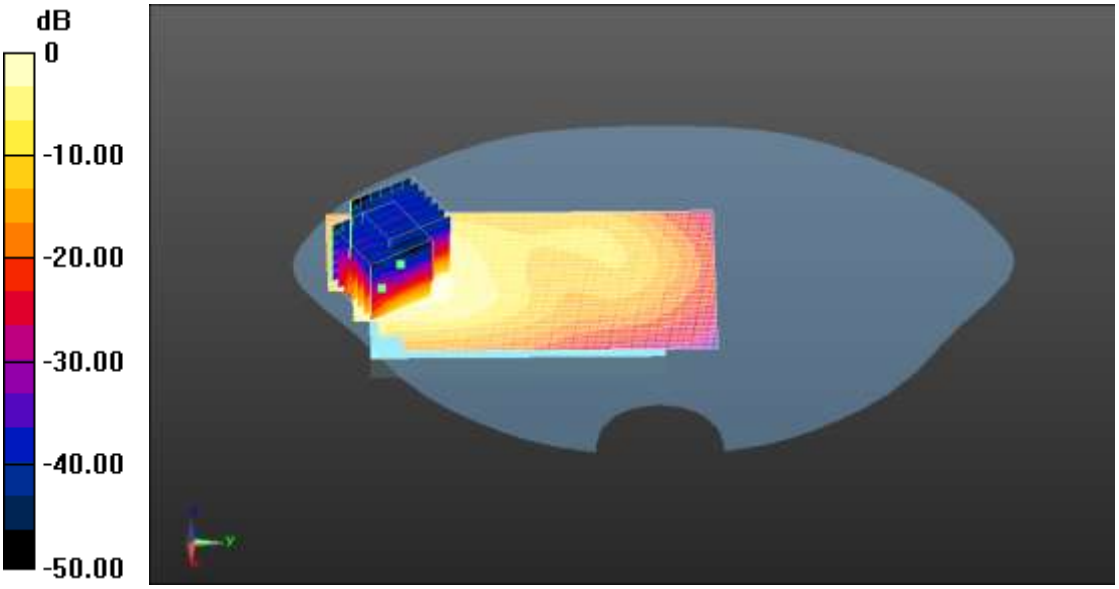
body/Towards ground - low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.852 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.283 mW/g

SAR(1 g) = 0.612 mW/g; SAR(10 g) = 0.320 mW/g

Maximum value of SAR (measured) = 0.775 mW/g



0 dB = 0.796 mW/g = -1.98 dB mW/g

GSM1900 Towards ground - high

Date/Time: 18/06/2012 20:02:23

Communication System: GPRS/EGPRS(4UP); Communication System Band: PCS1900; Frequency: 1909.8 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 1910 MHz; σ = 1.503 mho/m; ε_r = 52.325; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - high/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.819 mW/g

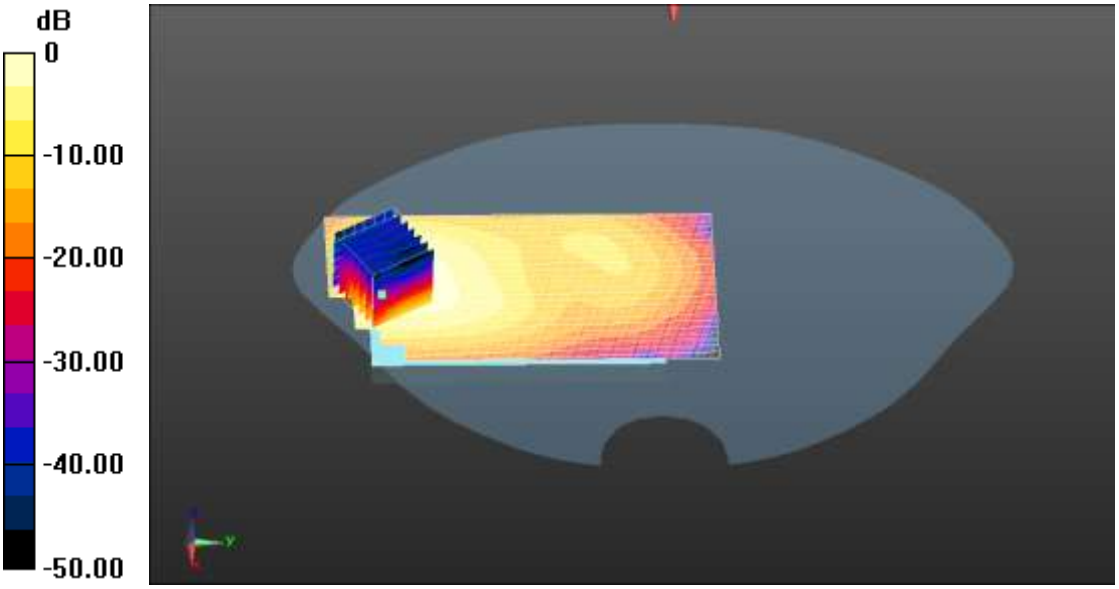
body/Towards ground - high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.410 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.326 mW/g

SAR(1 g) = 0.683 mW/g; SAR(10 g) = 0.344 mW/g

Maximum value of SAR (measured) = 0.808 mW/g



0 dB = 0.819 mW/g = -1.73 dB mW/g

GSM1900 Towards ground - high with earphone

Date/Time: 18/06/2012 21:34:05

Communication System: GPRS/EGPRS(4UP); Communication System Band: PCS1900; Frequency: 1909.8 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 1910 MHz; σ = 1.503 mho/m; ε_r = 52.325; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - high with earphone/Area Scan (91x161x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.866 mW/g

body/Towards ground - high with earphone/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.768 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.475 mW/g

SAR(1 g) = 0.736 mW/g; SAR(10 g) = 0.369 mW/g

Maximum value of SAR (measured) = 0.868 mW/g

body/Towards ground - high with earphone/Zoom Scan (7x7x7)/Cube 1:

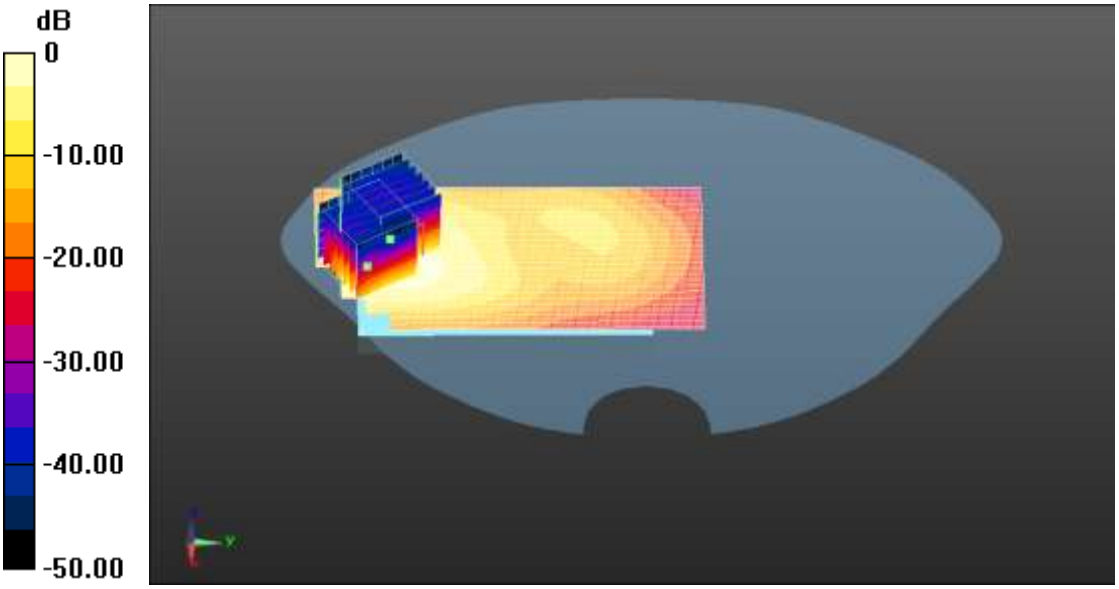
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.768 V/m; Power Drift = -0.07 dB

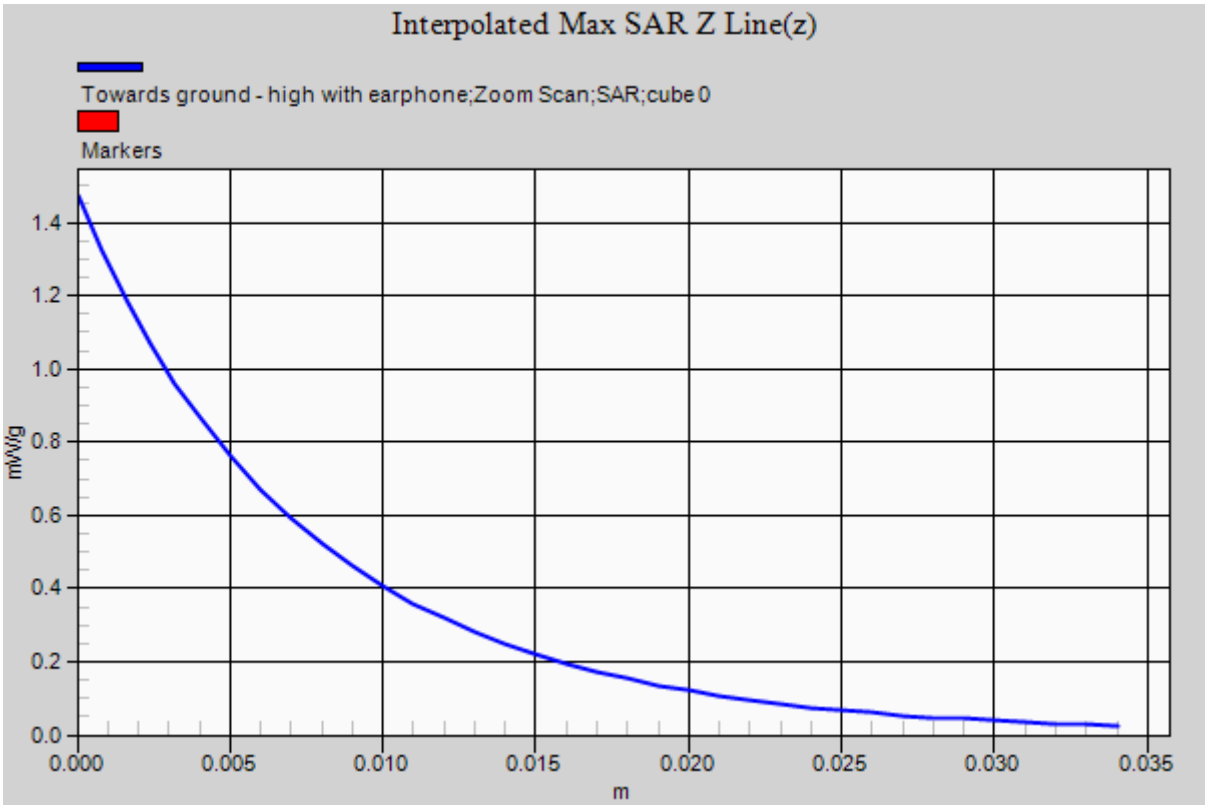
Peak SAR (extrapolated) = 1.311 mW/g

SAR(1 g) = 0.597 mW/g; SAR(10 g) = 0.326 mW/g

Maximum value of SAR (measured) = 0.786 mW/g



0 dB = 0.866 mW/g = -1.25 dB mW/g



GSM1900 Towards ground - high with EDGE(4up)

Date/Time: 18/06/2012 20:47:08

Communication System: GPRS/EGPRS(4UP); Communication System Band: PCS1900; Frequency: 1909.8 MHz; Communication System PAR: 3.18 dB

Medium parameters used: f = 1910 MHz; σ = 1.503 mho/m; ε_r = 52.325; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - high with EDGE/Area Scan (91x161x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.833 mW/g

body/Towards ground - high with EDGE/Zoom Scan (7x7x7)/Cube 0:

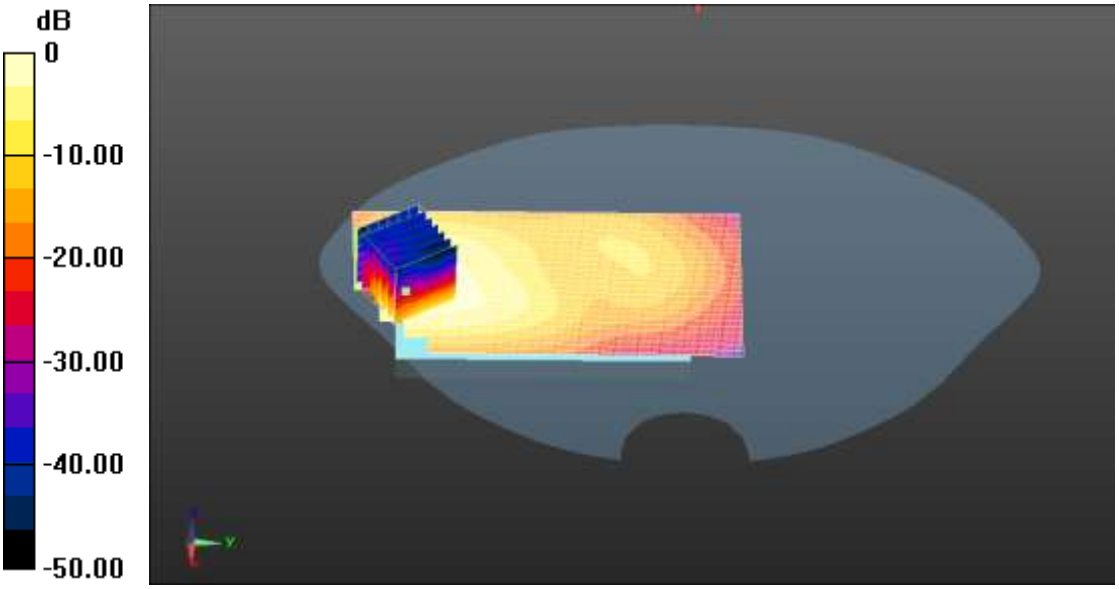
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.270 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.393 mW/g

SAR(1 g) = 0.699 mW/g; SAR(10 g) = 0.345 mW/g

Maximum value of SAR (measured) = 0.821 mW/g



0 dB = 0.833 mW/g = -1.59 dB mW/g

WCDMA BAND II left touch mid

Date/Time: 28/6/2012 13:36:04

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.36 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 8/12/2011
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Touch Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.312 mW/g

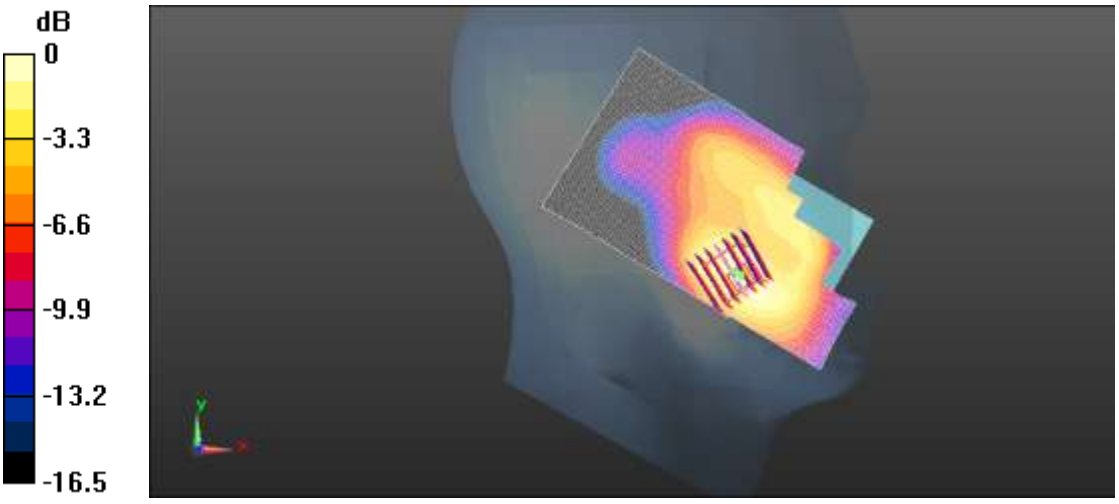
left/Touch Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.01 V/m; Power Drift = 0.075 dB

Peak SAR (extrapolated) = 0.464 W/kg

SAR(1 g) = 0.280 mW/g; SAR(10 g) = 0.159 mW/g

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



0 dB = 0.311mW/g

WCDMA BAND II left tilt mid

Date/Time: 28/6/2012 14:19:45

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.36 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 8/12/2011
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Tilt Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.087 mW/g

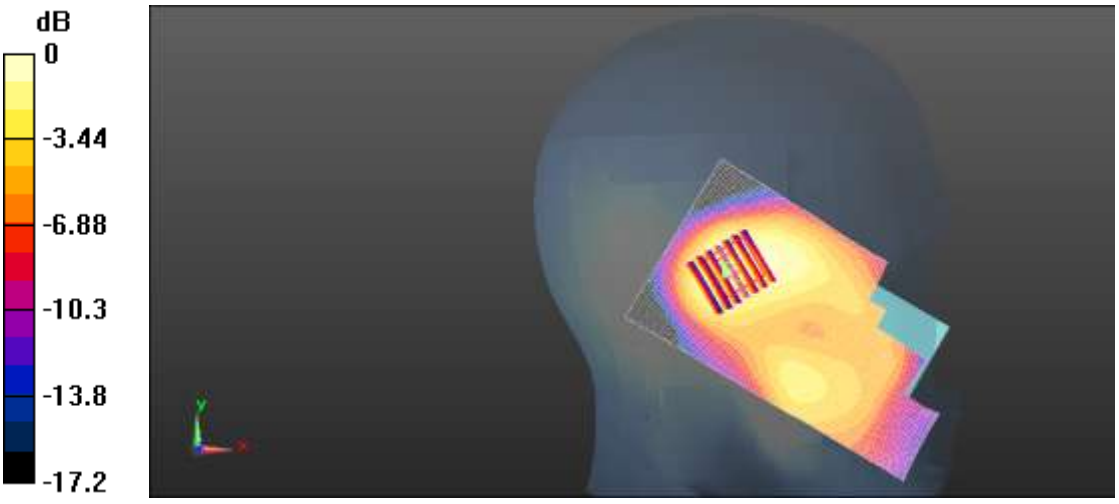
left/Tilt Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.97 V/m; Power Drift = 0.100 dB

Peak SAR (extrapolated) = 0.130 W/kg

SAR(1 g) = 0.080 mW/g; SAR(10 g) = 0.048 mW/g

Maximum value of SAR (measured) = 0.086 mW/g



0 dB = 0.086mW/g

WCDMA BAND II right touch mid

Date/Time: 28/6/2012 14:51:15

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.36 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 8/12/2011
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Touch Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.310 mW/g

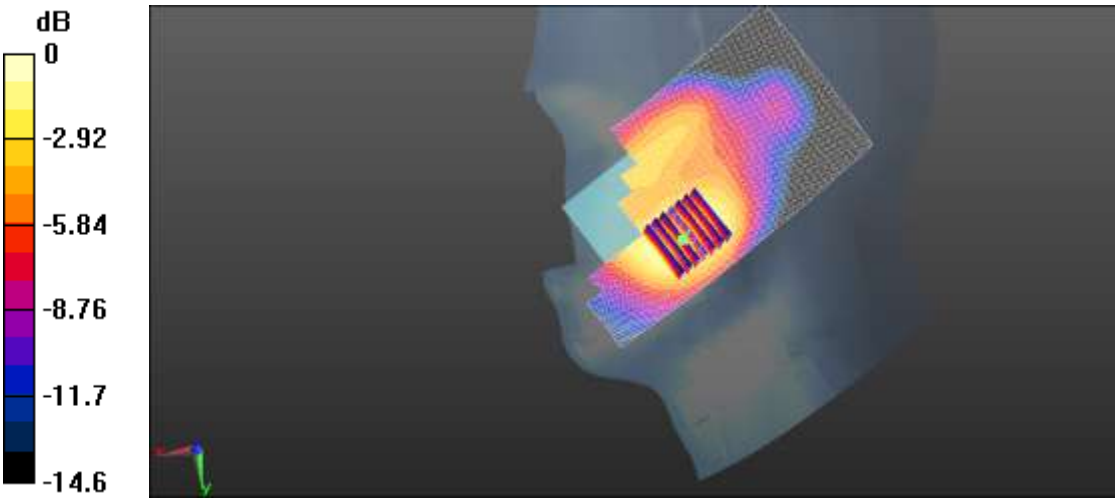
right/Touch Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.64 V/m; Power Drift = 0.174 dB

Peak SAR (extrapolated) = 0.427 W/kg

SAR(1 g) = 0.285 mW/g; SAR(10 g) = 0.173 mW/g

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



0 dB = 0.311mW/g

WCDMA BAND II right tilt mid

Date/Time: 28/6/2012 15:24:52

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.36 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 8/12/2011
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Tilt Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.114 mW/g

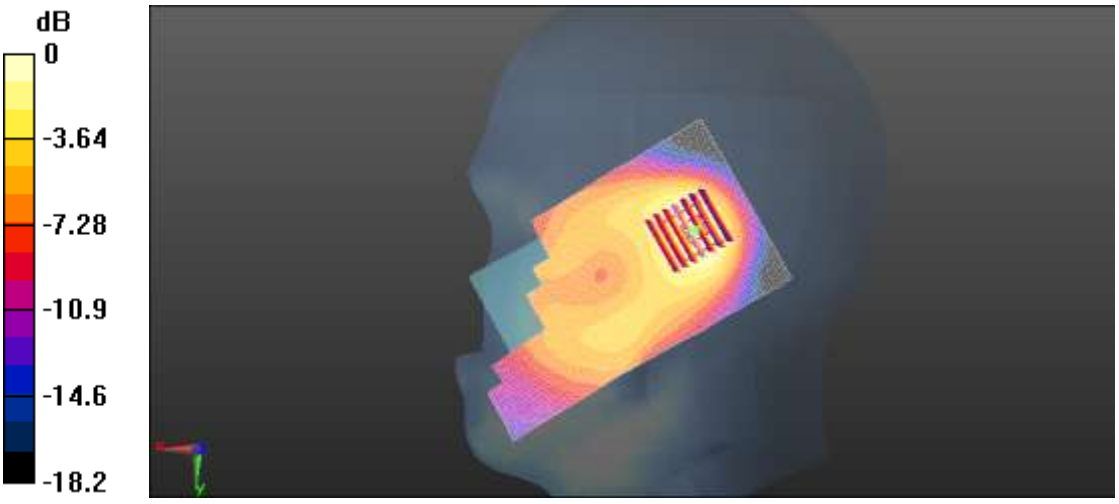
right/Tilt Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.06 V/m; Power Drift = -0.00641 dB

Peak SAR (extrapolated) = 0.168 W/kg

SAR(1 g) = 0.102 mW/g; SAR(10 g) = 0.059 mW/g

Maximum value of SAR (measured) = 0.113 mW/g



0 dB = 0.113mW/g

WCDMA BAND II right touch low

Date/Time: 28/6/2012 15:57:26

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.34 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 8/12/2011
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Touch Position - low/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.351 mW/g

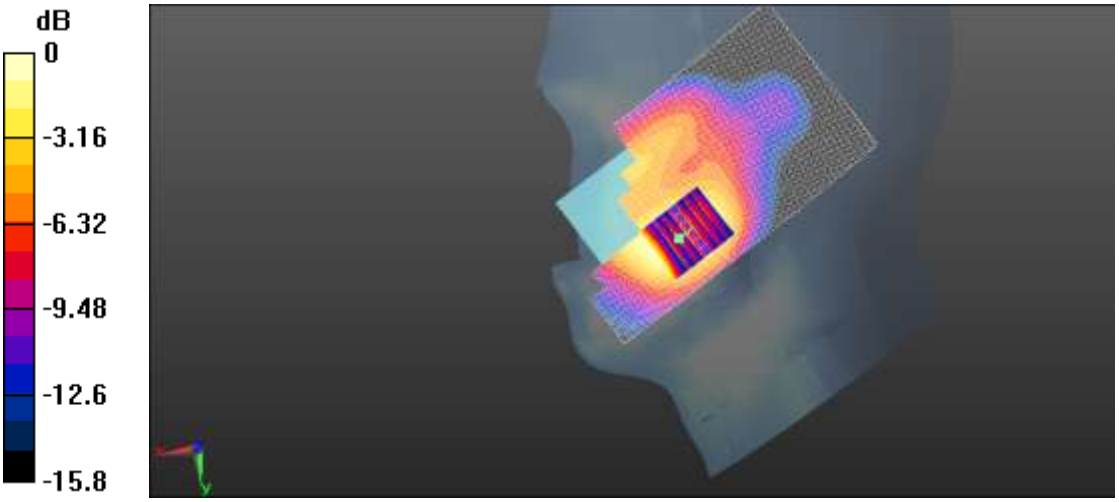
right/Touch Position - low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.84 V/m; Power Drift = 0.170 dB

Peak SAR (extrapolated) = 0.463 W/kg

SAR(1 g) = 0.313 mW/g; SAR(10 g) = 0.189 mW/g

Maximum value of SAR (measured) = 0.345 mW/g



0 dB = 0.345mW/g

WCDMA BAND II right touch high

Date/Time: 28/6/2012 16:30:16

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1907.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1908 MHz; σ = 1.39 mho/m; ε_r = 39; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(5.09, 5.09, 5.09); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 8/12/2011
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Touch Position - high/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.362 mW/g

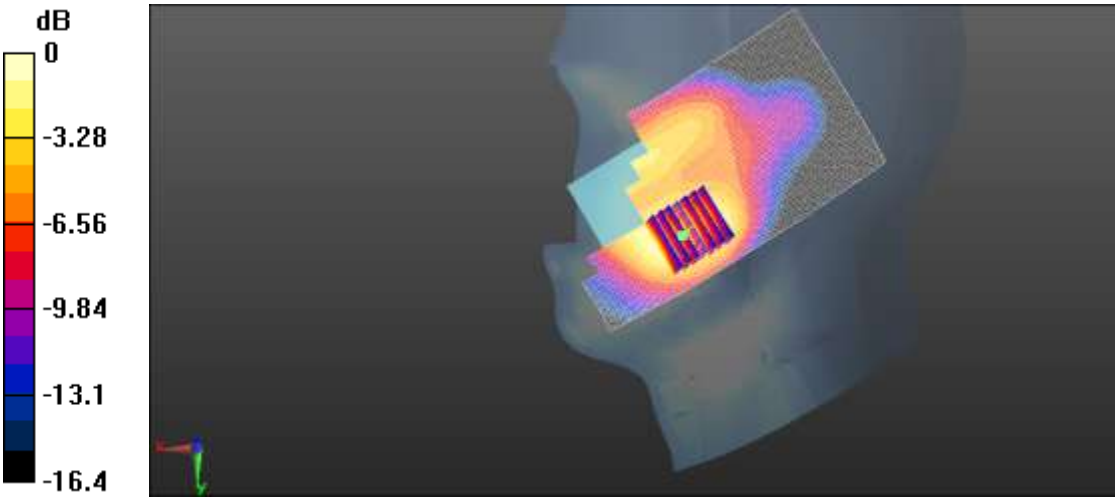
right/Touch Position - high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.14 V/m; Power Drift = -0.157 dB

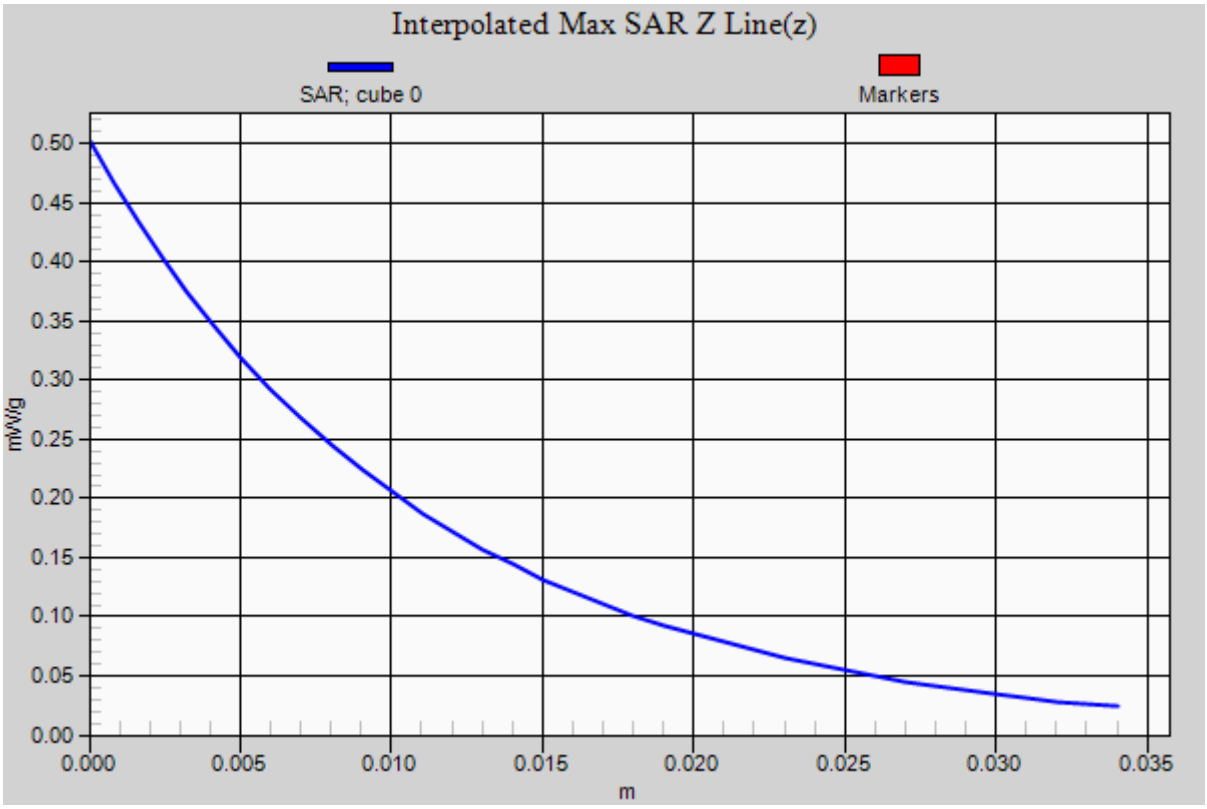
Peak SAR (extrapolated) = 0.501 W/kg

SAR(1 g) = 0.329 mW/g; SAR(10 g) = 0.195 mW/g

Maximum value of SAR (measured) = 0.359 mW/g



0 dB = 0.359mW/g


Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

WCDMA BAND II Towards phantom - mid

Date/Time: 25/06/2012 18:41:35

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards phantom - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.10 mW/g

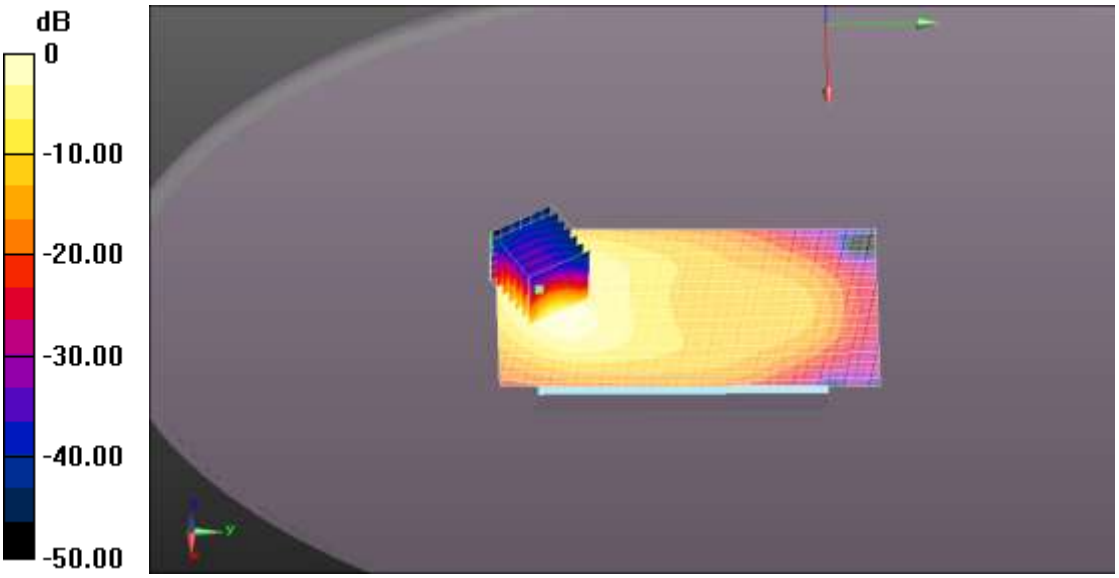
body/Towards phantom - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.568 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.738 mW/g

SAR(1 g) = 0.930 mW/g; SAR(10 g) = 0.495 mW/g

Maximum value of SAR (measured) = 1.06 mW/g



0 dB = 1.10 mW/g = 0.84 dB mW/g

WCDMA BAND II Towards ground - mid

Date/Time: 25/06/2012 19:17:17

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.04 mW/g

body/Towards ground - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.349 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.640 mW/g

SAR(1 g) = 0.906 mW/g; SAR(10 g) = 0.484 mW/g

Maximum value of SAR (measured) = 1.03 mW/g

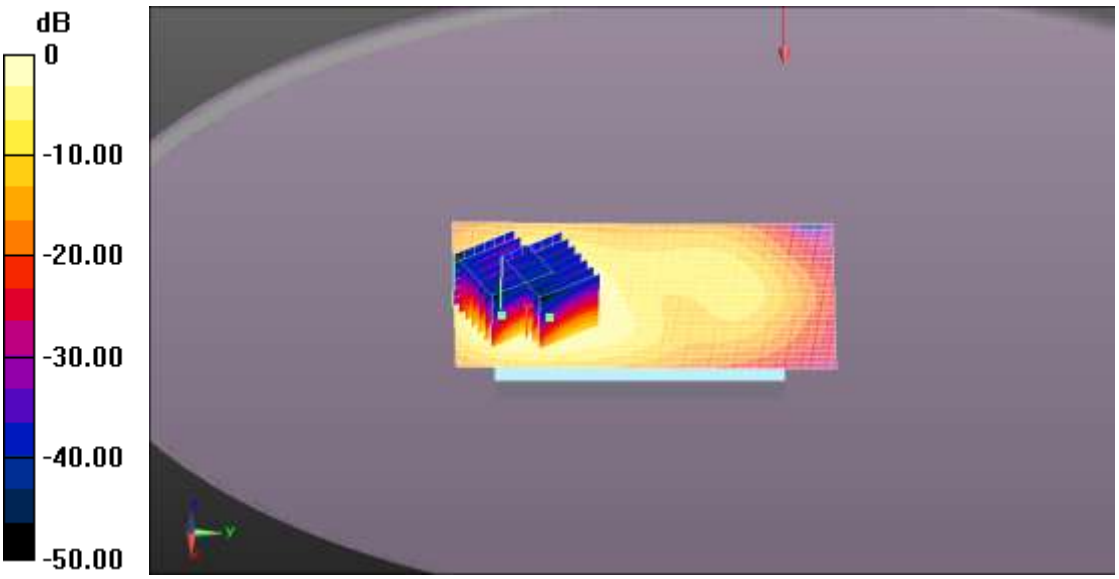
body/Towards ground - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.349 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.601 mW/g

SAR(1 g) = 0.718 mW/g; SAR(10 g) = 0.411 mW/g

Maximum value of SAR (measured) = 1.00 mW/g



0 dB = 1.04 mW/g = 0.32 dB mW/g

WCDMA BAND II front - mid

Date/Time: 26/06/2012 13:25:40

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/front - mid/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.805 mW/g

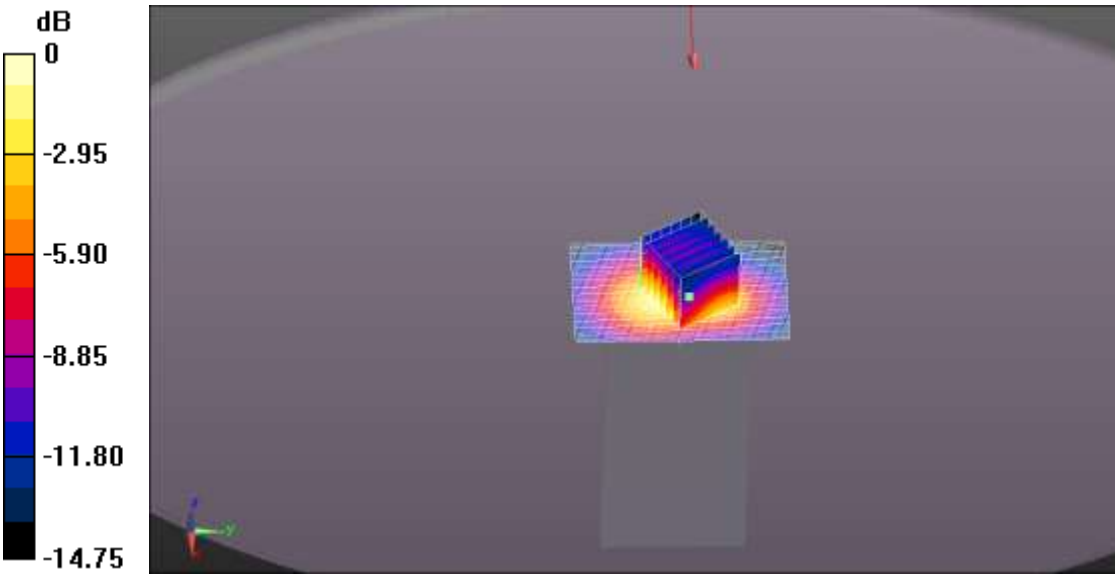
body/front - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.875 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.269 mW/g

SAR(1 g) = 0.709 mW/g; SAR(10 g) = 0.377 mW/g

Maximum value of SAR (measured) = 0.800 mW/g



0 dB = 0.805 mW/g = -1.88 dB mW/g

WCDMA BAND II left side - mid

Date/Time: 26/06/2012 12:53:57

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/left side - mid/Area Scan (61x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.186 mW/g

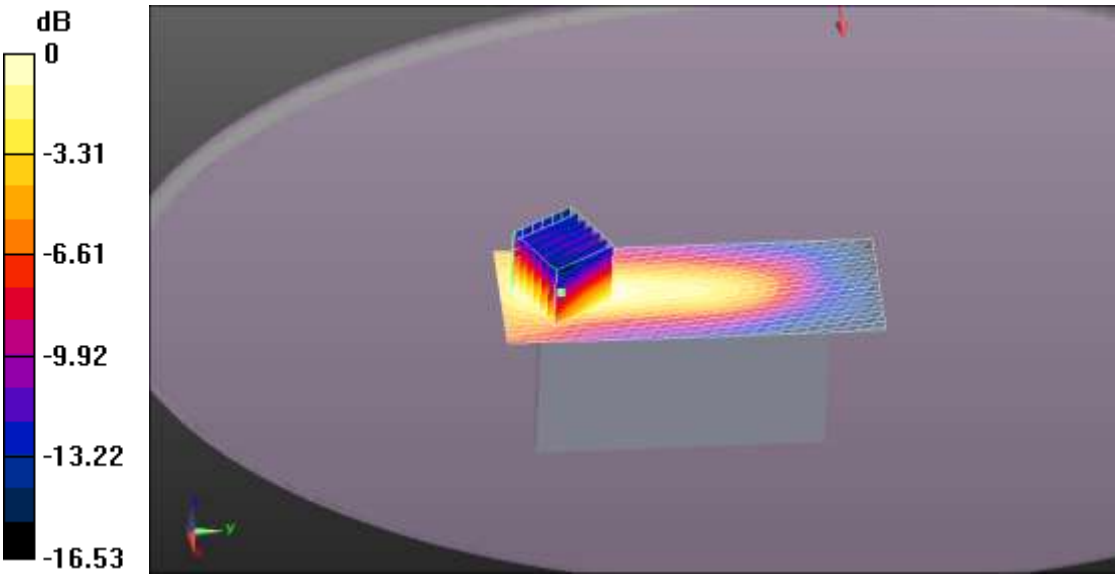
body2/left side - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.903 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.285 mW/g

SAR(1 g) = 0.163 mW/g; SAR(10 g) = 0.091 mW/g

Maximum value of SAR (measured) = 0.181 mW/g



0 dB = 0.186 mW/g = -14.63 dB mW/g

WCDMA BAND II right side - mid

Date/Time: 26/06/2012 11:55:22

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/right side - mid/Area Scan (61x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.114 mW/g

body2/right side - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.925 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.174 mW/g

SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.057 mW/g

Maximum value of SAR (measured) = 0.111 mW/g

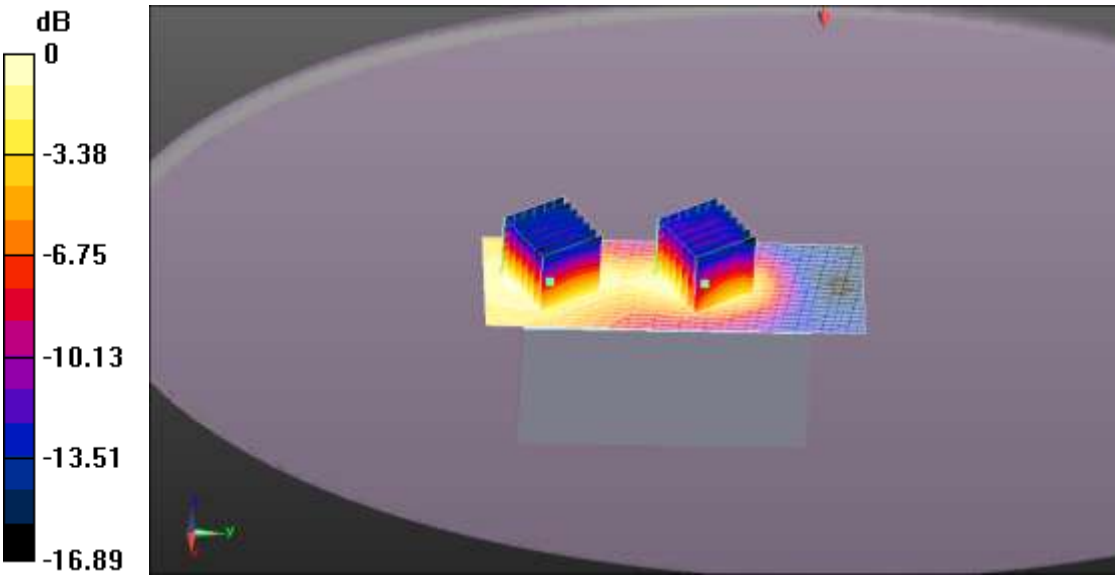
body2/right side - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.925 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.166 mW/g

SAR(1 g) = 0.102 mW/g; SAR(10 g) = 0.061 mW/g

Maximum value of SAR (measured) = 0.112 mW/g



0 dB = 0.114 mW/g = -18.85 dB mW/g

WCDMA BAND II Towards phantom - low

Date/Time: 25/06/2012 22:14:33

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.451 mho/m; ε_r = 52.481; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards phantom - low/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.579 mW/g

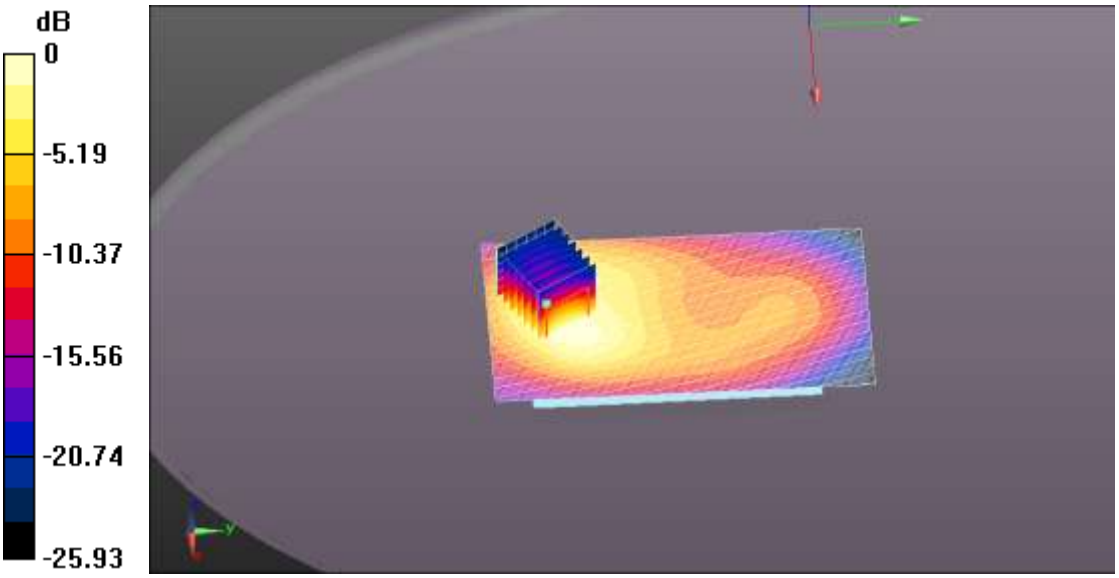
body/Towards phantom - low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.095 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.859 mW/g

SAR(1 g) = 0.509 mW/g; SAR(10 g) = 0.294 mW/g

Maximum value of SAR (measured) = 0.564 mW/g



0 dB = 0.579 mW/g = -4.75 dB mW/g

WCDMA BAND II Towards phantom - high

Date/Time: 25/06/2012 22:49:56

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1907.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1908 MHz; σ = 1.502 mho/m; ε_r = 52.332; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards phantom - high/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.578 mW/g

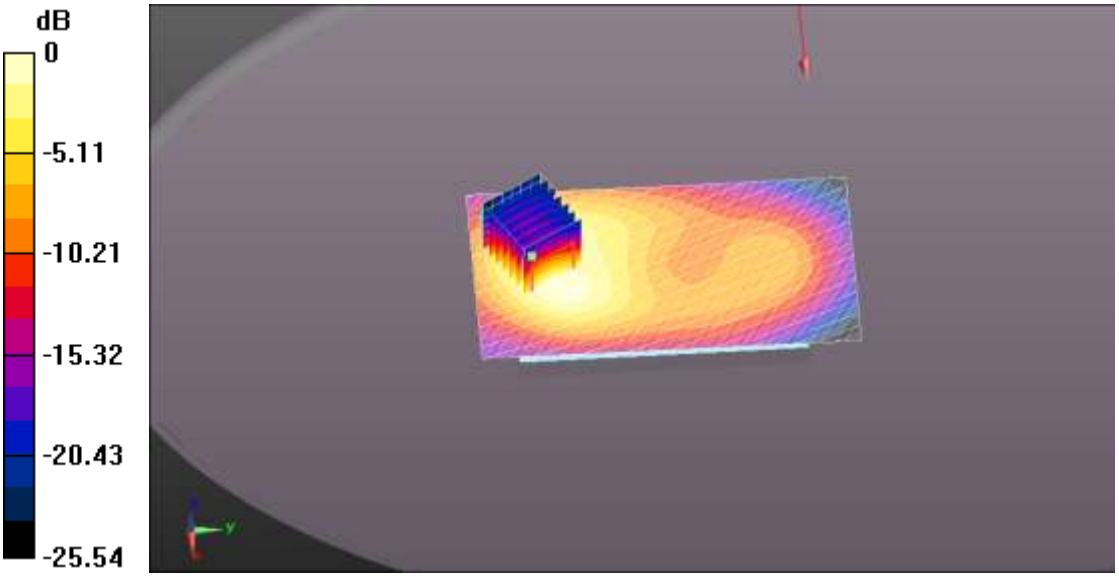
body/Towards phantom - high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.742 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.879 mW/g

SAR(1 g) = 0.523 mW/g; SAR(10 g) = 0.301 mW/g

Maximum value of SAR (measured) = 0.578 mW/g



0 dB = 0.578 mW/g = -4.76 dB mW/g

WCDMA BAND II Towards ground - low

Date/Time: 25/06/2012 20:11:23

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.451 mho/m; ε_r = 52.481; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - low/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.03 mW/g

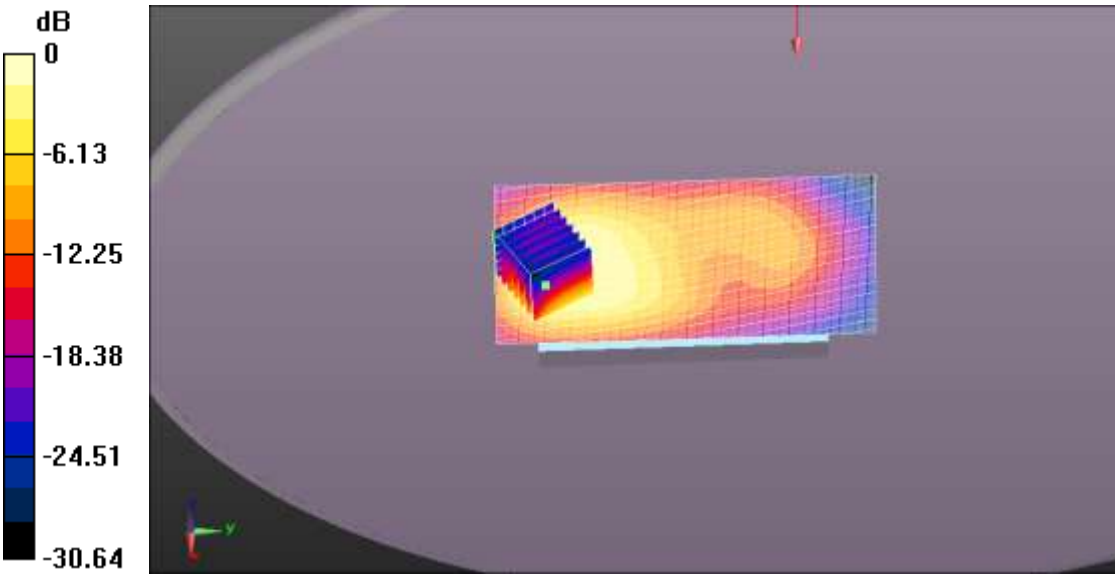
body/Towards ground - low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.653 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.614 mW/g

SAR(1 g) = 0.885 mW/g; SAR(10 g) = 0.471 mW/g

Maximum value of SAR (measured) = 1.01 mW/g



0 dB = 1.03 mW/g = 0.26 dB mW/g

WCDMA BAND II Towards ground - high

Date/Time: 25/06/2012 20:59:41

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1907.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1908 MHz; σ = 1.502 mho/m; ε_r = 52.332; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - high/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.718 mW/g

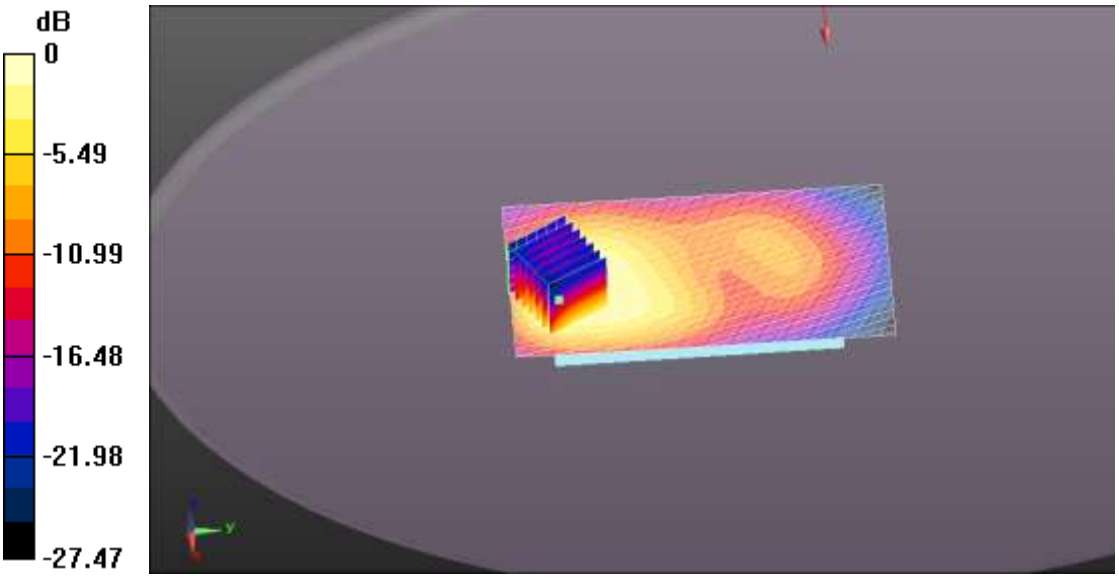
body/Towards ground - high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.753 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.157 mW/g

SAR(1 g) = 0.628 mW/g; SAR(10 g) = 0.332 mW/g

Maximum value of SAR (measured) = 0.711 mW/g



0 dB = 0.718 mW/g = -2.88 dB mW/g

WCDMA BAND II Towards phantom - mid earphone

Date/Time: 26/06/2012 14:37:01

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards phantom - mid earphone/Area Scan (91x161x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.38 mW/g

body/Towards phantom - mid earphone/Zoom Scan (7x7x7)/Cube 0:

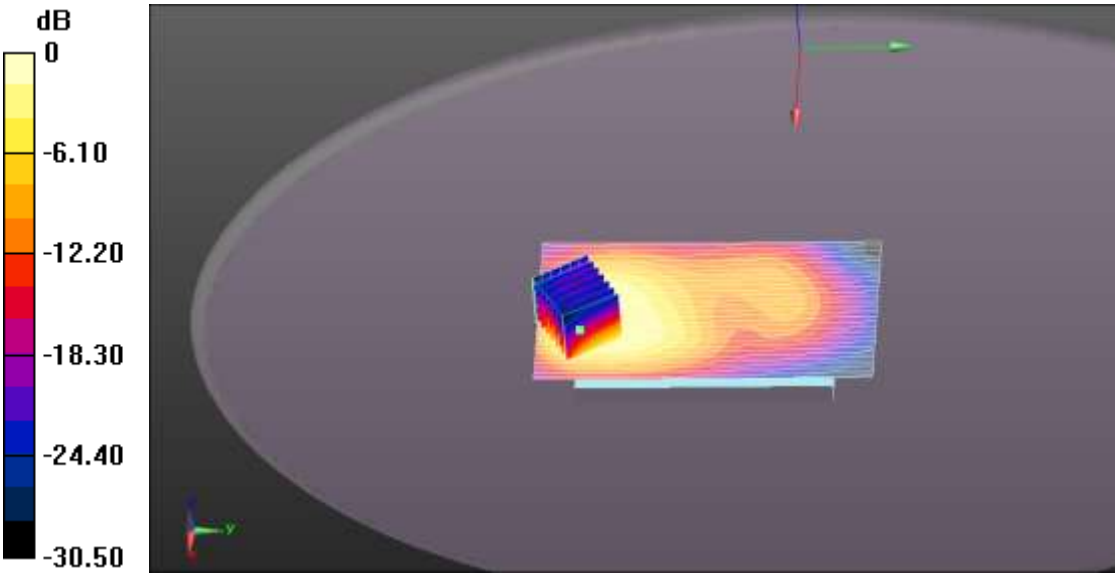
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.158 V/m; Power Drift = -0.13 dB

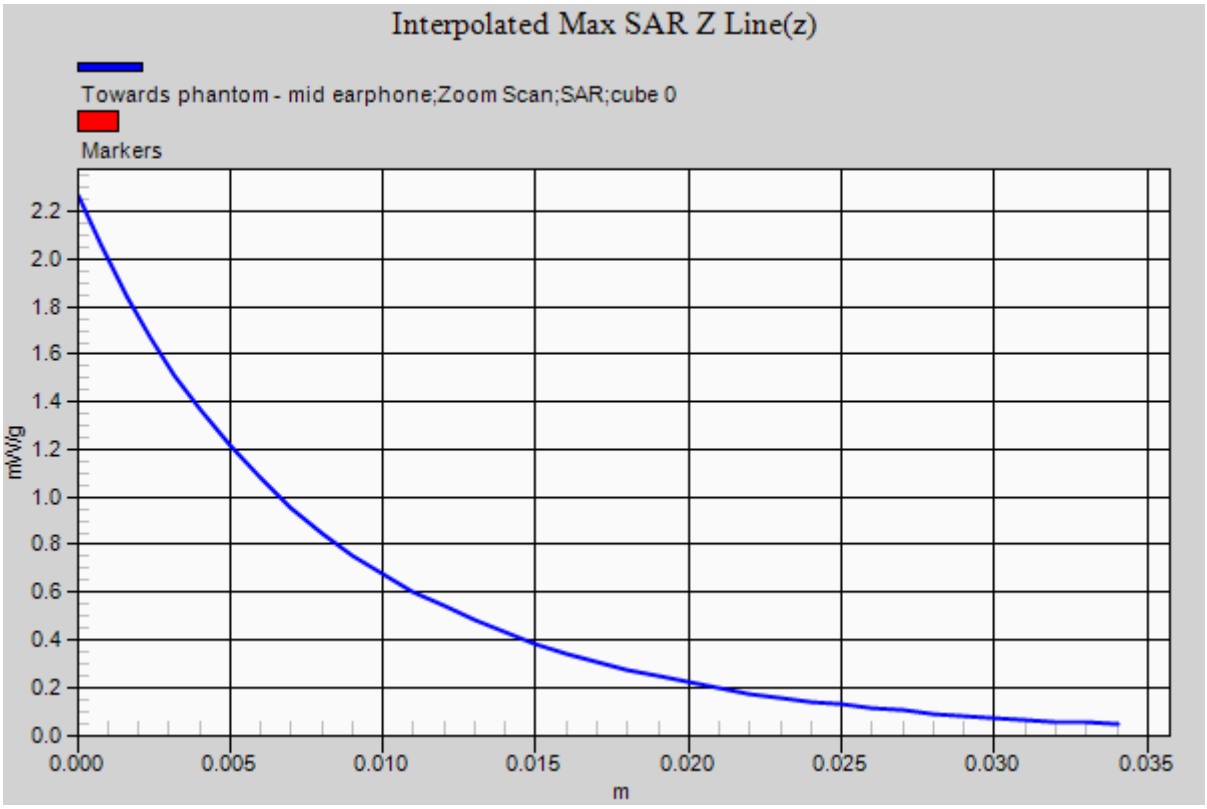
Peak SAR (extrapolated) = 2.269 mW/g

SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.609 mW/g

Maximum value of SAR (measured) = 1.35 mW/g



0 dB = 1.38 mW/g = 2.81 dB mW/g


Interpolated Max SAR Z Line(z)
Towards phantom - mid earphone;Zoom Scan;SAR;cube 0
Markers
mW/g
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

WCDMA BAND II Towards phantom - mid with HSDPA

Date/Time: 26/06/2012 15:13:34

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards phantom - mid with HSDPA/Area Scan (91x161x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.16 mW/g

body/Towards phantom - mid with HSDPA/Zoom Scan (7x7x7)/Cube 0:

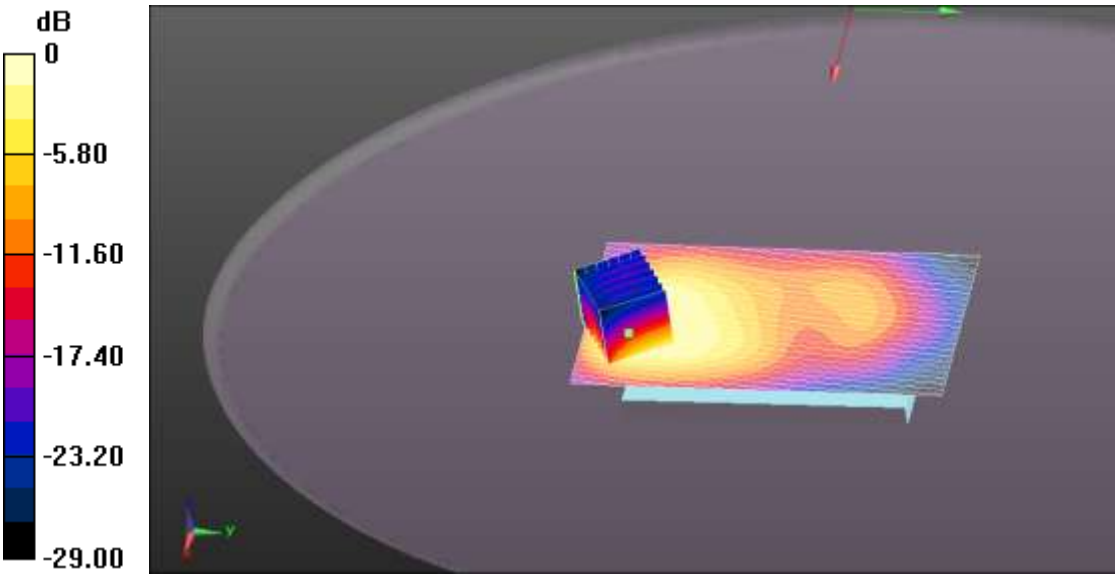
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.508 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 1.938 mW/g

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.516 mW/g

Maximum value of SAR (measured) = 1.17 mW/g



0 dB = 1.16 mW/g = 1.29 dB mW/g

WCDMA BAND II Towards phantom - mid with HSUPA

Date/Time: 26/06/2012 15:57:24

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.67, 4.67, 4.67); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards phantom - mid with HSUPA/Area Scan (91x161x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.20 mW/g

body/Towards phantom - mid with HSUPA/Zoom Scan (7x7x7)/Cube 0:

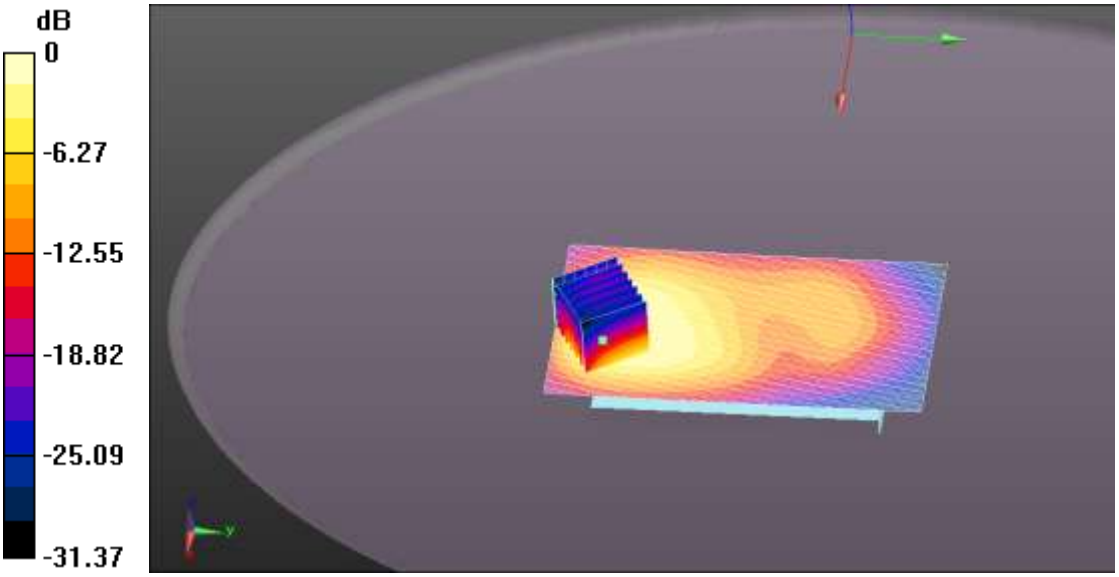
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.624 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.964 mW/g

SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.521 mW/g

Maximum value of SAR (measured) = 1.17 mW/g



0 dB = 1.20 mW/g = 1.57 dB mW/g

WCDMA BAND V left touch mid

Date/Time: 6/20/2012 10:18:26 PM

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.914 mho/m; ε_r = 43; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Touch Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.251 mW/g

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

Reference Value = 6.31 V/m; Power Drift = -0.023 dB

Peak SAR (extrapolated) = 0.333 W/kg

SAR(1 g) = 0.217 mW/g; SAR(10 g) = 0.157 mW/g

Maximum value of SAR (measured) = 0.233 mW/g

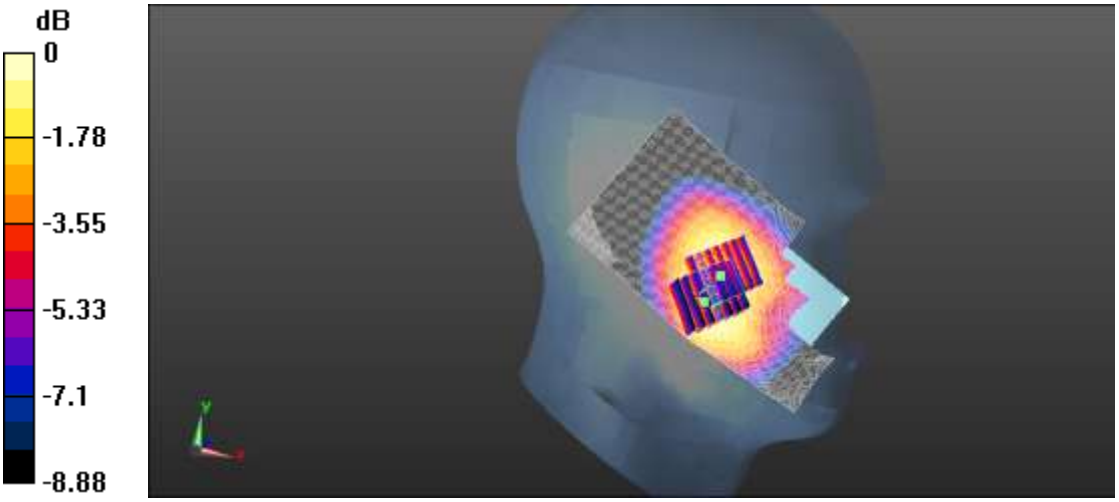
left/Touch Position - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.31 V/m; Power Drift = -0.023 dB

Peak SAR (extrapolated) = 0.325 W/kg

SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.159 mW/g

Maximum value of SAR (measured) = 0.237 mW/g



0 dB = 0.237mW/g

WCDMA BAND V left tilt mid

Date/Time: 6/20/2012 11:02:00 PM

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.914 mho/m; ε_r = 43; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Tilt Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.144 mW/g

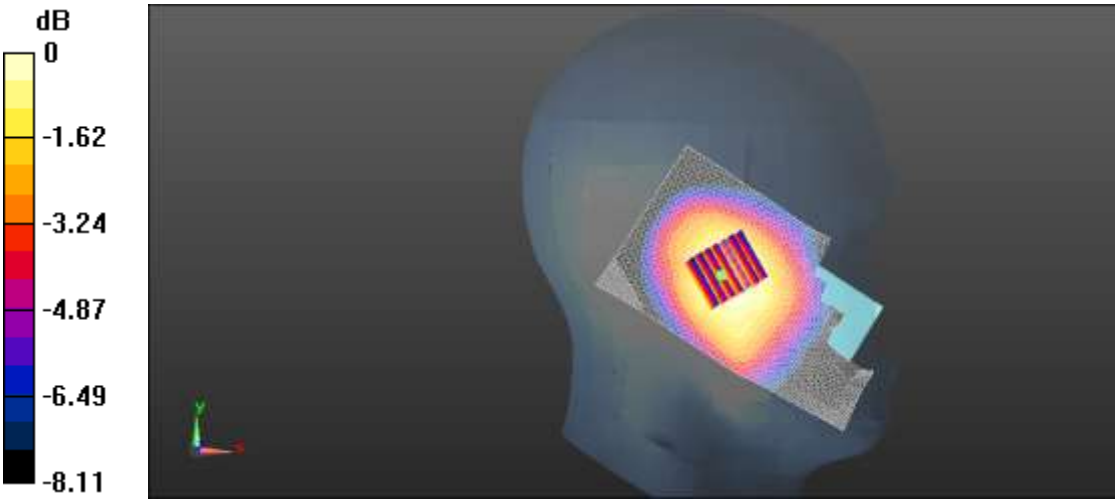
left/Tilt Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.52 V/m; Power Drift = 0.091 dB

Peak SAR (extrapolated) = 0.173 W/kg

SAR(1 g) = 0.138 mW/g; SAR(10 g) = 0.108 mW/g

Maximum value of SAR (measured) = 0.147 mW/g



0 dB = 0.147mW/g

WCDMA BAND V right touch mid

Date/Time: 6/21/2012 9:55:07 AM

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.914 mho/m; ε_r = 43; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Touch Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.259 mW/g

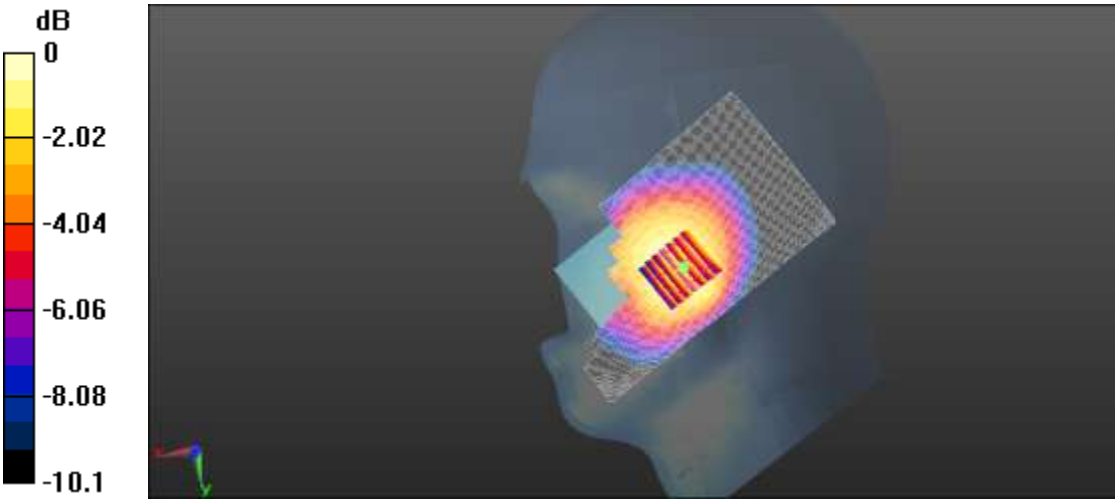
right/Touch Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.51 V/m; Power Drift = 0.012 dB

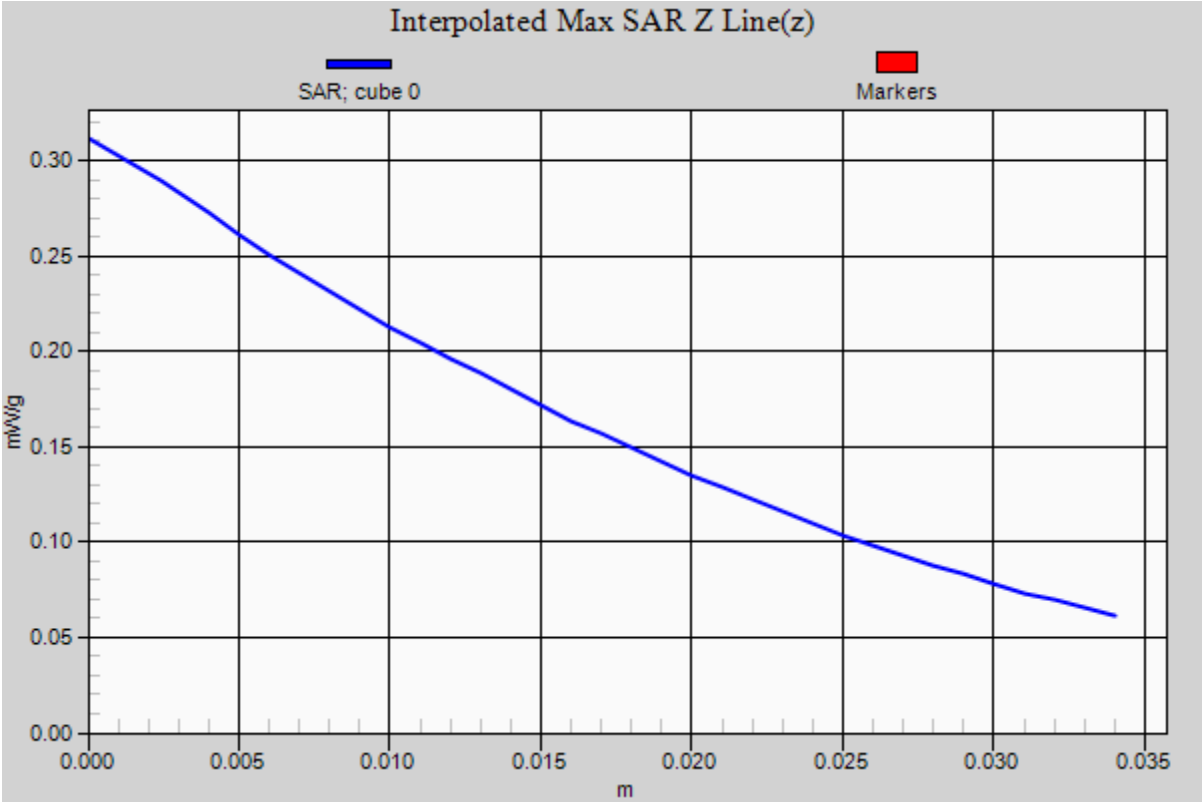
Peak SAR (extrapolated) = 0.311 W/kg

SAR(1 g) = 0.251 mW/g; SAR(10 g) = 0.188 mW/g

Maximum value of SAR (measured) = 0.274 mW/g



0 dB = 0.274mW/g


Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

WCDMA BAND V right tilt mid

Date/Time: 6/21/2012 10:27:45 AM

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.914 mho/m; ε_r = 43; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Tilt Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.162 mW/g

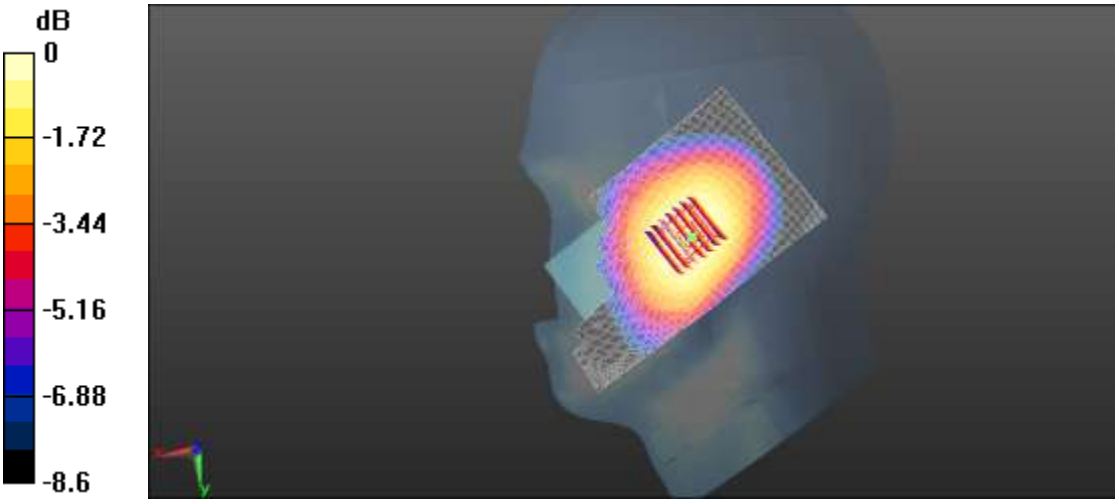
right/Tilt Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.67 V/m; Power Drift = -0.058 dB

Peak SAR (extrapolated) = 0.185 W/kg

SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.122 mW/g

Maximum value of SAR (measured) = 0.164 mW/g



0 dB = 0.164mW/g

WCDMA BAND V right touch low

Date/Time: 6/21/2012 11:00:51 AM

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.903 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Touch Position - low/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.175 mW/g

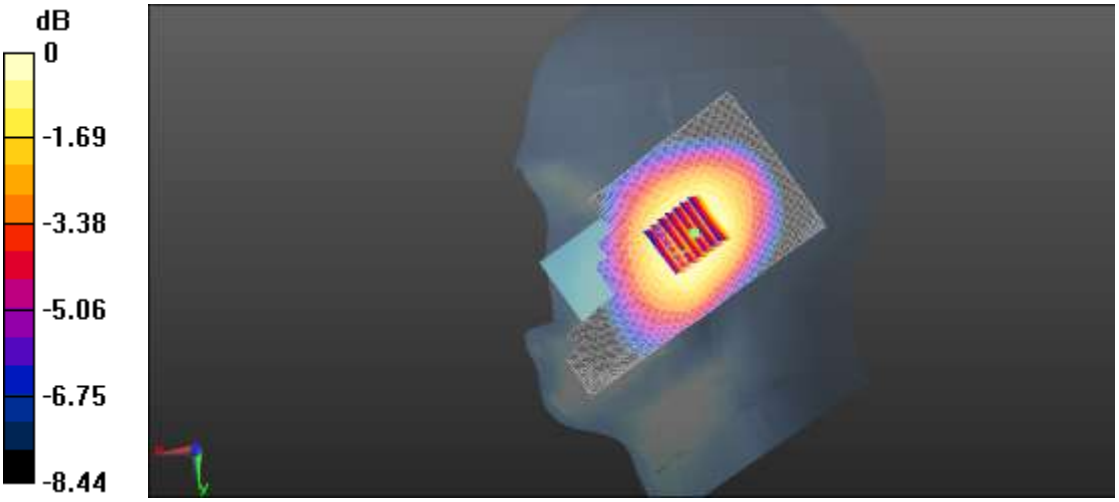
right/Touch Position - low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.1 V/m; Power Drift = -0.051 dB

Peak SAR (extrapolated) = 0.201 W/kg

SAR(1 g) = 0.168 mW/g; SAR(10 g) = 0.133 mW/g

Maximum value of SAR (measured) = 0.178 mW/g



0 dB = 0.178mW/g

WCDMA BAND V right touch high

Date/Time: 6/21/2012 11:31:10 AM

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 846.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 847 MHz; σ = 0.923 mho/m; ε_r = 42.9; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Touch Position - high/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.128 mW/g

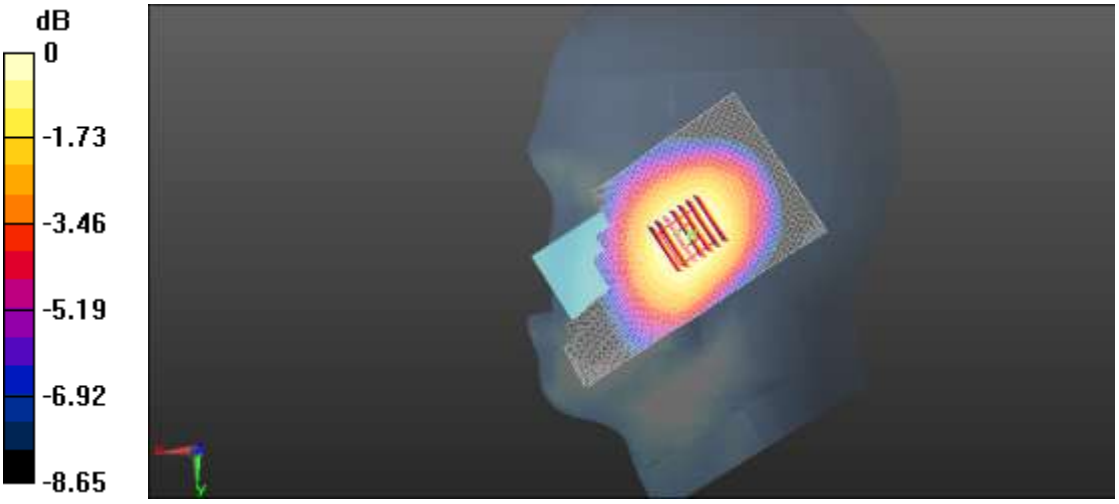
right/Touch Position - high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.23 V/m; Power Drift = 0.141 dB

Peak SAR (extrapolated) = 0.151 W/kg

SAR(1 g) = 0.125 mW/g; SAR(10 g) = 0.097 mW/g

Maximum value of SAR (measured) = 0.133 mW/g



0 dB = 0.133mW/g

WCDMA BAND V Towards phantom - mid

Date/Time: 26/06/2012 18:55:48

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards phantom - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.318 mW/g

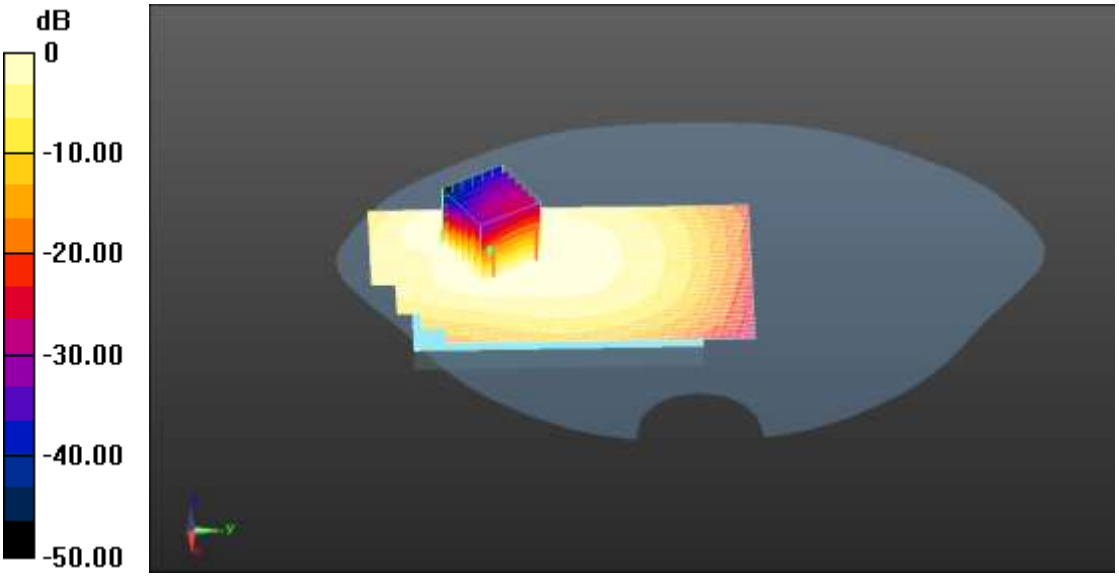
body/Towards phantom - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.803 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.425 mW/g

SAR(1 g) = 0.298 mW/g; SAR(10 g) = 0.215 mW/g

Maximum value of SAR (measured) = 0.314 mW/g



0 dB = 0.318 mW/g = -9.94 dB mW/g

WCDMA BAND V Towards ground - mid

Date/Time: 26/06/2012 19:30:25

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.551 mW/g

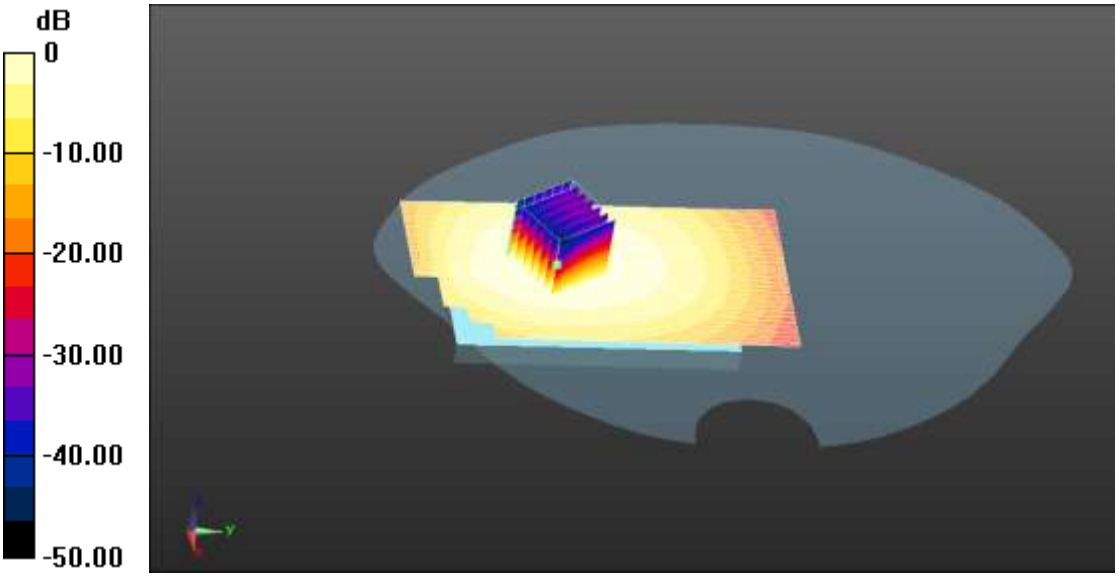
body/Towards ground - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.930 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.703 mW/g

SAR(1 g) = 0.527 mW/g; SAR(10 g) = 0.386 mW/g

Maximum value of SAR (measured) = 0.555 mW/g



0 dB = 0.551 mW/g = -5.17 dB mW/g

WCDMA BAND V front - mid

Date/Time: 26/06/2012 23:00:46

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/front - mid/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0634 mW/g

body/front - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.150 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.107 mW/g

SAR(1 g) = 0.056 mW/g; SAR(10 g) = 0.031 mW/g

Maximum value of SAR (measured) = 0.0609 mW/g

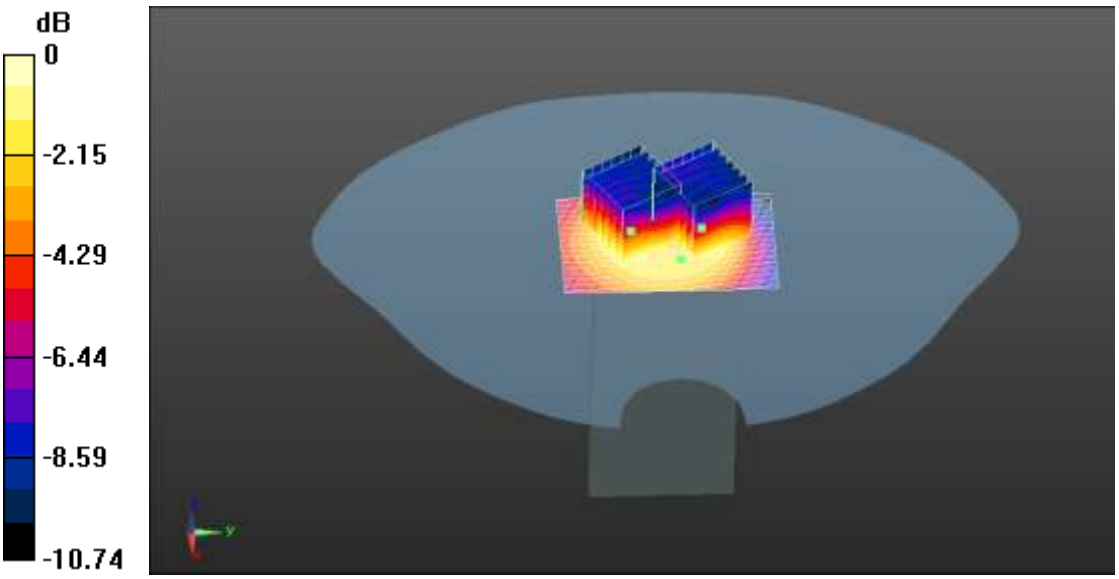
body/front - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.150 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.091 mW/g

SAR(1 g) = 0.052 mW/g; SAR(10 g) = 0.032 mW/g

Maximum value of SAR (measured) = 0.0565 mW/g



0 dB = 0.0634 mW/g = -23.96 dB mW/g

WCDMA BAND V left side - mid

Date/Time: 26/06/2012 20:03:16

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/left side - mid/Area Scan (61x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.298 mW/g

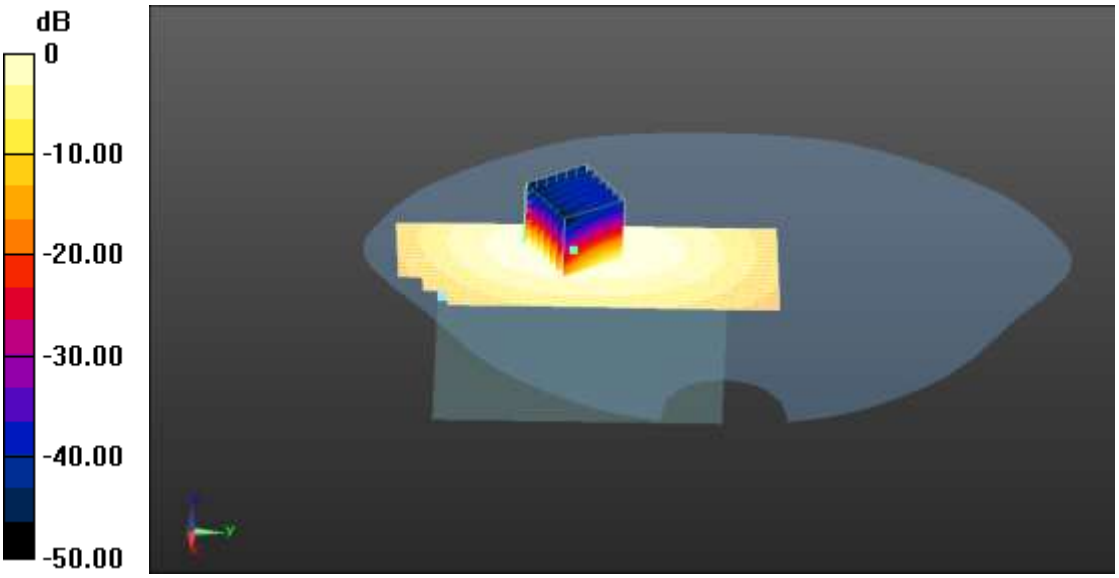
body2/left side - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.117 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.413 mW/g

SAR(1 g) = 0.283 mW/g; SAR(10 g) = 0.193 mW/g

Maximum value of SAR (measured) = 0.304 mW/g



0 dB = 0.298 mW/g = -10.52 dB mW/g

WCDMA BAND V right side - mid

Date/Time: 26/06/2012 20:29:57

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/ right side - mid /Area Scan (61x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.281 mW/g

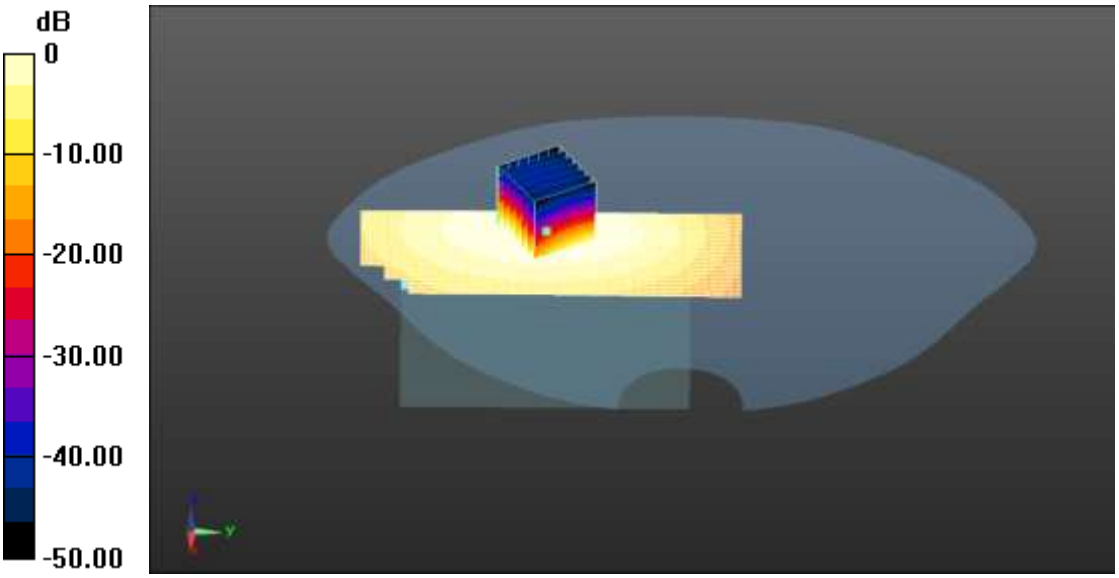
body2/right side - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.764 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.374 mW/g

SAR(1 g) = 0.263 mW/g; SAR(10 g) = 0.183 mW/g

Maximum value of SAR (measured) = 0.280 mW/g



0 dB = 0.281 mW/g = -11.03 dB mW/g

WCDMA BAND V Towards ground - low

Date/Time: 26/06/2012 22:21:35

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.936 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - low/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.566 mW/g

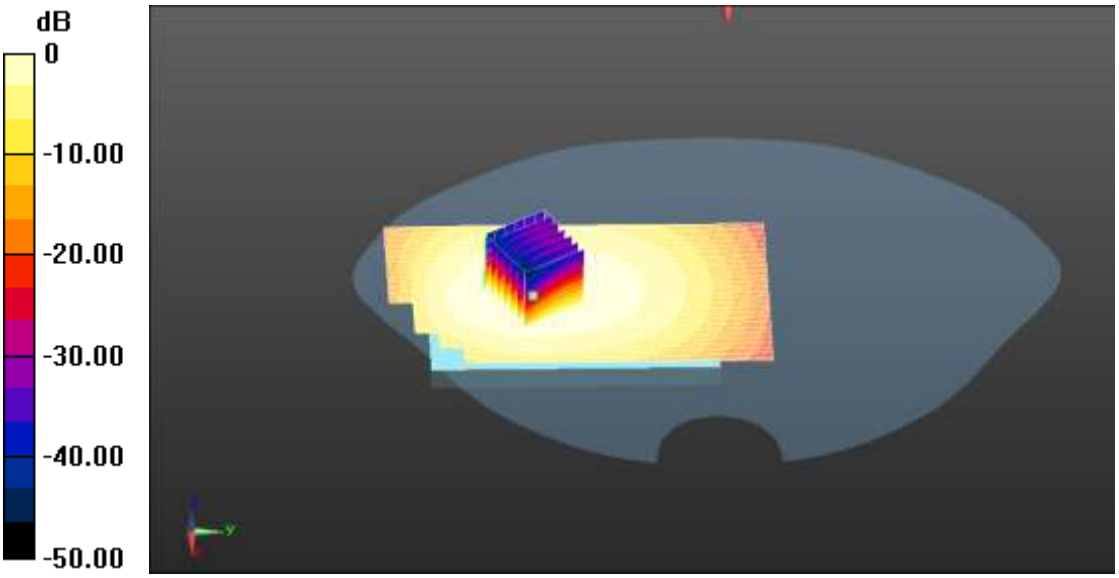
body/Towards ground - low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.395 V/m; Power Drift = -0.02 dB

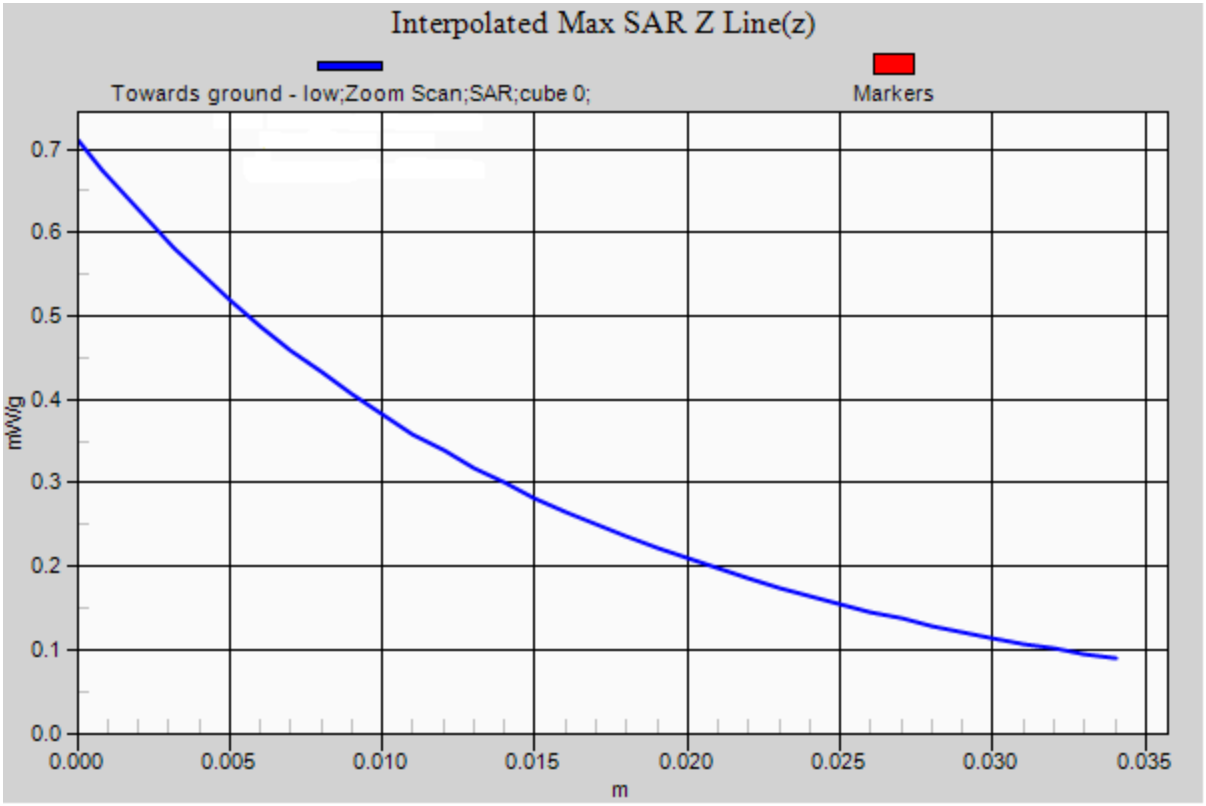
Peak SAR (extrapolated) = 0.710 mW/g

SAR(1 g) = 0.533 mW/g; SAR(10 g) = 0.391 mW/g

Maximum value of SAR (measured) = 0.561 mW/g



0 dB = 0.566 mW/g = -4.95 dB mW/g


Interpolated Max SAR Z Line(z)
Towards ground - low;Zoom Scan;SAR;cube 0;
Markers
mW/g
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

WCDMA BAND V Towards ground - high

Date/Time: 26/06/2012 21:49:42

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 846.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 847 MHz; σ = 0.965 mho/m; ε_r = 54.169; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - high/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.448 mW/g

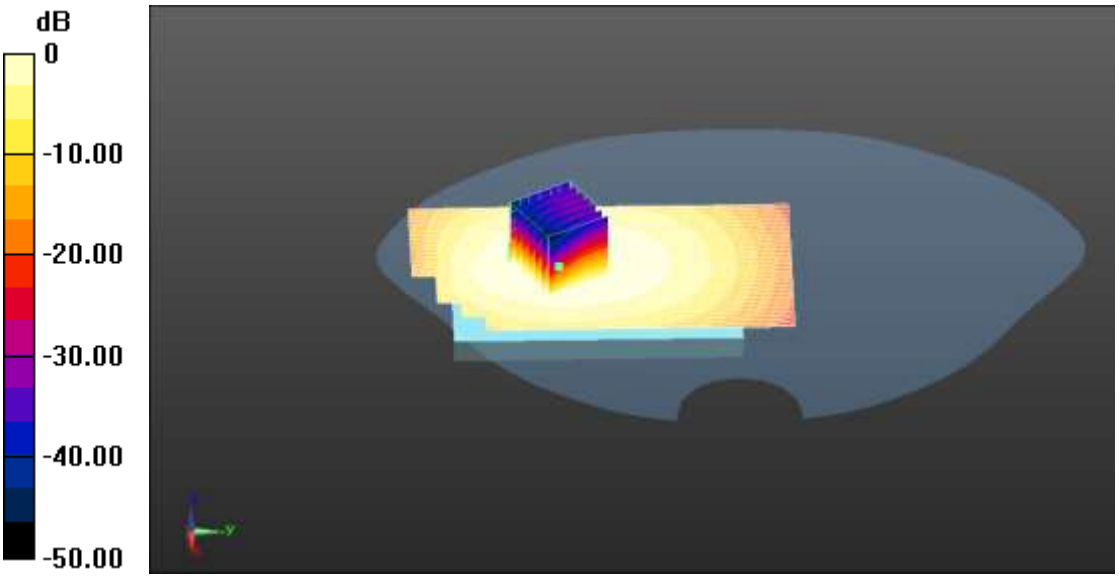
body/Towards ground - high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.381 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.573 mW/g

SAR(1 g) = 0.430 mW/g; SAR(10 g) = 0.315 mW/g

Maximum value of SAR (measured) = 0.451 mW/g



0 dB = 0.448 mW/g = -6.98 dB mW/g

WCDMA BAND V Towards ground - low with earphone

Date/Time: 27/06/2012 10:01:15

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.936 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 08/12/2011
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

Configuration/Towards ground - low with earphone/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.451 mW/g

Configuration/Towards ground - low with earphone/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.385 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.578 mW/g

SAR(1 g) = 0.423 mW/g; SAR(10 g) = 0.302 mW/g

Maximum value of SAR (measured) = 0.445 mW/g

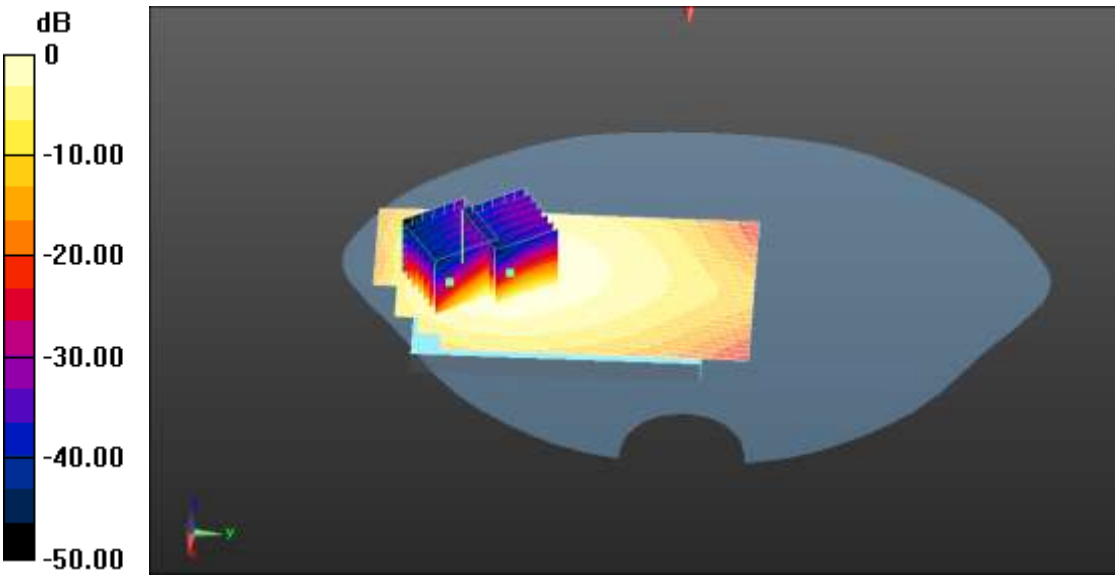
Configuration/Towards ground - low with earphone/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.385 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.588 mW/g

SAR(1 g) = 0.362 mW/g; SAR(10 g) = 0.235 mW/g

Maximum value of SAR (measured) = 0.420 mW/g



0 dB = 0.451 mW/g = -6.92 dB mW/g

WCDMA BAND V Towards ground - low with HSDPA

Date/Time: 27/06/2012 20:39:45

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.936 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 08/12/2011
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

Configuration/Towards ground - low with HSDPA/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.458 mW/g

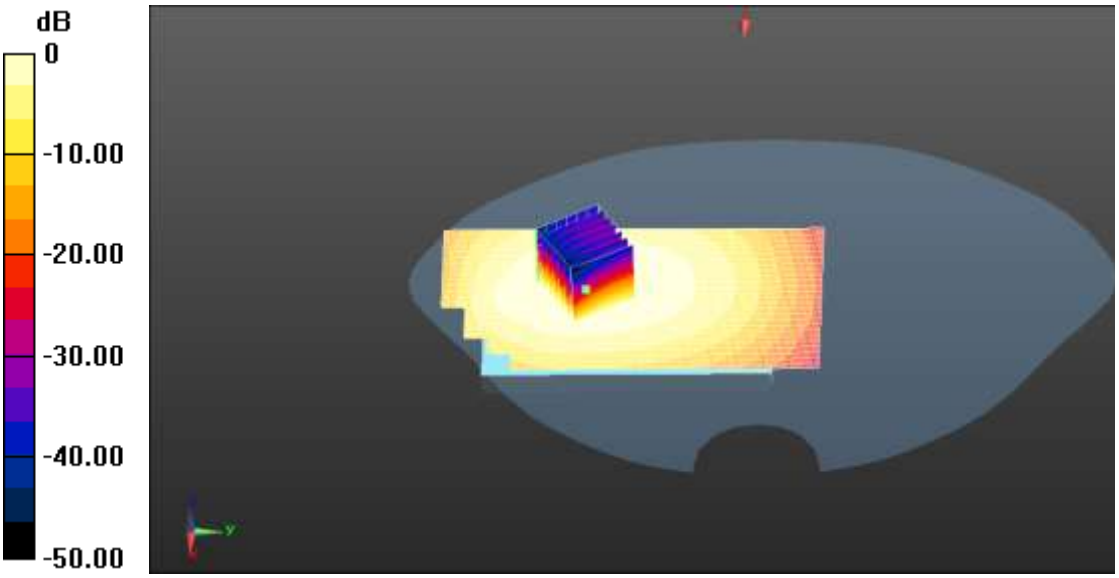
Configuration/Towards ground - low with HSDPA/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.724 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.574 mW/g

SAR(1 g) = 0.432 mW/g; SAR(10 g) = 0.317 mW/g

Maximum value of SAR (measured) = 0.453 mW/g



0 dB = 0.458 mW/g = -6.79 dB mW/g

WCDMA BAND V Towards ground - low with HSUPA

Date/Time: 27/06/2012 21:15:25

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.936 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.19, 6.19, 6.19); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn914; Calibrated: 08/12/2011
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

Configuration/Towards ground - low with HSUPA/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.456 mW/g

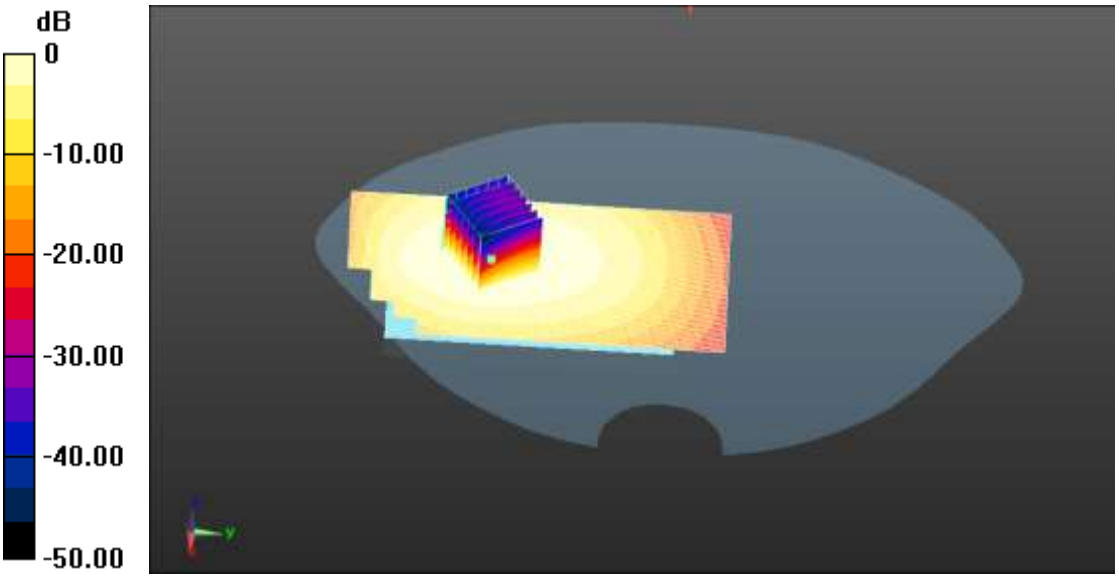
Configuration/Towards ground - low with HSUPA/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.668 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.578 mW/g

SAR(1 g) = 0.436 mW/g; SAR(10 g) = 0.319 mW/g

Maximum value of SAR (measured) = 0.461 mW/g



0 dB = 0.456 mW/g = -6.83 dB mW/g

802.11b Data Rate: 1Mbps left touch mid

Date/Time: 6/19/2012 3:23:56 PM

Communication System: 802.11b 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.78 mho/m; ε_r = 37.8; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Touch Position - mid/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.162 mW/g

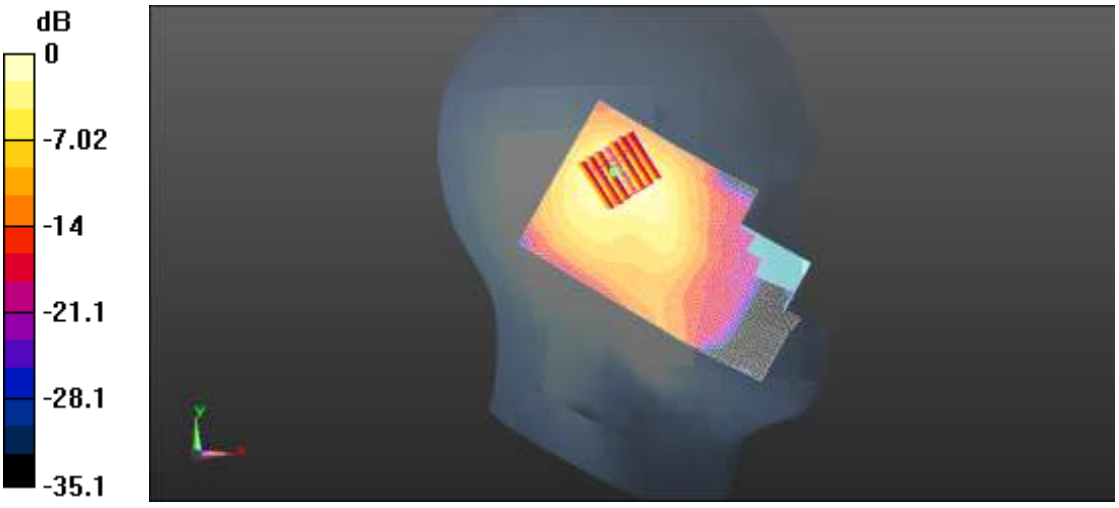
left/Touch Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.82 V/m; Power Drift = 0.148 dB

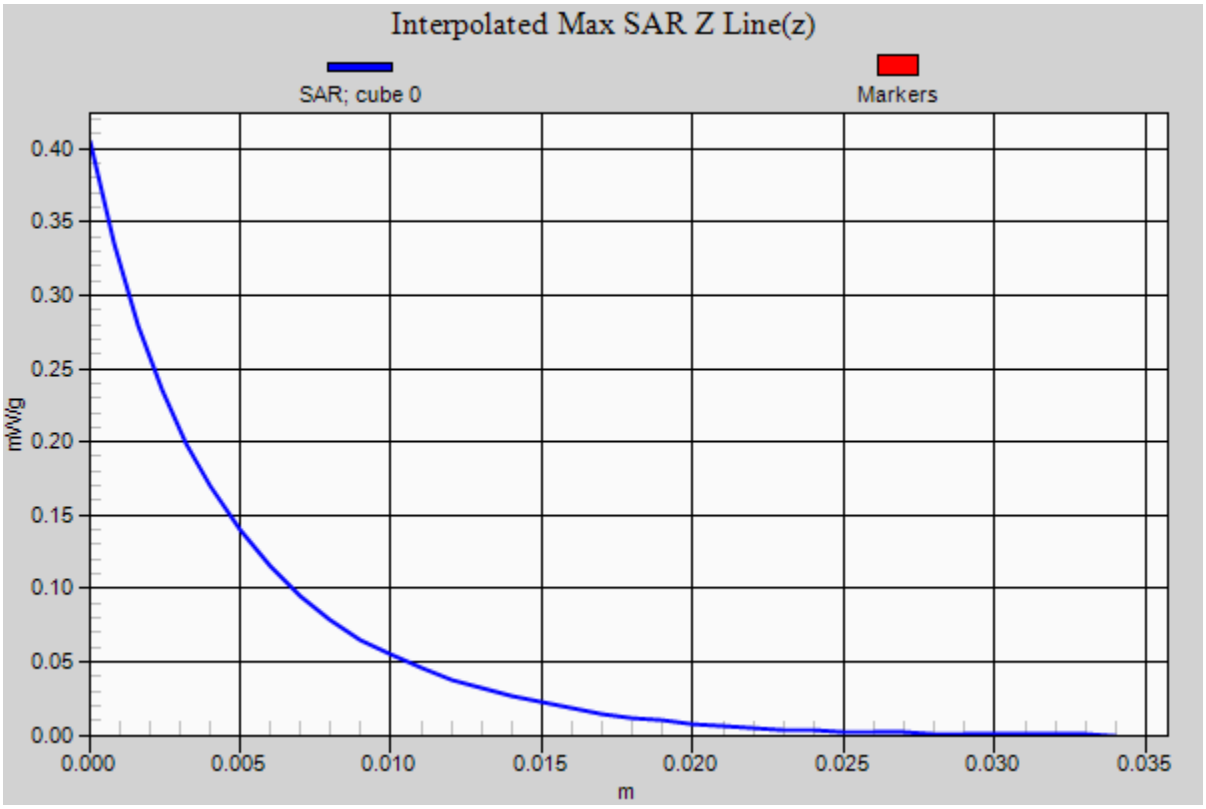
Peak SAR (extrapolated) = 0.405 W/kg

SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.066 mW/g

Maximum value of SAR (measured) = 0.170 mW/g



0 dB = 0.170mW/g


Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
mW/g
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

802.11b Data Rate: 1Mbps left tilt mid

Date/Time: 6/19/2012 5:37:51 PM

Communication System: 802.11b 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.78 mho/m; ε_r = 37.8; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Tilt Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.133 mW/g

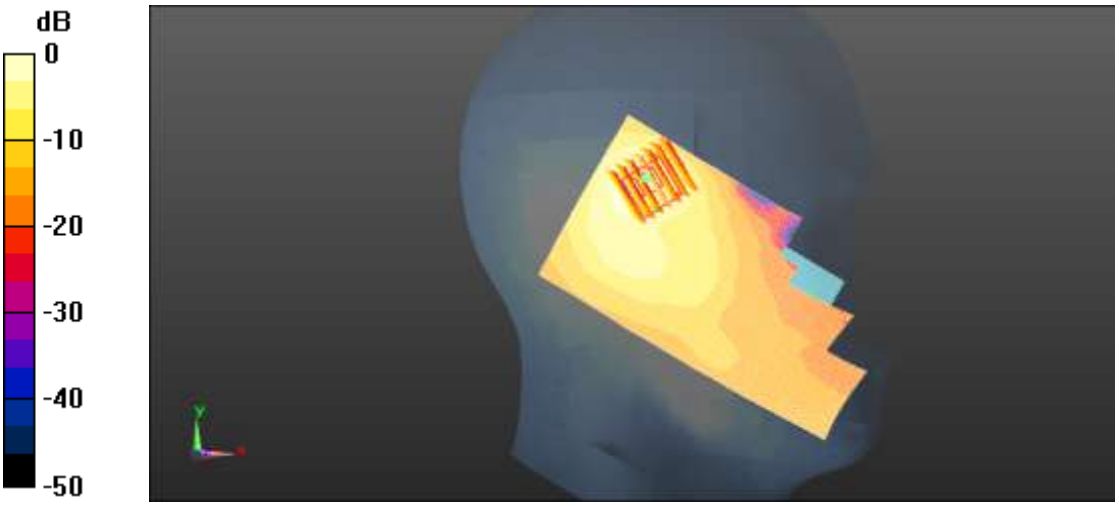
left/Tilt Position - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.04 V/m; Power Drift = 0.190 dB

Peak SAR (extrapolated) = 0.317 W/kg

SAR(1 g) = 0.120 mW/g; SAR(10 g) = 0.050 mW/g

Maximum value of SAR (measured) = 0.133 mW/g



0 dB = 0.133mW/g

802.11b Data Rate: 1Mbps right touch mid

Date/Time: 6/19/2012 3:55:32 PM

Communication System: 802.11b 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.78 mho/m; ε_r = 37.8; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Touch Position - mid/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.073 mW/g

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

Reference Value = 6.04 V/m; Power Drift = 0.083 dB

Peak SAR (extrapolated) = 0.154 W/kg

SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.035 mW/g

Maximum value of SAR (measured) = 0.076 mW/g

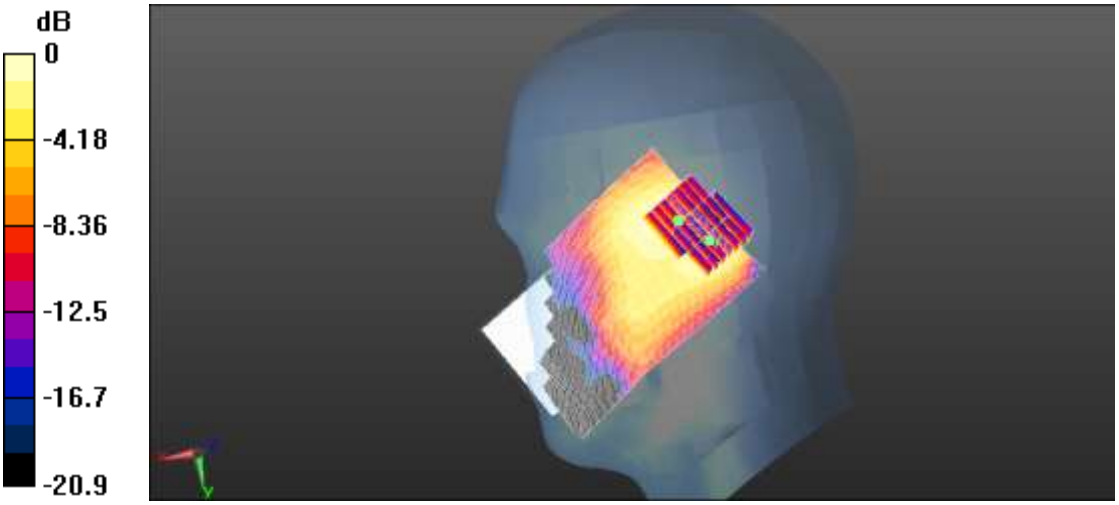
right/Touch Position - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.04 V/m; Power Drift = 0.083 dB

Peak SAR (extrapolated) = 0.128 W/kg

SAR(1 g) = 0.066 mW/g; SAR(10 g) = 0.036 mW/g

Maximum value of SAR (measured) = 0.072 mW/g



0 dB = 0.072mW/g

802.11b Data Rate: 1Mbps right tilt mid

Date/Time: 6/19/2012 4:45:32 PM

Communication System: 802.11b 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.78 mho/m; ε_r = 37.8; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/Tilt Position - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.055 mW/g

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

Reference Value = 5.23 V/m; Power Drift = 0.206 dB

Peak SAR (extrapolated) = 0.133 W/kg

SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.026 mW/g

Maximum value of SAR (measured) = 0.058 mW/g

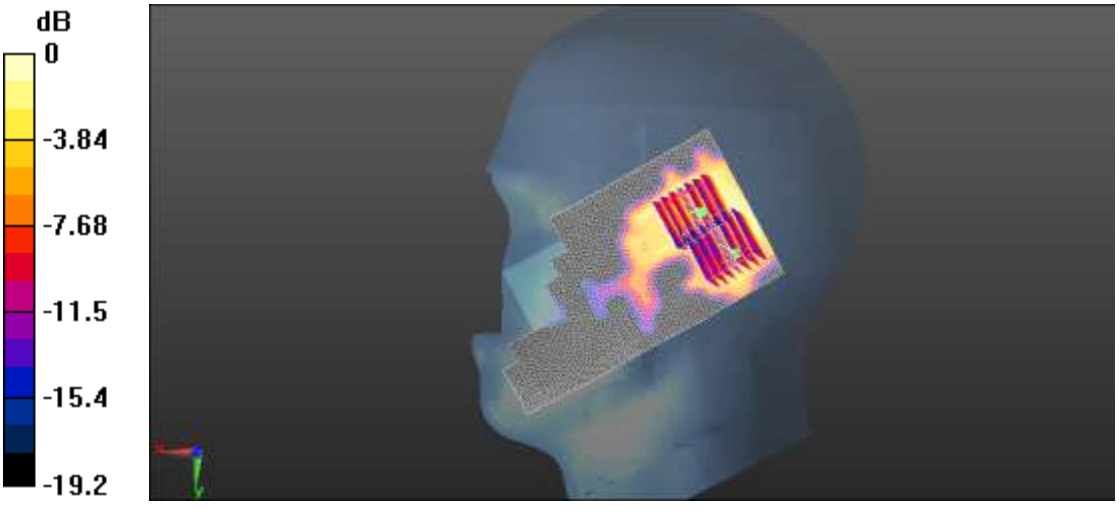
right/Tilt Position - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.23 V/m; Power Drift = 0.206 dB

Peak SAR (extrapolated) = 0.098 W/kg

SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.026 mW/g

Maximum value of SAR (measured) = 0.052 mW/g



0 dB = 0.052mW/g

802.11b Data Rate: 1Mbps left touch low

Date/Time: 6/19/2012 2:52:07 PM

Communication System: 802.11b 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2412 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2412 MHz; σ = 1.74 mho/m; ε_r = 37.9; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Touch Position - low/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.155 mW/g

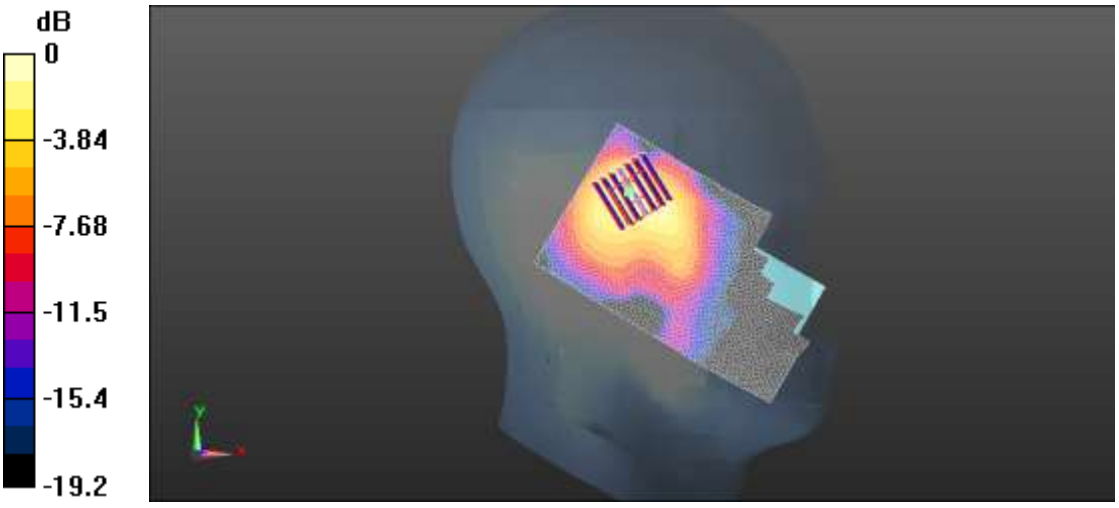
left/Touch Position - low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.7 V/m; Power Drift = -0.085 dB

Peak SAR (extrapolated) = 0.352 W/kg

SAR(1 g) = 0.131 mW/g; SAR(10 g) = 0.058 mW/g

Maximum value of SAR (measured) = 0.149 mW/g



0 dB = 0.149mW/g

802.11b Data Rate: 1Mbps left touch high

Date/Time: 6/19/2012 6:10:57 PM

Communication System: 802.11b 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2462 MHz; σ = 1.79 mho/m; ε_r = 37.9; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Touch Position - high/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.071 mW/g

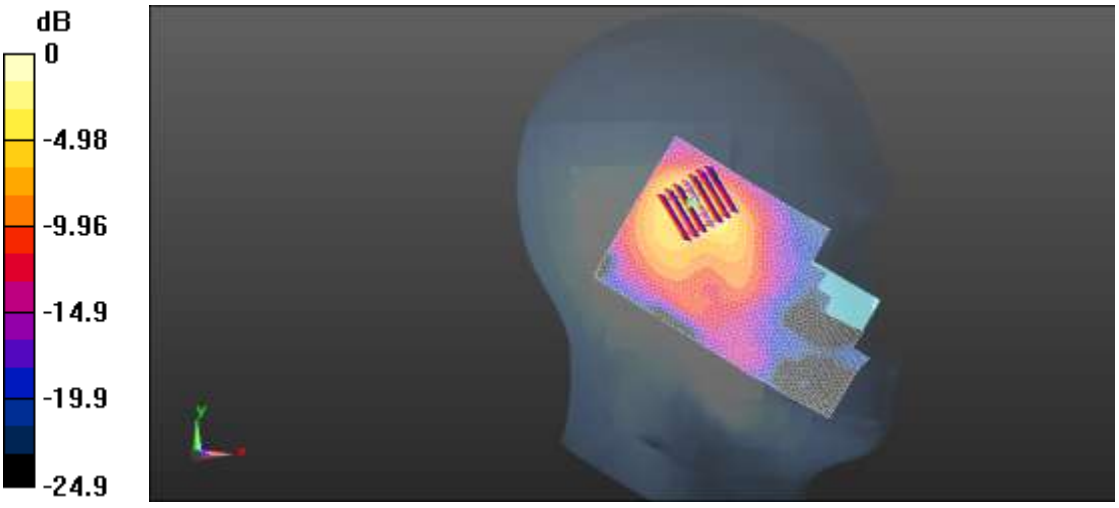
left/Touch Position - high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.33 V/m; Power Drift = 0.321 dB

Peak SAR (extrapolated) = 0.272 W/kg

SAR(1 g) = 0.098 mW/g; SAR(10 g) = 0.040 mW/g

Maximum value of SAR (measured) = 0.111 mW/g



0 dB = 0.111mW/g

802.11g Data Rate: 6Mbps left touch mid

Date/Time: 6/19/2012 6:48:57 PM

Communication System: 802.11b 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.78 mho/m; ε_r = 37.8; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Touch Position - mid with g/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.065 mW/g

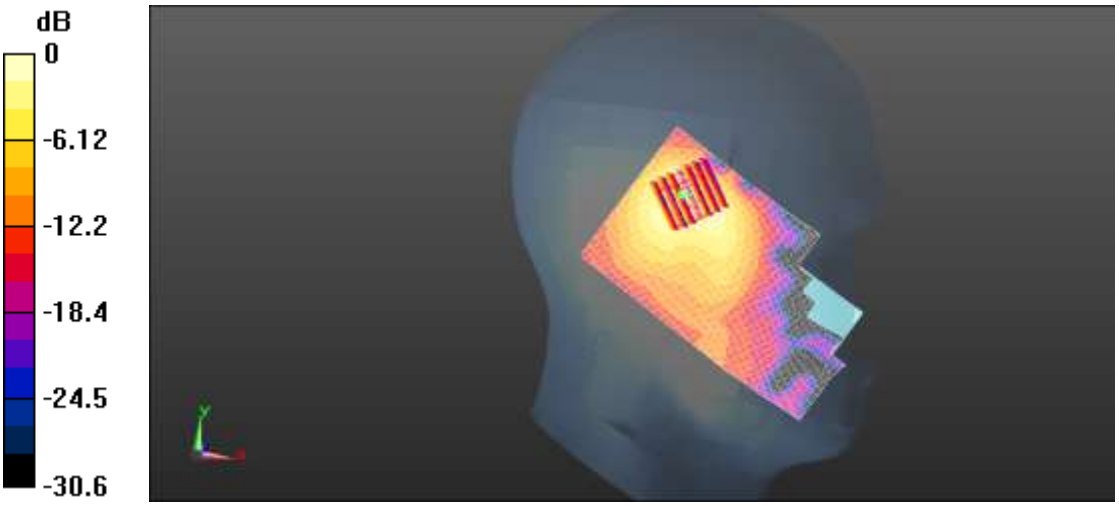
left/Touch Position - mid with g/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.44 V/m; Power Drift = 0.083 dB

Peak SAR (extrapolated) = 0.172 W/kg

SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.027 mW/g

Maximum value of SAR (measured) = 0.071 mW/g



0 dB = 0.071mW/g

802.11n Data Rate: 6.5Mbps left touch mid

Date/Time: 6/19/2012 7:18:27 PM

Communication System: 802.11b 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.78 mho/m; ε_r = 37.8; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59);
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/Touch Position - mid with n/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.059 mW/g

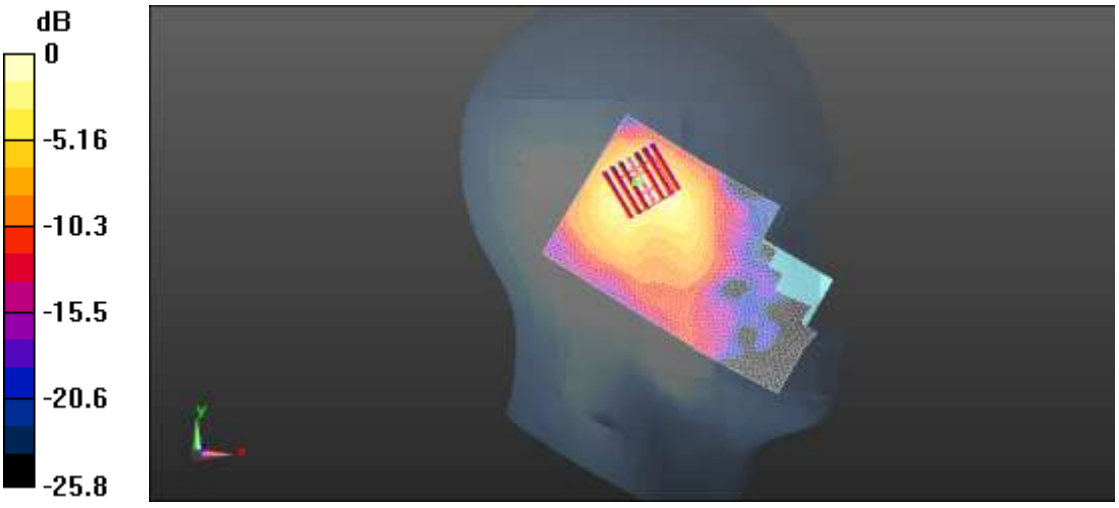
left/Touch Position - mid with n/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.13 V/m; Power Drift = 0.276 dB

Peak SAR (extrapolated) = 0.121 W/kg

SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.023 mW/g

Maximum value of SAR (measured) = 0.062 mW/g



0 dB = 0.062mW/g

802.11b Data Rate: 1Mbps Towards phantom - mid

Date/Time: 20/06/2012 11:18:39

Communication System: 802.11b2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.29, 4.29, 4.29); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards phantom - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0244 mW/g

body/Towards phantom - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.220 V/m; Power Drift = 0.52 dB

Peak SAR (extrapolated) = 0.048 mW/g

SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.010 mW/g

Maximum value of SAR (measured) = 0.0247 mW/g

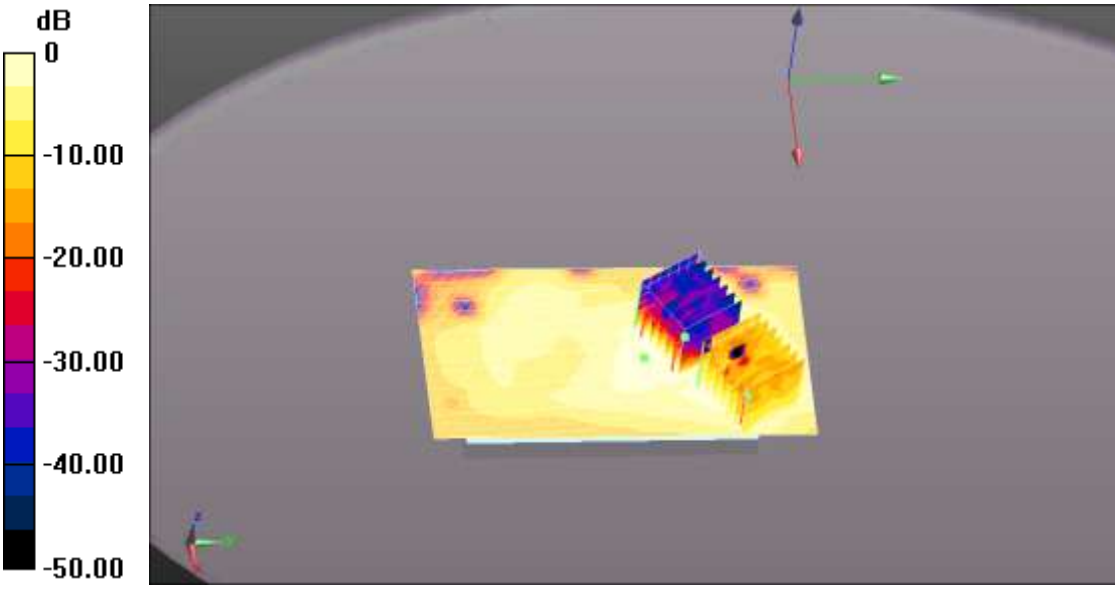
body/Towards phantom - mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.220 V/m; Power Drift = 0.52 dB

Peak SAR (extrapolated) = 0.033 mW/g

SAR(1 g) = 0.017 mW/g; SAR(10 g) = 0.00999 mW/g

Maximum value of SAR (measured) = 0.0192 mW/g



0 dB = 0.0244 mW/g = -32.25 dB mW/g

802.11b Data Rate: 1Mbps Towards ground - mid

Date/Time: 20/06/2012 12:20:15

Communication System: 802.11b2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.29, 4.29, 4.29); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.172 mW/g

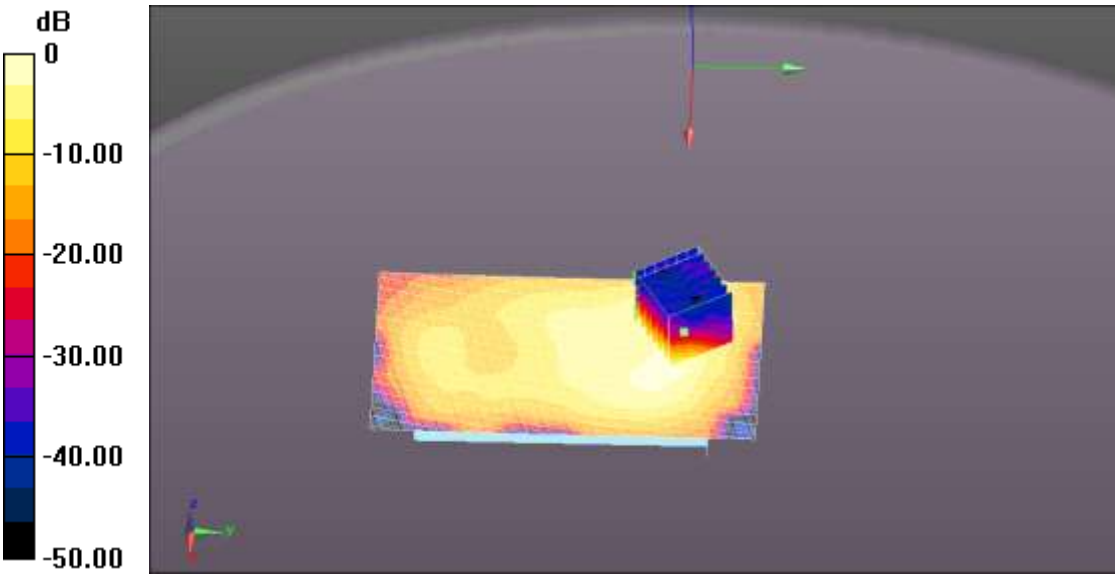
body/Towards ground - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.438 V/m; Power Drift = -0.04 dB

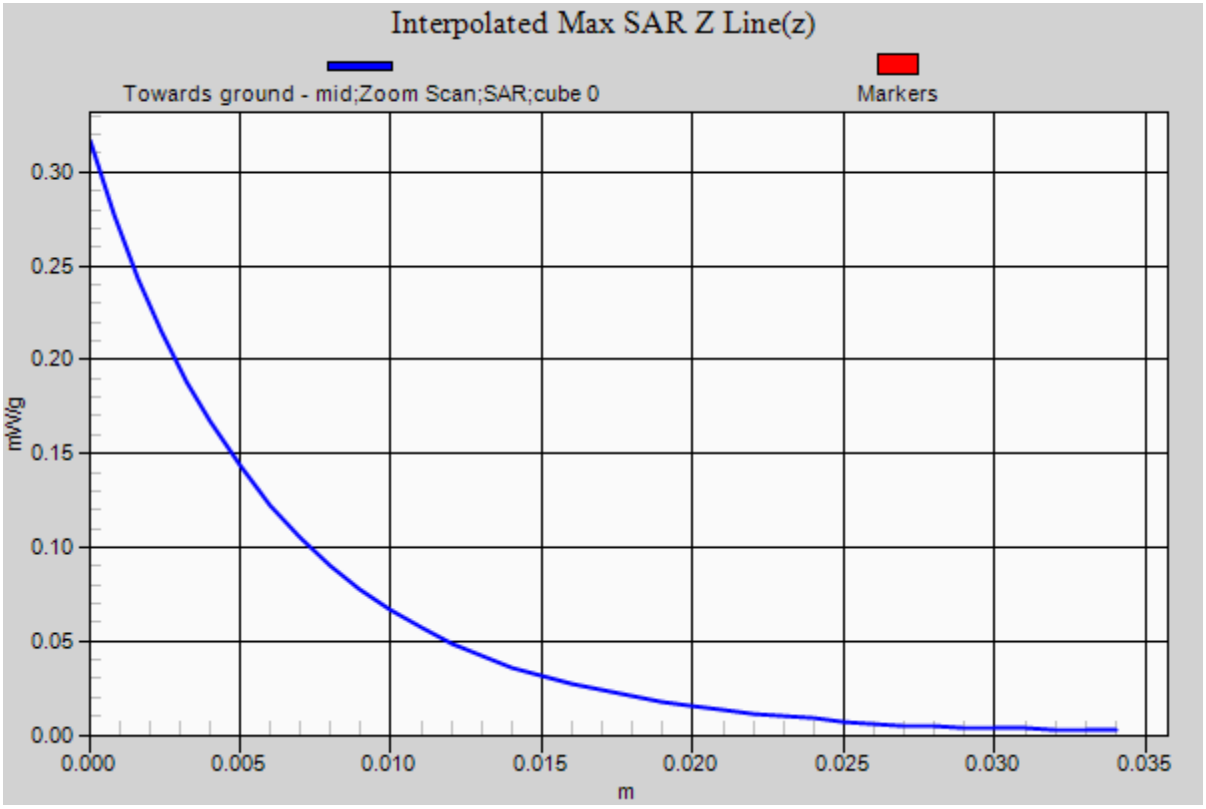
Peak SAR (extrapolated) = 0.317 mW/g

SAR(1 g) = 0.140 mW/g; SAR(10 g) = 0.065 mW/g

Maximum value of SAR (measured) = 0.165 mW/g



0 dB = 0.172 mW/g = -15.28 dB mW/g


Interpolated Max SAR Z Line(z)
Towards ground - mid;Zoom Scan;SAR;cube 0
Markers
mW/g
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

802.11b Data Rate: 1Mbps back - mid

Date/Time: 29/06/2012 08:47:21

Communication System: 802.11b2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.29, 4.29, 4.29); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/back - mid/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0544 mW/g

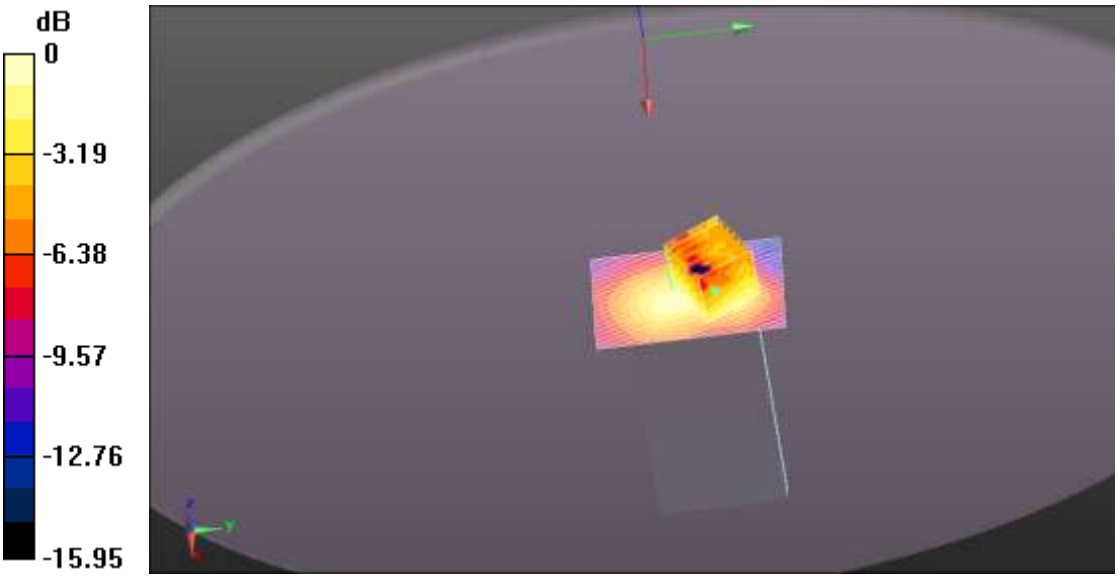
body/back - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.652 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.102 mW/g

SAR(1 g) = 0.047 mW/g; SAR(10 g) = 0.024 mW/g

Maximum value of SAR (measured) = 0.0520 mW/g



0 dB = 0.0544 mW/g = -25.28 dB mW/g

802.11b Data Rate: 1Mbps left side - mid

Date/Time: 20/06/2012 12:59:23

Communication System: 802.11b2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.29, 4.29, 4.29); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/left side - mid/Area Scan (61x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0220 mW/g

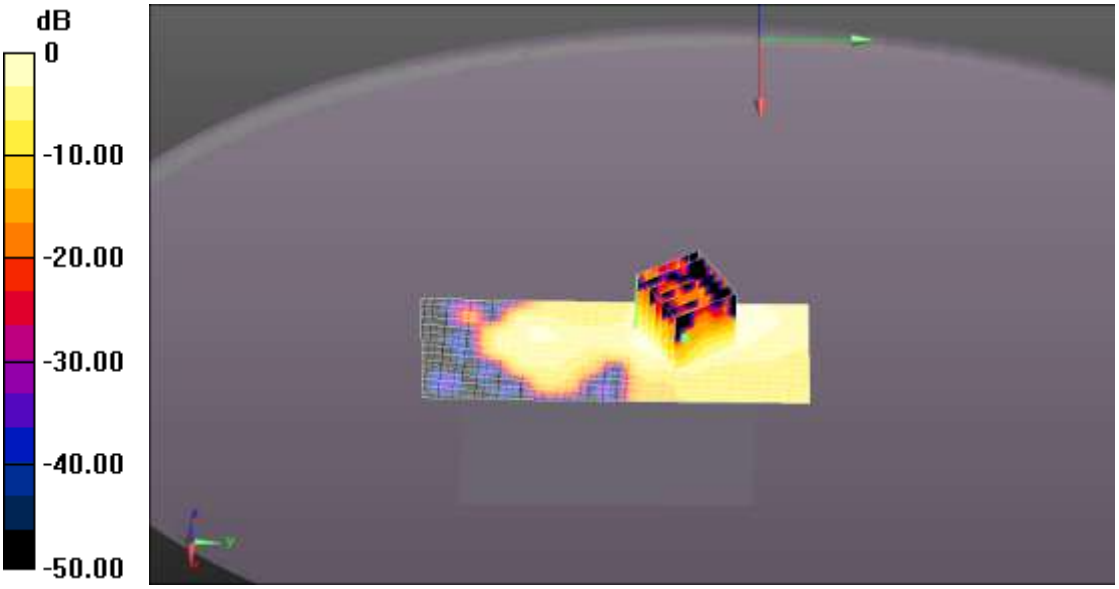
body2/left side - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.162 V/m; Power Drift = -0.59 dB

Peak SAR (extrapolated) = 0.055 mW/g

SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.013 mW/g

Maximum value of SAR (measured) = 0.0296 mW/g



0 dB = 0.0220 mW/g = -33.14 dB mW/g

802.11b Data Rate: 1Mbps right side - mid

Date/Time: 20/06/2012 13:27:52

Communication System: 802.11b2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.29, 4.29, 4.29); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/right side - mid/Area Scan (61x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0546 mW/g

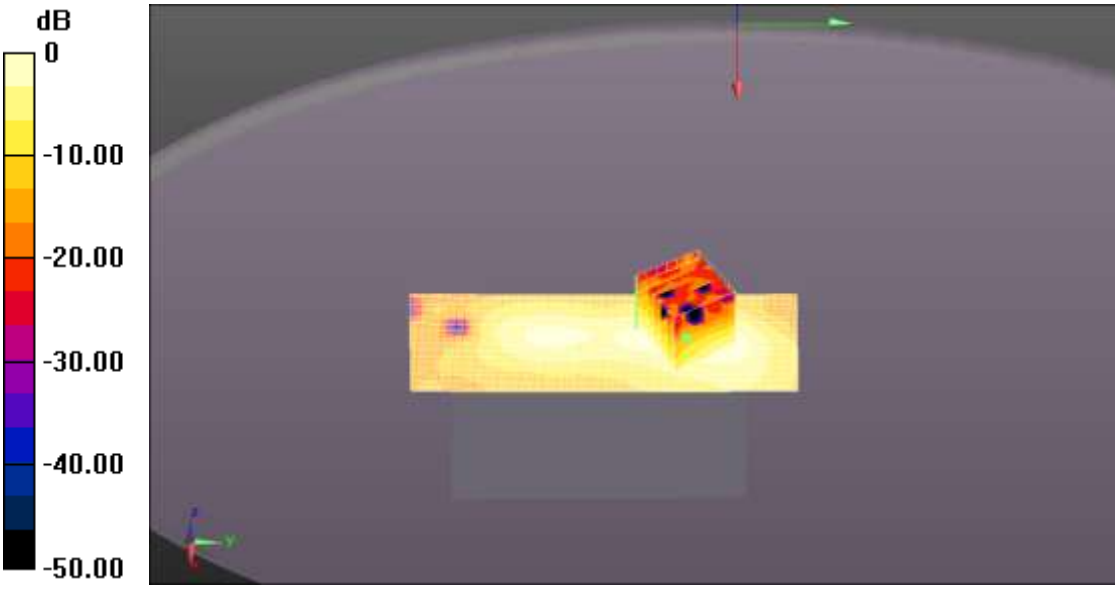
body2/right side - mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.424 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.106 mW/g

SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.024 mW/g

Maximum value of SAR (measured) = 0.0549 mW/g



0 dB = 0.0546 mW/g = -25.26 dB mW/g

802.11b Data Rate: 1Mbps Towards ground - low

Date/Time: 29/06/2012 10:06:06

Communication System: 802.11b2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2412 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2412 MHz; σ = 1.874 mho/m; ε_r = 51.963; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.29, 4.29, 4.29); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - low/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.101 mW/g

body/Towards ground - low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.489 V/m; Power Drift = -0.49 dB

Peak SAR (extrapolated) = 0.175 mW/g

SAR(1 g) = 0.085 mW/g; SAR(10 g) = 0.044 mW/g

Maximum value of SAR (measured) = 0.0966 mW/g

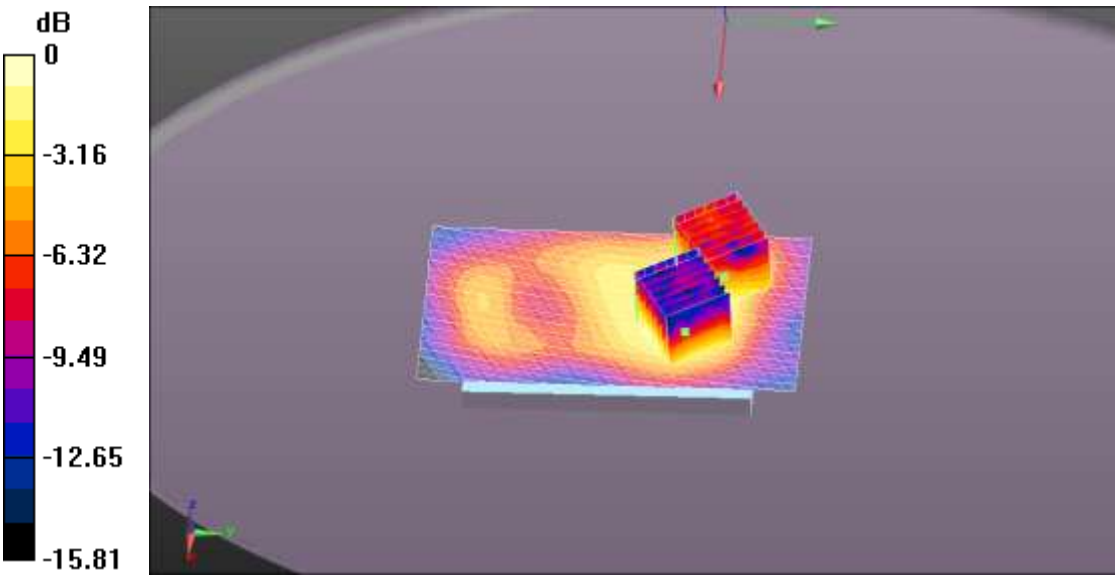
body/Towards ground - low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.489 V/m; Power Drift = -0.49 dB

Peak SAR (extrapolated) = 0.138 mW/g

SAR(1 g) = 0.076 mW/g; SAR(10 g) = 0.044 mW/g

Maximum value of SAR (measured) = 0.0819 mW/g



0 dB = 0.101 mW/g = -19.88 dB mW/g

802.11b Data Rate: 1Mbps Towards ground -high

Date/Time: 29/06/2012 11:03:08

Communication System: 802.11b2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2462 MHz; σ = 1.934 mho/m; ε_r = 51.886; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.29, 4.29, 4.29); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground -high/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0454 mW/g

body/Towards ground -high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.347 V/m; Power Drift = 0.51 dB

Peak SAR (extrapolated) = 0.085 mW/g

SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.024 mW/g

Maximum value of SAR (measured) = 0.0480 mW/g

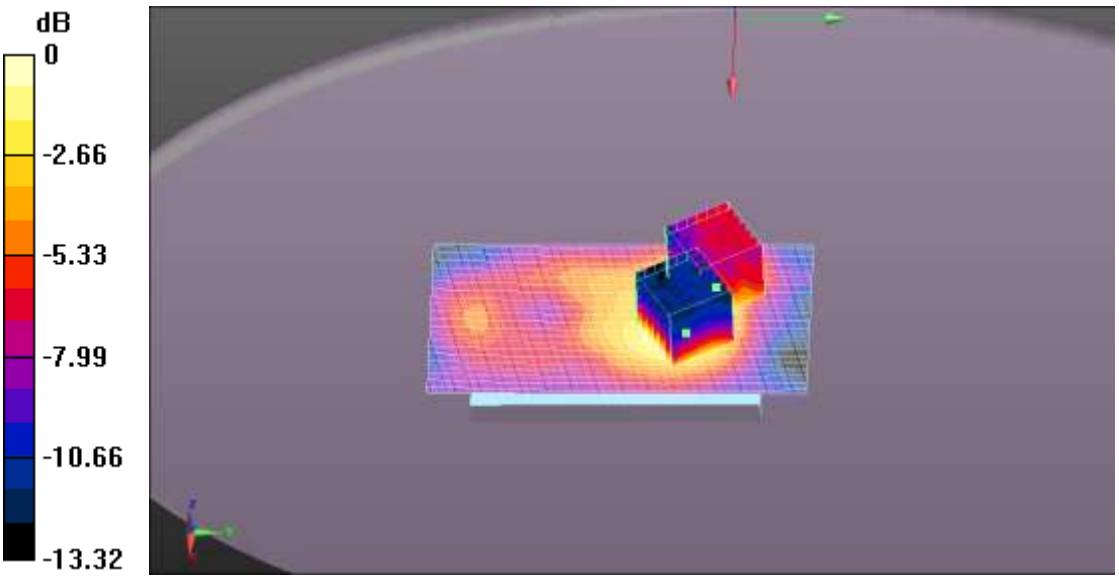
body/Towards ground -high/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.347 V/m; Power Drift = 0.51 dB

Peak SAR (extrapolated) = 0.077 mW/g

SAR(1 g) = 0.041 mW/g; SAR(10 g) = 0.025 mW/g

Maximum value of SAR (measured) = 0.0443 mW/g



0 dB = 0.0454 mW/g = -26.85 dB mW/g

802.11g Data Rate: 6Mbps Towards ground - mid

Date/Time: 29/06/2012 12:17:57

Communication System: 802.11b2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.29, 4.29, 4.29); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - mid with g/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0570 mW/g

body/Towards ground - mid with g/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.902 V/m; Power Drift = -0.52 dB

Peak SAR (extrapolated) = 0.107 mW/g

SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.023 mW/g

Maximum value of SAR (measured) = 0.0562 mW/g

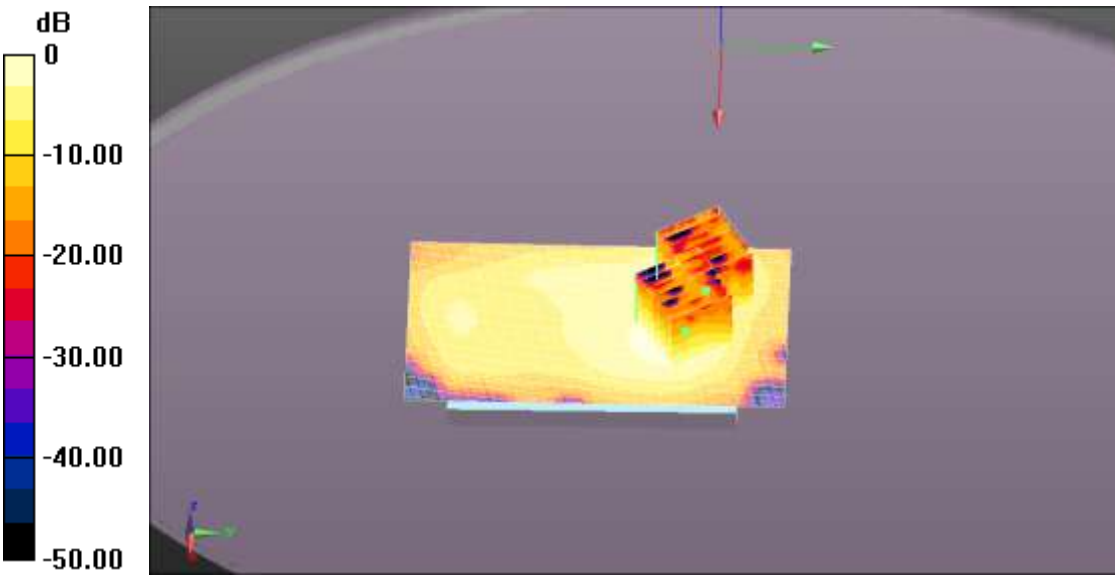
body/Towards ground - mid with g/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.902 V/m; Power Drift = -0.52 dB

Peak SAR (extrapolated) = 0.103 mW/g

SAR(1 g) = 0.040 mW/g; SAR(10 g) = 0.021 mW/g

Maximum value of SAR (measured) = 0.0523 mW/g



0 dB = 0.0570 mW/g = -24.88 dB mW/g

802.11n Data Rate: 6.5Mbps Towards ground - mid

Date/Time: 29/06/2012 13:08:46

Communication System: 802.11b2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65C)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.29, 4.29, 4.29); Calibrated: 27/09/2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/04/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/Towards ground - mid with n/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0631 mW/g

body/Towards ground - mid with n/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.190 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.119 mW/g

SAR(1 g) = 0.057 mW/g; SAR(10 g) = 0.028 mW/g

Maximum value of SAR (measured) = 0.0648 mW/g

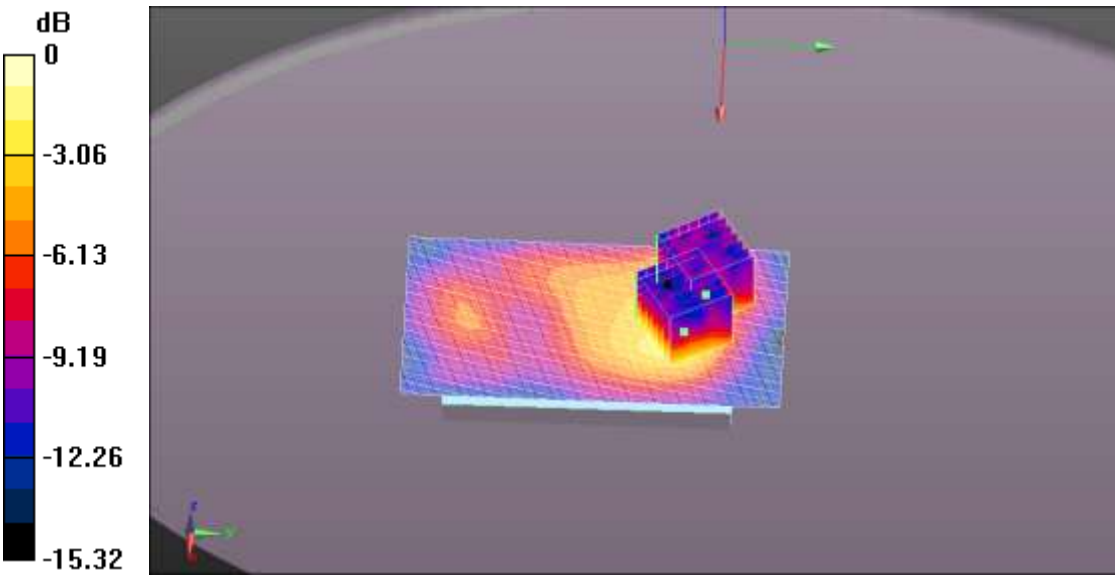
body/Towards ground - mid with n/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.190 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.112 mW/g

SAR(1 g) = 0.045 mW/g; SAR(10 g) = 0.023 mW/g

Maximum value of SAR (measured) = 0.0589 mW/g



0 dB = 0.0631 mW/g = -24.01 dB mW/g

ANNEX C: Calibration Certificate

Annex C.1 Probe Calibration Certificate

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

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

Certificate No: ES3-3241_Sep11

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3241

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

Calibration date: September 27, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

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

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

Issued: September 28, 2011

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

Certificate No: ES3-3241_Sep11 Page 1 of 11

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

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

Accredited by the Swiss 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., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ ($f \le 900$ 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 $f \le 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe ES3DV3

SN:3241

Manufactured: May 5, 2009
Calibrated: September 27, 2011

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.18	0.87	1.05	± 10.1 %
DCP (mV)[B]	101.3	104.7	100.8	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	146.9	±3.0 %
			Y	0.00	0.00	1.00	123.7	
			Z	0.00	0.00	1.00	140.3	

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

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

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)
835	41.5	0.90	6.18	6.18	6.18	0.80	1.00	± 12.0 %
900	41.5	0.97	6.07	6.07	6.07	0.80	1.00	± 12.0 %
1750	40.1	1.37	5.32	5.32	5.32	0.80	1.25	± 12.0 %
1810	40.0	1.40	5.15	5.15	5.15	0.80	1.26	± 12.0 %
1900	40.0	1.40	5.09	5.09	5.09	0.80	1.25	± 12.0 %
2000	40.0	1.40	5.07	5.07	5.07	0.80	1.22	± 12.0 %
2450	39.2	1.80	4.45	4.45	4.45	0.74	1.30	± 12.0 %

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

DASY/EASY - Parameters of Probe: ES3DV3- SN:3241

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)
835	55.2	0.97	6.19	6.19	6.19	0.80	1.00	± 12.0 %
900	55.0	1.05	6.12	6.12	6.12	0.80	1.00	± 12.0 %
1750	53.4	1.49	4.85	4.85	4.85	0.80	1.32	± 12.0 %
1810	53.3	1.52	4.78	4.78	4.78	0.80	1.29	± 12.0 %
1900	53.3	1.52	4.67	4.67	4.67	0.80	1.32	± 12.0 %
2000	53.3	1.52	4.76	4.76	4.76	0.75	1.35	± 12.0 %
2450	52.7	1.95	4.29	4.29	4.29	0.80	1.20	± 12.0 %

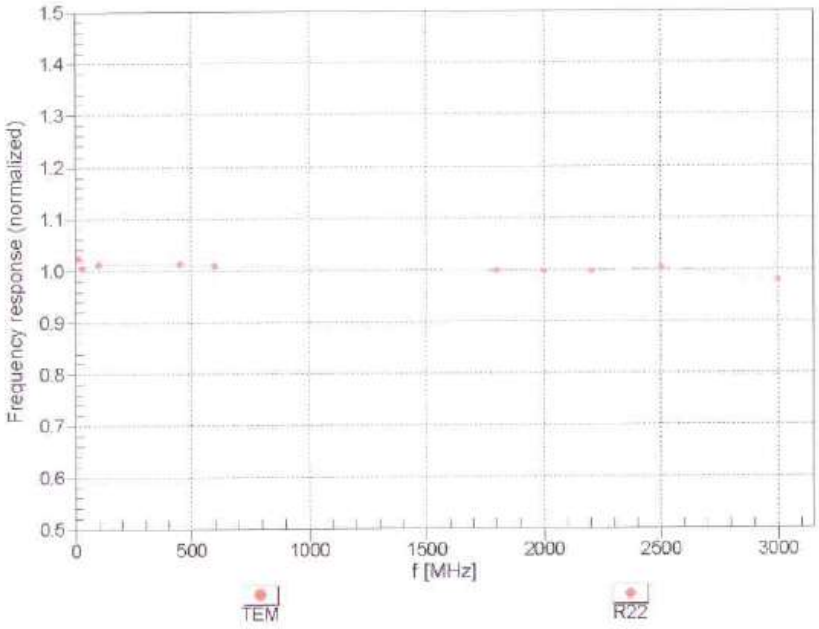
[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of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

ES3DV3– SN:3241

September 27, 2011

Frequency Response of E-Field

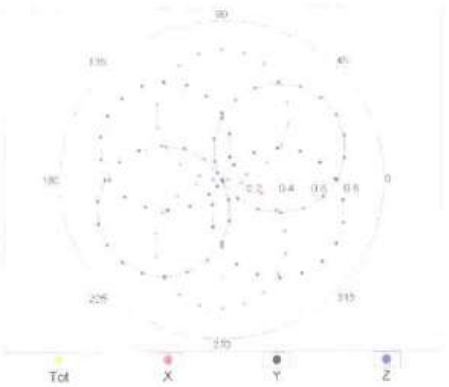
(TEM-Cell:ifi110 EXX, Waveguide: R22)



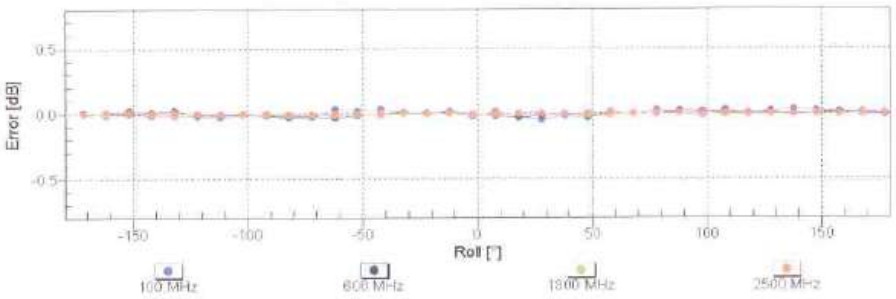
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



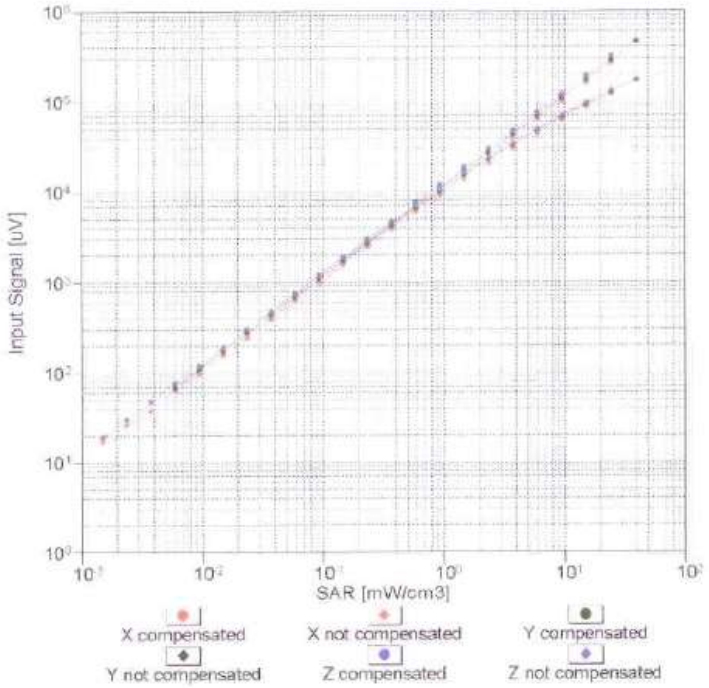
f=1800 MHz,R22

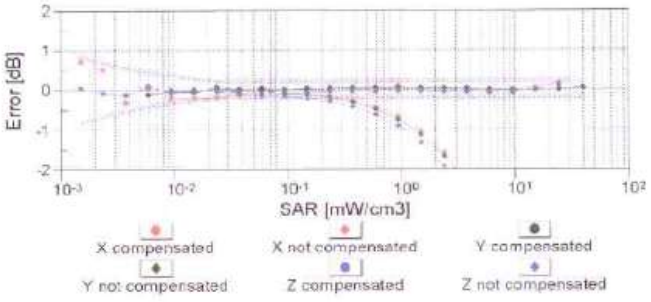


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ES3DV3– SN:3241 September 27, 2011

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



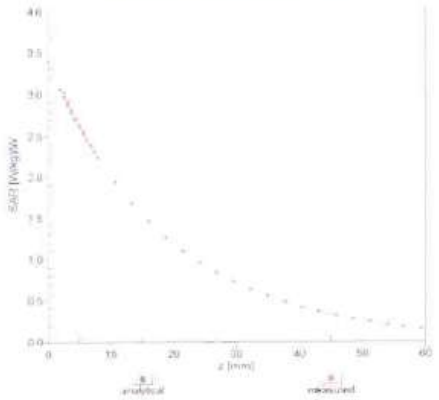


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

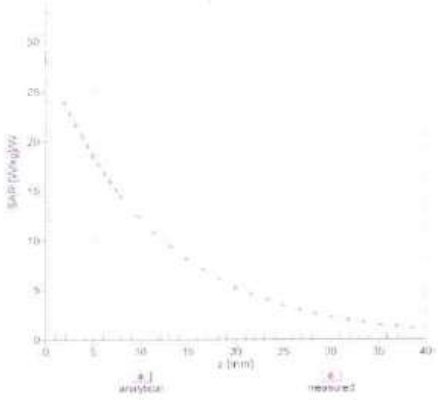
ES3DV3- SN:3241 September 27, 2011

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

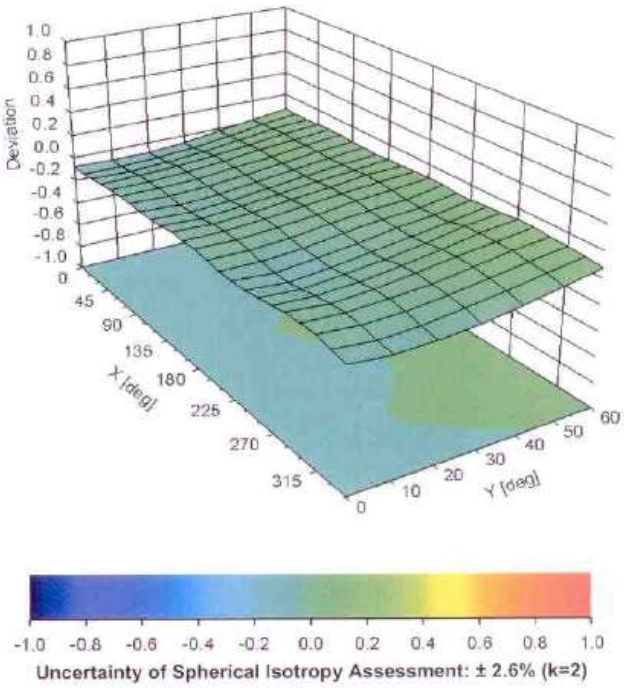


f = 2000 MHz,WGLS R22 (H_convF)



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: ES3DV3 - SN:3241

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

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

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S Swiss Calibration Service

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Accreditation No.: SCS 108

Client **Tejet (Auden)**

Certificate No: **ES3-3297_Apr12**

CALIBRATION CERTIFICATE

Object: ES3DV3 - SN:3297

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

Calibration date: April 10, 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: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check 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: April 10, 2012

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

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Accredited by the Swiss Accreditation Service (SAS)
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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not 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 ES3DV3

SN:3297

Manufactured: July 6, 2010
Calibrated: April 10, 2012

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.16	1.08	1.16	± 10.1 %
DCP (mV)[B]	103.8	109.8	104.8	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	109.5	±2.7 %
			Y	0.00	0.00	1.00	107.5	
			Z	0.00	0.00	1.00	111.6	

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: ES3DV3 - SN:3297

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	6.62	6.62	6.62	0.80	1.12	± 12.0 %
835	41.5	0.90	6.36	6.36	6.36	0.31	1.83	± 12.0 %
900	41.5	0.97	6.24	6.24	6.24	0.35	1.75	± 12.0 %
1750	40.1	1.37	5.73	5.73	5.73	0.80	1.18	± 12.0 %
1950	40.0	1.40	5.10	5.10	5.10	0.80	1.22	± 12.0 %
2450	39.2	1.80	4.59	4.59	4.59	0.80	1.25	± 12.0 %

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297

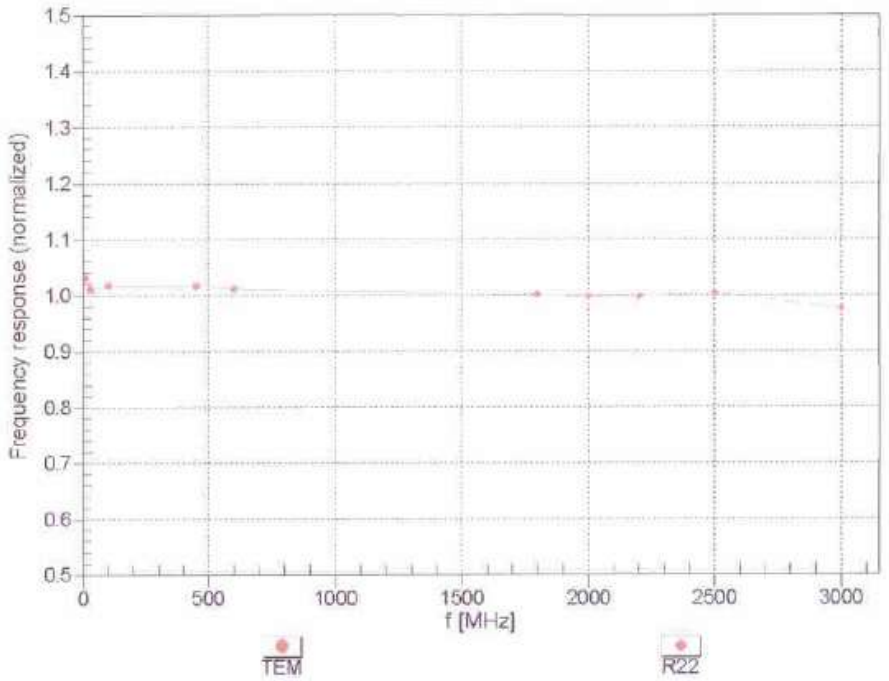
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	6.33	6.33	6.33	0.25	2.18	± 12.0 %
835	55.2	0.97	6.24	6.24	6.24	0.52	1.48	± 12.0 %
900	55.0	1.05	6.21	6.21	6.21	0.57	1.39	± 12.0 %
1750	53.4	1.49	5.02	5.02	5.02	0.47	1.71	± 12.0 %
1950	53.3	1.52	4.88	4.88	4.88	0.71	1.37	± 12.0 %
2450	52.7	1.95	4.34	4.34	4.34	0.80	1.03	± 12.0 %

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

ES3DV3– SN:3297 April 10, 2012

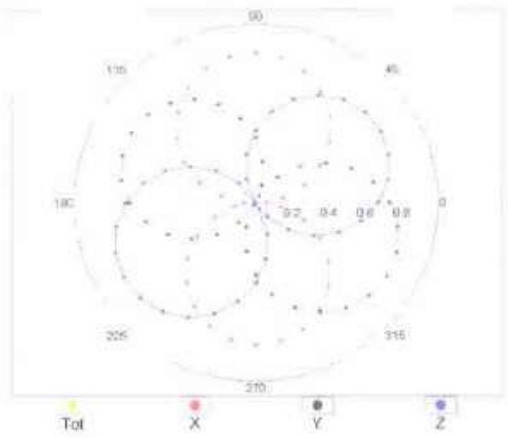
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



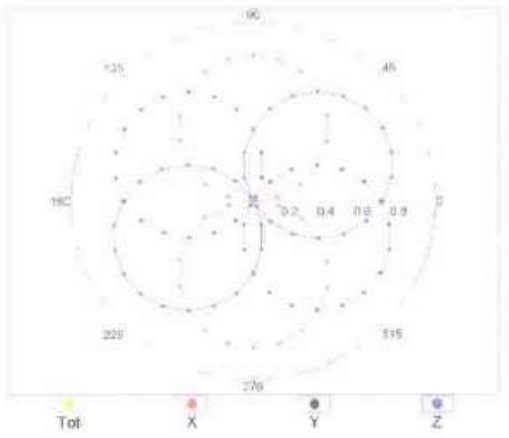
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

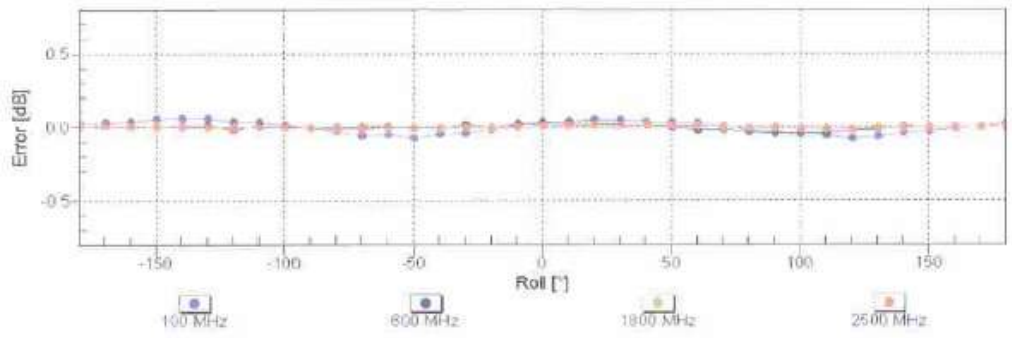
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



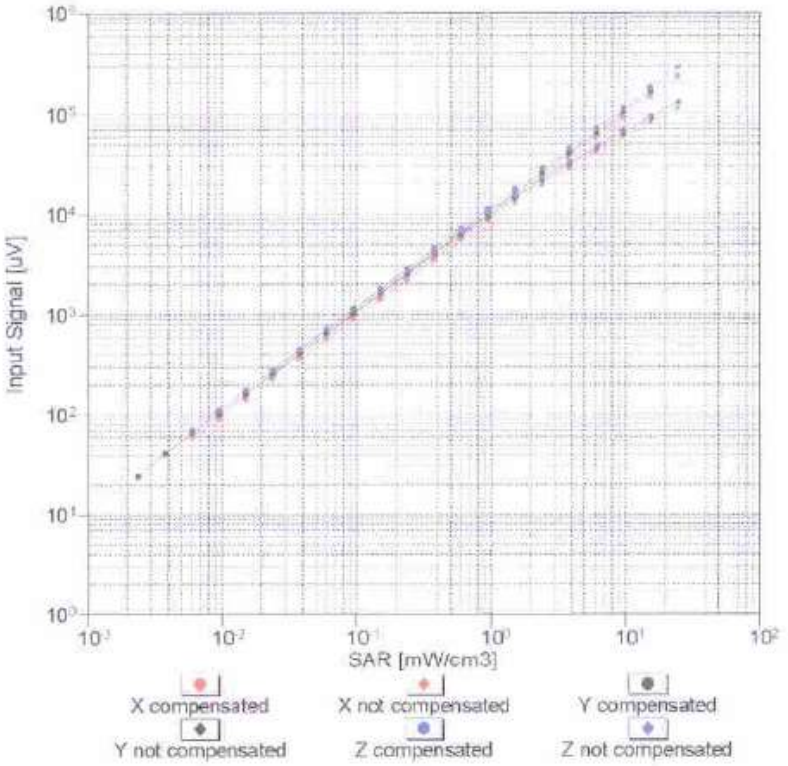
f=1800 MHz,R22

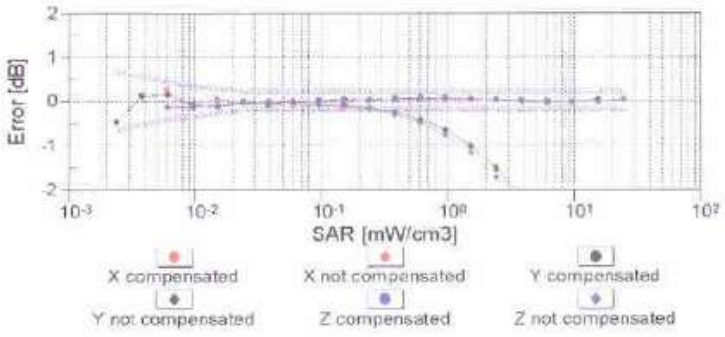




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR$_{head}$)
(TEM cell , f = 900 MHz)

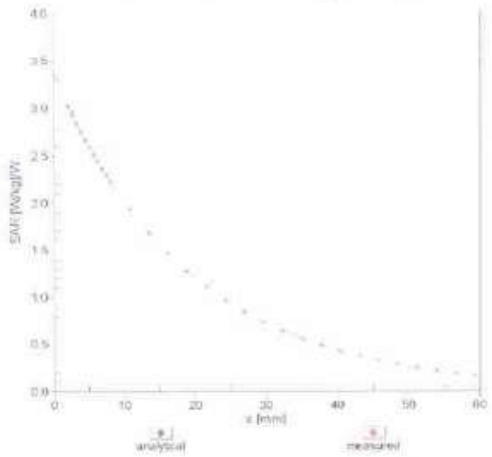




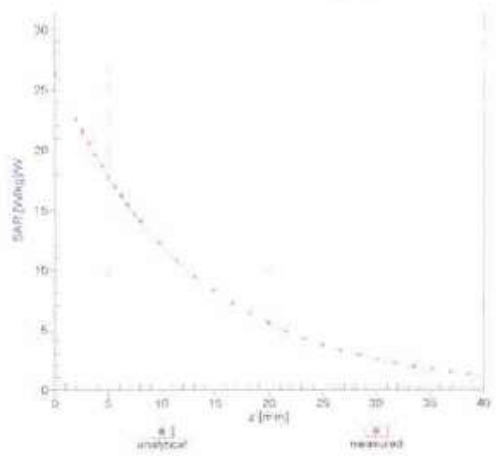
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

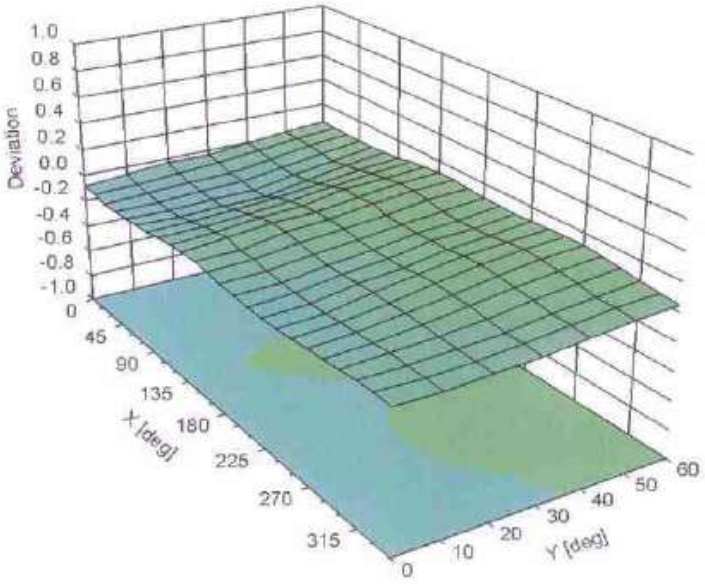


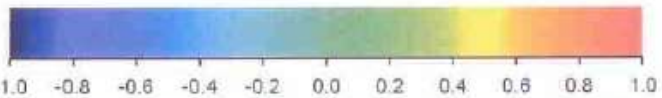
f = 1750 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

Annex C.2 DAE4 Calibration Certificate

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

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S Swiss Calibration Service

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Accreditation No.: SCS 108

Client: Tejet (Auden)

Certificate No: DAE4-1327_Apr12

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 1327
Calibration procedure(s)	QA CAL-06.v24 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	April 11, 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
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-11 (No:11450)	Sep-12
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V2.1	SE UWS 053 AA 1001	05-Jan-12 (in house check)	In house check: Jan-13

	Name	Function	Signature
Calibrated by:	Andrea Guntli	Technician	
Approved by:	Fin Bomholt	R&D Director	i.V.

Issued: April 11, 2012

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Glossary

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

Methods Applied and Interpretation of Parameters

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

DC Voltage Measurement

A/D - Converter Resolution nominal

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

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

Calibration Factors	X	Y	Z
High Range	404.849 ± 0.1% (k=2)	404.696 ± 0.1% (k=2)	404.897 ± 0.1% (k=2)
Low Range	3.99410 ± 0.7% (k=2)	3.99326 ± 0.7% (k=2)	3.99970 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	186.5 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199996.73	2.35	0.00
Channel X	+ Input	20001.32	1.56	0.01
Channel X	- Input	-19998.20	2.53	-0.01
Channel Y	+ Input	199998.58	3.98	0.00
Channel Y	+ Input	19997.38	-2.07	-0.01
Channel Y	- Input	-20001.91	-0.93	0.00
Channel Z	+ Input	199993.82	-0.25	-0.00
Channel Z	+ Input	19998.97	-0.56	-0.00
Channel Z	- Input	-20001.68	-0.52	0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.53	1.29	0.06
Channel X	+ Input	199.90	-0.79	-0.39
Channel X	- Input	-199.12	-0.00	0.00
Channel Y	+ Input	2002.17	2.03	0.10
Channel Y	+ Input	201.07	0.47	0.23
Channel Y	- Input	-200.44	-1.22	0.61
Channel Z	+ Input	2000.26	0.05	0.00
Channel Z	+ Input	199.53	-1.09	-0.54
Channel Z	- Input	-199.89	-0.77	0.39

2. Common mode sensitivity

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

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	-1.44	-3.17
	- 200	5.42	3.57
Channel Y	200	14.80	14.53
	- 200	-16.24	-16.38
Channel Z	200	-10.48	-10.35
	- 200	8.13	7.97

3. Channel separation

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

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	-4.80	-1.45
Channel Y	200	8.78	-	-3.61
Channel Z	200	9.48	8.95	-

4. AD-Converter Values with inputs shorted

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

	High Range (LSB)	Low Range (LSB)
Channel X	16013	15974
Channel Y	16276	15957
Channel Z	15628	16228

5. Input Offset Measurement

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

Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.76	-0.80	2.17	0.57
Channel Y	1.11	-0.19	2.66	0.57
Channel Z	-0.96	-2.45	0.94	0.71

6. Input Offset Current

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

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

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

9. Power Consumption (Typical values for information)

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

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Accreditation No.: **SCS 108**

Client **Auden**

Certificate No: **DAE4-914_Dec11**

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BK - SN: 914
Calibration procedure(s)	QA CAL-06.v23 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	December 8, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-11 (No:11450)	Sep-12
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	08-Jun-11 (in house check)	In house check: Jun-12

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

Issued: December 8, 2011

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Accreditation No.: SCS 108

Glossary

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

Methods Applied and Interpretation of Parameters

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

DC Voltage Measurement

A/D - Converter Resolution nominal

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

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

Calibration Factors	X	Y	Z
High Range	404.430 ± 0.1% (k=2)	404.471 ± 0.1% (k=2)	403.724 ± 0.1% (k=2)
Low Range	3.99253 ± 0.7% (k=2)	3.95785 ± 0.7% (k=2)	3.98845 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	65.0 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	200001.0	-0.18	-0.00
Channel X	+ Input	19998.80	-1.00	-0.00
Channel X	- Input	-19997.26	2.34	-0.01
Channel Y	+ Input	200007.4	-1.88	-0.00
Channel Y	+ Input	19994.57	-5.03	-0.03
Channel Y	- Input	-20001.70	-2.50	0.01
Channel Z	+ Input	200005.3	-3.10	-0.00
Channel Z	+ Input	19996.23	-3.17	-0.02
Channel Z	- Input	-20002.05	-2.85	0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	1998.8	-1.15	-0.06
Channel X	+ Input	199.72	-0.18	-0.09
Channel X	- Input	-199.83	0.17	-0.08
Channel Y	+ Input	1999.3	-0.71	-0.04
Channel Y	+ Input	199.51	-0.49	-0.25
Channel Y	- Input	-201.93	-2.03	1.01
Channel Z	+ Input	2000.1	-0.03	-0.00
Channel Z	+ Input	198.84	-0.96	-0.48
Channel Z	- Input	-201.32	-1.32	0.66

2. Common mode sensitivity

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

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	-0.86	-2.25
	- 200	3.38	1.61
Channel Y	200	-5.83	-6.16
	- 200	4.37	4.28
Channel Z	200	-15.57	-15.83
	- 200	14.89	14.76

3. Channel separation

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

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	4.16	0.70
Channel Y	200	2.79	-	5.86
Channel Z	200	2.87	-2.2	-

4. AD-Converter Values with inputs shorted

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

	High Range (LSB)	Low Range (LSB)
Channel X	16315	13913
Channel Y	15862	15284
Channel Z	16146	16142

5. Input Offset Measurement

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

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	-1.48	-2.38	-0.31	0.40
Channel Y	-0.09	-1.61	0.82	0.47
Channel Z	-0.45	-1.69	0.81	0.40

6. Input Offset Current

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

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

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

9. Power Consumption (Typical values for information)

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

Annex C.3 D835V2 Calibration Certificate

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Accreditation No.: SCS 108

Client Auden

Certificate No: D835V2-4d120_Jul11

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d120
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	July 19, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: July 19, 2011

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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.

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.0 ± 6 %	0.88 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	2.30 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.33 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.51 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.11 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	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.8 ± 6 %	0.98 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	2.43 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.59 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.60 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.34 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.0 Ω - 3.4 jΩ
Return Loss	- 28.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.7 Ω - 5.2 jΩ
Return Loss	- 24.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.397 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	June 29, 2010

DASY5 Validation Report for Head TSL

Date: 18.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

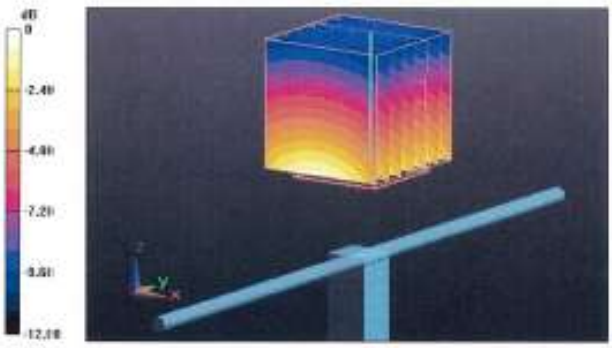
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d120

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.88 mho/m; ε_r = 41; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

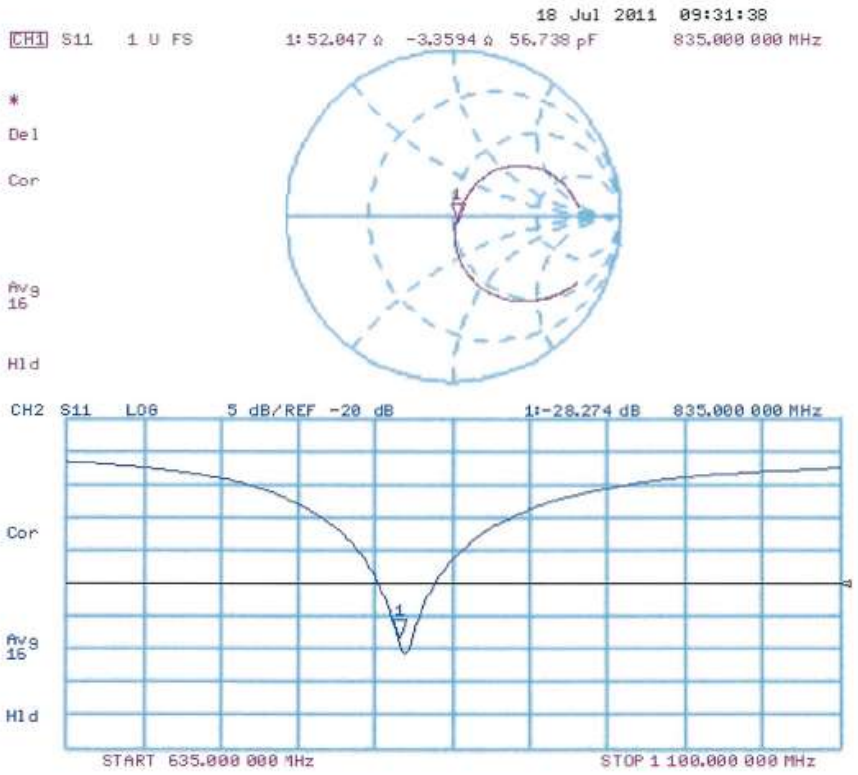
- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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 = 56.919 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 3.366 W/kg
SAR(1 g) = 2.3 mW/g; SAR(10 g) = 1.51 mW/g
Maximum value of SAR (measured) = 2.672 mW/g



0 dB = 2.670mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 19.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

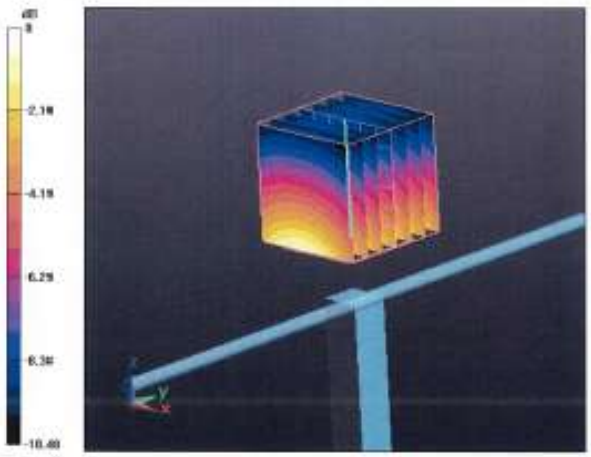
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d120

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.98 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

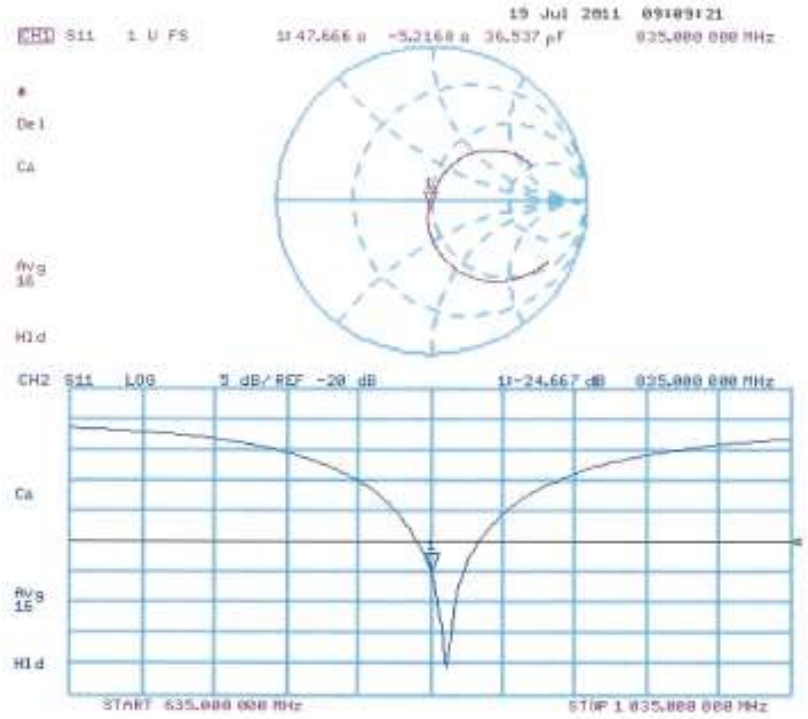
- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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 = 55.302 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.528 W/kg
SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.6 mW/g
Maximum value of SAR (measured) = 2.787 mW/g



0 dB = 2.790mW/g

Impedance Measurement Plot for Body TSL



Annex C.4 D1900V2 Calibration Certificate

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Accreditation No.: SCS 108

Client: Tejet (Auden)

Certificate No: D1900V2-5d155_Apr12

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d155
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	April 03, 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	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

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:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 12, 2012

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Certificate No: D1900V2-5d155_Apr12 Page 1 of 8

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S Swiss Calibration Service

Accreditation No.: SCS 108

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

Glossary:

TSL	tissue simulating liquid
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	V52.8.0
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	40.8 ± 6 %	1.37 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.65 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.3 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.09 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.6 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.3 ± 6 %	1.51 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**40.2 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.30 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.3 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.3 Ω + 5.4 jΩ
Return Loss	- 24.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.7 Ω + 6.0 jΩ
Return Loss	- 24.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.202 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	December 20, 2011

DASY5 Validation Report for Head TSL

Date: 03.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

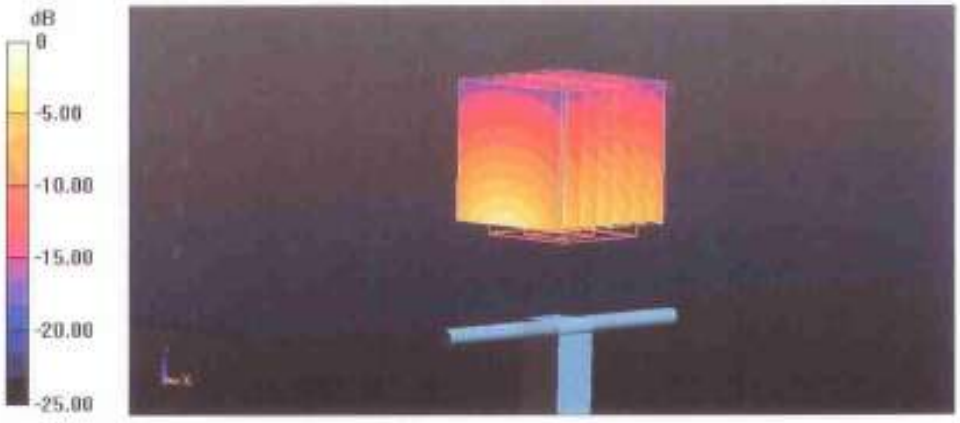
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d155

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.37 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

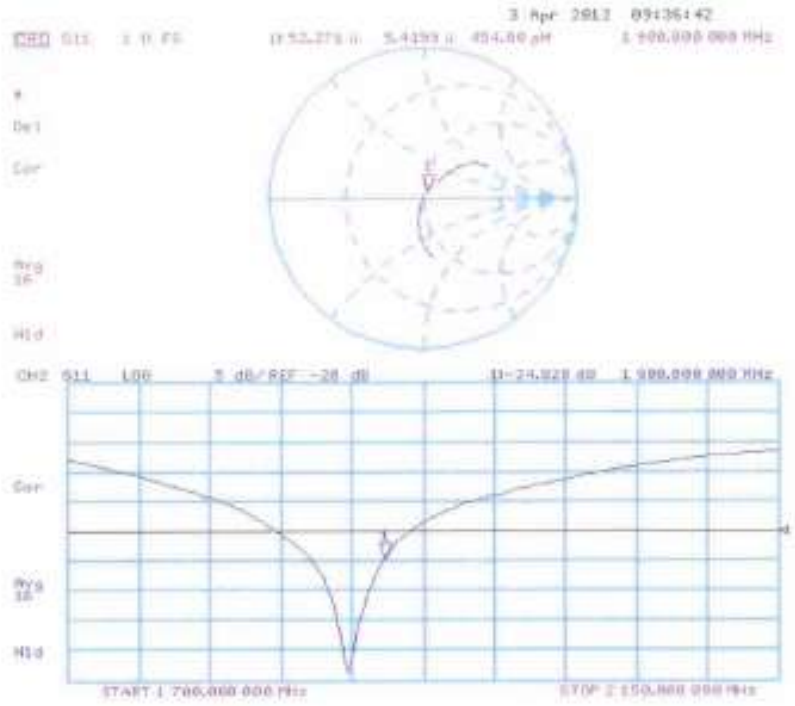
- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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 = 97.442 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 17.1390
SAR(1 g) = 9.65 mW/g; SAR(10 g) = 5.09 mW/g
Maximum value of SAR (measured) = 12.105 mW/g



0 dB = 12.110mW/g = 21.66 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 03.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d155

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.51 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

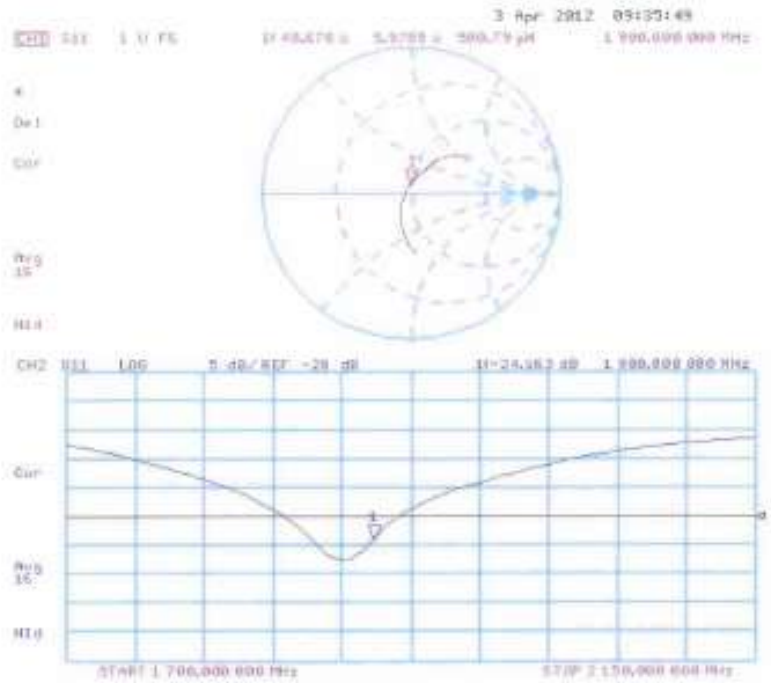
DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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 = 95.405 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 17.4140
SAR(1 g) = 10 mW/g; SAR(10 g) = 5.3 mW/g
Maximum value of SAR (measured) = 12.631 mW/g

0 dB = 12.630mW/g = 22.03 dB mW/g

Impedance Measurement Plot for Body TSL



Annex C.5 D2450V2 Calibration Certificate

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

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Accreditation No.: SCS 108

Client: Auden

Certificate No: D2450V2-869_Jul11

CALIBRATION CERTIFICATE

Object: D2450V2 - SN: 869

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

Calibration date: July 15, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: July 15, 2011

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Certificate No: D2450V2-869_Jul11 Page 1 of 8

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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.

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
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	38.8 ± 6 %	1.85 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.8 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**54.4 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.41 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**25.5 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	51.6 ± 6 %	1.99 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**51.3 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.02 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**23.9 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.8 Ω + 2.6 jΩ
Return Loss	- 28.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.9 Ω + 5.1 jΩ
Return Loss	- 25.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.159 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	August 18, 2010

DASY5 Validation Report for Head TSL

Date: 15.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

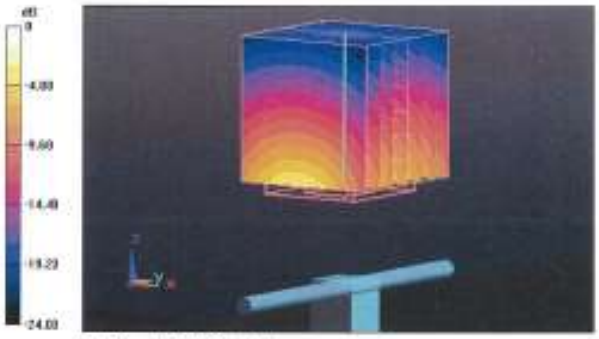
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 869

Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.85 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

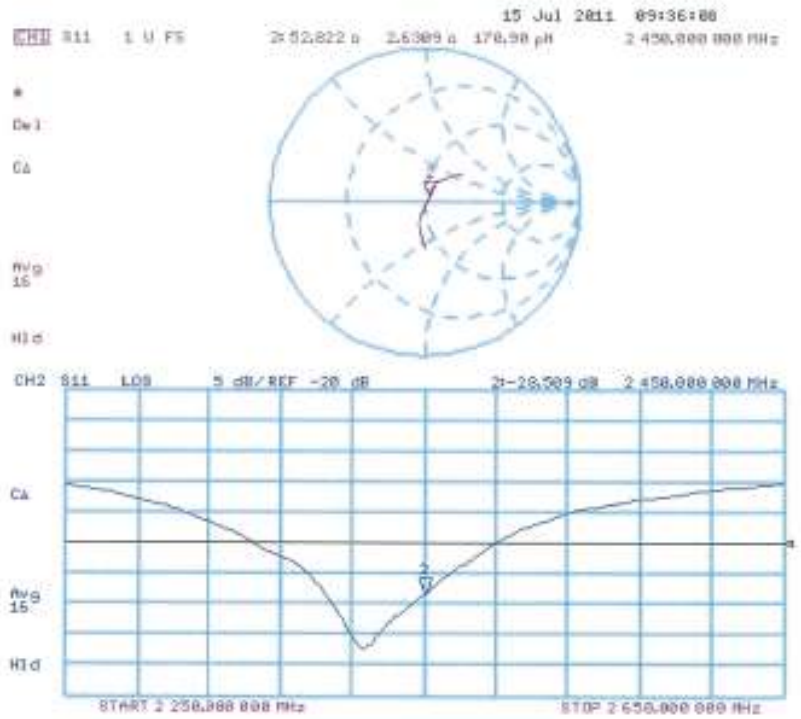
- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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 = 102.1 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 28.552 W/kg
SAR(1 g) = 13.8 mW/g; SAR(10 g) = 6.41 mW/g
Maximum value of SAR (measured) = 17.844 mW/g



0 dB = 17.840mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 15.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

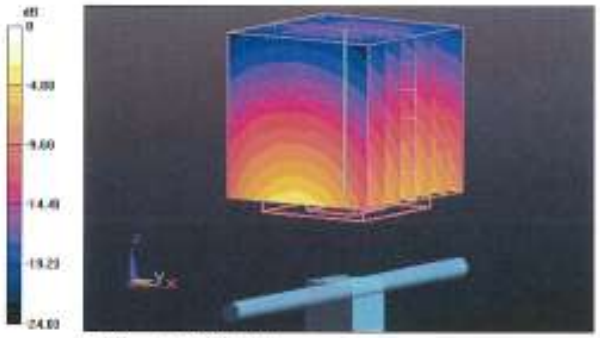
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 869

Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.99 mho/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

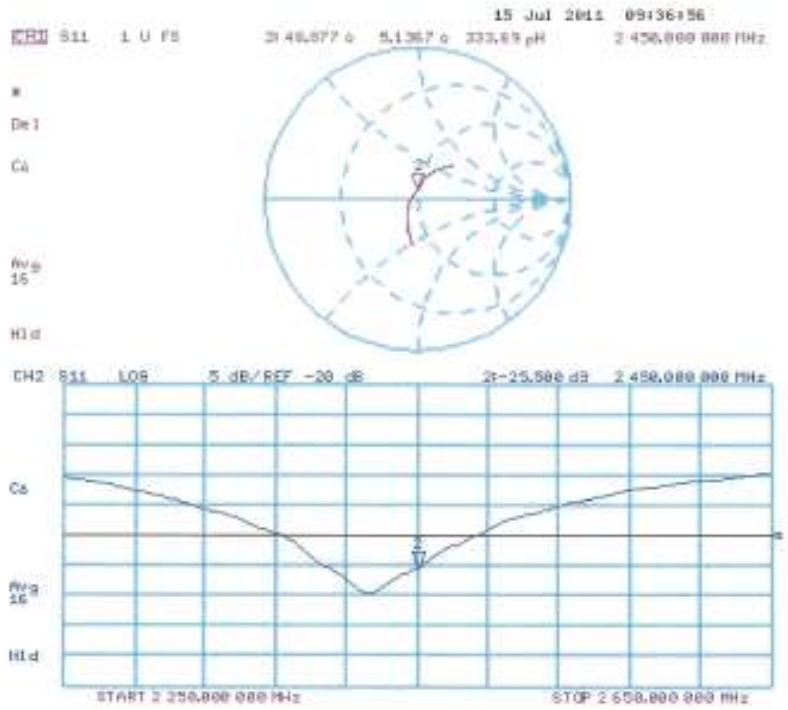
- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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 = 95.707 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 26.507 W/kg
SAR(1 g) = 13 mW/g; SAR(10 g) = 6.02 mW/g
Maximum value of SAR (measured) = 16.958 mW/g



0 dB = 16.960mW/g

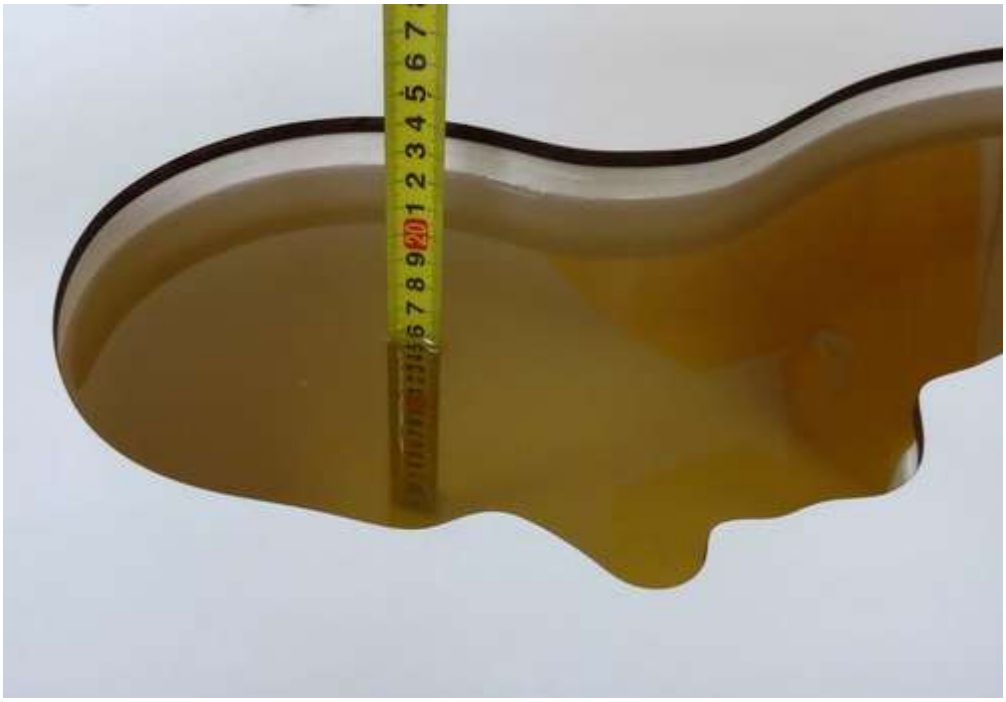
Impedance Measurement Plot for Body TSL



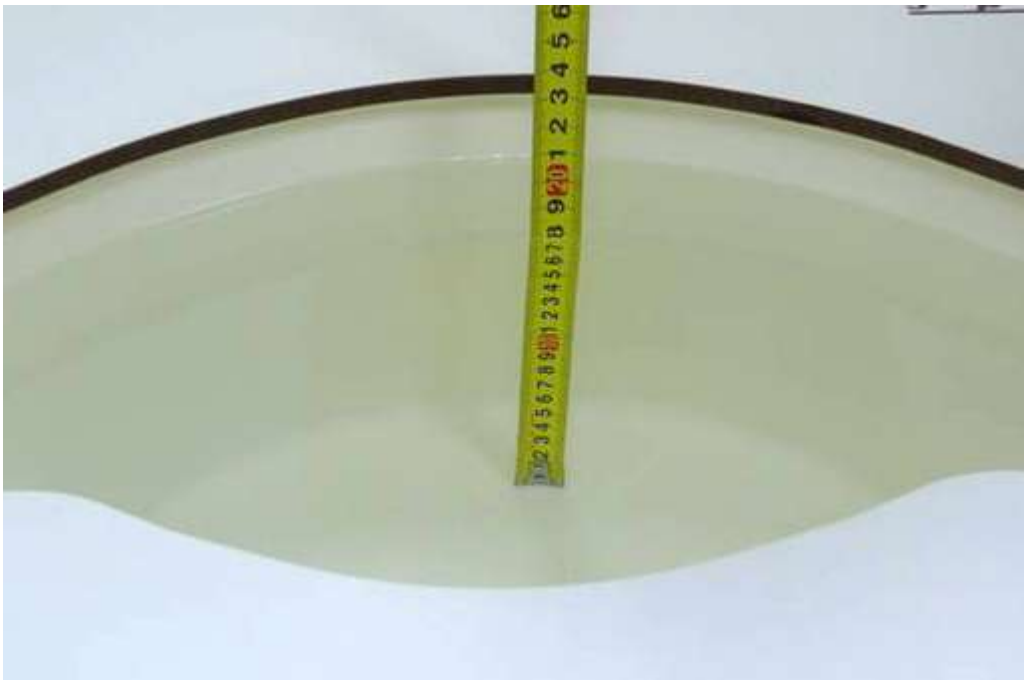
ANNEX D: Test Layout

Picture D.1: Specific Absorption Rate Test Layout

Picture D.2: Liquid depth in the flat Phantom (835MHz) (17.5cm deep)



Picture D.3: Liquid depth in the head Phantom (835MHz) (16cm deep)



Picture D.4: Liquid depth in the flat Phantom (1900 MHz) (16cm deep)

Picture D.5: liquid depth in the head Phantom (1900 MHz) (15.2cm deep)

Picture D.6: Liquid depth in the flat Phantom (2450 MHz) (18.6cm deep)

Picture D.7: liquid depth in the head Phantom (2450 MHz) (15.2cm deep)

----------END OF REPORT----------