

FCC SAR Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : WCDMA Digital Mobile Handset
BRAND NAME : ZTE
MODEL NAME : V8200+
FCC ID : Q78-V8200PLUS
STANDARD : FCC 47 CFR Part 2 (2.1093)
ANSI/IEEE C95.1-1992
IEEE 1528-2003
FCC OET Bulletin 65 Supplement C (Edition 01-01)

The product was completely tested on Nov. 03, 2012. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (SHENZHEN) INC., the test report shall not be reproduced except in full.

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA2O1102	Rev. 01	Initial issue of report	Nov. 07, 2012

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **ZTE CORPORATION**
DUT: WCDMA Digital Mobile Handset; Brand Name: ZTE; Model Name: V8200+ are as follows.

<Standalone SAR>

Band	Position	SAR_{1g} (W/kg)	Scaled SAR_{1q} (W/kg)
GSM850	Head	0.214	0.273
GSM1900	Head	0.370	0.515
WCDMA Band V	Head	0.350	0.431
WCDMA Band II	Head	0.667	0.731
GSM850	Hotspot (1 cm Gap)	0.533	0.756
GSM1900	Hotspot (1 cm Gap)	1.030	1.247
WCDMA Band V	Hotspot (1 cm Gap)	0.624	0.768
WCDMA Band II	Hotspot (1 cm Gap)	1.090	1.263
GSM850	Body-worn (1 cm Gap)	0.533	0.756
GSM1900	Body-worn (1 cm Gap)	1.030	1.247
WCDMA Band V	Body-worn (1 cm Gap)	0.624	0.768
WCDMA Band II	Body-worn (1 cm Gap)	1.090	1.263

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2003 and FCC OET Bulletin 65 Supplement C (Edition 01-01).

2. Administration Data

2.1 Testing Laboratory

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.
Test Site Location	No. 101, Complex Building C, Guanglong Village, Xili Town, Nanshan District, Shenzhen, Guangdong, P.R.C. TEL: +86-755-8637-9589 FAX: +86-755-8637-9595

2.2 Applicant

Company Name	ZTE CORPORATION
Address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P. R. China

2.3 Manufacturer

Company Name	ZTE CORPORATION
Address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P. R. China

2.4 Application Details

Date of Start during the Test	Oct. 19, 2012
Date of End during the Test	Nov. 03, 2012

3. General Information

3.1 Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT	WCDMA Digital Mobile Handset
Brand Name	ZTE
Model Name	V8200+
FCC ID	Q78-V8200PLUS
IMEI Code	869162010000097
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WLAN2.4G: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz WLAN2.4G: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Maximum Average Output Power to Antenna	GSM850: 31.94 dBm GSM1900: 29.56 dBm WCDMA Band V: 24.10 dBm WCDMA Band II: 22.30 dBm 802.11b: 11.48 dBm 802.11g: 9.20 dBm 802.11n-HT20 (2.4GHz) : 6.68 dBm Bluetooth: 5.76 dBm
Antenna Type	WWAN: PIFA Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna
HW Version	QB7227_02A_V1BMB_D
SW Version	V8200P_Z40_ES_VSDOI1A5401A02
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) 802.11b: DSSS (BPSK / QPSK / CCK) 802.11g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth (1Mbps): GFSK Bluetooth EDR (2Mbps): $\pi/4$ -DQPSK Bluetooth EDR (3Mbps): 8-DPSK
Dual Transfer Mode (DTM) Category	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype
Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.	

3.2 Product Photos

Please refer to Appendix D.

3.3 Applied Standard

The Specific Absorption Rate (SAR) testing specification, method and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2003
- FCC OET Bulletin 65 Supplement C (Edition 01-01)
- FCC KDB 447498 D01 v04
- FCC KDB 648474 D01 v01r05
- FCC KDB 941225 D01 v02
- FCC KDB 941225 D03 v01
- FCC KDB 941225 D06 v01
- FCC KDB 248227 D01 v01r02

3.4 Device Category and SAR Limits

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

3.5 Test Conditions

3.5.1 Ambient Condition

Ambient Temperature	20 to 24 °C
Humidity	< 60 %

3.5.2 Test Configuration

The device was controlled by using a base station emulator. Communication between the device and the emulator was established by air link. The distance between the EUT and the antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30 dB smaller than the output power of EUT. The EUT was set from the emulator to radiate maximum output power during all tests.

The maximum rated power of WWAN listed in "Tune-Up Procedure" exhibit; the scaling factor is calculated according to the difference between measured output power and maximum tolerance power on this device.

4. Specific Absorption Rate (SAR)

4.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

4.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt} \left(\frac{dW}{dm} \right) = \frac{d}{dt} \left(\frac{dW}{\rho dv} \right)$$

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by

$$SAR = C \left(\frac{\delta T}{\delta t} \right)$$

Where: C is the specific heat capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

5. SAR Measurement System

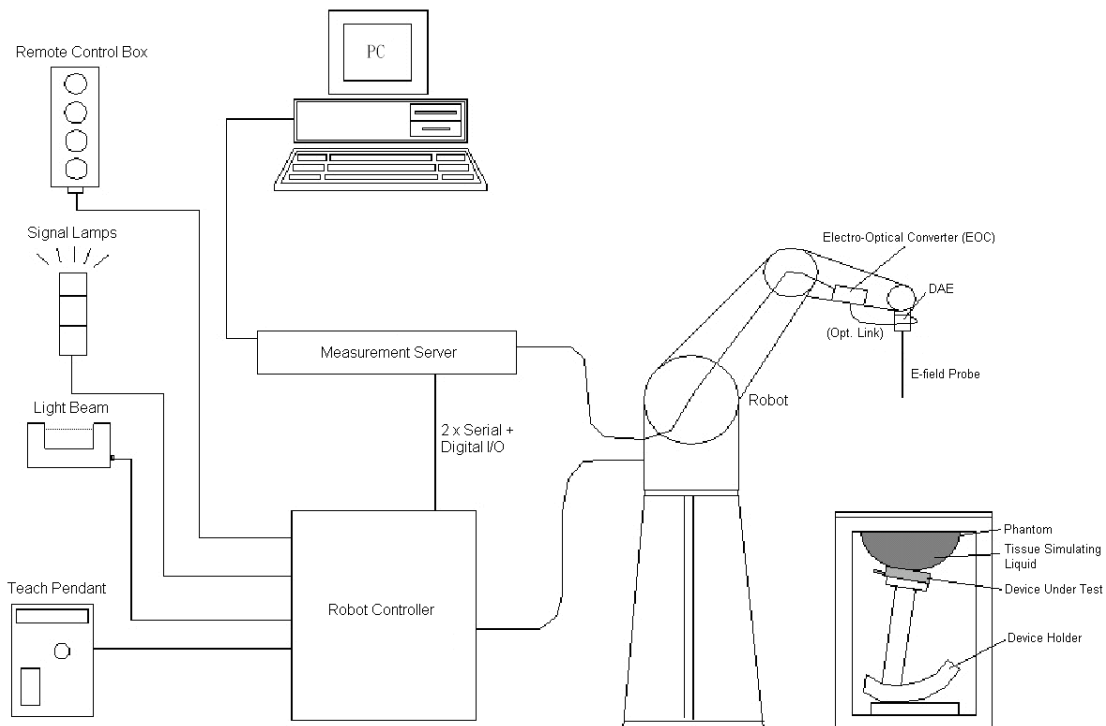


Fig 5.1 SPEAG DASY System Configurations

The DASY system for performance compliance tests is illustrated above graphically. This system consists of the following items:

- A standard high precision 6-axis robot with controller, a teach pendant and software
- A data acquisition electronic (DAE) attached to the robot arm extension
- A dosimetric probe equipped with an optical surface detector system
- The electro-optical converter (EOC) performs the conversion between optical and electrical signals
- A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the accuracy of the probe positioning
- A computer operating Windows XP
- DASY software
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom
- A device holder
- Tissue simulating liquid
- Dipole for evaluating the proper functioning of the system

Component details are described in in the following sub-sections.

5.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG). The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

5.1.1 E-Field Probe Specification

<EX3DV4 Probe>

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 μ W/g to 100 mW/g; Linearity: ± 0.2 dB (noise: typically < 1 μ W/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	

Fig 5.2 Photo of EX3DV4

5.1.2 E-Field Probe Calibration

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than $\pm 10\%$. The spherical isotropy shall be evaluated and within ± 0.25 dB. The sensitivity parameters (NormX, NormY, and NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix C of this report.

5.2 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock. The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



Fig 5.3 Photo of DAE

5.3 Robot

The SPEAG DASY system uses the high precision robots (DASY5: TX90XL) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability ± 0.035 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)



Fig 5.4 Photo of DASY5

5.4 Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY5: 400 MHz, Intel Celeron), chipdisk (DASY5: 128 MB), RAM (DASY5: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.



Fig 5.5 Photo of Server for DASY5

5.5 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



Fig 5.6 Photo of SAM Phantom

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

5.6 Device Holder

<Device Holder for SAM Twin Phantom>

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

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

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



Fig 5.7 Device Holder

5.7 Data Storage and Evaluation

5.7.1 Data Storage

The DASY software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files. The post-processing 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 erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., [V/m], [A/m], [mW/g]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-lossy media, will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

5.7.2 Data Evaluation

The DASY post-processing software (SEMCAD) 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	Norm _i , 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	σ
	- Density	ρ

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 DASY components. In the direct measuring mode of the multi-meter 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 :

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

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 :

$$\text{E-field Probes : } E_i = \sqrt{\frac{V_i}{\text{Norm}_i \cdot \text{ConvF}}}$$

$$\text{H-field Probes : } H_i = \sqrt{V_i} \cdot \frac{a_{i0} + a_{i1}f + a_{i2}f^2}{f}$$

with V_i = compensated signal of channel i, (i = x, y, z)
 Norm_i = sensor sensitivity of channel i, (i = x, y, z), $\mu\text{V}/(\text{V/m})^2$ 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) :

$$E_{\text{tot}} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

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

$$\text{SAR} = E_{\text{tot}}^2 \cdot \frac{\sigma}{\rho \cdot 1000}$$

with SAR = local specific absorption rate in mW/g
 E_{tot} = total field strength in V/m
 σ = conductivity in [mho/m] or [Siemens/m]
 ρ = equivalent tissue density in g/cm^3

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

5.8 Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	835MHz System Validation Kit	D835V2	4d091	Nov. 18, 2011	Nov. 17, 2012
SPEAG	1900MHz System Validation Kit	D1900V2	5d118	Nov. 21, 2011	Nov. 20, 2012
SPEAG	Data Acquisition Electronics	DAE4	1303	Nov. 10, 2011	Nov. 09, 2012
SPEAG	Dosimetric E-Field Probe	EX3DV4	3819	Nov. 16, 2011	Nov. 15, 2012
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1670	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1671	NCR	NCR
SPEAG	Test Arch Phantom	Par phantom	1105	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Agilent	Base Station	E5515C	MY50267224	Dec. 29, 2011	Dec. 28, 2012
Agilent	ENA Series Network Analyzer	E5071C	MY46111157	Apr. 13, 2012	Apr. 12, 2013
R&S	Signal Generator	SMR40	100455	Dec. 30, 2011	Dec. 29, 2012
Agilent	Power Meter	E4416A	MY45101555	Aug. 23, 2012	Aug. 22, 2013
Agilent	Power Sensor	E9327A	MY44421198	Aug. 23, 2012	Aug. 22, 2013
R&S	Spectrum Analyzer	FSP30	101400	Jun. 01, 2012	May 31, 2013

Table 5.1 Test Equipment List

Note: The calibration certificate of DASY can be referred to appendix C of this report.

6. Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.2.


Fig 6.1 Photo of Liquid Height for Head SAR

Fig 6.2 Photo of Liquid Height for Body SAR

The following table gives the recipes for tissue simulating liquid.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ϵ_r)
For Head								
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
For Body								
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3

Table 6.1 Recipes of Tissue Simulating Liquid

The dielectric parameters of the liquids were verified prior to the SAR evaluation using an Agilent 85070D Dielectric Probe Kit and an Agilent Network Analyzer.

The following table shows the measuring results for simulating liquid.

Freq. (MHz)	Liquid Type	Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
835	Head	21.5	0.916	41.029	0.90	41.5	1.78	-1.13	±5	Oct. 19, 2012
835	Head	21.3	0.922	41.002	0.90	41.5	2.44	-1.20	±5	Oct. 30, 2012
1900	Head	21.4	1.427	41.191	1.40	40.0	1.93	2.98	±5	Nov. 03, 2012
835	Body	21.6	0.978	54.413	0.97	55.2	0.82	-1.43	±5	Oct. 19, 2012
835	Body	21.7	0.976	54.382	0.97	55.2	0.62	-1.48	±5	Oct. 30, 2012
1900	Body	21.5	1.525	54.504	1.52	53.3	0.33	2.26	±5	Nov. 03, 2012

Table 6.2 Measuring Results for Simulating Liquid

7. SAR Measurement Evaluation

Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

7.1 Purpose of System Performance check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

7.2 System Setup

In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:

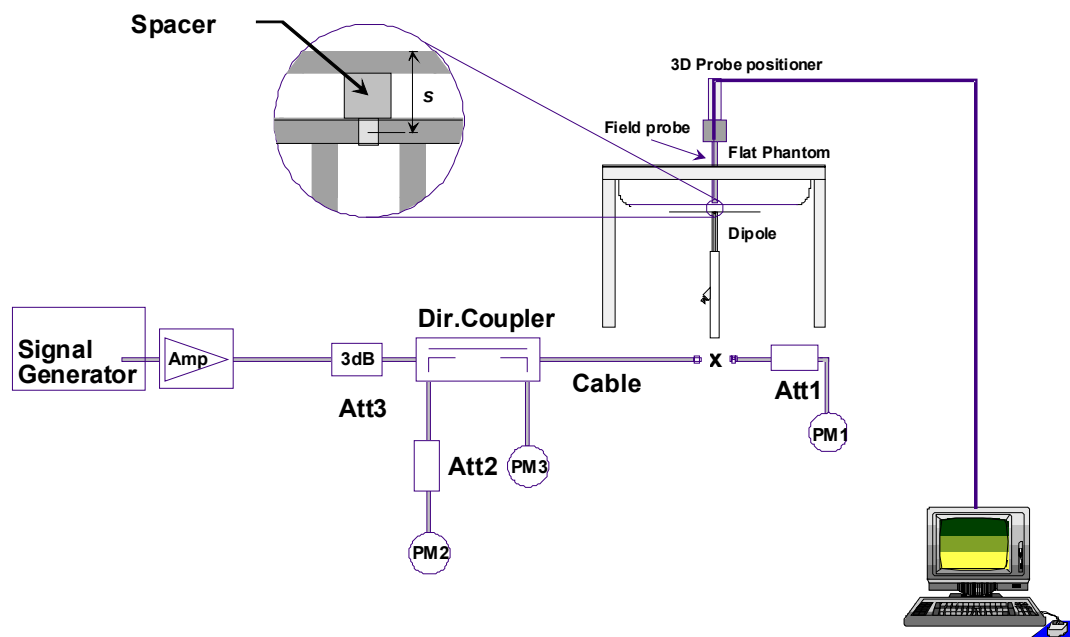


Fig 7.1 System Setup for System Evaluation

1. Signal Generator
2. Amplifier
3. Directional Coupler
4. Power Meter
5. Calibrated Dipole

The output power on dipole port must be calibrated to 24 dBm (250 mW) before dipole is connected.



Fig 7.2 Photo of Dipole Setup

7.3 Validation Results

Comparing to the original SAR value provided by SPEAG, the validation data should be within its specification of 10 %. Table 7.1 shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Measurement Date	Frequency (MHz)	Liquid Type	Targeted SAR _{1g} (W/kg)	Measured SAR _{1g} (W/kg)	Normalized SAR _{1g} (W/kg)	Deviation (%)
Oct. 19, 2012	835	Head	9.4	2.41	9.64	2.55
Oct. 30, 2012	835	Head	9.4	2.5	10.00	6.38
Nov. 03, 2012	1900	Head	40.3	10	40.00	-0.74
Oct. 19, 2012	835	Body	9.42	2.44	9.76	3.61
Oct. 30, 2012	835	Body	9.42	2.31	9.24	-1.91
Nov. 03, 2012	1900	Body	41.8	10.3	41.20	-1.44

Table 7.1 Target and Measurement SAR after Normalized

8. EUT Testing Position

This EUT was tested in nine different positions. They are right cheek, right tilted, left cheek, left tilted, Front of the EUT with phantom 1 cm gap, Back of the EUT with phantom 1 cm gap, Bottom Side of the EUT with phantom 1 cm gap, Right Side of the EUT with phantom 1 cm gap, and Left Side of the EUT with phantom 1 cm gap, as illustrated below:

8.1 Define two imaginary lines on the handset

- The vertical centerline passes through two points on the front side of the handset - the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.
- The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.
- The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.

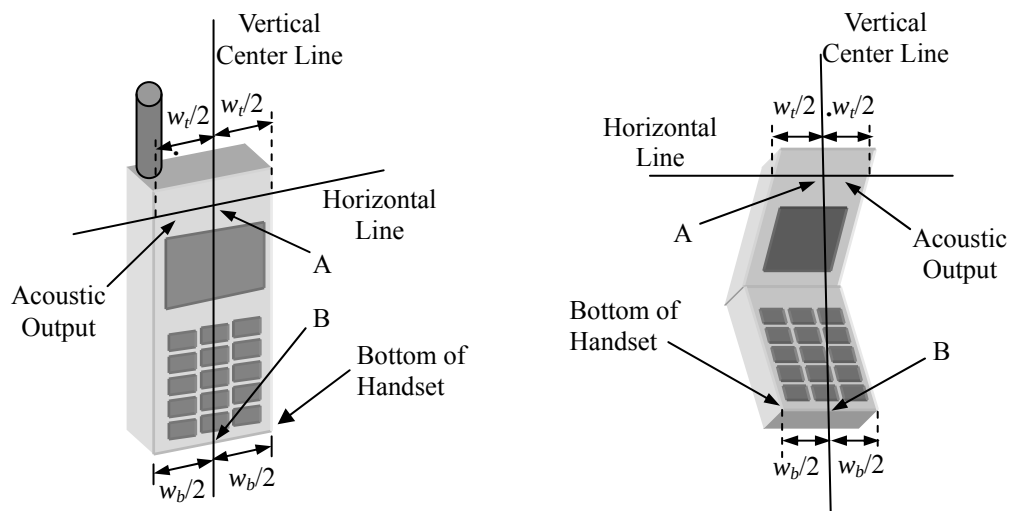


Fig 9.1 Illustration for Handset Vertical and Horizontal Reference Lines

8.2 Cheek Position

- To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
- To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see Fig. 9.2).

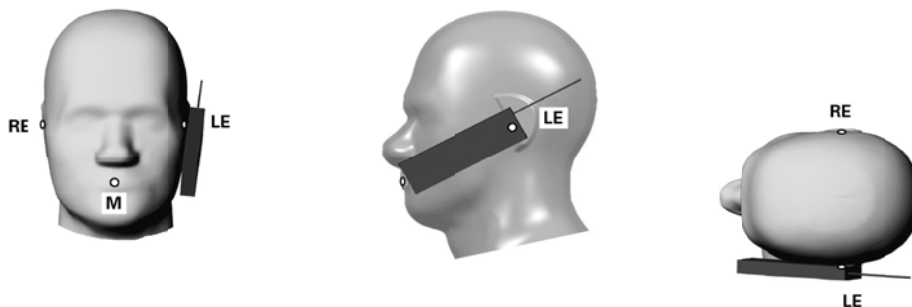


Fig 9.2 Illustration for Cheek Position

8.3 Tilted Position

- To position the device in the “cheek” position described above.
- While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see Fig. 9.3).

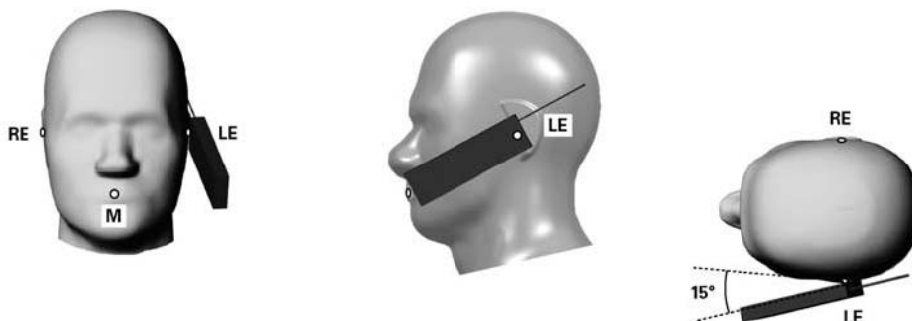


Fig 9.3 Illustration for Tilted Position

8.4 Body Worn Position

- (a) To position the device parallel to the phantom surface with either keypad up or down.
- (b) To adjust the device parallel to the flat phantom.
- (c) To adjust the distance between the device surface and the flat phantom to 1 cm.

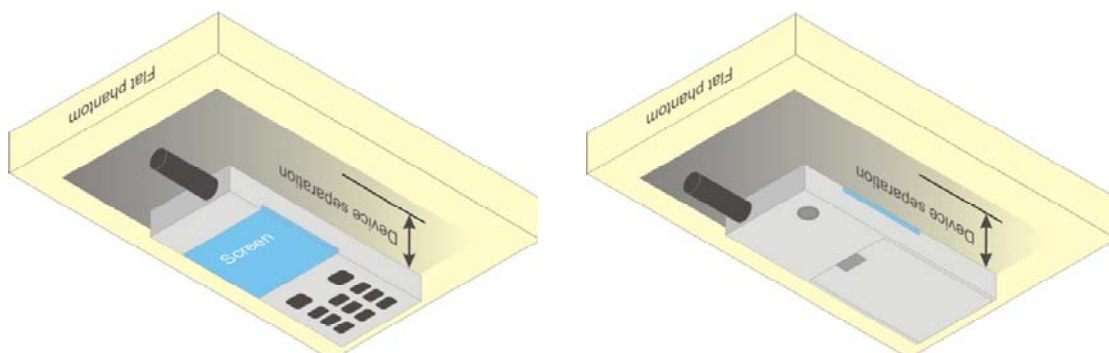


Fig 9.4 Illustration for Body Worn Position

<EUT Setup Photos>

Please refer to Appendix E for the test setup photos.

9. Measurement Procedures

The measurement procedures are as follows:

- (a) Use base station simulator (if applicable) or engineering software to transmit RF power continuously (continuous Tx) in the highest power channel.
- (b) Keep EUT to radiate maximum output power or 100% EUTy factor (if applicable)
- (c) Measure output power through RF cable and power meter.
- (d) Place the EUT in the positions as Appendix E demonstrates.
- (e) Set scan area, grid size and other setting on the DASY software.
- (f) Measure SAR results for the highest power channel on each testing position.
- (g) Find out the largest SAR result on these testing positions of each band
- (h) Measure SAR results for other channels in worst SAR testing position if the SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- (a) Power reference measurement
- (b) Area scan
- (c) Zoom scan
- (d) Power drift measurement

9.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

9.2 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan measures 5x5x7 points with step size 8, 8 and 5 mm for 300 MHz to 3 GHz, and 8x8x8 points with step size 4, 4 and 2.5 mm for 3 GHz to 6 GHz. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g.

9.3 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing (step-size is 4, 4 and 2.5 mm). When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

9.4 SAR Averaged Methods

In DASy, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

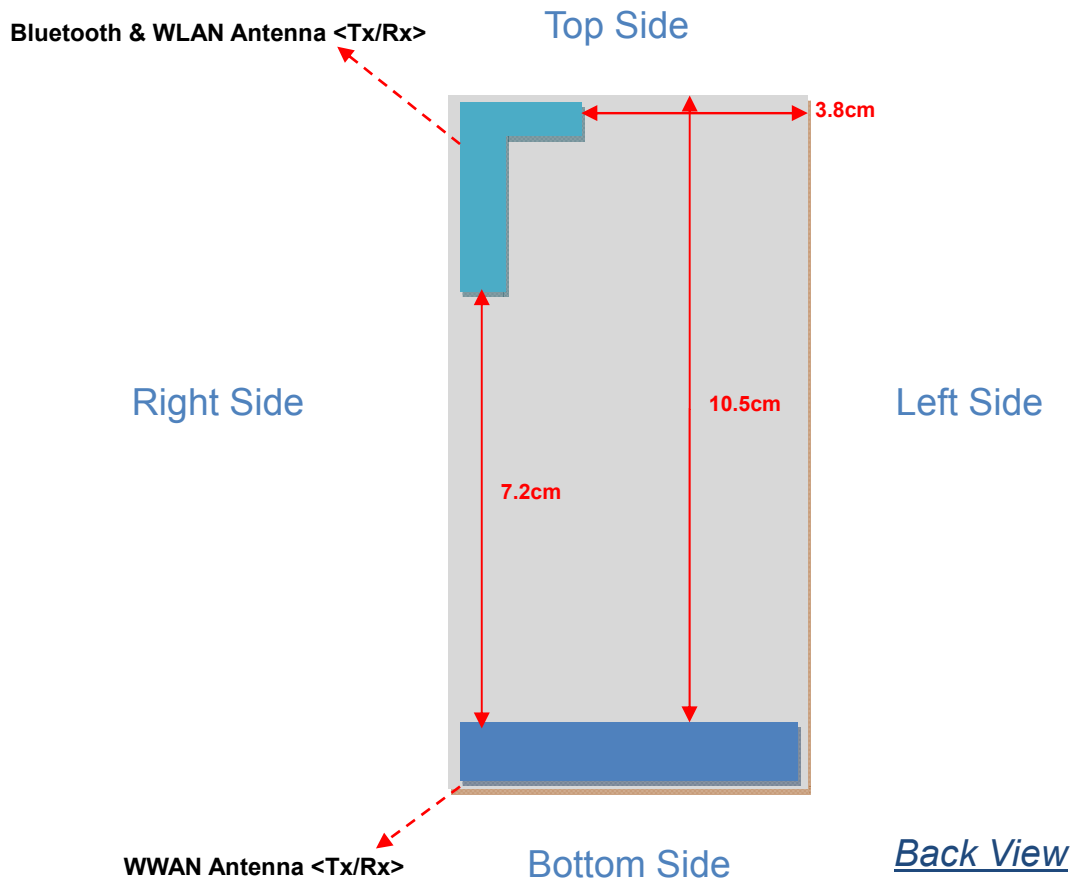
Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

9.5 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASy measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

10. SAR Test Configurations

10.1 Exposure Positions Consideration



Antennas	Wireless Interface
WWAN Antenna (Tx / Rx)	GSM850/1900 WCDMA Band II/V
Bluetooth & WLAN Antenna (Tx / Rx)	WLAN 2.4GHz Bluetooth

Sides for SAR tests; Hotspot mode Test distance: 10 mm						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN	YES	YES	NO	YES	YES	YES

Note:

- Head/Body-worn/Hotspot mode SAR assessments are required.
- Referring to KDB 941225 D06, when the overall device length and width are $\geq 9\text{cm} \times 5\text{cm}$, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.
- For WWAN antenna, SAR measurement at Top side is not required since the distance between WWAN transmitting antenna and surface or edge $> 25\text{mm}$.

10.2 Conducted RF Output Power (Unit: dBm)
<GSM/GPRS/EDGE>

Burst Average Power						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency (MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM (GMSK, 1 Tx slot)	31.80	31.91	31.94	28.92	29.19	29.56
GPRS (GMSK, 1 Tx slot) – CS1	31.79	31.91	31.93	28.85	29.14	29.51
GPRS (GMSK, 2 Tx slots) – CS1	30.87	30.99	31.02	27.14	27.41	27.80
GPRS (GMSK, 3 Tx slots) – CS1	29.38	29.47	29.48	25.67	25.92	26.27
GPRS (GMSK, 4 Tx slots) – CS1	27.63	27.71	27.84	24.11	24.36	24.70
EDGE (GMSK, 1 Tx slot) – MCS1	31.78	31.91	31.92	28.85	29.14	29.50
EDGE (GMSK, 2 Tx slots) – MCS1	30.87	30.98	31.02	27.14	27.40	27.77
EDGE (GMSK, 3 Tx slots) – MCS1	29.38	29.47	29.47	25.64	25.90	26.25
EDGE (GMSK, 4 Tx slots) – MCS1	27.63	27.71	27.82	24.11	24.35	24.68
EDGE (8PSK, 1 Tx slot) – MCS5	27.00	27.10	27.12	25.84	26.12	26.50
EDGE (8PSK, 2 Tx slots) – MCS5	26.46	26.56	26.58	24.97	25.22	25.61
EDGE (8PSK, 3 Tx slots) – MCS5	26.43	26.51	26.52	24.46	24.71	25.06
EDGE (8PSK, 4 Tx slots) – MCS5	25.85	25.94	25.95	23.94	24.18	24.55

Source-Based Time-Averaged Power						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency (MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM (GMSK, 1 Tx slot)	22.80	22.91	22.94	19.92	20.19	20.56
GPRS (GMSK, 1 Tx slot) – CS1	22.79	22.91	22.93	19.85	20.14	20.51
GPRS (GMSK, 2 Tx slots) – CS1	24.87	24.99	25.02	21.14	21.41	21.80
GPRS (GMSK, 3 Tx slots) – CS1	25.12	25.21	25.22	21.41	21.66	22.01
GPRS (GMSK, 4 Tx slots) – CS1	24.63	24.71	24.84	21.11	21.36	21.70
EDGE (GMSK, 1 Tx slot) – MCS1	22.78	22.91	22.92	19.85	20.14	20.50
EDGE (GMSK, 2 Tx slots) – MCS1	24.87	24.98	25.02	21.14	21.40	21.77
EDGE (GMSK, 3 Tx slots) – MCS1	25.12	25.21	25.21	21.38	21.64	21.99
EDGE (GMSK, 4 Tx slots) – MCS1	24.63	24.71	24.82	21.11	21.35	21.68
EDGE (8PSK, 1 Tx slot) – MCS5	18.00	18.10	18.12	16.84	17.12	17.50
EDGE (8PSK, 2 Tx slots) – MCS5	20.46	20.56	20.58	18.97	19.22	19.61
EDGE (8PSK, 3 Tx slots) – MCS5	22.17	22.25	22.26	20.20	20.45	20.80
EDGE (8PSK, 4 Tx slots) – MCS5	22.85	22.94	22.95	20.94	21.18	21.55

Remark: The source-based time-averaged power is linearly scaled the maximum burst averaged power based on time slots. The calculated method are shown as below:
Source based time averaged power = Maximum burst averaged power (1 Tx slot) - 9 dB
Source based time averaged power = Maximum burst averaged power (2 Tx slots) - 6 dB
Source based time averaged power = Maximum burst averaged power (3 Tx slots) - 4.26 dB
Source based time averaged power = Maximum burst averaged power (4 Tx slots) - 3 dB

Note:

1. For Head SAR testing, GSM should be evaluated, therefore the EUT was set in GSM for GSM850 and GSM1900 due to its highest source-based time-average power.
2. For Body SAR testing, GPRS and EDGE should be evaluated, therefore the EUT was set in GPRS (3 Tx slots) for GSM850 and GSM1900 due to its highest source-based time-average power.
3. Per KDB 447498, the maximum output power channel is used for SAR testing and for further SAR test reduction.
4. The EUT do not support DTM function.

<WCDMA>

Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4182	4233	9262	9400	9538
Frequency (MHz)	826.4	836.4	846.6	1852.4	1880.0	1907.6
AMR	23.83	23.60	24.08	22.03	22.27	22.22
RMC 12.2K	23.84	23.97	24.10	22.06	22.30	22.24
HSDPA Subtest-1	22.49	22.60	22.71	20.77	20.91	20.82
HSDPA Subtest-2	22.48	22.57	22.68	20.71	20.89	20.81
HSDPA Subtest-3	22.33	22.38	22.51	20.76	20.92	20.84
HSDPA Subtest-4	22.21	22.32	22.45	20.75	20.90	20.79
HSUPA Subtest-1	22.48	22.58	22.70	20.74	20.96	20.91
HSUPA Subtest-2	21.22	21.38	21.49	19.69	19.88	19.81
HSUPA Subtest-3	21.69	21.86	21.99	20.36	20.67	20.55
HSUPA Subtest-4	21.34	21.41	21.55	19.66	19.91	19.80
HSUPA Subtest-5	22.44	22.56	22.68	20.75	20.97	20.93

MPR (dB)							
3GPP MPR	Subtest	WCDMA Band V			WCDMA Band II		
0	HSDPA Subtest-1	0.00	0.00	0.00	0.00	0.00	0.00
0	HSDPA Subtest-2	0.01	0.03	0.03	0.06	0.02	0.01
≤ 0.5	HSDPA Subtest-3	0.16	0.22	0.20	0.01	-0.01	-0.02
≤ 0.5	HSDPA Subtest-4	0.28	0.28	0.26	0.02	0.01	0.03
0	HSUPA Subtest-1	-0.04	-0.02	-0.02	0.01	0.01	0.02
≤ 2	HSUPA Subtest-2	1.22	1.18	1.19	1.06	1.09	1.12
≤ 1	HSUPA Subtest-3	0.75	0.70	0.69	0.39	0.30	0.38
≤ 2	HSUPA Subtest-4	1.10	1.15	1.13	1.09	1.06	1.13
0	HSUPA Subtest-5	0.00	0.00	0.00	0.00	0.00	0.00

Note:

- For Head SAR, per KDB 941225 D01, RMC 12.2kbps setting is used to evaluate SAR. If AMR 12.2kbps power is < 1/4 dB higher than RMC, SAR tests with AMR 12.2kbps can be excluded.
- For Body SAR, per KDB 941225 D01, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA subset-1 and HSUPA subset-5 output power is < 1/4 dB higher than RMC, and SAR with RMC 12.2kbps setting is ≤ 1.2W/kg, HSDPA and HSUPA SAR evaluation can be excluded.
- EUT is designed to follow the MPR of 3GPP Table 5.2B.1 specification. In production units, MPR result deviation from 3GPP is expected; the implementation and expected deviation is detailed in tune-up procedure exhibit.

<WLAN 2.4GHz>

Mode	Channel	Frequency (MHz)	Average power (dBm)			
			Data Rate (bps)			
			1M	2M	5.5M	11M
802.11b	CH 01	2412	9.42	9.47	9.45	9.58
	CH 06	2437	10.72	10.71	10.71	10.82
	CH 11	2462	10.89	10.79	10.87	11.48

Mode	Channel	Frequency (MHz)	Average power (dBm)							
			Data Rate (bps)							
			6M	9M	12M	18M	24M	36M	48M	54M
802.11g	CH 01	2412	5.97	5.28	5.27	5.38	6.04	6.07	7.76	9.20
	CH 06	2437	6.58	6.96	6.94	6.98	6.65	6.75	7.59	9.07
	CH 11	2462	6.93	6.94	6.90	7.02	7.01	7.04	7.49	8.86

Mode	Channel	Frequency (MHz)	Average power (dBm)							
			Data Rate (bps)							
			MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n HT20	CH 01	2412	5.33	5.33	5.42	5.71	5.84	5.85	5.77	4.89
	CH 06	2437	6.24	6.28	6.45	6.68	6.30	6.33	6.36	5.56
	CH 11	2462	6.13	6.16	6.29	5.89	6.04	6.08	6.10	5.17

Note: Per KDB 447498, 2.4GHz WLAN SAR is excluded due to highest output power $\leq 60/f$ (GHz) mW, where $60/f$ (GHz) = 24mW = 13.8dBm.

<Bluetooth>

Mode	Channel	Frequency (MHz)	Average Power (dBm)								
			Data Rate								
			DH1	DH3	DH5	2DH1	2DH3	2DH5	3DH1	3DH3	3DH5
Bluetooth	CH 00	2402	4.86	2.91	2.12	5.40	2.79	2.04	5.66	2.81	2.15
	CH 39	2441	4.83	2.98	2.18	5.59	2.80	2.10	5.70	2.83	2.18
	CH 78	2480	4.95	2.92	2.21	5.70	2.81	2.11	5.76	2.81	2.22

Note: Per KDB 447498, 2.4GHz Bluetooth SAR is excluded due to highest output power $\leq 60/f$ (GHz) mW, where $60/f$ (GHz) = 24mW = 13.8dBm.

11. SAR Test Results

11.1 Test Records for Head SAR Test

<GSM>

Plot No.	Band	Mode	Test Position	Ch.	Output Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	SAR _{1g} (W/kg)	Scaled SAR _{1g} (W/kg)
41	GSM850	GSM	Right Cheek	251	31.94	33	1.28	0.209	0.267
42	GSM850	GSM	Right Tilted	251	31.94	33	1.28	0.124	0.158
43	GSM850	GSM	Left Cheek	251	31.94	33	1.28	0.214	0.273
44	GSM850	GSM	Left Tilted	251	31.94	33	1.28	0.139	0.177
69	GSM1900	GSM	Right Cheek	810	29.56	31	1.39	0.289	0.403
70	GSM1900	GSM	Right Tilted	810	29.56	31	1.39	0.101	0.141
71	GSM1900	GSM	Left Cheek	810	29.56	31	1.39	0.370	0.515
72	GSM1900	GSM	Left Tilted	810	29.56	31	1.39	0.122	0.170

Note: Per KDB 447498, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

<WCDMA>

Plot No.	Band	Mode	Test Position	Ch.	Output Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	SAR _{1g} (W/kg)	Scaled SAR _{1g} (W/kg)
45	WCDMA Band V	RMC 12.2K	Right Cheek	4233	24.10	25	1.23	0.350	0.431
46	WCDMA Band V	RMC 12.2K	Right Tilted	4233	24.10	25	1.23	0.208	0.256
47	WCDMA Band V	RMC 12.2K	Left Cheek	4233	24.10	25	1.23	0.340	0.418
48	WCDMA Band V	RMC 12.2K	Left Tilted	4233	24.10	25	1.23	0.210	0.258
73	WCDMA Band II	RMC 12.2K	Right Cheek	9400	22.30	22.7	1.10	0.536	0.588
74	WCDMA Band II	RMC 12.2K	Right Tilted	9400	22.30	22.7	1.10	0.197	0.216
75	WCDMA Band II	RMC 12.2K	Left Cheek	9400	22.30	22.7	1.10	0.667	0.731
76	WCDMA Band II	RMC 12.2K	Left Tilted	9400	22.30	22.7	1.10	0.246	0.270

Note: Per KDB 447498, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

11.2 Test Records for Hotspot SAR Test

<GSM>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Output Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	SAR _{1g} (W/kg)	Scaled SAR _{1g} (W/kg)
21	GSM850	GPRS (3 Tx slots)	Front	1	251	29.48	31	1.42	0.392	0.556
22	GSM850	GPRS (3 Tx slots)	Back	1	251	29.48	31	1.42	0.533	0.756
23	GSM850	GPRS (3 Tx slots)	Left Side	1	251	29.48	31	1.42	0.362	0.514
24	GSM850	GPRS (3 Tx slots)	Right Side	1	251	29.48	31	1.42	0.405	0.575
25	GSM850	GPRS (3 Tx slots)	Bottom Side	1	251	29.48	31	1.42	0.056	0.079
61	GSM1900	GPRS (3 Tx slots)	Front	1	810	26.27	26.5	1.05	0.621	0.655
62	GSM1900	GPRS (3 Tx slots)	Back	1	810	26.27	26.5	1.05	0.810	0.854
63	GSM1900	GPRS (3 Tx slots)	Left Side	1	810	26.27	26.5	1.05	0.278	0.293
64	GSM1900	GPRS (3 Tx slots)	Right Side	1	810	26.27	26.5	1.05	0.145	0.153
65	GSM1900	GPRS (3 Tx slots)	Bottom Side	1	810	26.27	26.5	1.05	0.499	0.526
66	GSM1900	GPRS (3 Tx slots)	Back	1	512	25.67	26.5	1.21	1.030	1.247
67	GSM1900	GPRS (3 Tx slots)	Back	1	661	25.92	26.5	1.14	0.923	1.055

Note:

- Per KDB 941225 D06, for EUT dimension $\geq 9\text{cm} \times 5\text{cm}$, the test distance is 1cm. SAR must be measured for all surfaces and sides with a transmitting antenna located within 2.5cm from that surface or edge.
- As in (1), SAR for Front/Back/Bottom Side/Left Side/Right Side is necessary.
- Per KDB 447498 if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

<WCDMA>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Output Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	SAR _{1g} (W/kg)	Scaled SAR _{1g} (W/kg)
27	WCDMA Band V	RMC 12.2K	Front	1	4233	24.10	25	1.23	0.401	0.493
28	WCDMA Band V	RMC 12.2K	Back	1	4233	24.10	25	1.23	0.624	0.768
29	WCDMA Band V	RMC 12.2K	Left Side	1	4233	24.10	25	1.23	0.384	0.472
30	WCDMA Band V	RMC 12.2K	Right Side	1	4233	24.10	25	1.23	0.441	0.543
31	WCDMA Band V	RMC 12.2K	Bottom Side	1	4233	24.10	25	1.23	0.058	0.071
49	WCDMA Band II	RMC 12.2K	Front	1	9400	22.30	22.7	1.10	0.843	0.924
50	WCDMA Band II	RMC 12.2K	Back	1	9400	22.30	22.7	1.10	1.060	1.162
51	WCDMA Band II	RMC 12.2K	Left Side	1	9400	22.30	22.7	1.10	0.364	0.399
52	WCDMA Band II	RMC 12.2K	Right Side	1	9400	22.30	22.7	1.10	0.182	0.200
53	WCDMA Band II	RMC 12.2K	Bottom Side	1	9400	22.30	22.7	1.10	0.706	0.774
54	WCDMA Band II	RMC 12.2K	Front	1	9262	22.06	22.7	1.16	0.831	0.963
55	WCDMA Band II	RMC 12.2K	Front	1	9538	22.24	22.7	1.11	0.738	0.820
56	WCDMA Band II	RMC 12.2K	Back	1	9262	22.06	22.7	1.16	1.090	1.263
57	WCDMA Band II	RMC 12.2K	Back	1	9538	22.24	22.7	1.11	0.897	0.997

Note:

- Per KDB 941225 D06, for EUT dimension $\geq 9\text{cm} \times 5\text{cm}$, the test distance is 1cm. SAR must be measured for all surfaces and sides with a transmitting antenna located within 2.5cm from that surface or edge.
- As in (1), SAR for Front/Back/Bottom Side/Left Side/Right Side is necessary.
- Per KDB 447498, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

11.3 Test Records for Body-worn SAR Test

<GSM>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Output Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Headset	SAR _{1g} (W/kg)	Scaled SAR _{1g} (W/kg)
21	GSM850	GPRS (3 Tx slots)	Front	1	251	29.48	31	1.42	-	0.392	0.556
22	GSM850	GPRS (3 Tx slots)	Back	1	251	29.48	31	1.42	-	0.533	0.756
26	GSM850	GSM	Back	1	251	31.94	33	1.28	w/ Headset	0.273	0.348
61	GSM1900	GPRS (3 Tx slots)	Front	1	810	26.27	26.5	1.05	-	0.621	0.655
62	GSM1900	GPRS (3 Tx slots)	Back	1	810	26.27	26.5	1.05	-	0.810	0.854
66	GSM1900	GPRS (3 Tx slots)	Back	1	512	25.67	26.5	1.21	-	1.030	1.247
67	GSM1900	GPRS (3 Tx slots)	Back	1	661	25.92	26.5	1.14	-	0.923	1.055
68	GSM1900	GSM	Back	1	512	28.92	31	1.61	w/ Headset	0.738	1.191

Note:

- Per KDB 447498, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.
- "V" in the headset column means the earphone is plugged during SAR testing.

<WCDMA>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Output Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Headset	SAR _{1g} (W/kg)	Scaled SAR _{1g} (W/kg)
27	WCDMA Band V	RMC 12.2K	Front	1	4233	24.10	25	1.23	-	0.401	0.493
28	WCDMA Band V	RMC 12.2K	Back	1	4233	24.10	25	1.23	-	0.624	0.768
32	WCDMA Band V	RMC 12.2K	Back	1	4233	24.10	25	1.23	w/ Headset	0.561	0.690
49	WCDMA Band II	RMC 12.2K	Front	1	9400	22.30	22.7	1.10	-	0.843	0.924
54	WCDMA Band II	RMC 12.2K	Front	1	9262	22.06	22.7	1.16	-	0.831	0.963
55	WCDMA Band II	RMC 12.2K	Front	1	9538	22.24	22.7	1.11	-	0.738	0.820
50	WCDMA Band II	RMC 12.2K	Back	1	9400	22.30	22.7	1.10	-	1.060	1.162
56	WCDMA Band II	RMC 12.2K	Back	1	9262	22.06	22.7	1.16	-	1.090	1.263
57	WCDMA Band II	RMC 12.2K	Back	1	9538	22.24	22.7	1.11	-	0.897	0.997
58	WCDMA Band II	RMC 12.2K	Back	1	9262	22.06	22.7	1.16	w/ Headset	1.010	1.170
59	WCDMA Band II	RMC 12.2K	Back	1	9400	22.30	22.7	1.10	w/ Headset	0.977	1.071
60	WCDMA Band II	RMC 12.2K	Back	1	9538	22.24	22.7	1.11	w/ Headset	0.831	0.924

Note:

- Per KDB 447498, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.
- "V" in the headset column means the earphone is plugged during SAR testing.

11.4 Simultaneous Multi-band Transmission Analysis

No.	Applicable Simultaneous Transmission Combination
1	GSM + Bluetooth
2	WCDMA + Bluetooth
3	GSM + WLAN 2.4G
4	WCDMA + WLAN 2.4G

Note:

1. WLAN and BT share the same antenna, and cannot transmit simultaneously.
2. GSM and WCDMA share the same antenna, and cannot transmit simultaneously.
3. Per KDB KDB 648474 D01, Bluetooth and WLAN output power $\leq 2 \cdot P_{Ref}$ and the distance to WWAN transmitting antenna $\geq 5\text{cm}$, therefore, stand-alone SAR is not required; the simultaneous transmission SAR for WWAN and Bluetooth/WLAN was not required, because Bluetooth/WLAN standalone SAR is not required and the maximum WWAN measured SAR (1.090 W/kg), so the SAR summation is less than 1.6 W/kg.

Test Engineer : Jeme Li

12. Uncertainty Assessment

The component of uncertainty may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainty by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in Table 12.1

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor ^(a)	$1/k^{(b)}$	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) k is the coverage factor

Table 12.1 Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

Error Description	Uncertainty	Probability	Divisor	Ci	Ci	Standard	Standard
	Value	Distribution		(1g)	(10g)	Uncertainty	Uncertainty
	(±%)					(1g)	(10g)
Measurement System							
Probe Calibration	6.0	Normal	1	1	1	± 6.0 %	± 6.0 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.4	Rectangular	√3	1	1	± 0.2 %	± 0.2 %
Probe Positioning	2.9	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Max. SAR Eval.	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	0.43	± 1.6 %	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	0.49	± 1.5 %	± 1.2 %
Combined Standard Uncertainty						± 11.0 %	± 10.8 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						± 22.0 %	± 21.5 %

Table 12.2 Uncertainty Budget of DASY for frequency range 300 MHz to 3 GHz

13. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2003, "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- [4] FCC OET Bulletin 65 (Edition 97-01) Supplement C (Edition 01-01), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", June 2001
- [5] SPEAG DASY System Handbook
- [6] FCC KDB 248227 D01 v01r02, "SAR Measurement Procedures for 802.11 a/b/g Transmitters", May 2007
- [7] FCC KDB 447498 D01 v04, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", November 2009
- [8] FCC KDB 648474 D01 v01r05, "SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas", September 2008
- [9] FCC KDB 941225 D01 v02, "SAR Measurement Procedures for 3G Devices – CDMA 2000 / Ev-Do / WCDMA / HSDPA / HSPA", October 2007
- [10] FCC KDB 941225 D02 v02 "3GPP R6 HSPA and R7 HSPA+ SAR Guidance", December 2009.
- [11] FCC KDB 941225 D03 v01, "Recommended SAR Test Reduction Procedures for GSM / GPRS / EDGE", December 2008
- [12] FCC KDB 941225 D04 v01, "Evaluating SAR for GSM/(E)GPRS Dual Transfer Mode", January 27 2010
- [13] FCC KDB 941225 D06 v01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", April 2011
- [14] FCC KDB 388624 D02, "Permit But Ask List", December 2011.



Appendix A. Plots of System Performance Check

The plots are shown as follows.

System Check_Head_835MHz_121019**DUT: D835V2 - SN:4d091**

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

Medium: HSL_835_121019 Medium parameters used: $f = 835$ MHz; $\sigma = 0.916$ mho/m; $\epsilon_r = 41.029$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.4, 9.4, 9.4); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.60 W/kg

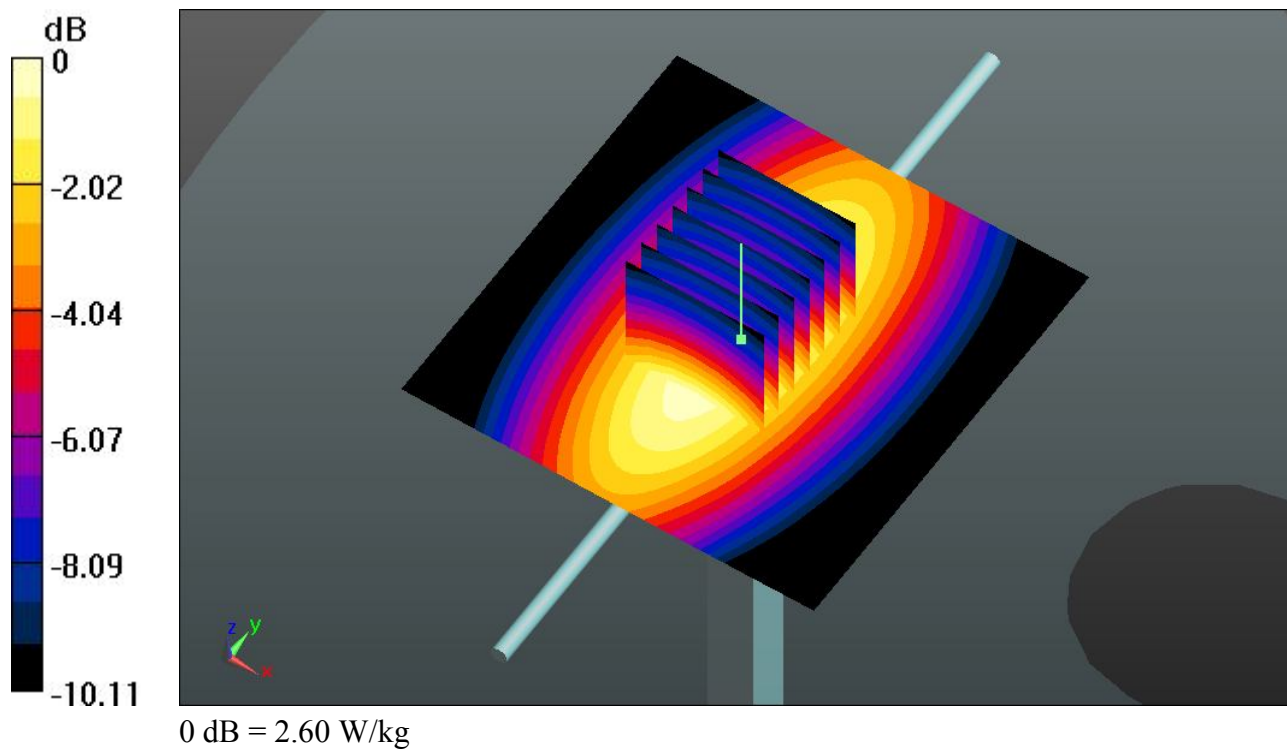
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.297 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.597 mW/g

SAR(1 g) = 2.41 mW/g; SAR(10 g) = 1.59 mW/g

Maximum value of SAR (measured) = 2.60 W/kg



System Check_Head_835MHz_121030**DUT: D835V2 - SN:4d091**

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

Medium: HSL_835_121030 Medium parameters used: $f = 835$ MHz; $\sigma = 0.922$ mho/m; $\epsilon_r = 41.002$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.4, 9.4, 9.4); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.69 W/kg

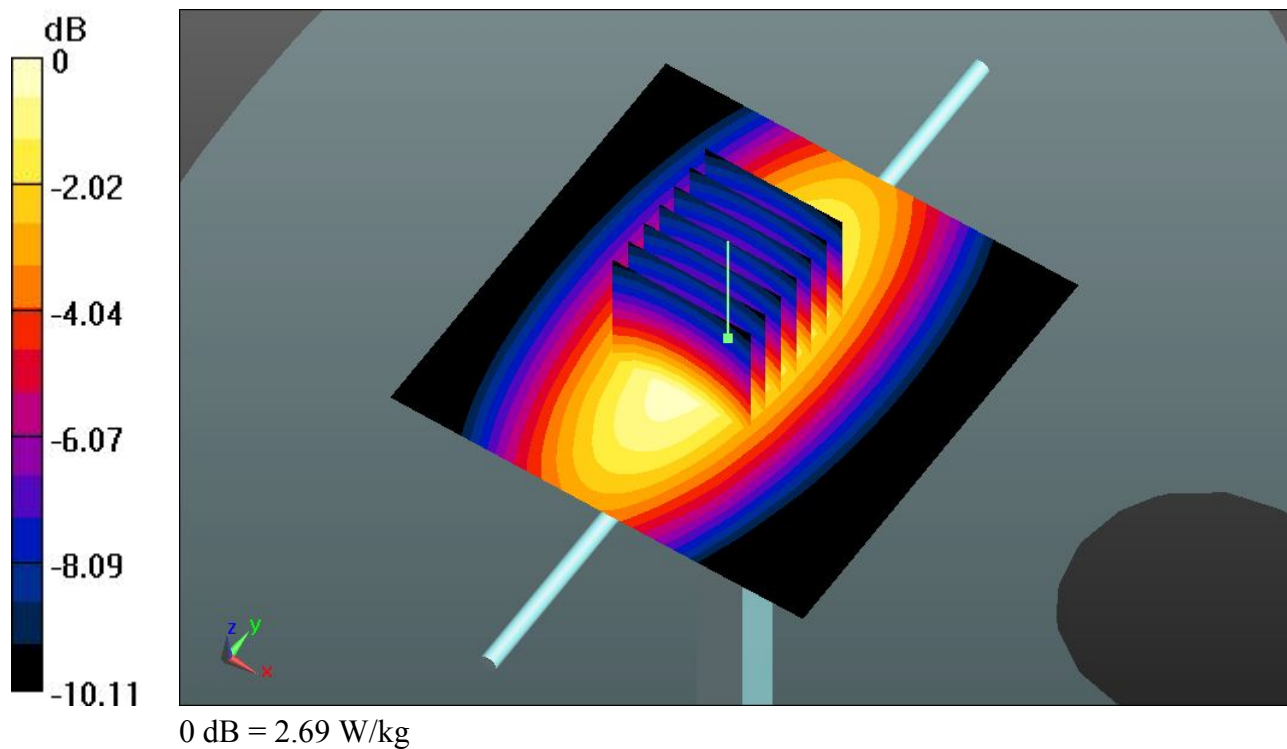
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.895 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.714 mW/g

SAR(1 g) = 2.5 mW/g; SAR(10 g) = 1.65 mW/g

Maximum value of SAR (measured) = 2.69 W/kg



System Check_Head_1900MHz_121103**DUT: D1900V2 - SN:5d118**

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

Medium: HSL_1900_121103 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.427$ mho/m; $\epsilon_r =$

41.191; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(8.36, 8.36, 8.36); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.2 W/kg

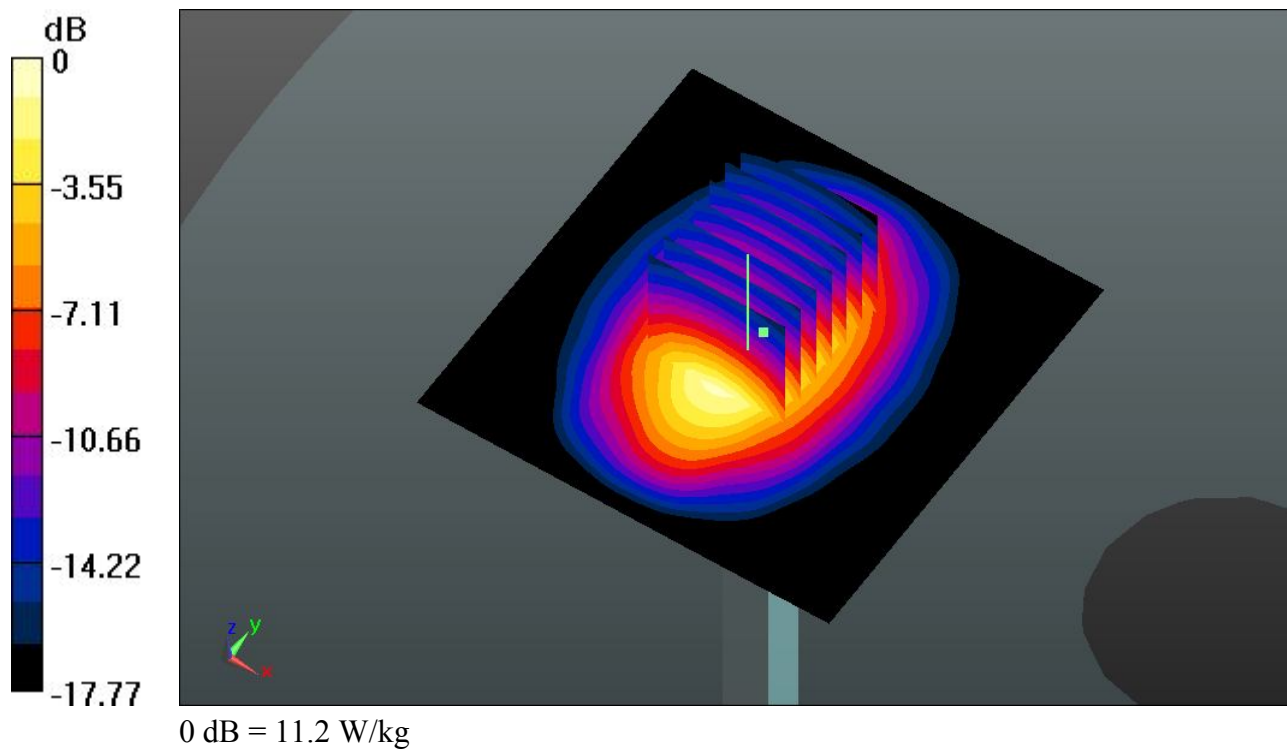
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 88.207 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 18.759 mW/g

SAR(1 g) = 10 mW/g; SAR(10 g) = 5.19 mW/g

Maximum value of SAR (measured) = 11.2 W/kg



System Check_Body_835MHz_121019**DUT: D835V2 - SN:4d091**

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

Medium: MSL_835_121019 Medium parameters used: $f = 835$ MHz; $\sigma = 0.978$ mho/m; $\epsilon_r = 54.413$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.65 W/kg

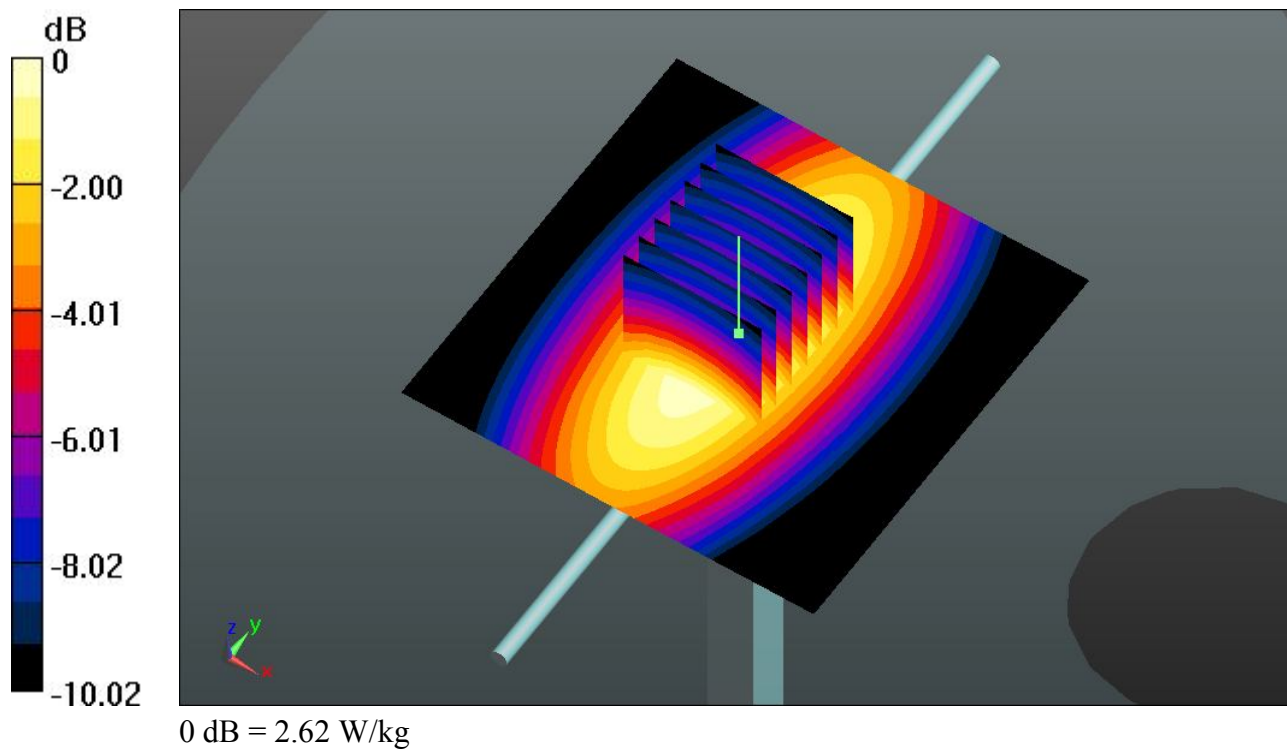
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 52.029 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 3.617 mW/g

SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.61 mW/g

Maximum value of SAR (measured) = 2.62 W/kg



System Check_Body_835MHz_121030**DUT: D835V2 - SN:4d091**

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

Medium: MSL_835_121030 Medium parameters used: $f = 835$ MHz; $\sigma = 0.976$ mho/m; $\epsilon_r = 54.382$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.50 W/kg

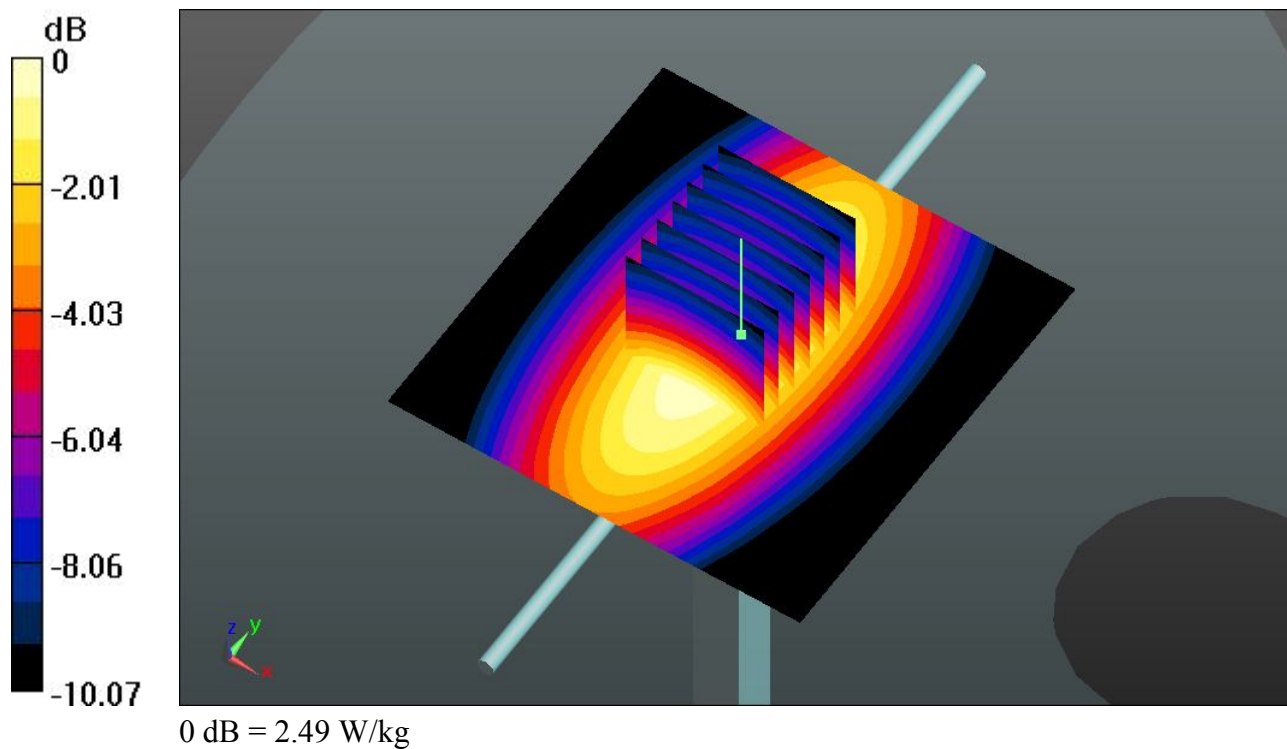
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 50.548 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.445 mW/g

SAR(1 g) = 2.31 mW/g; SAR(10 g) = 1.52 mW/g

Maximum value of SAR (measured) = 2.49 W/kg



System Check_Body_1900MHz_121103**DUT: D1900V2 - SN:5d118**

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

Medium: MSL_1900_121103 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.525$ mho/m; $\epsilon_r =$

54.504; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.8 W/kg

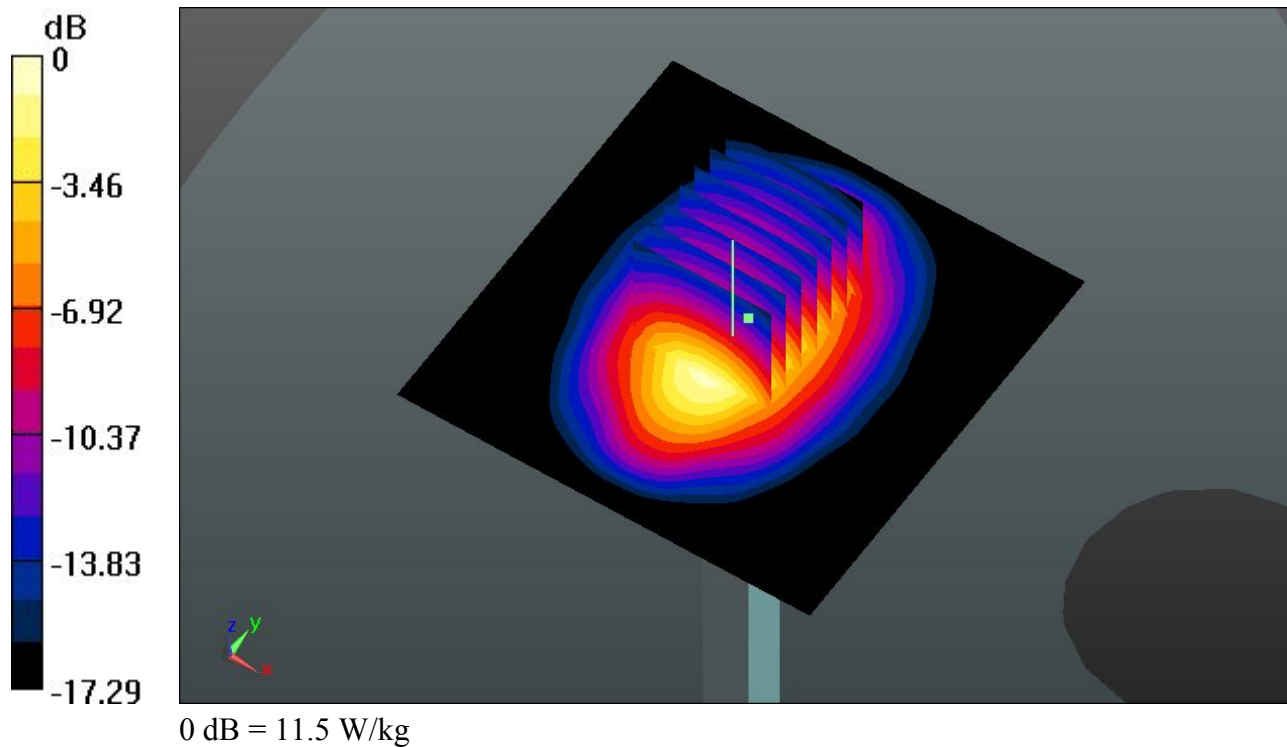
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.111 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 18.934 mW/g

SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.37 mW/g

Maximum value of SAR (measured) = 11.5 W/kg





Appendix B. Plots of SAR Measurement

The plots are shown as follows.

41 GSM850_GSM_Right Cheek_Ch251**DUT: 2O1102**

Communication System: Generic GSM; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: HSL_835_121019 Medium parameters used: $f = 849$ MHz; $\sigma = 0.928$ mho/m; $\epsilon_r = 40.874$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.4, 9.4, 9.4); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch251/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.224 W/kg

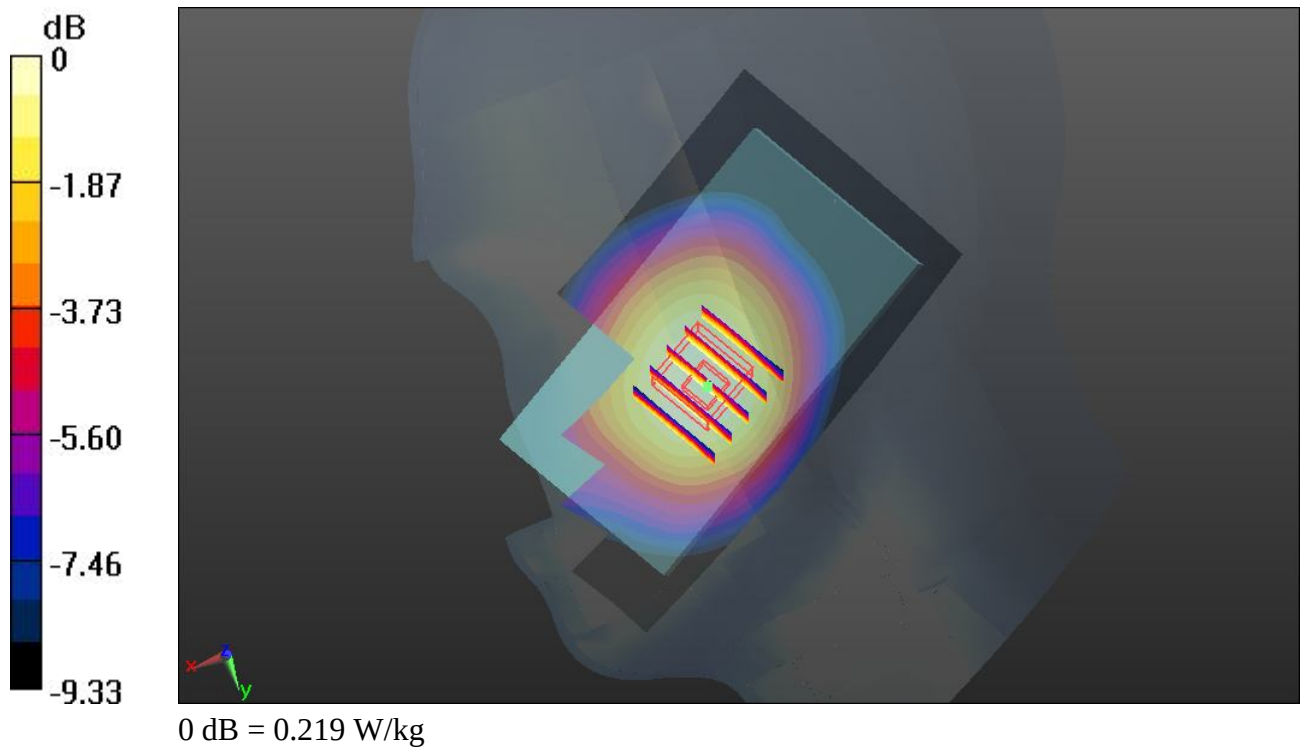
Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.747 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.256 mW/g

SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.219 W/kg



42 GSM850_GSM_Right Tilted_Ch251**DUT: 2O1102**

Communication System: Generic GSM; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: HSL_835_121019 Medium parameters used: $f = 849$ MHz; $\sigma = 0.928$ mho/m; $\epsilon_r = 40.874$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.4, 9.4, 9.4); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch251/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.129 W/kg

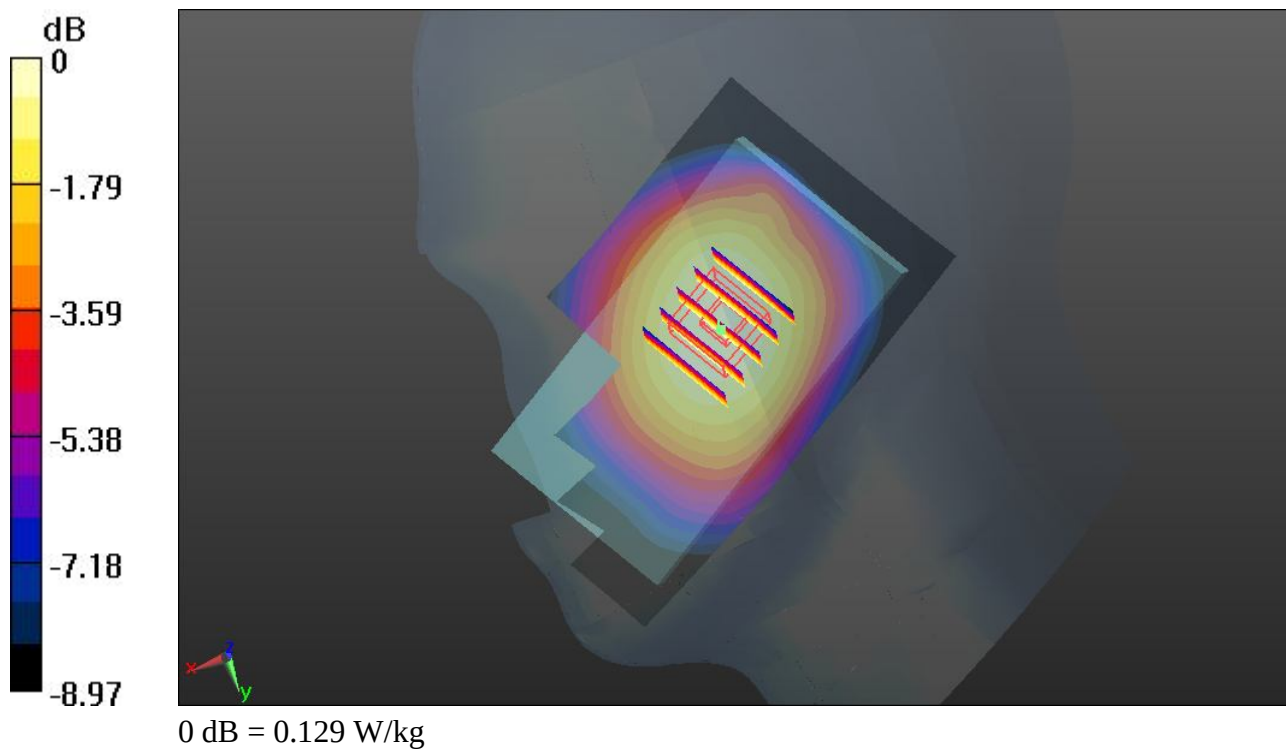
Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.182 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.153 mW/g

SAR(1 g) = 0.124 mW/g; SAR(10 g) = 0.095 mW/g

Maximum value of SAR (measured) = 0.129 W/kg



43 GSM850_GSM_Left Cheek_Ch251**DUT: 2O1102**

Communication System: Generic GSM; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: HSL_835_121019 Medium parameters used: $f = 849$ MHz; $\sigma = 0.928$ mho/m; $\epsilon_r = 40.874$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.4, 9.4, 9.4); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch251/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.226 W/kg

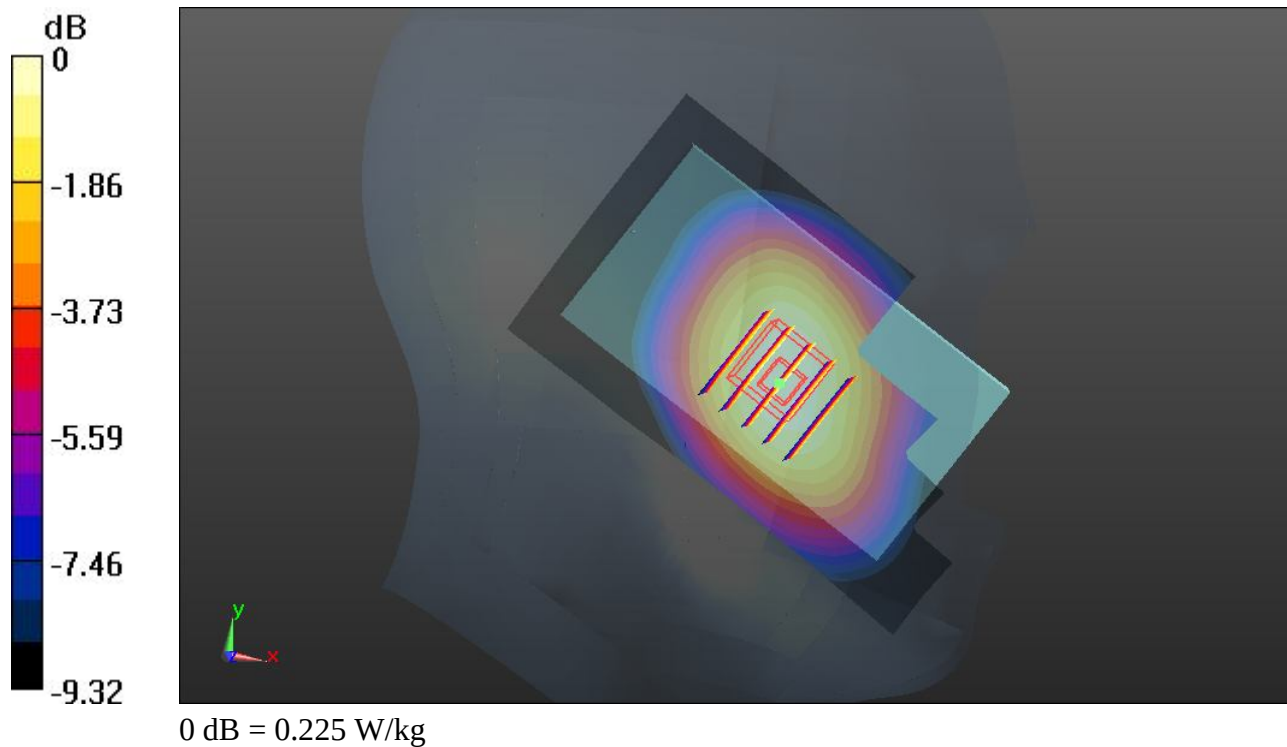
Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.917 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.269 mW/g

SAR(1 g) = 0.214 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.225 W/kg



43 GSM850_GSM_Left Cheek_Ch251_2D**DUT: 2O1102**

Communication System: Generic GSM; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: HSL_835_121019 Medium parameters used: $f = 849$ MHz; $\sigma = 0.928$ mho/m; $\epsilon_r = 40.874$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.4, 9.4, 9.4); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch251/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.226 W/kg

Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.917 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.269 mW/g

SAR(1 g) = 0.214 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.225 W/kg



44 GSM850_GSM_Left Tilted_Ch251**DUT: 2O1102**

Communication System: Generic GSM; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: HSL_835_121019 Medium parameters used: $f = 849$ MHz; $\sigma = 0.928$ mho/m; $\epsilon_r = 40.874$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.4, 9.4, 9.4); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch251/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.145 W/kg

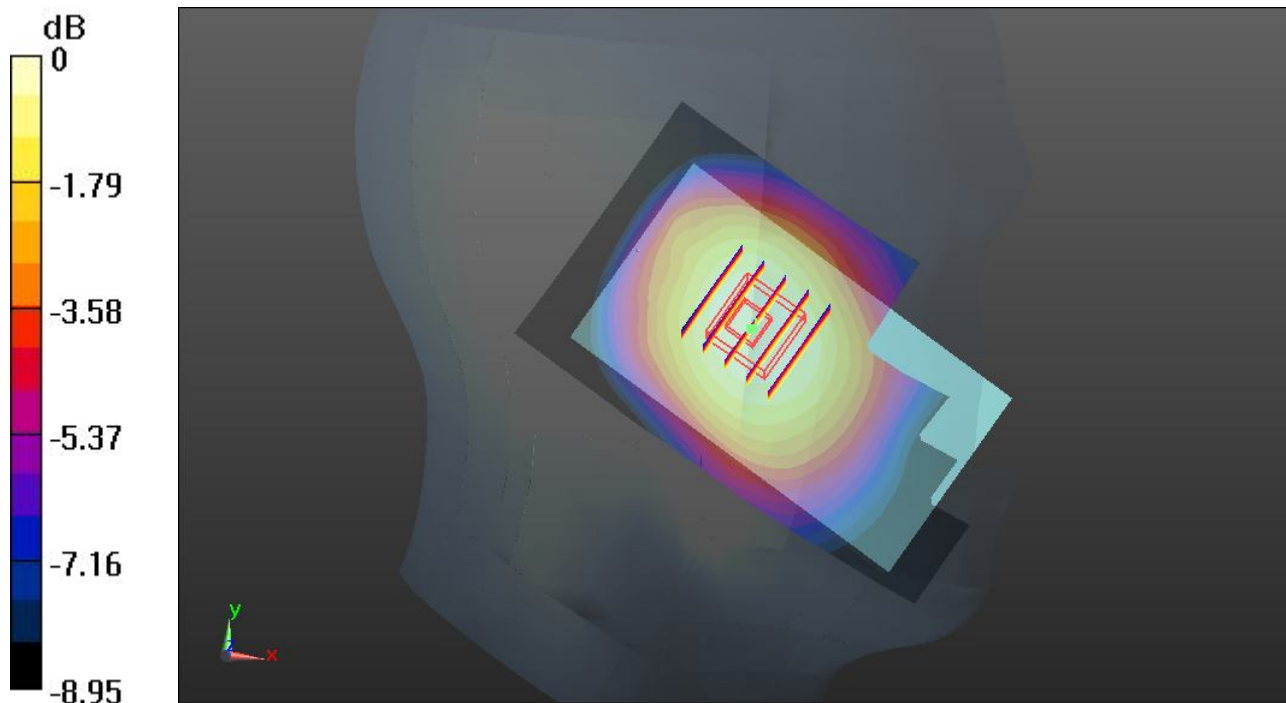
Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.088 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.171 mW/g

SAR(1 g) = 0.139 mW/g; SAR(10 g) = 0.107 mW/g

Maximum value of SAR (measured) = 0.144 W/kg



0 dB = 0.144 W/kg

69 GSM1900_GSM_Right Cheek_Ch810**DUT: 2O1102**

Communication System: Generic GSM; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium: HSL_1900_121103 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.436$ mho/m; $\epsilon_r =$

41.187; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(8.36, 8.36, 8.36); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch810/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.309 W/kg

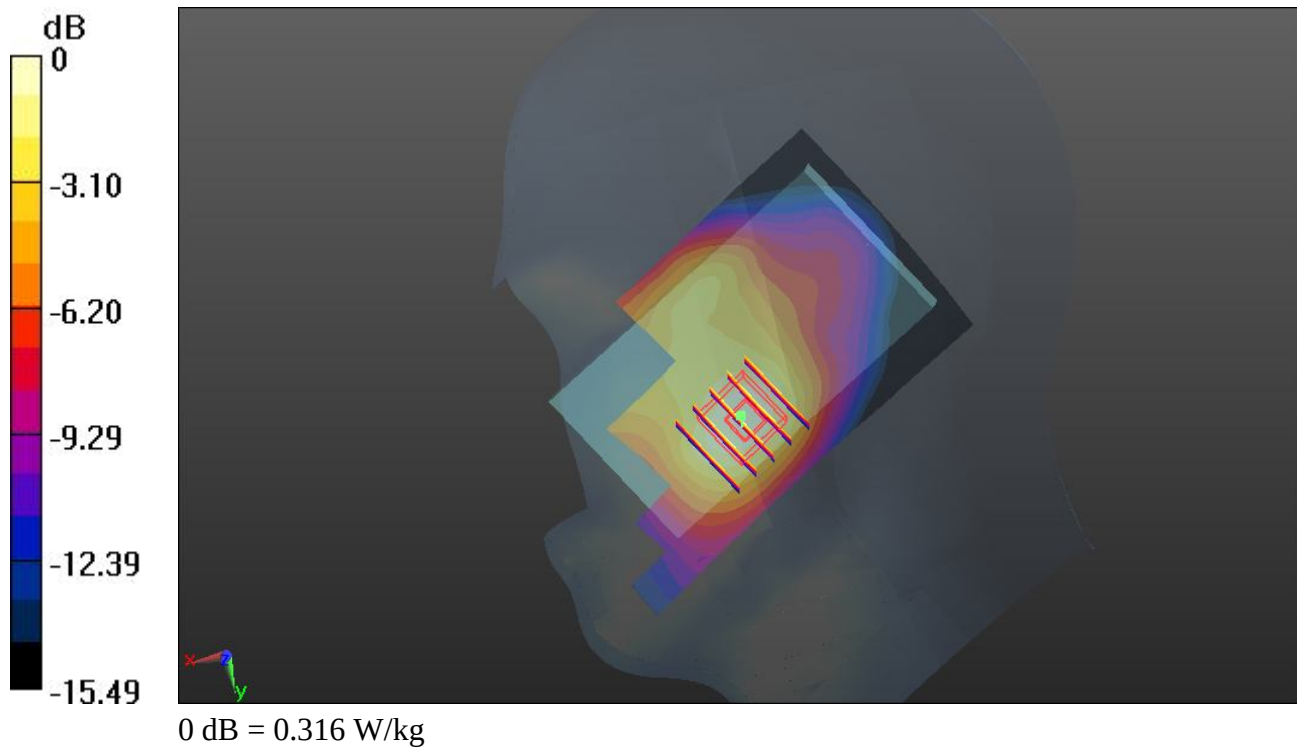
Ch810/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.079 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.438 mW/g

SAR(1 g) = 0.289 mW/g; SAR(10 g) = 0.179 mW/g

Maximum value of SAR (measured) = 0.316 W/kg



70 GSM1900_GSM_Right Tilted_Ch810**DUT: 2O1102**

Communication System: Generic GSM; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium: HSL_1900_121103 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.436$ mho/m; $\epsilon_r =$

41.187; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(8.36, 8.36, 8.36); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch810/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.112 W/kg

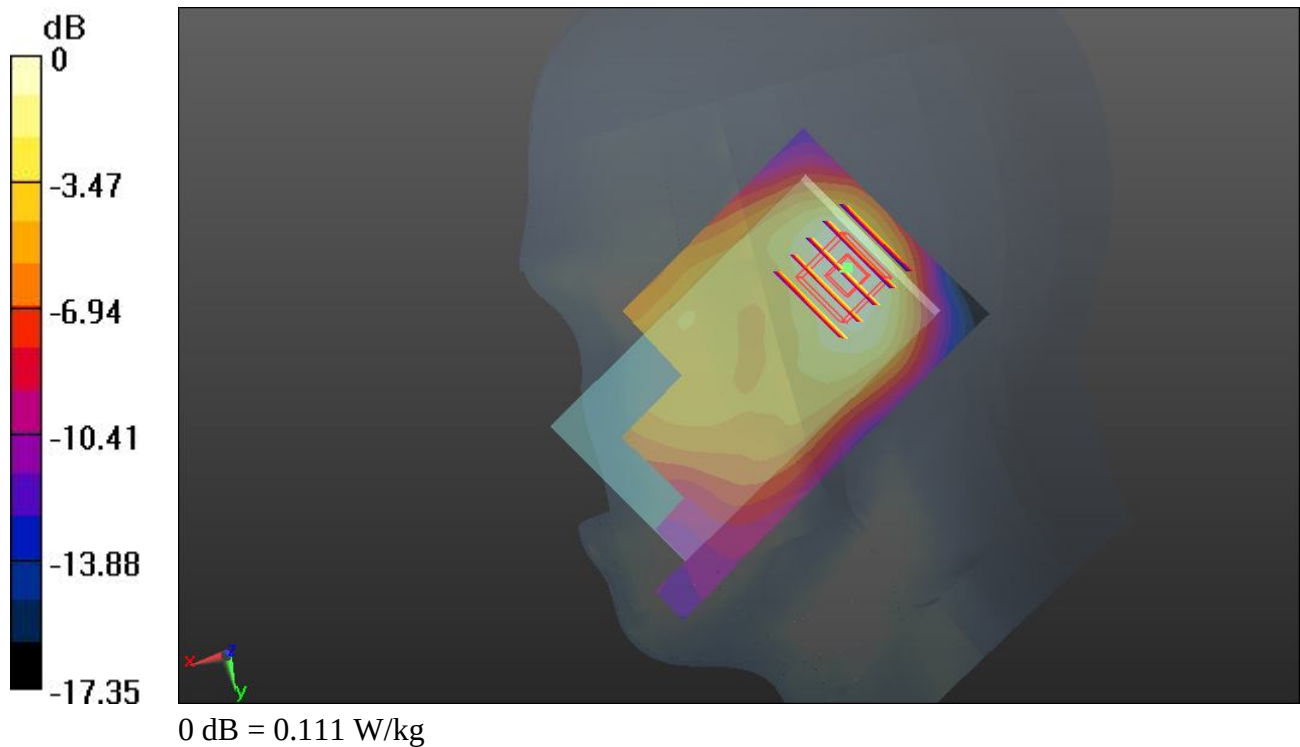
Ch810/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.117 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.160 mW/g

SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.062 mW/g

Maximum value of SAR (measured) = 0.111 W/kg



71 GSM1900_GSM_Left Cheek_Ch810**DUT: 2O1102**

Communication System: Generic GSM; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium: HSL_1900_121103 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.436$ mho/m; $\epsilon_r =$

41.187; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(8.36, 8.36, 8.36); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch810/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.401 W/kg

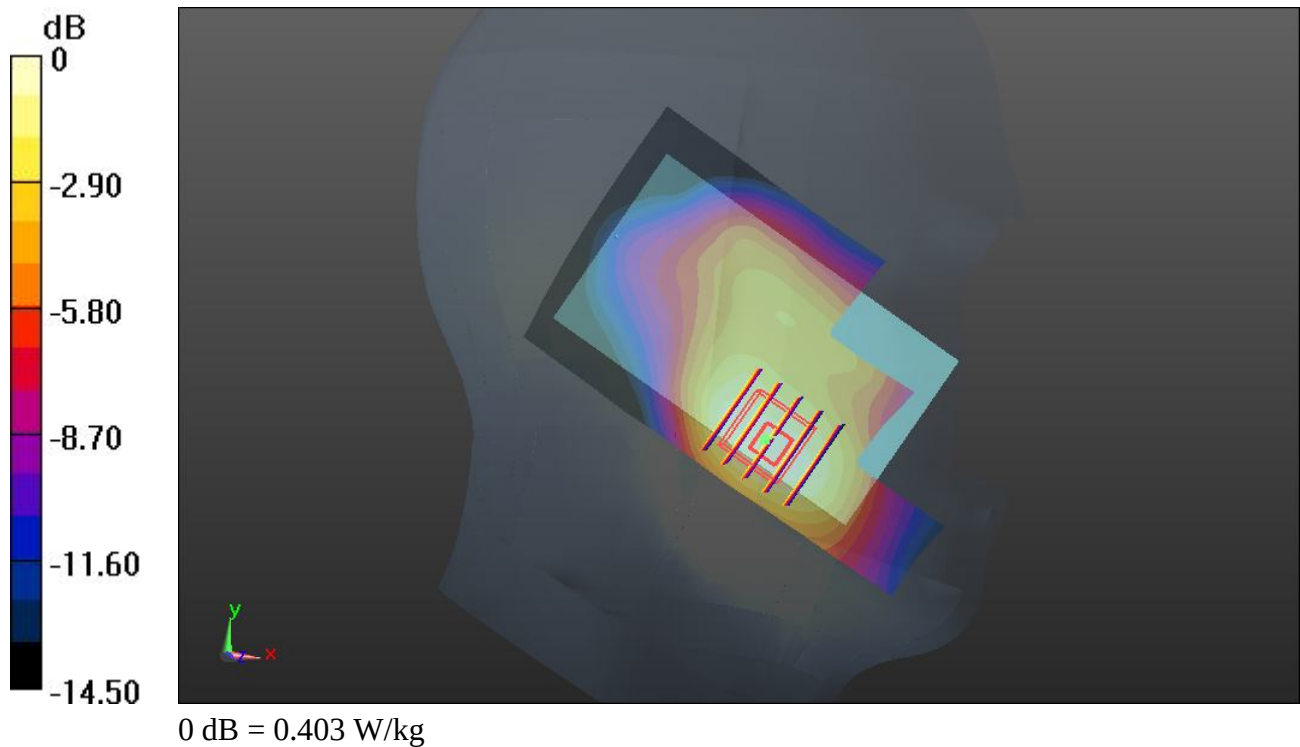
Ch810/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.040 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.585 mW/g

SAR(1 g) = 0.370 mW/g; SAR(10 g) = 0.228 mW/g

Maximum value of SAR (measured) = 0.403 W/kg



71 GSM1900_GSM_Left Cheek_Ch810_2D**DUT: 2O1102**

Communication System: Generic GSM; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium: HSL_1900_121103 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.436$ mho/m; $\epsilon_r =$

41.187; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(8.36, 8.36, 8.36); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch810/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.401 W/kg

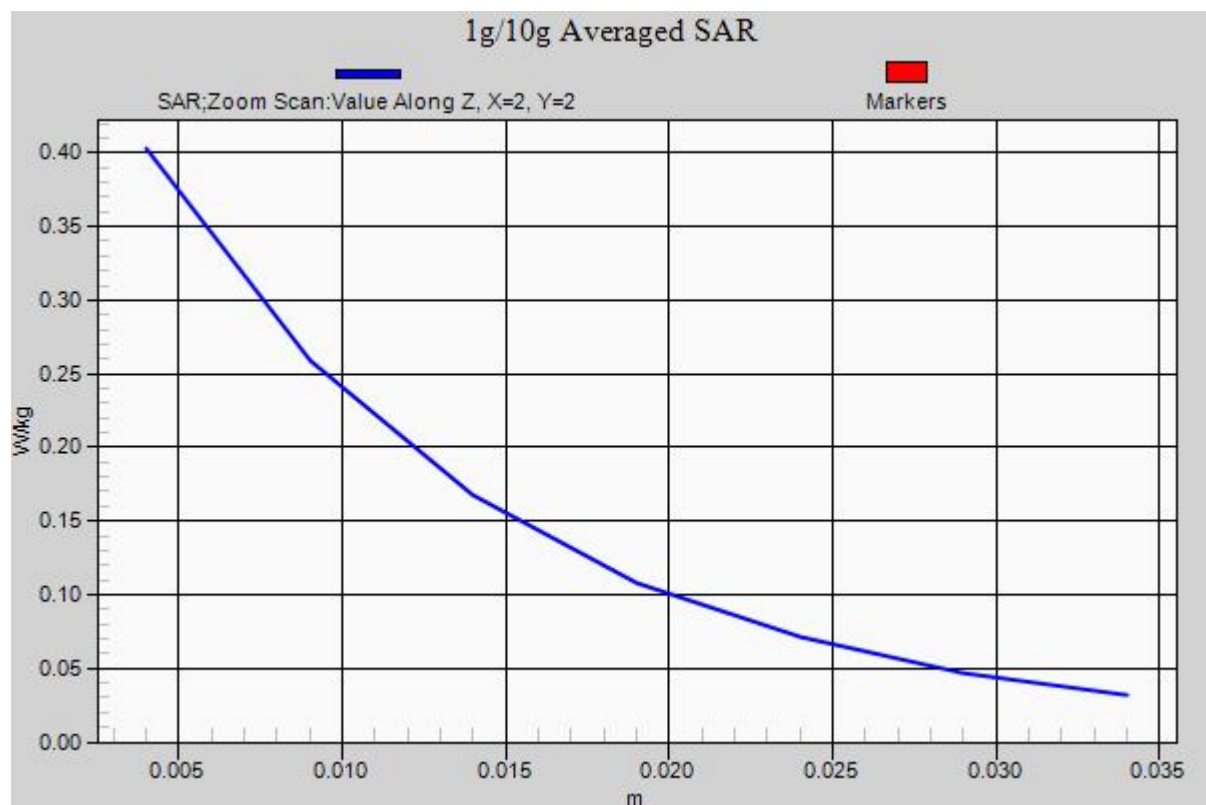
Ch810/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.040 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.585 mW/g

SAR(1 g) = 0.370 mW/g; SAR(10 g) = 0.228 mW/g

Maximum value of SAR (measured) = 0.403 W/kg



72 GSM1900_GSM_Left Tilted_Ch810**DUT: 2O1102**

Communication System: Generic GSM; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium: HSL_1900_121103 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.436$ mho/m; $\epsilon_r =$

41.187; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(8.36, 8.36, 8.36); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch810/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.150 W/kg

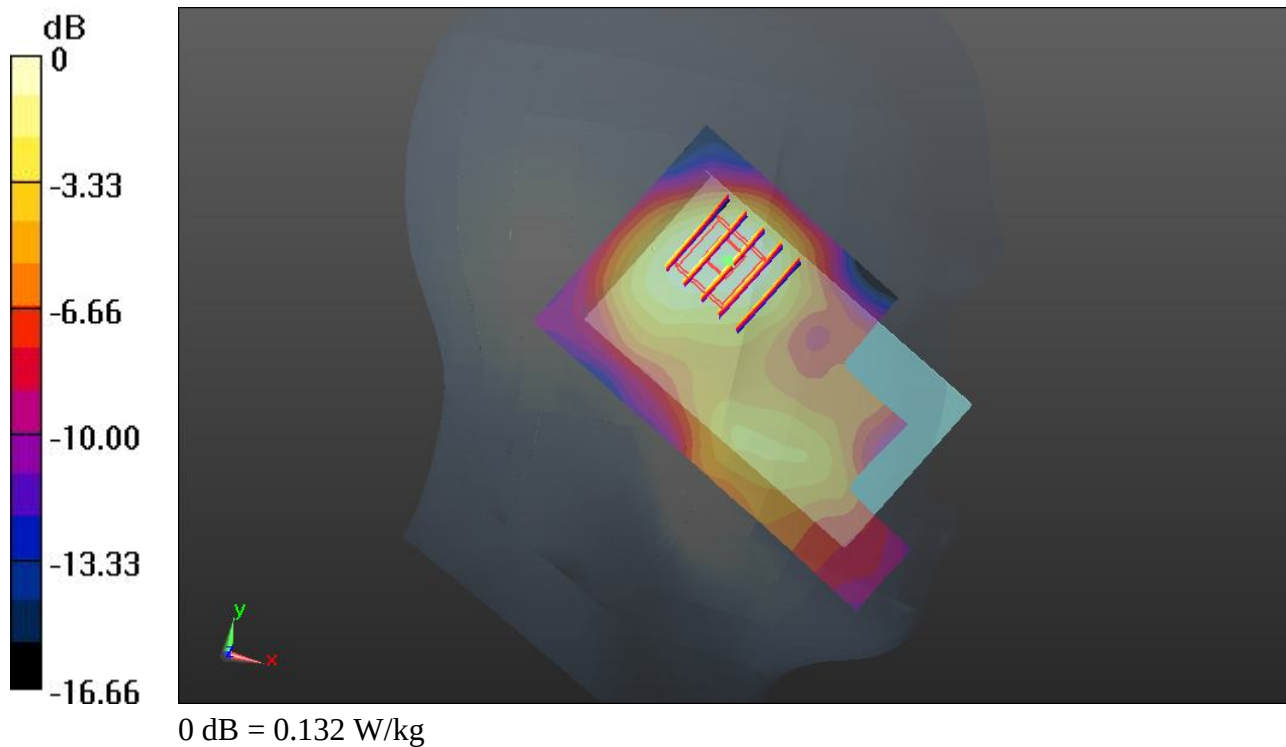
Ch810/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.589 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.193 mW/g

SAR(1 g) = 0.122 mW/g; SAR(10 g) = 0.076 mW/g

Maximum value of SAR (measured) = 0.132 W/kg



45 WCDMA Band V_RMC 12.2K_Right Cheek_Ch4233**DUT: 2O1102**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL_835_121030 Medium parameters used: $f = 847$ MHz; $\sigma = 0.933$ mho/m; $\epsilon_r = 40.849$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.4, 9.4, 9.4); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch4233/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.373 W/kg

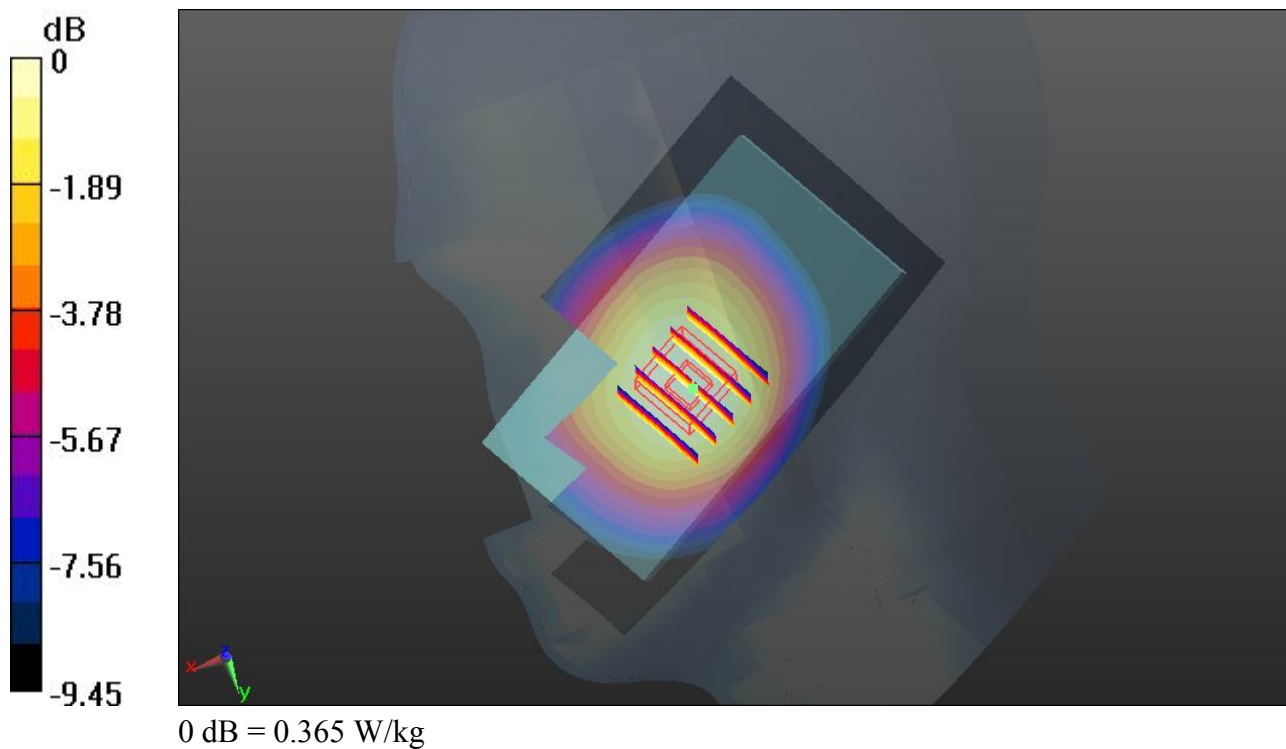
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.032 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.428 mW/g

SAR(1 g) = 0.350 mW/g; SAR(10 g) = 0.271 mW/g

Maximum value of SAR (measured) = 0.365 W/kg



45 WCDMA Band V_RMC 12.2K_Right Cheek_Ch4233_2D**DUT: 2O1102**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL_835_121030 Medium parameters used: $f = 847$ MHz; $\sigma = 0.933$ mho/m; $\epsilon_r = 40.849$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.4, 9.4, 9.4); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch4233/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.373 W/kg

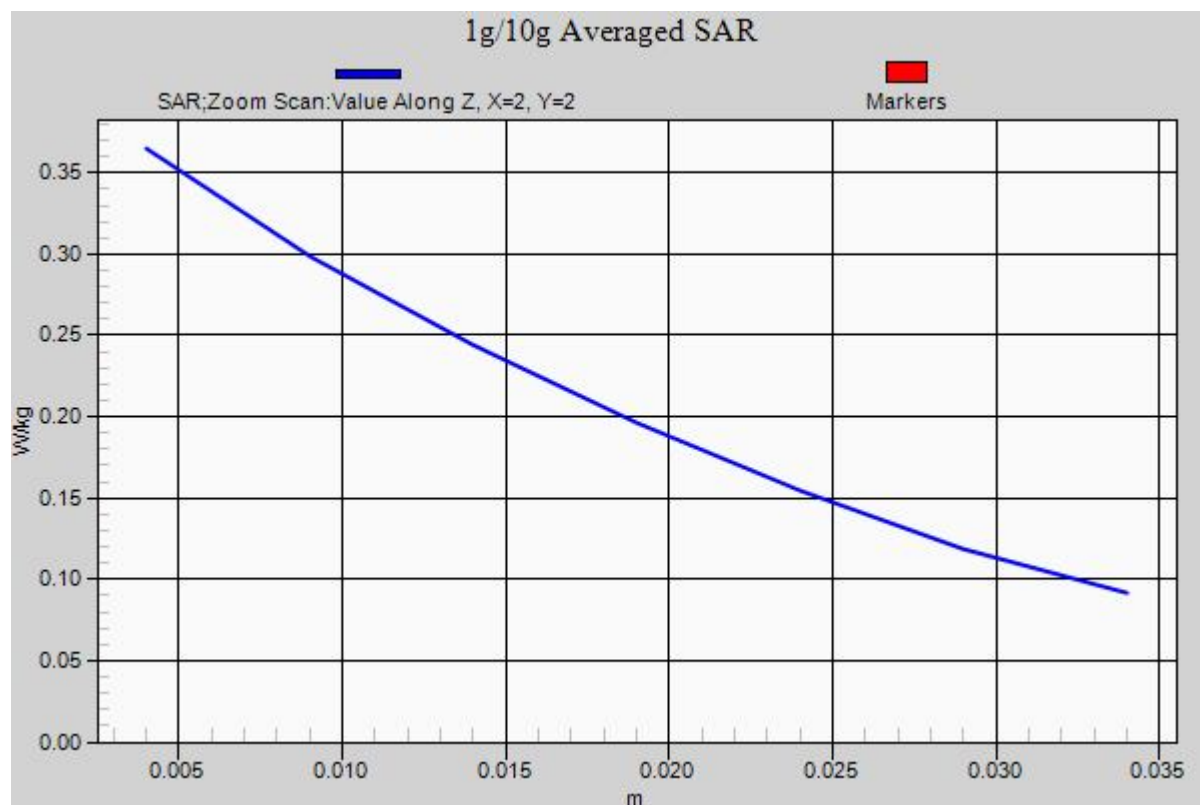
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.032 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.428 mW/g

SAR(1 g) = 0.350 mW/g; SAR(10 g) = 0.271 mW/g

Maximum value of SAR (measured) = 0.365 W/kg



46 WCDMA BandBand V_RMC 12.2K_Right Tilted_Ch4233**DUT: 2O1102**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL_835_121030 Medium parameters used: $f = 847$ MHz; $\sigma = 0.933$ mho/m; $\epsilon_r = 40.849$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.4, 9.4, 9.4); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch4233/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.219 W/kg

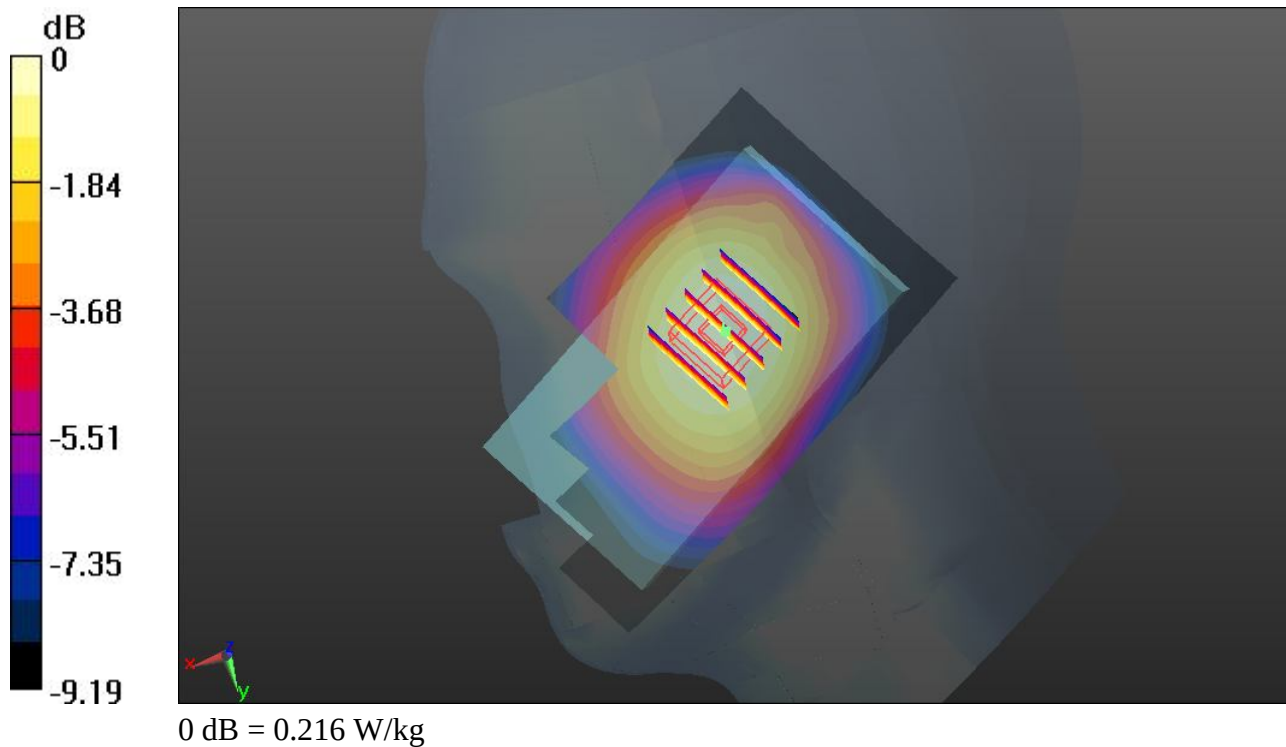
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.133 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.255 mW/g

SAR(1 g) = 0.208 mW/g; SAR(10 g) = 0.160 mW/g

Maximum value of SAR (measured) = 0.216 W/kg



47 WCDMA Band V_RMC 12.2K_Left Cheek_Ch4233**DUT: 2O1102**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL_835_121030 Medium parameters used: $f = 847$ MHz; $\sigma = 0.933$ mho/m; $\epsilon_r = 40.849$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.4, 9.4, 9.4); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch4233/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.362 W/kg

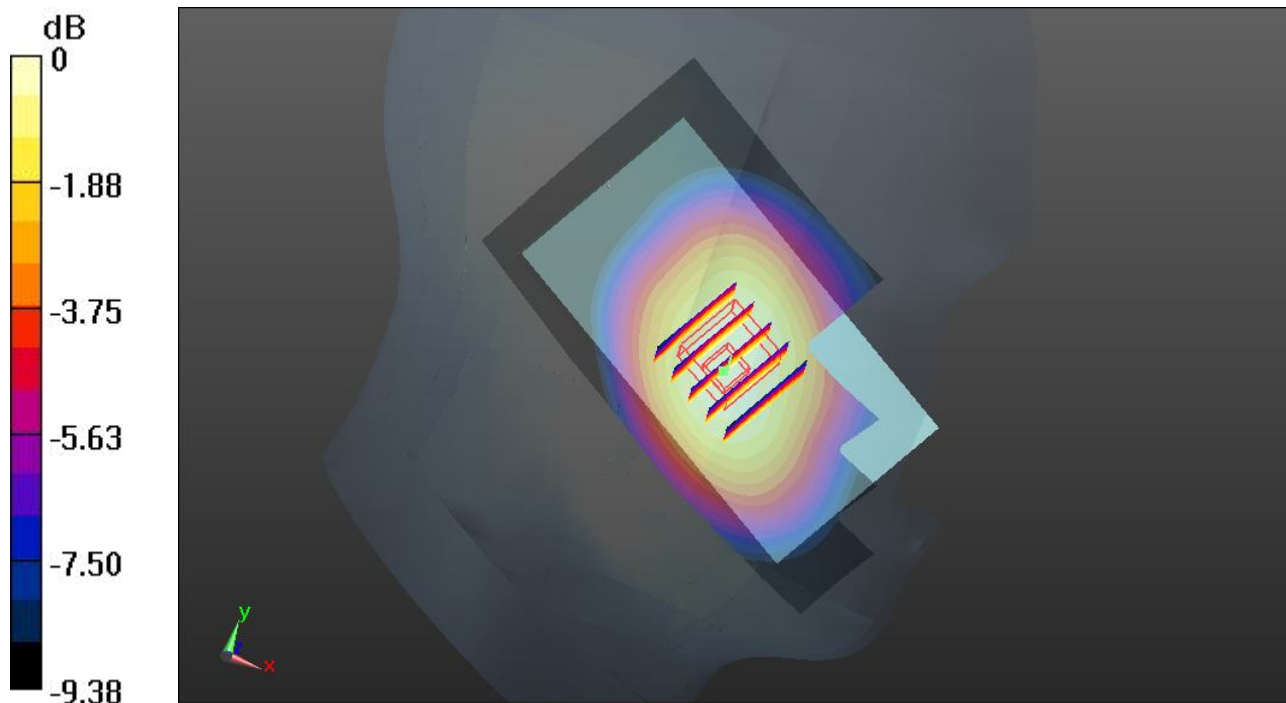
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.709 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.438 mW/g

SAR(1 g) = 0.340 mW/g; SAR(10 g) = 0.257 mW/g

Maximum value of SAR (measured) = 0.358 W/kg



0 dB = 0.358 W/kg

48 WCDMA Band V_RMC 12.2K_Left Tilted_Ch4233**DUT: 2O1102**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL_835_121030 Medium parameters used: $f = 847$ MHz; $\sigma = 0.933$ mho/m; $\epsilon_r = 40.849$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.4, 9.4, 9.4); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch4233/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.216 W/kg

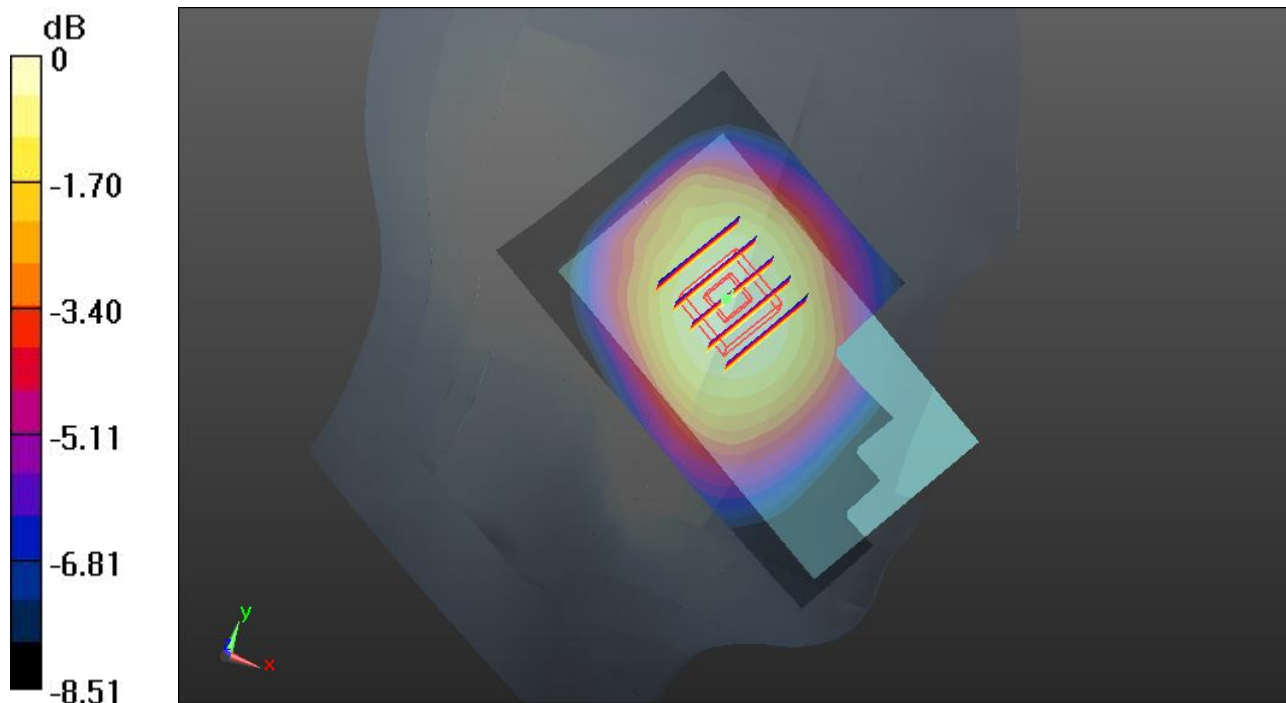
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.344 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.261 mW/g

SAR(1 g) = 0.210 mW/g; SAR(10 g) = 0.161 mW/g

Maximum value of SAR (measured) = 0.221 W/kg



0 dB = 0.221 W/kg

73 WCDMA Band II_RMC 12.2K_Right Cheek_Ch9400**DUT: 2O1102**

Communication System: UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL_1900_121103 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.402$ mho/m; $\epsilon_r =$

41.184; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(8.36, 8.36, 8.36); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9400/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.679 W/kg

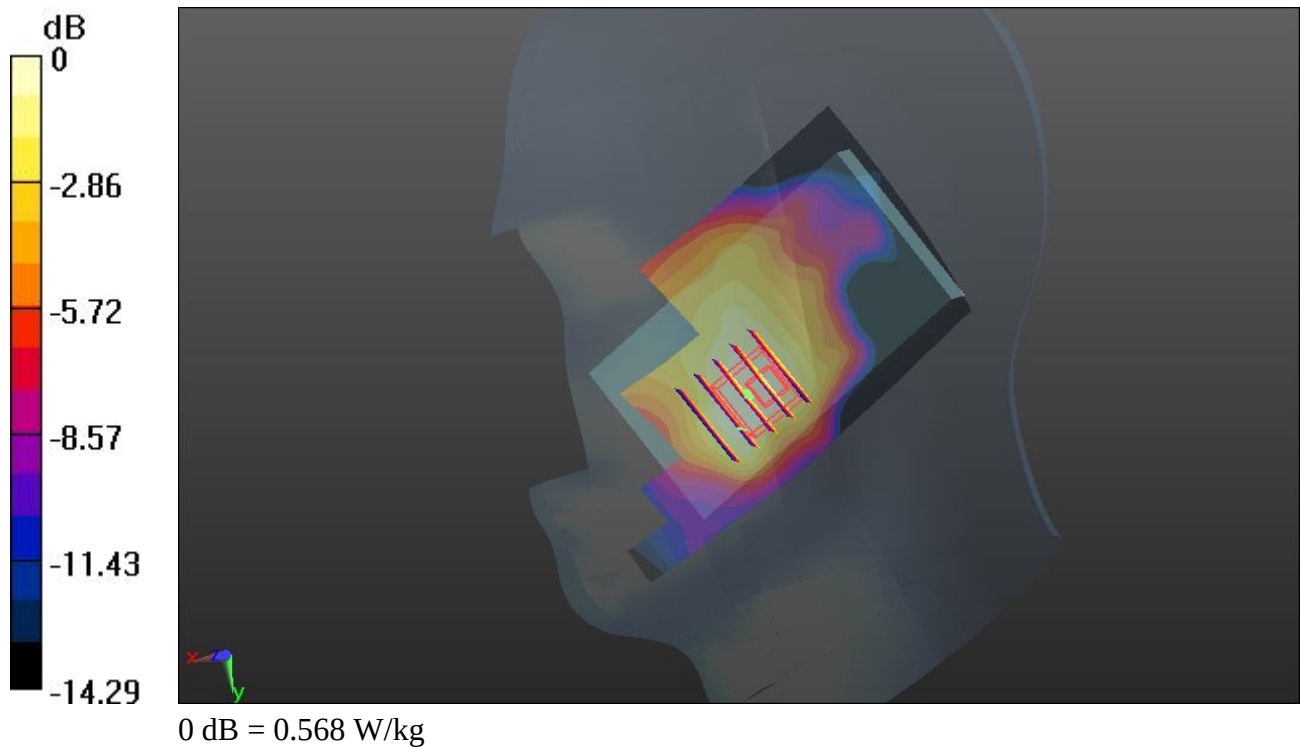
Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.354 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.936 mW/g

SAR(1 g) = 0.536 mW/g; SAR(10 g) = 0.339 mW/g

Maximum value of SAR (measured) = 0.568 W/kg



74 WCDMA Band II_RMC 12.2K_Right Tilted_Ch9400**DUT: 2O1102**

Communication System: UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL_1900_121103 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.402$ mho/m; $\epsilon_r =$

41.184; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(8.36, 8.36, 8.36); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9400/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.309 W/kg

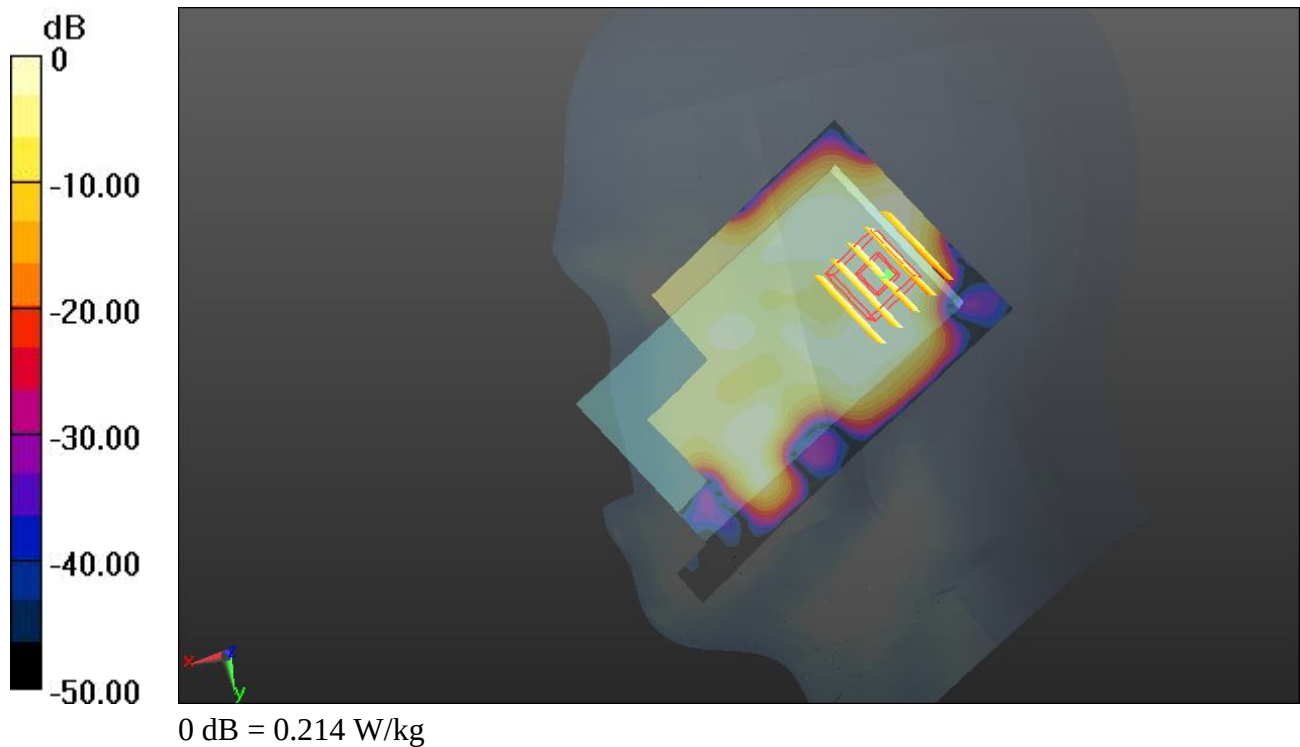
Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.722 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.312 mW/g

SAR(1 g) = 0.197 mW/g; SAR(10 g) = 0.119 mW/g

Maximum value of SAR (measured) = 0.214 W/kg



75 WCDMA Band II_RMC 12.2K_Left Cheek_Ch9400**DUT: 2O1102**

Communication System: UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL_1900_121103 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.402$ mho/m; $\epsilon_r =$

41.184; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(8.36, 8.36, 8.36); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9400/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.721 W/kg

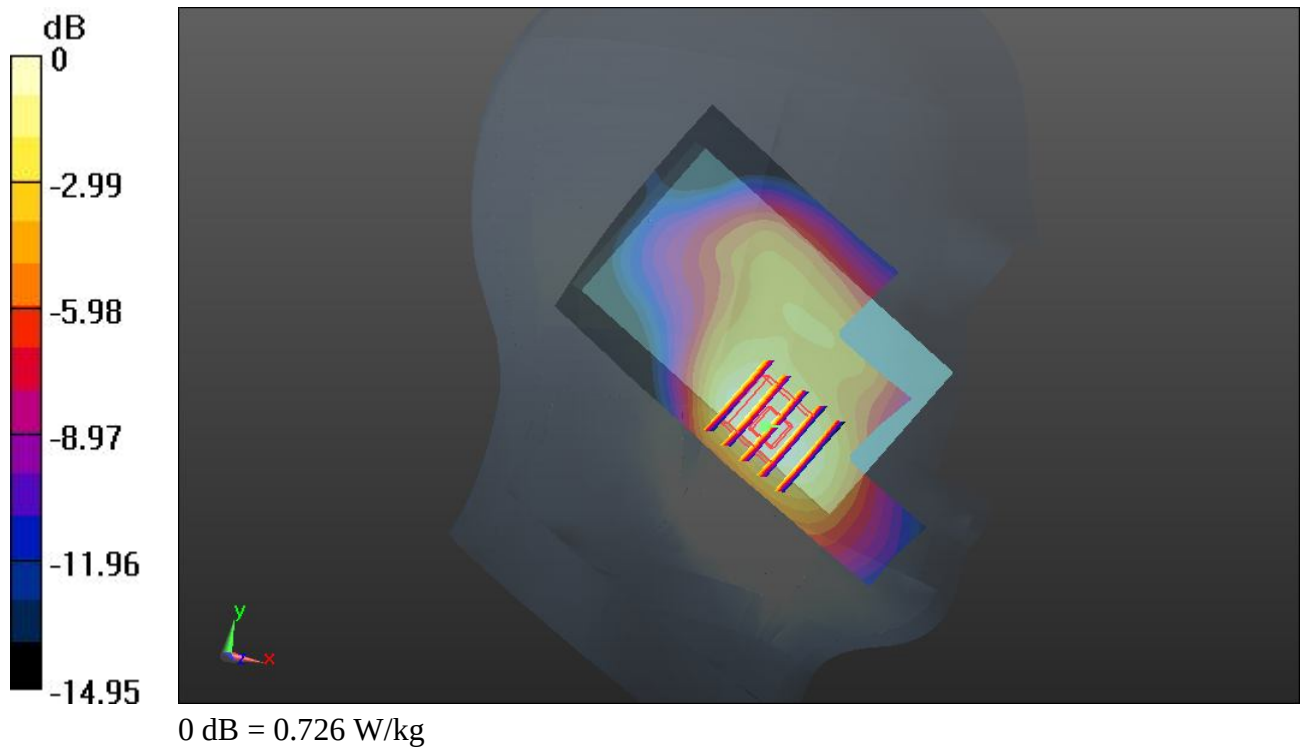
Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.784 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.047 mW/g

SAR(1 g) = 0.667 mW/g; SAR(10 g) = 0.414 mW/g

Maximum value of SAR (measured) = 0.726 W/kg



75 WCDMA Band II_RMC 12.2K_Left Cheek_Ch9400_2D**DUT: 2O1102**

Communication System: UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL_1900_121103 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.402$ mho/m; $\epsilon_r =$

41.184; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(8.36, 8.36, 8.36); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9400/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.721 W/kg

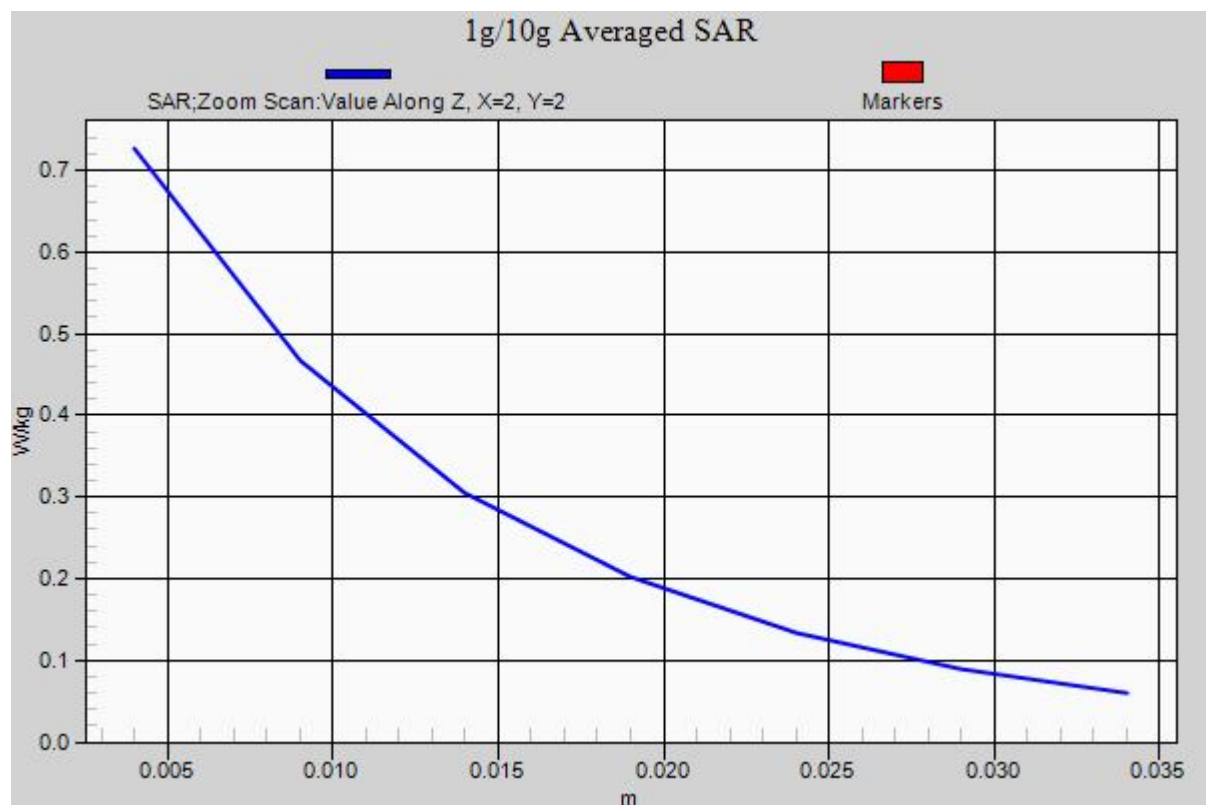
Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.784 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.047 mW/g

SAR(1 g) = 0.667 mW/g; SAR(10 g) = 0.414 mW/g

Maximum value of SAR (measured) = 0.726 W/kg



76 WCDMA Band II_RMC 12.2K_Left Tilted_Ch9400**DUT: 2O1102**

Communication System: UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL_1900_121103 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.402$ mho/m; $\epsilon_r =$

41.184; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(8.36, 8.36, 8.36); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9400/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.309 W/kg

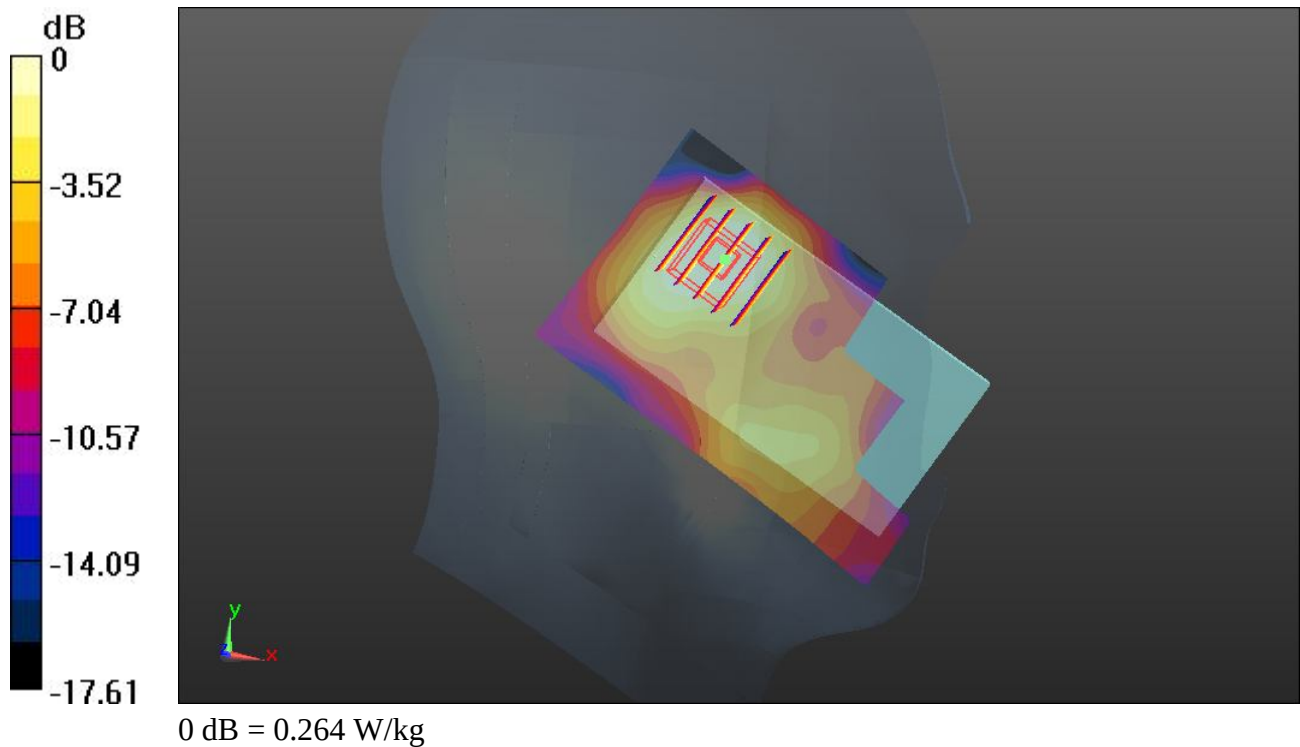
Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.174 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.363 mW/g

SAR(1 g) = 0.246 mW/g; SAR(10 g) = 0.155 mW/g

Maximum value of SAR (measured) = 0.264 W/kg



21 GSM850_GPRS(3 Tx slots)_Front_1cm_Ch251**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 848.8 MHz; Duty Cycle: 1:2.7

Medium: MSL_835_121019 Medium parameters used: $f = 849$ MHz; $\sigma = 0.991$ mho/m; $\epsilon_r = 54.291$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch251/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.404 W/kg

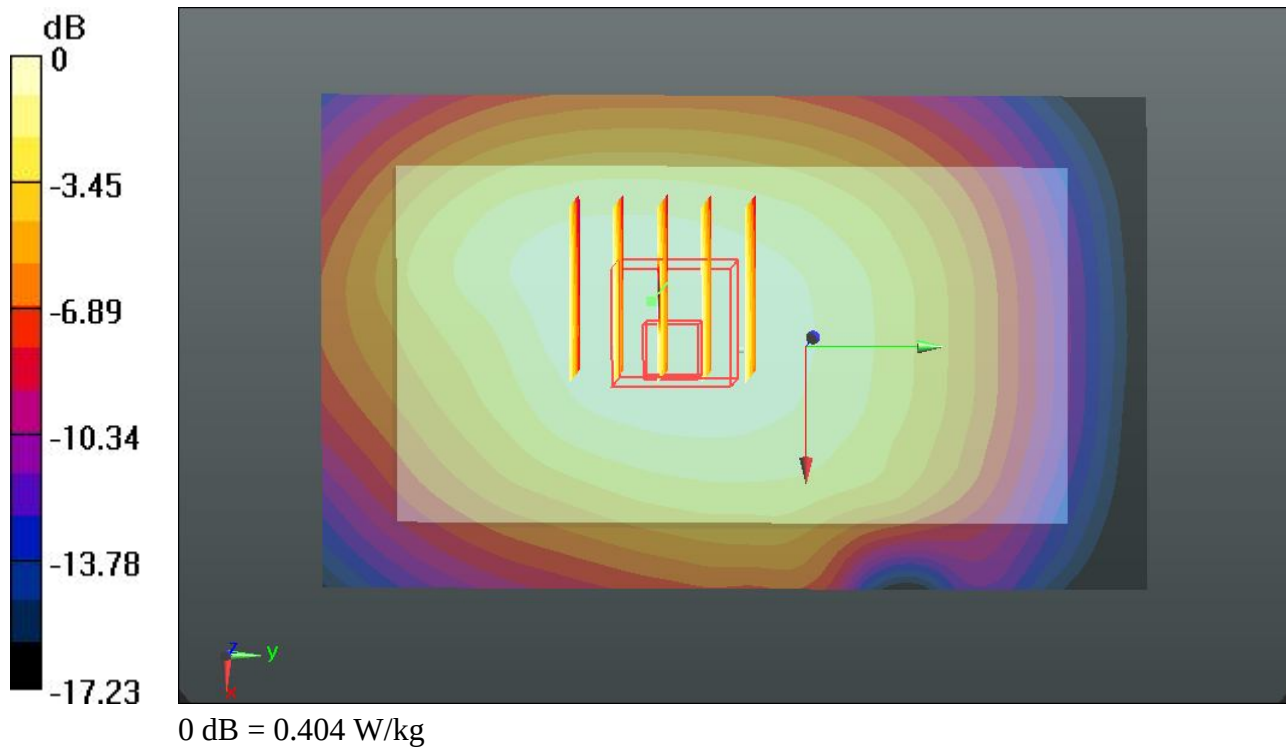
Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.603 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.953 mW/g

SAR(1 g) = 0.392 mW/g; SAR(10 g) = 0.291 mW/g

Maximum value of SAR (measured) = 0.404 W/kg



22 GSM850_GPRS(3 Tx slots)_Back_1cm_Ch251**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 848.8 MHz; Duty Cycle: 1:2.7

Medium: MSL_835_121019 Medium parameters used: $f = 849$ MHz; $\sigma = 0.991$ mho/m; $\epsilon_r = 54.291$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch251/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.557 W/kg

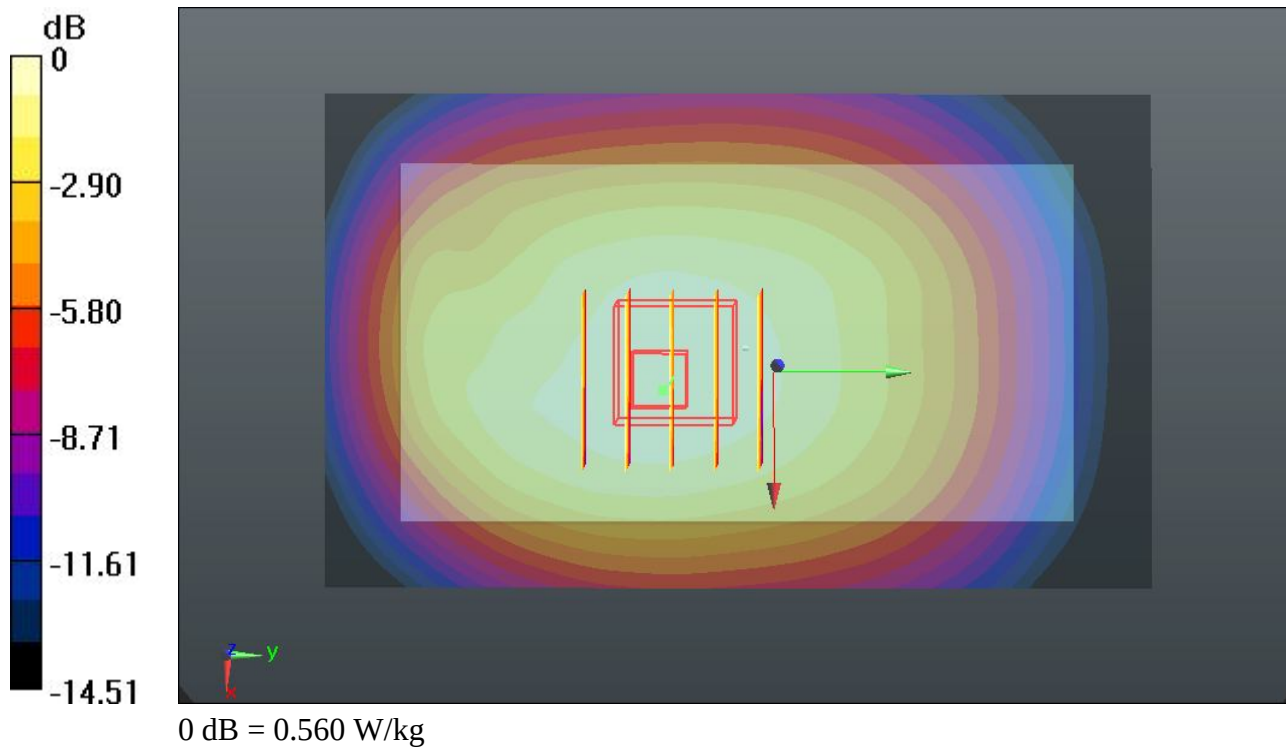
Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.496 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.694 mW/g

SAR(1 g) = 0.533 mW/g; SAR(10 g) = 0.396 mW/g

Maximum value of SAR (measured) = 0.560 W/kg



22 GSM850_GPRS(3 Tx slots)_Back_1cm_Ch251_2D**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 848.8 MHz; Duty Cycle: 1:2.7

Medium: MSL_835_121019 Medium parameters used: $f = 849$ MHz; $\sigma = 0.991$ mho/m; $\epsilon_r = 54.291$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch251/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.557 W/kg

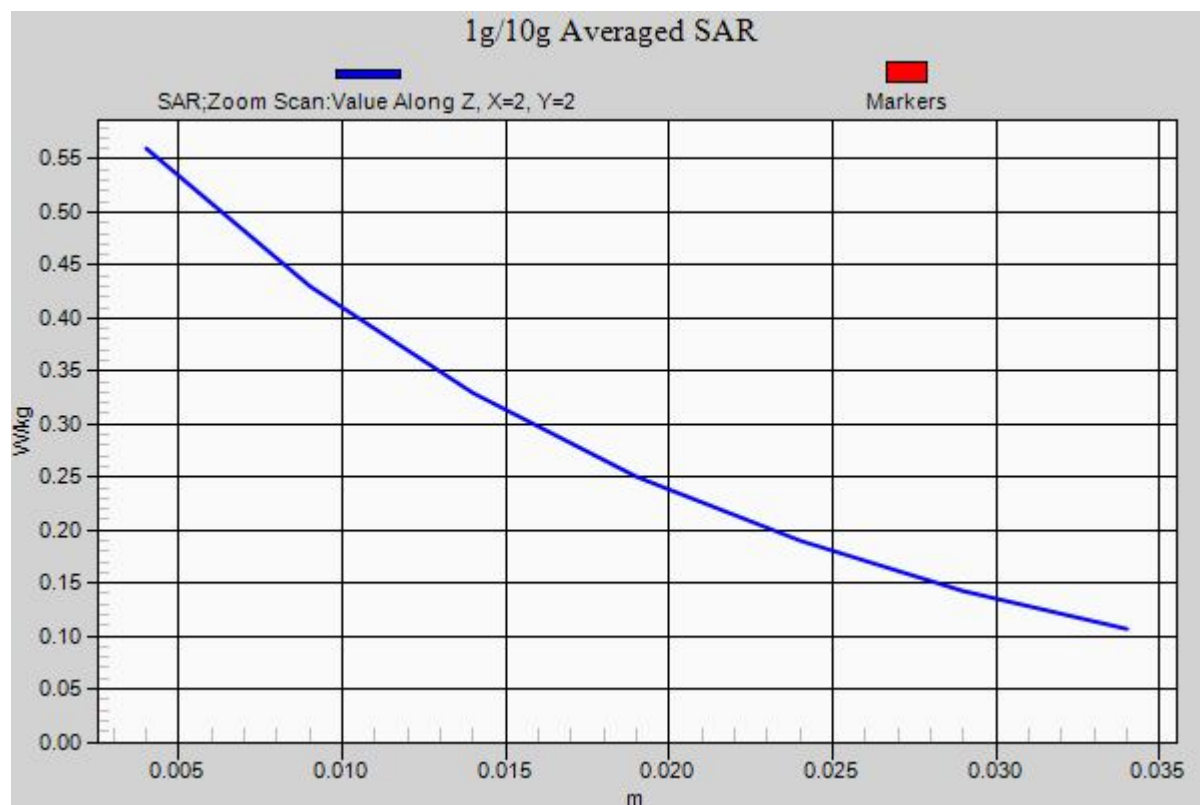
Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.496 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.694 mW/g

SAR(1 g) = 0.533 mW/g; SAR(10 g) = 0.396 mW/g

Maximum value of SAR (measured) = 0.560 W/kg



23 GSM850_GPRS(3 Tx slots)_Left Side_1cm_Ch251**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 848.8 MHz; Duty Cycle: 1:2.7

Medium: MSL_835_121019 Medium parameters used: $f = 849$ MHz; $\sigma = 0.991$ mho/m; $\epsilon_r = 54.291$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch251/Area Scan (41x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.382 W/kg

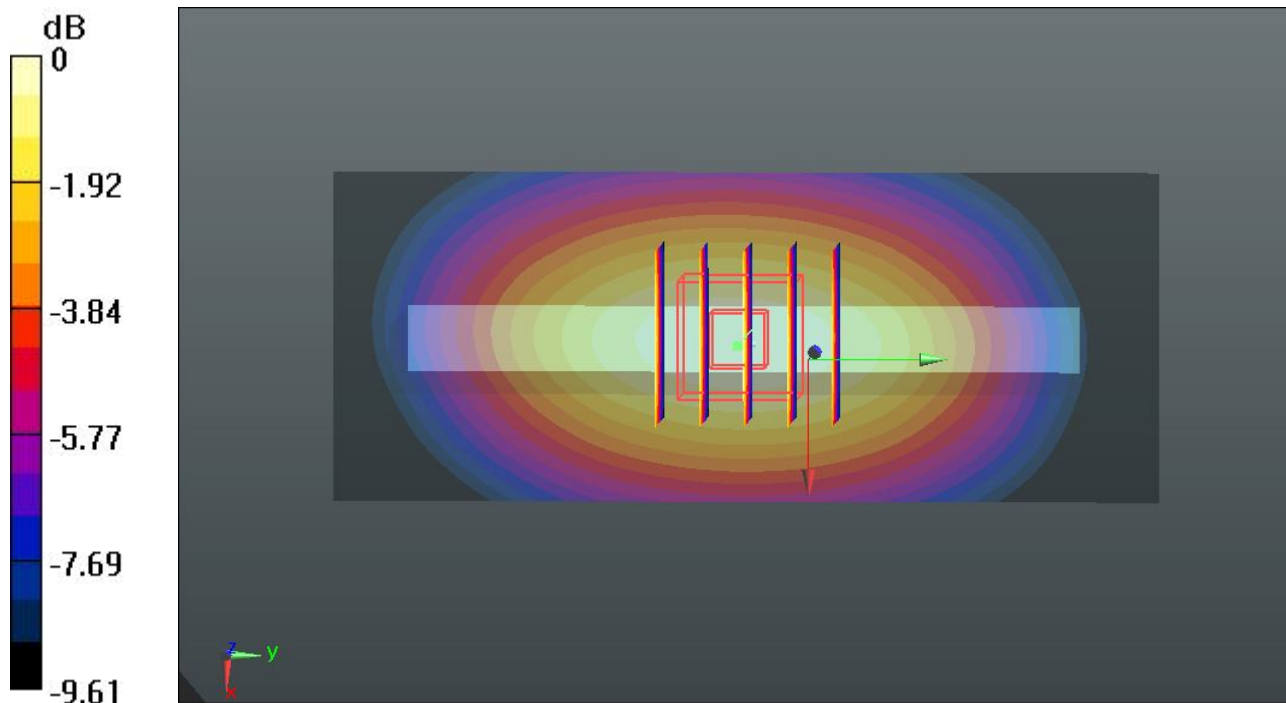
Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.795 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.545 mW/g

SAR(1 g) = 0.362 mW/g; SAR(10 g) = 0.247 mW/g

Maximum value of SAR (measured) = 0.386 W/kg



0 dB = 0.386 W/kg

24 GSM850_GPRS(3 Tx slots)_Right Side_1cm_Ch251**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 848.8 MHz; Duty Cycle: 1:2.7

Medium: MSL_835_121019 Medium parameters used: $f = 849$ MHz; $\sigma = 0.991$ mho/m; $\epsilon_r = 54.291$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch251/Area Scan (41x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.431 W/kg

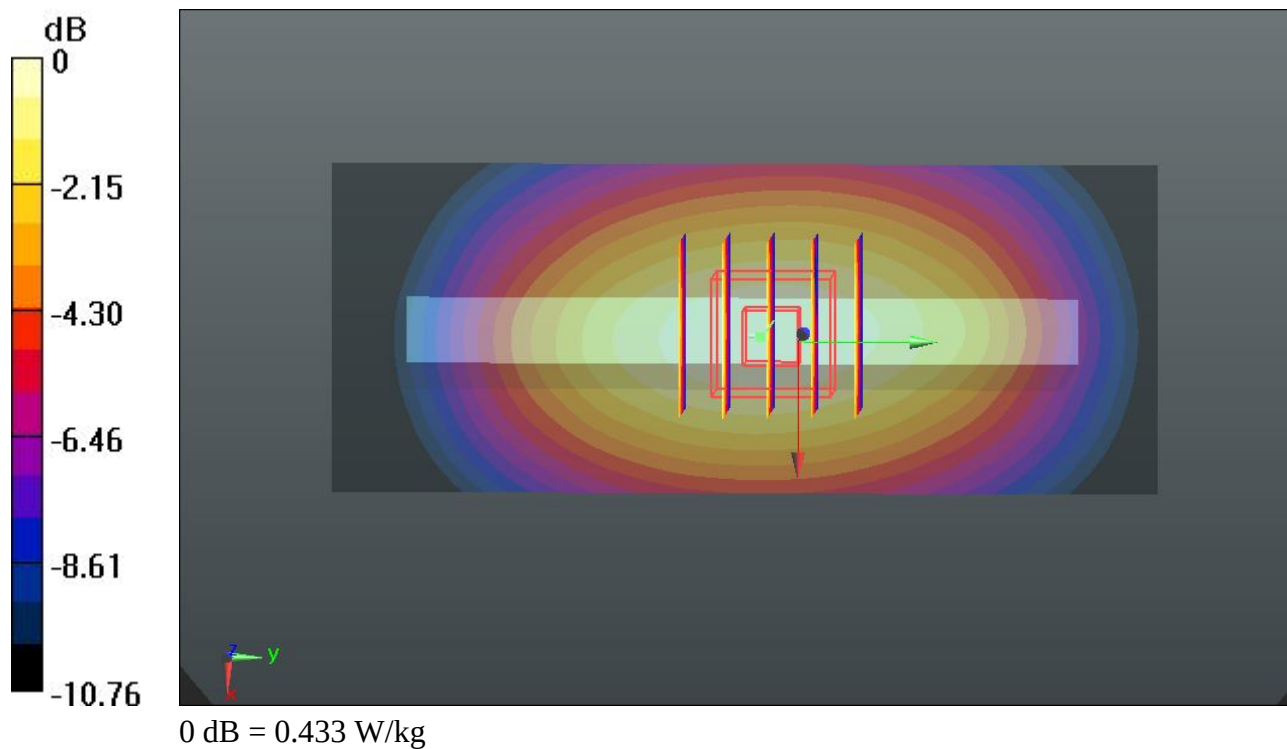
Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.799 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.578 mW/g

SAR(1 g) = 0.405 mW/g; SAR(10 g) = 0.279 mW/g

Maximum value of SAR (measured) = 0.433 W/kg



25 GSM850_GPRS(3 Tx slots)_Bottom Side_1cm_Ch251**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 848.8 MHz; Duty Cycle: 1:2.7

Medium: MSL_835_121019 Medium parameters used: $f = 849$ MHz; $\sigma = 0.991$ mho/m; $\epsilon_r = 54.291$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch251/Area Scan (41x71x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.0635 W/kg

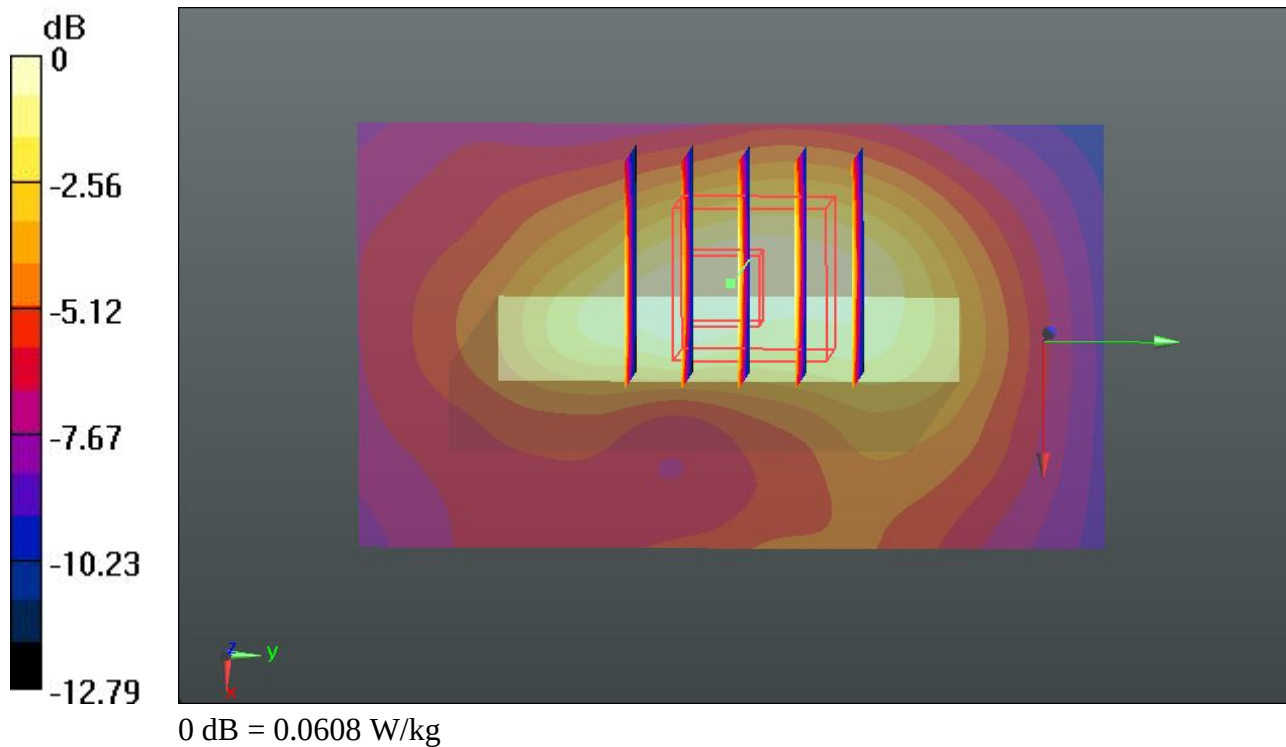
Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.294 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.094 mW/g

SAR(1 g) = 0.056 mW/g; SAR(10 g) = 0.033 mW/g

Maximum value of SAR (measured) = 0.0608 W/kg



26 GSM850_GSM_Back_1cm_Ch251_Headset**DUT: 2O1102**

Communication System: Generic GSM; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: MSL_835_121019 Medium parameters used: $f = 849$ MHz; $\sigma = 0.991$ mho/m; $\epsilon_r = 54.291$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch251/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.285 W/kg

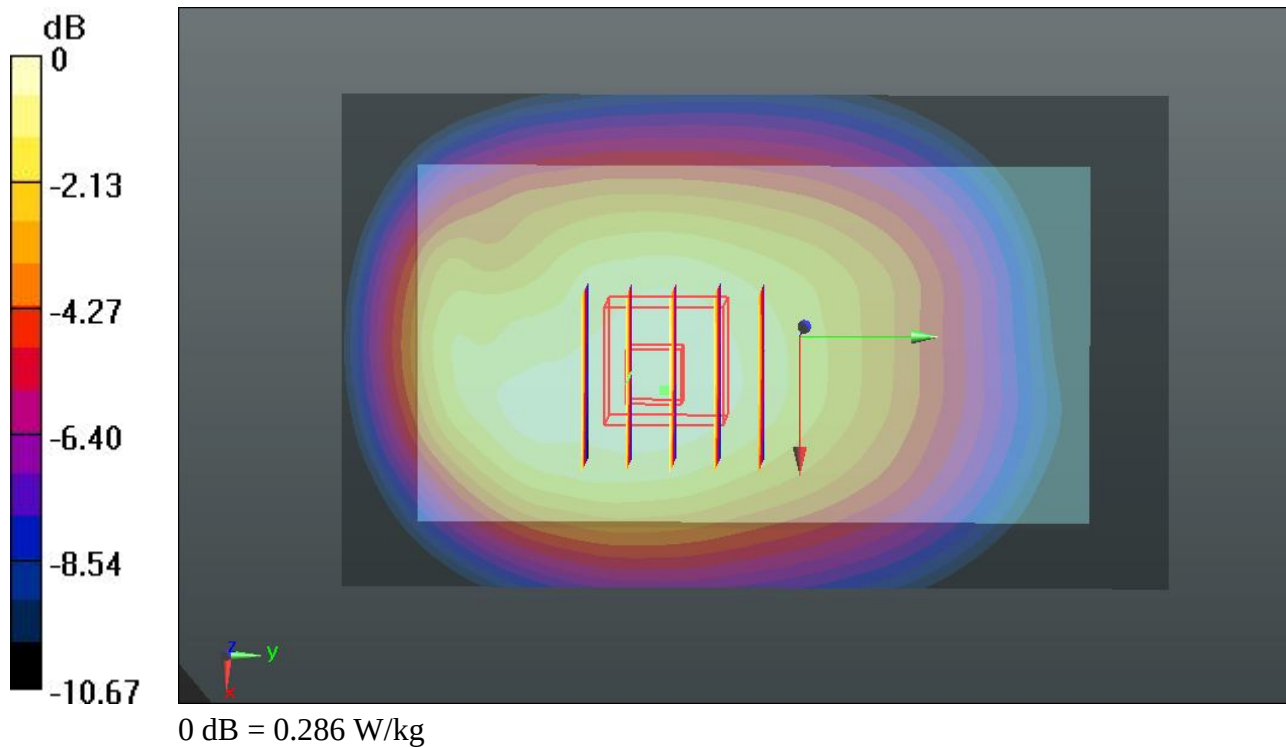
Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.215 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.364 mW/g

SAR(1 g) = 0.273 mW/g; SAR(10 g) = 0.199 mW/g

Maximum value of SAR (measured) = 0.286 W/kg



61 GSM1900_GPRS(3Tx slots)_Front_1cm_Ch810**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 1909.8 MHz; Duty Cycle: 1:2.7
Medium: MSL_1900_121103 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.534$ mho/m; $\epsilon_r = 54.485$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch810/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.674 W/kg

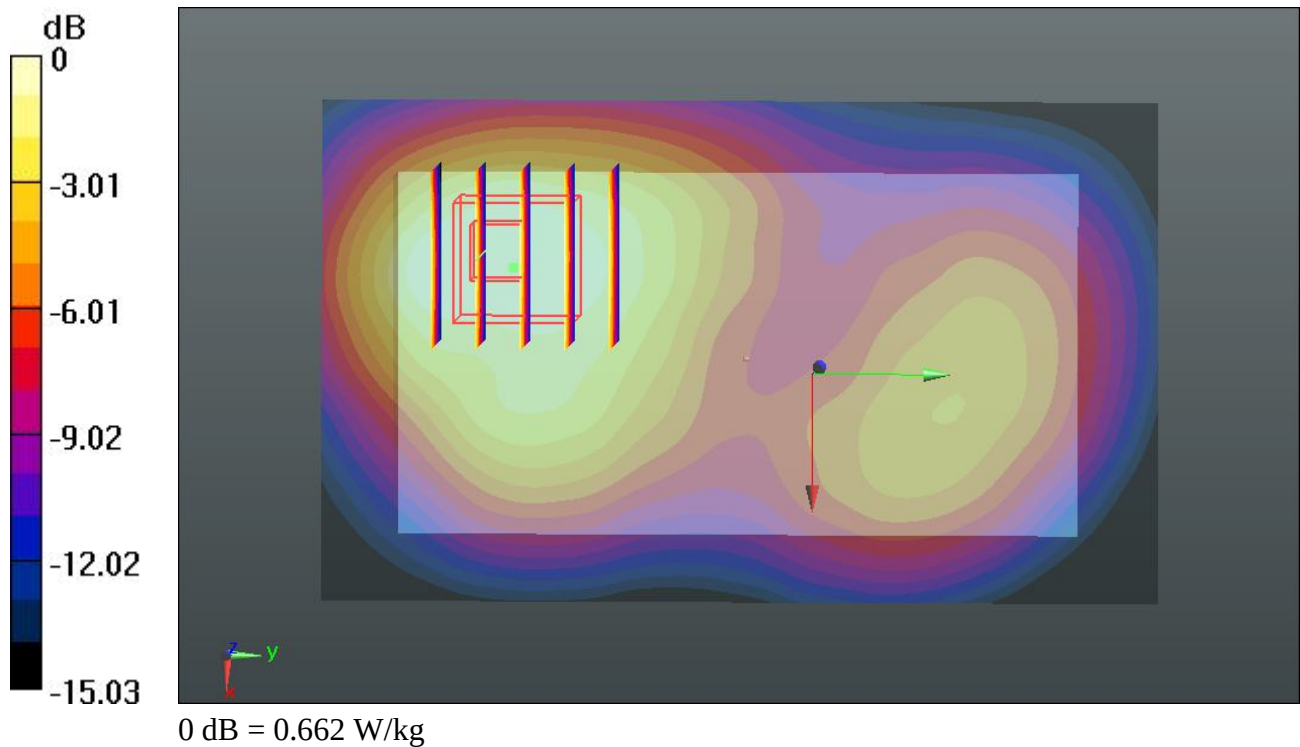
Ch810/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.521 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.040 mW/g

SAR(1 g) = 0.621 mW/g; SAR(10 g) = 0.375 mW/g

Maximum value of SAR (measured) = 0.662 W/kg



62 GSM1900_GPRS(3 Tx slots)_Back_1cm_Ch810**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 1909.8 MHz; Duty Cycle: 1:2.7

Medium: MSL_1900_121103 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.534$ mho/m; $\epsilon_r =$

54.485; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch810/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.904 W/kg

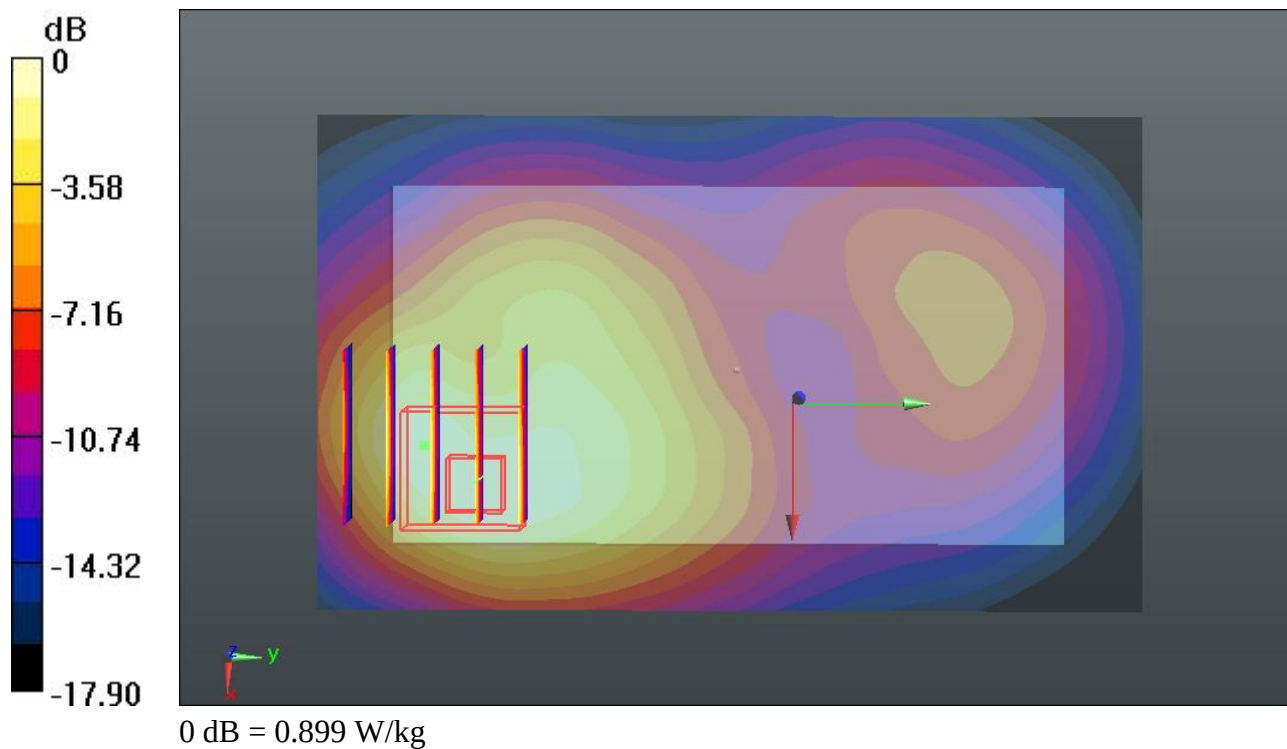
Ch810/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.726 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.443 mW/g

SAR(1 g) = 0.810 mW/g; SAR(10 g) = 0.456 mW/g

Maximum value of SAR (measured) = 0.899 W/kg



63 GSM1900_GPRS(3 Tx slots)_Left Side_1cm_Ch810**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 1909.8 MHz; Duty Cycle: 1:2.7

Medium: MSL_1900_121103 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.534$ mho/m; $\epsilon_r =$

54.485; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch810/Area Scan (41x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.313 W/kg

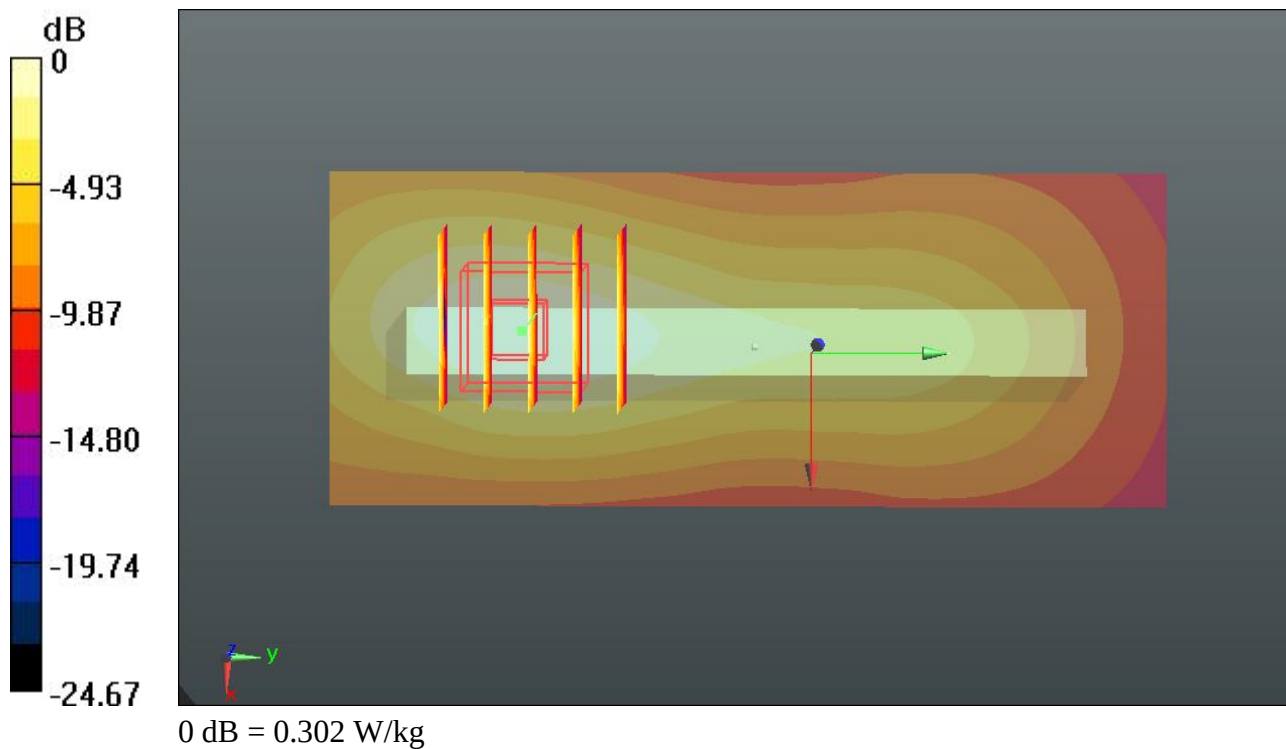
Ch810/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.076 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.465 mW/g

SAR(1 g) = 0.278 mW/g; SAR(10 g) = 0.161 mW/g

Maximum value of SAR (measured) = 0.302 W/kg



64 GSM1900_GPRS(3 Tx slots)_Right Side_1cm_Ch810**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 1909.8 MHz; Duty Cycle: 1:2.7
Medium: MSL_1900_121103 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.534$ mho/m; $\epsilon_r = 54.485$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch810/Area Scan (41x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.159 W/kg

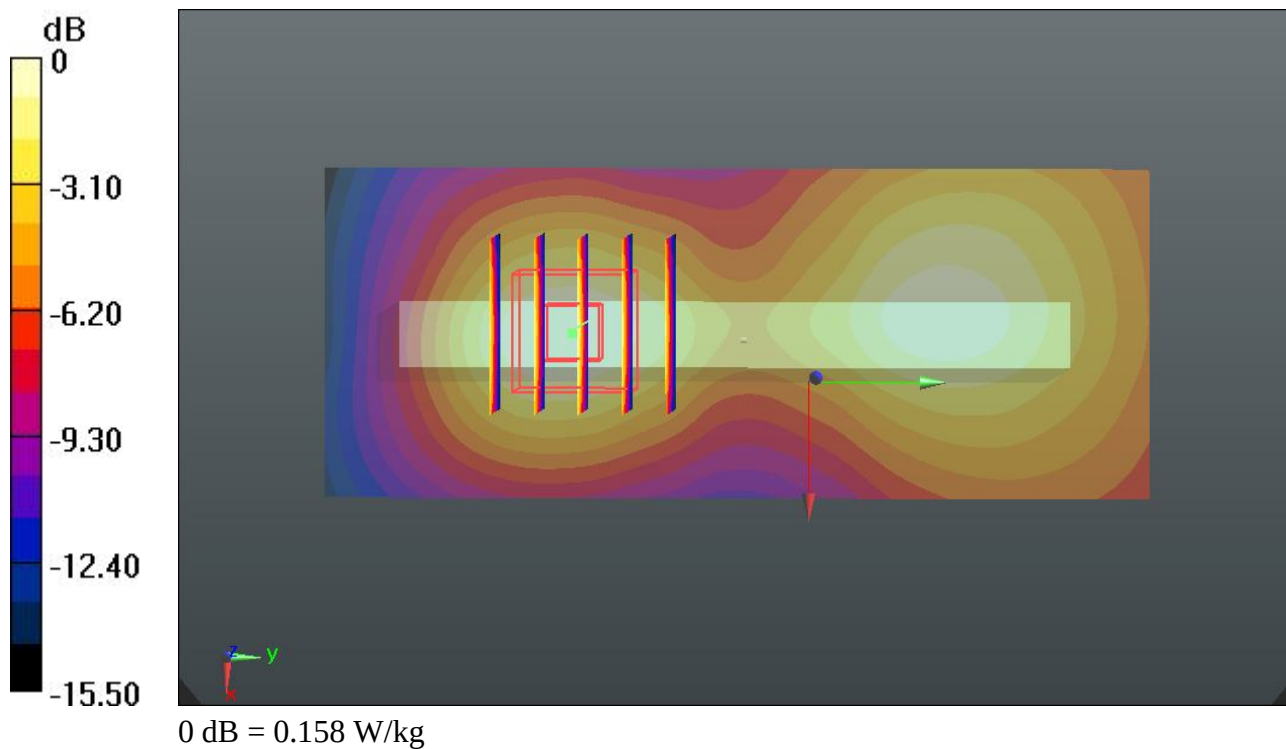
Ch810/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.197 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.234 mW/g

SAR(1 g) = 0.145 mW/g; SAR(10 g) = 0.085 mW/g

Maximum value of SAR (measured) = 0.158 W/kg



65 GSM1900_GPRS(3 Tx slots)_Bottom Side_1cm_Ch810**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 1909.8 MHz; Duty Cycle: 1:2.7

Medium: MSL_1900_121103 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.534$ mho/m; $\epsilon_r =$

54.485; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch810/Area Scan (41x61x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.562 W/kg

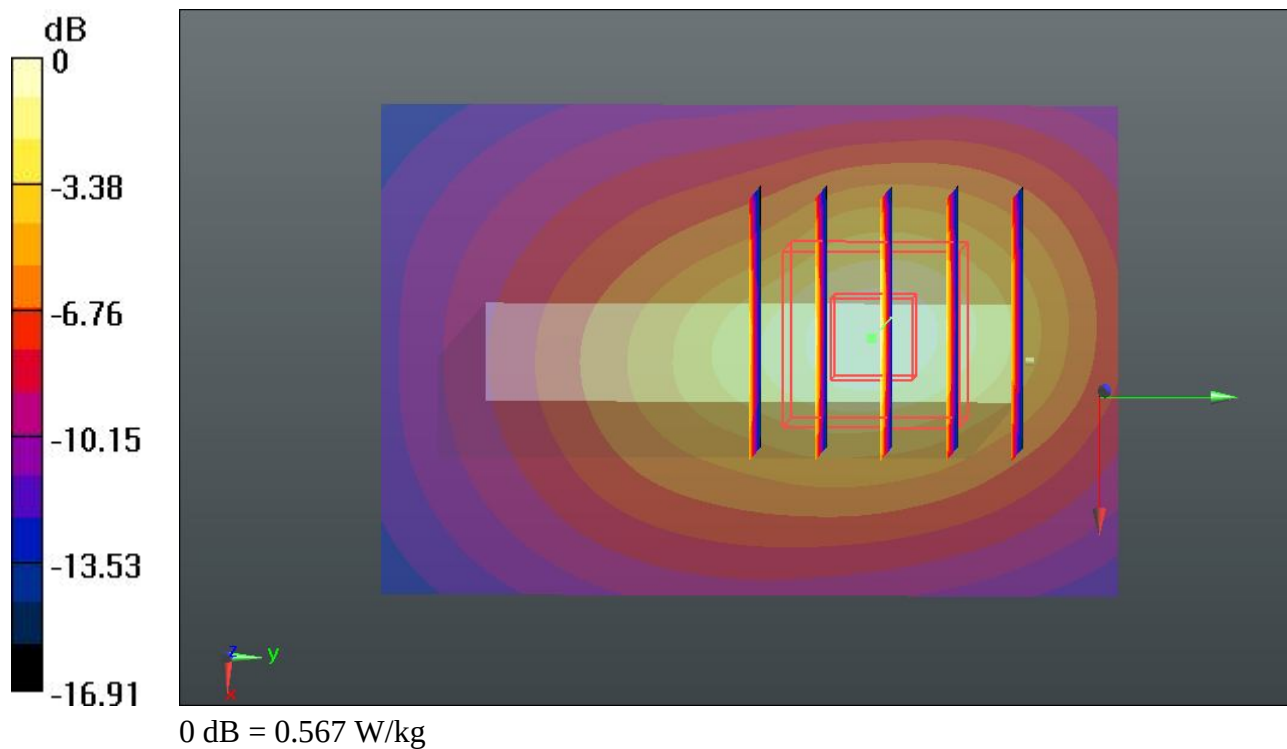
Ch810/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.376 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.889 mW/g

SAR(1 g) = 0.499 mW/g; SAR(10 g) = 0.261 mW/g

Maximum value of SAR (measured) = 0.567 W/kg



66 GSM1900_GPRS(3 Tx slots)_Back_1cm_Ch512**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 1850.2 MHz; Duty Cycle: 1:2.7

Medium: MSL_1900_121103 Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.464$ mho/m; $\epsilon_r =$

54.607; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch512/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.11 W/kg

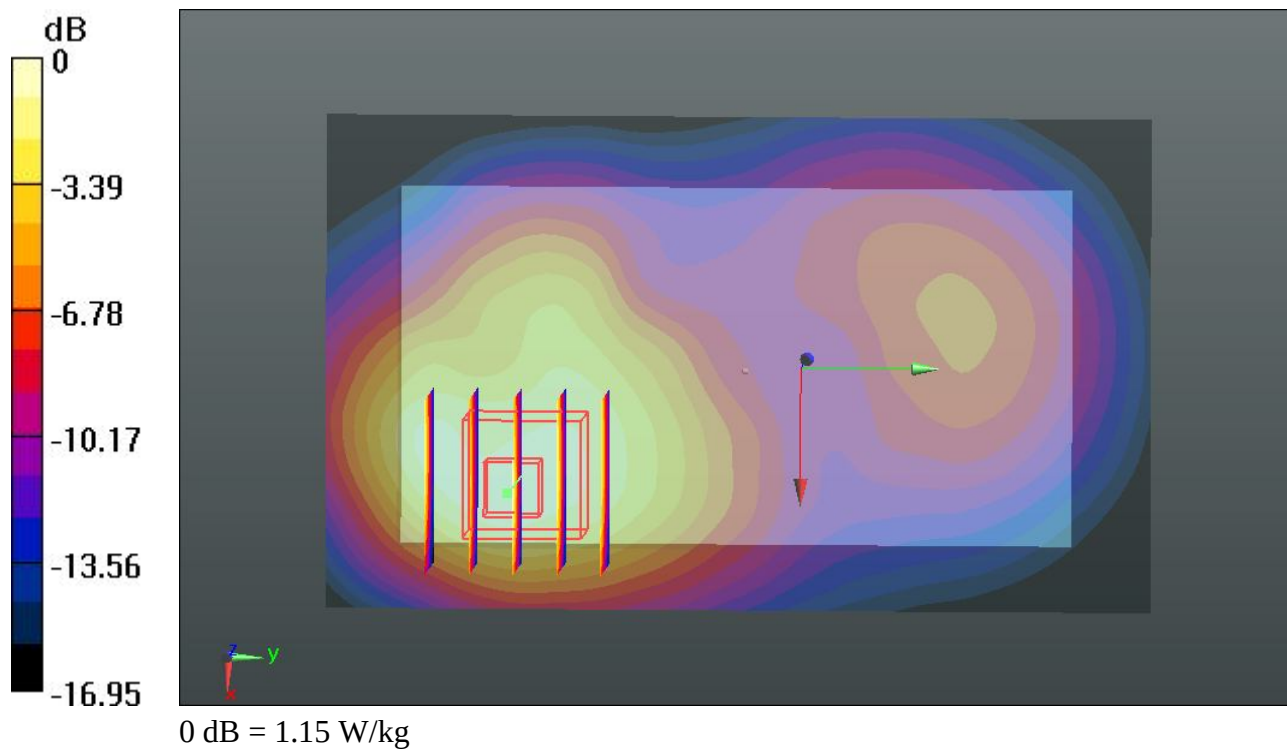
Ch512/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.200 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.792 mW/g

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.593 mW/g

Maximum value of SAR (measured) = 1.15 W/kg



66 GSM1900_GPRS(3 Tx slots)_Back_1cm_Ch512_2D**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 1850.2 MHz; Duty Cycle: 1:2.7

Medium: MSL_1900_121103 Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.464$ mho/m; $\epsilon_r =$

54.607; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch512/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.11 W/kg

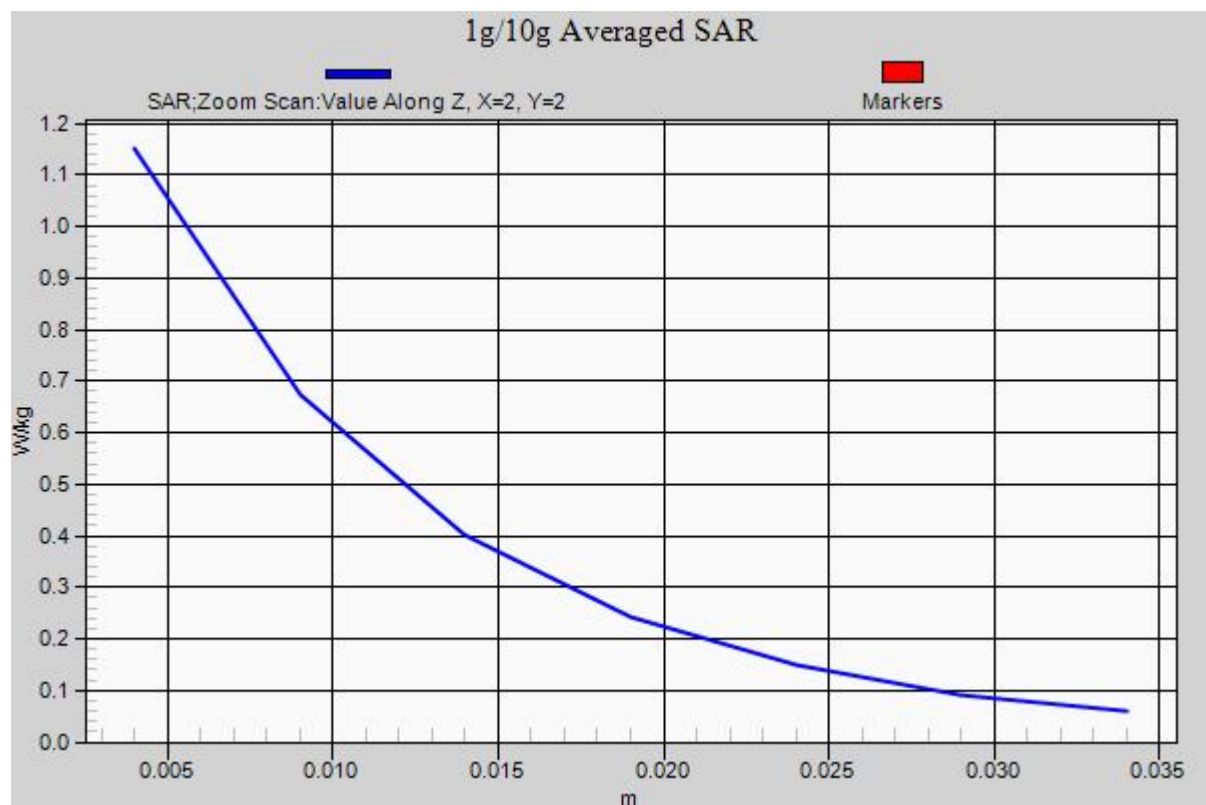
Ch512/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.200 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.792 mW/g

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.593 mW/g

Maximum value of SAR (measured) = 1.15 W/kg



67 GSM1900_GPRS(3 Tx slots)_Back_1cm_Ch661**DUT: 2O1102**

Communication System: GPRS/EDGE11; Frequency: 1880 MHz; Duty Cycle: 1:2.7

Medium: MSL_1900_121103 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r =$

54.538; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch661/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.00 W/kg

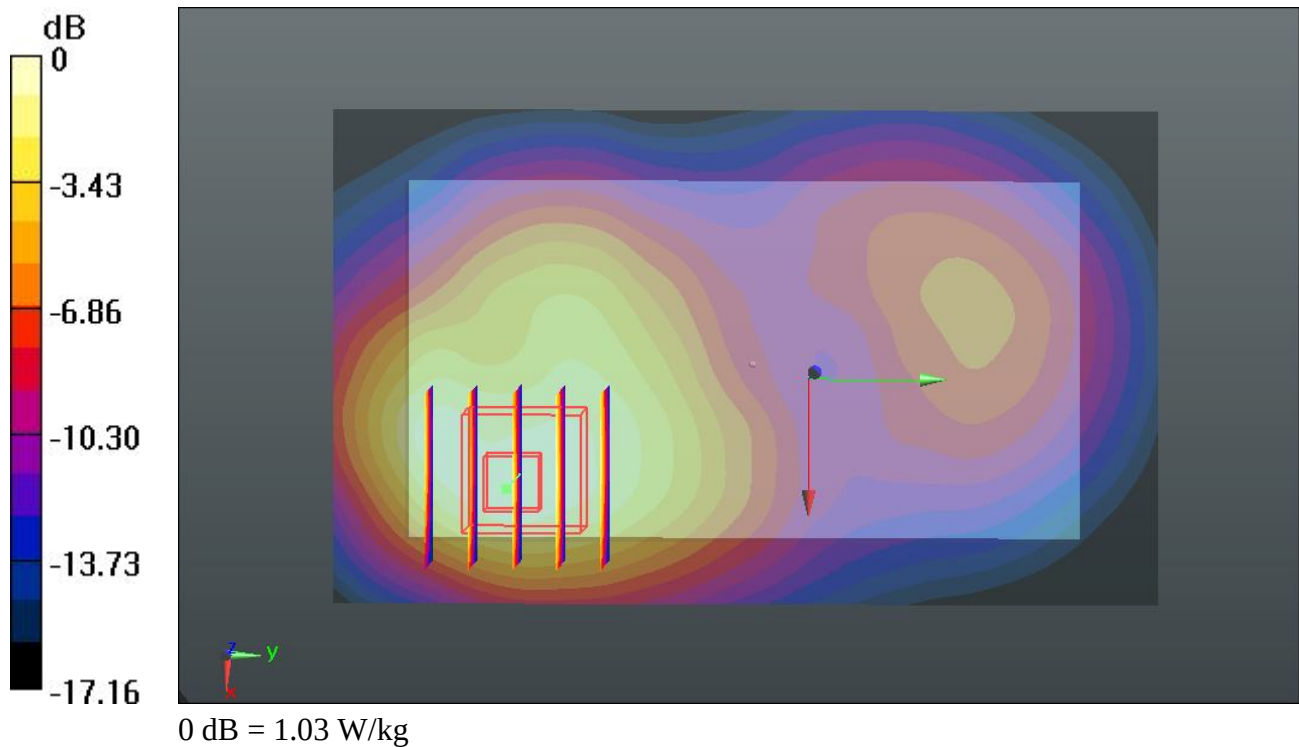
Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.934 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.610 mW/g

SAR(1 g) = 0.923 mW/g; SAR(10 g) = 0.531 mW/g

Maximum value of SAR (measured) = 1.03 W/kg



68 GSM1900_GSM_Back_1cm_Ch512_Headset**DUT: 2O1102**

Communication System: Generic GSM; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium: MSL_1900_121103 Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.464$ mho/m; $\epsilon_r =$

54.607; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch512/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.806 W/kg

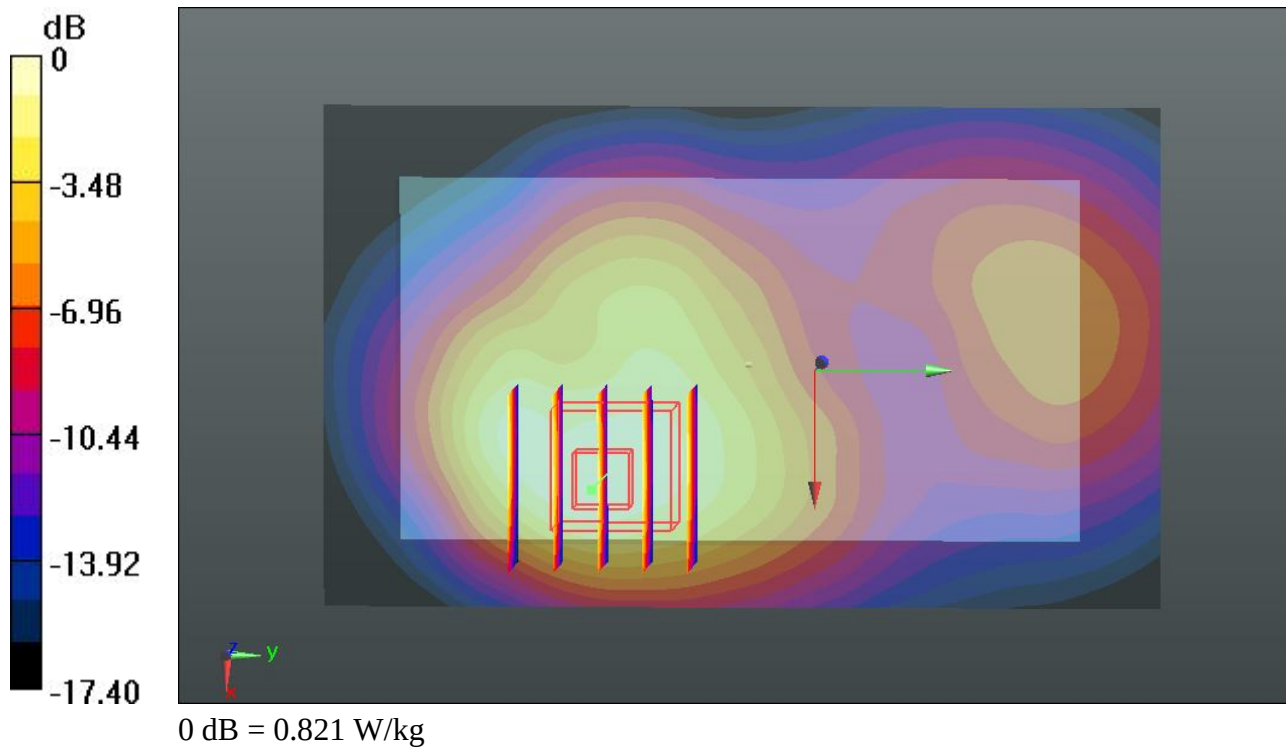
Ch512/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.933 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.274 mW/g

SAR(1 g) = 0.738 mW/g; SAR(10 g) = 0.427 mW/g

Maximum value of SAR (measured) = 0.821 W/kg



27 WCDMA Band V_RMC 12.2K_Front_1cm_Ch4233**DUT: 2O1102**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL_835_121030 Medium parameters used: $f = 847$ MHz; $\sigma = 0.987$ mho/m; $\epsilon_r = 54.279$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch4233/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.418 W/kg

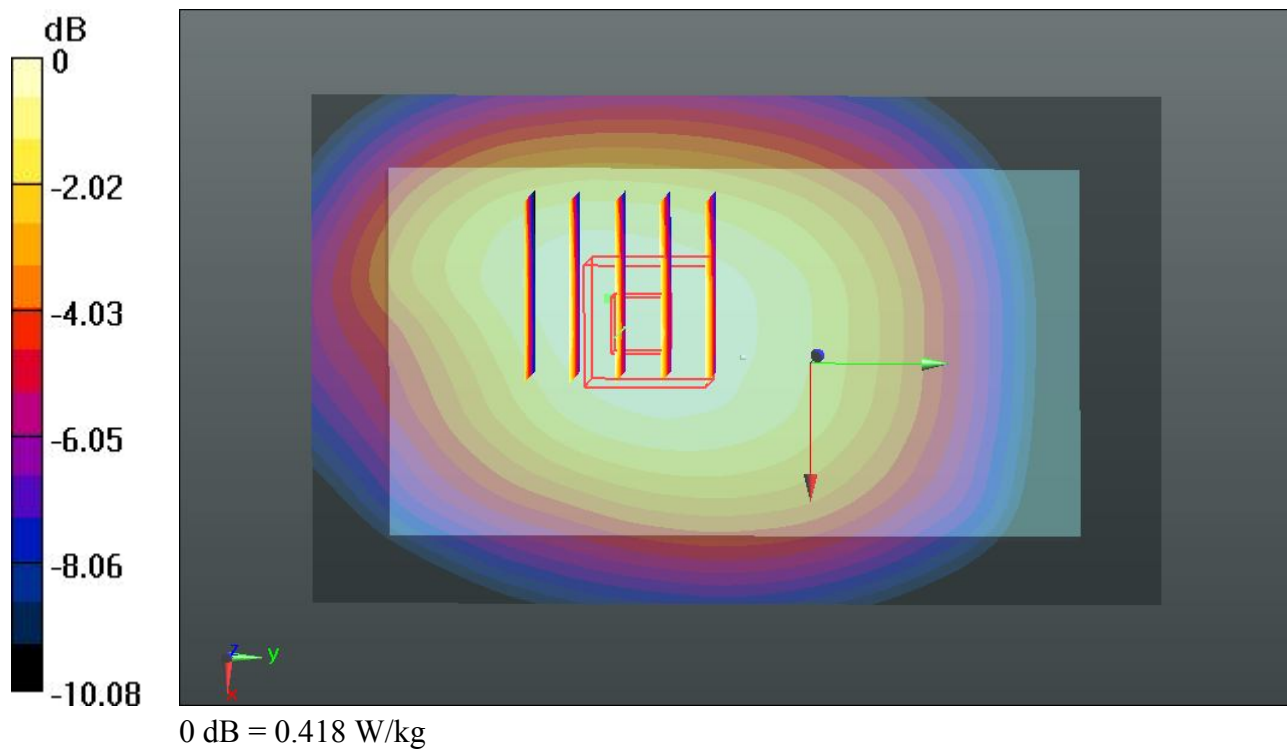
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.629 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.507 mW/g

SAR(1 g) = 0.401 mW/g; SAR(10 g) = 0.304 mW/g

Maximum value of SAR (measured) = 0.418 W/kg



28 WCDMA Band V_RMC 12.2K_Back_1cm_Ch4233**DUT: 2O1102**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL_835_121030 Medium parameters used: $f = 847$ MHz; $\sigma = 0.987$ mho/m; $\epsilon_r = 54.279$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch4233/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.652 W/kg

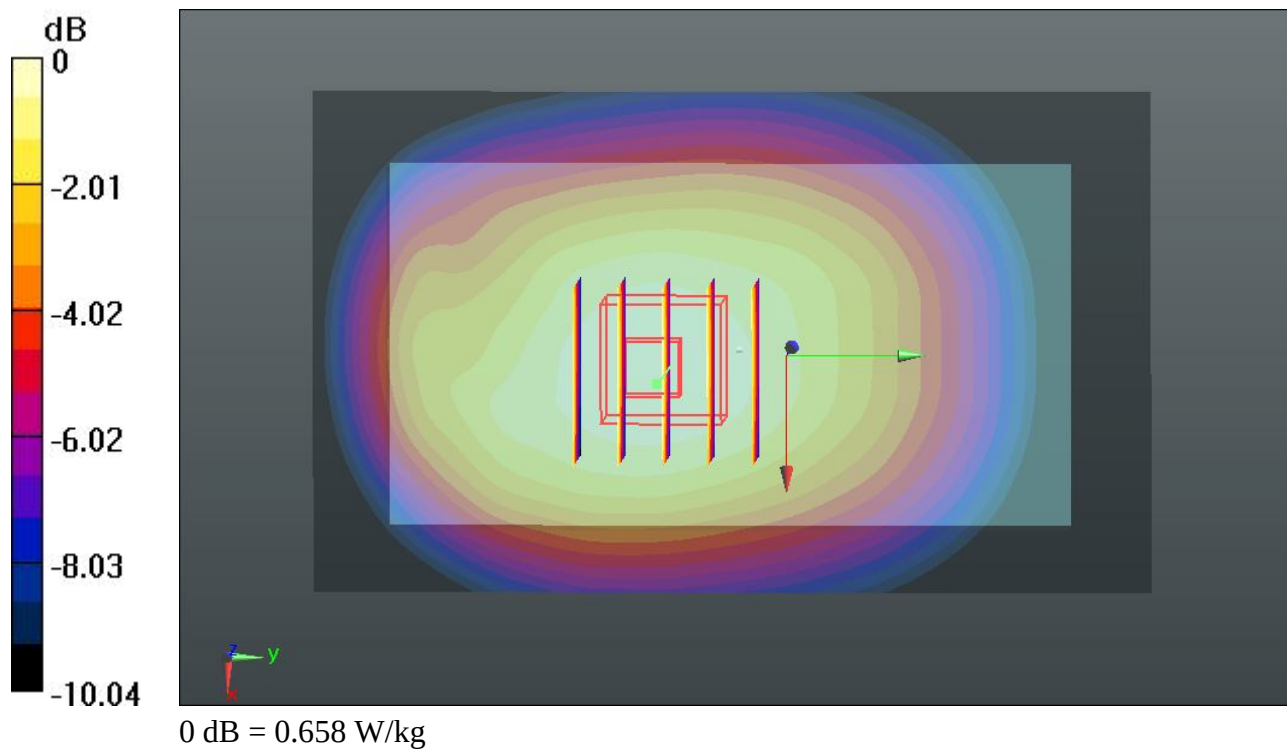
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.394 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.806 mW/g

SAR(1 g) = 0.624 mW/g; SAR(10 g) = 0.466 mW/g

Maximum value of SAR (measured) = 0.658 W/kg



28 WCDMA Band V_RMC 12.2K_Back_1cm_Ch4233_2D**DUT: 2O1102**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL_835_121030 Medium parameters used: $f = 847$ MHz; $\sigma = 0.987$ mho/m; $\epsilon_r = 54.279$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch4233/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.652 W/kg

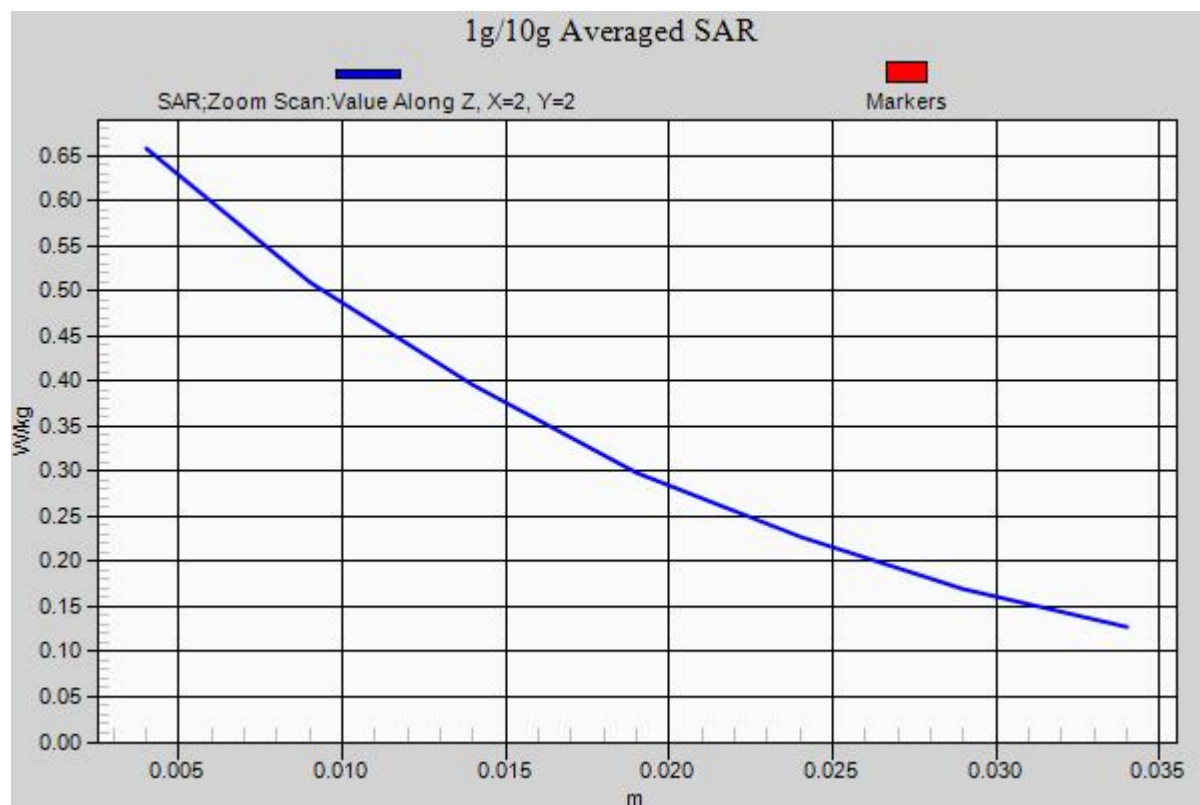
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.394 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.806 mW/g

SAR(1 g) = 0.624 mW/g; SAR(10 g) = 0.466 mW/g

Maximum value of SAR (measured) = 0.658 W/kg



29 WCDMA Band V_RMC 12.2K_Left Side_1cm_Ch4233**DUT: 2O1102**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL_835_121030 Medium parameters used: $f = 847$ MHz; $\sigma = 0.987$ mho/m; $\epsilon_r = 54.279$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch4233/Area Scan (41x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.412 W/kg

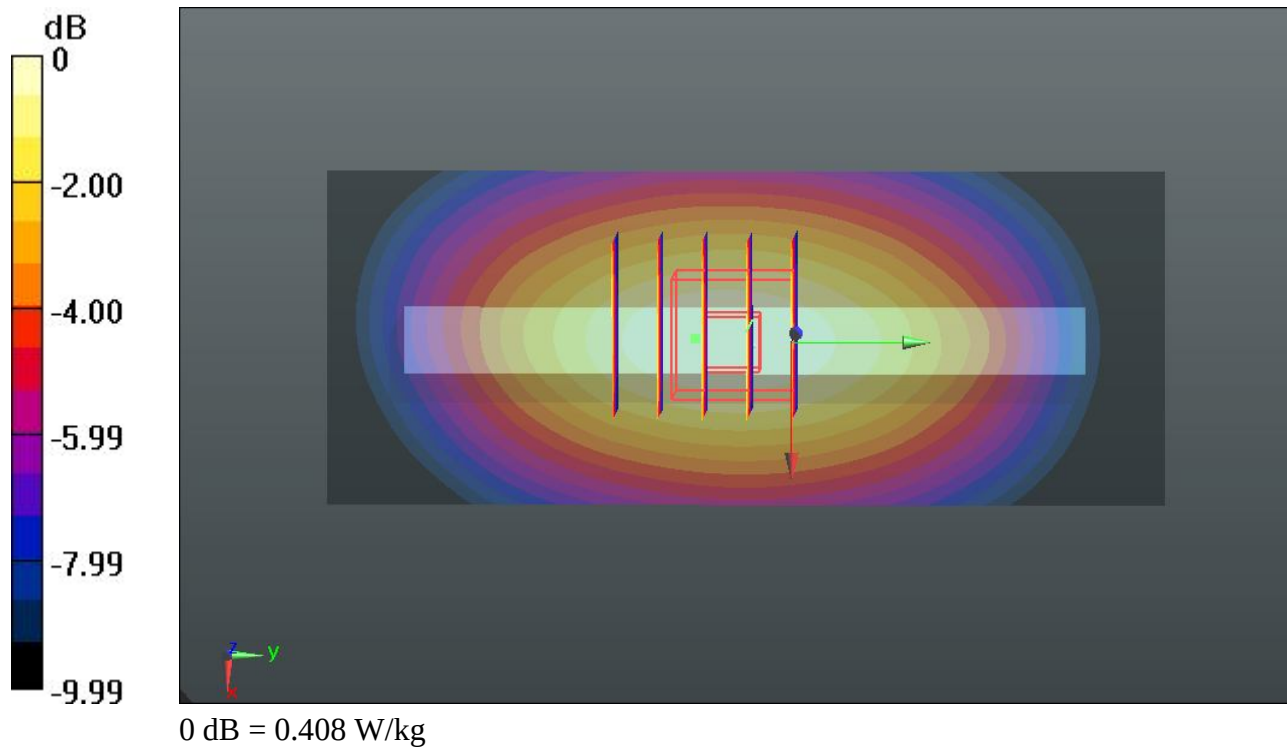
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.250 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.555 mW/g

SAR(1 g) = 0.384 mW/g; SAR(10 g) = 0.262 mW/g

Maximum value of SAR (measured) = 0.408 W/kg



30 WCDMA Band V_RMC 12.2K_Right Side_1cm_Ch4233**DUT: 2O1102**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL_835_121030 Medium parameters used: $f = 847$ MHz; $\sigma = 0.987$ mho/m; $\epsilon_r = 54.279$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch4233/Area Scan (41x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.464 W/kg

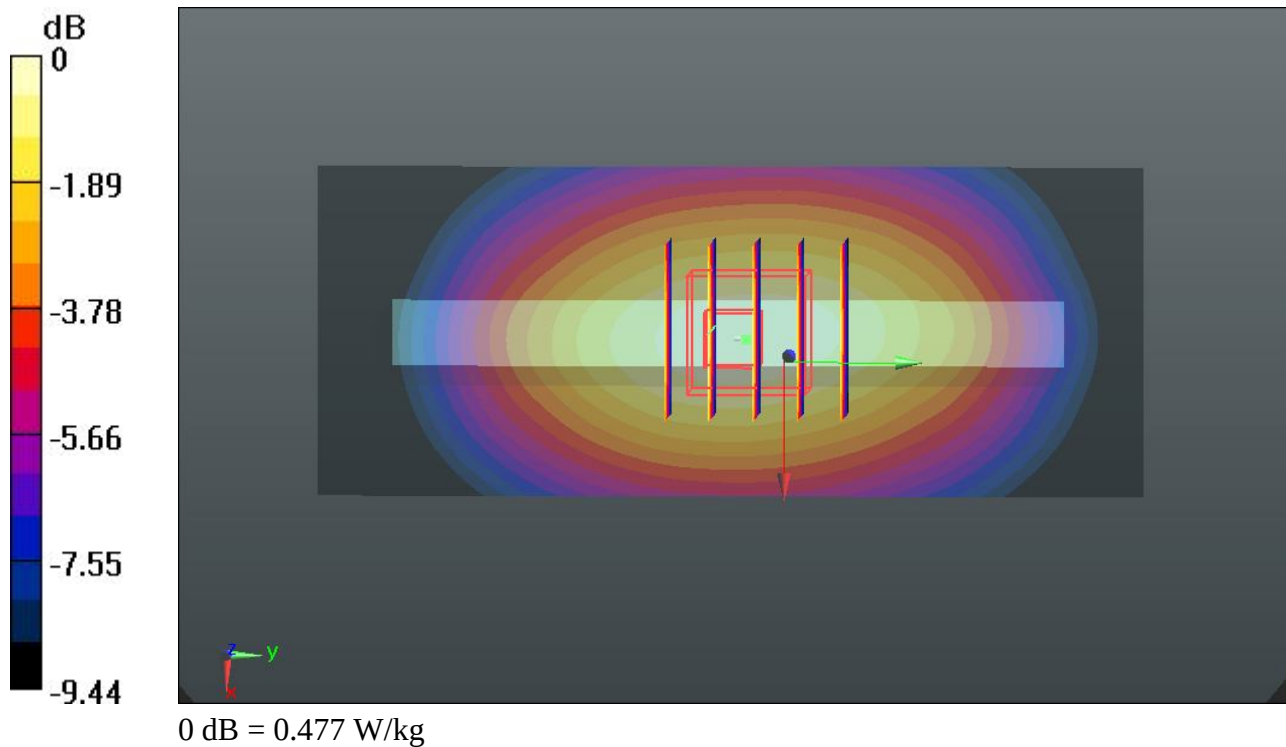
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.753 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.639 mW/g

SAR(1 g) = 0.441 mW/g; SAR(10 g) = 0.304 mW/g

Maximum value of SAR (measured) = 0.477 W/kg



31 WCDMA Band V_RMC 12.2K_Bottom Side_1cm_Ch4233**DUT: 2O1102**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL_835_121030 Medium parameters used: $f = 847$ MHz; $\sigma = 0.987$ mho/m; $\epsilon_r = 54.279$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch4233/Area Scan (41x61x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.0665 W/kg

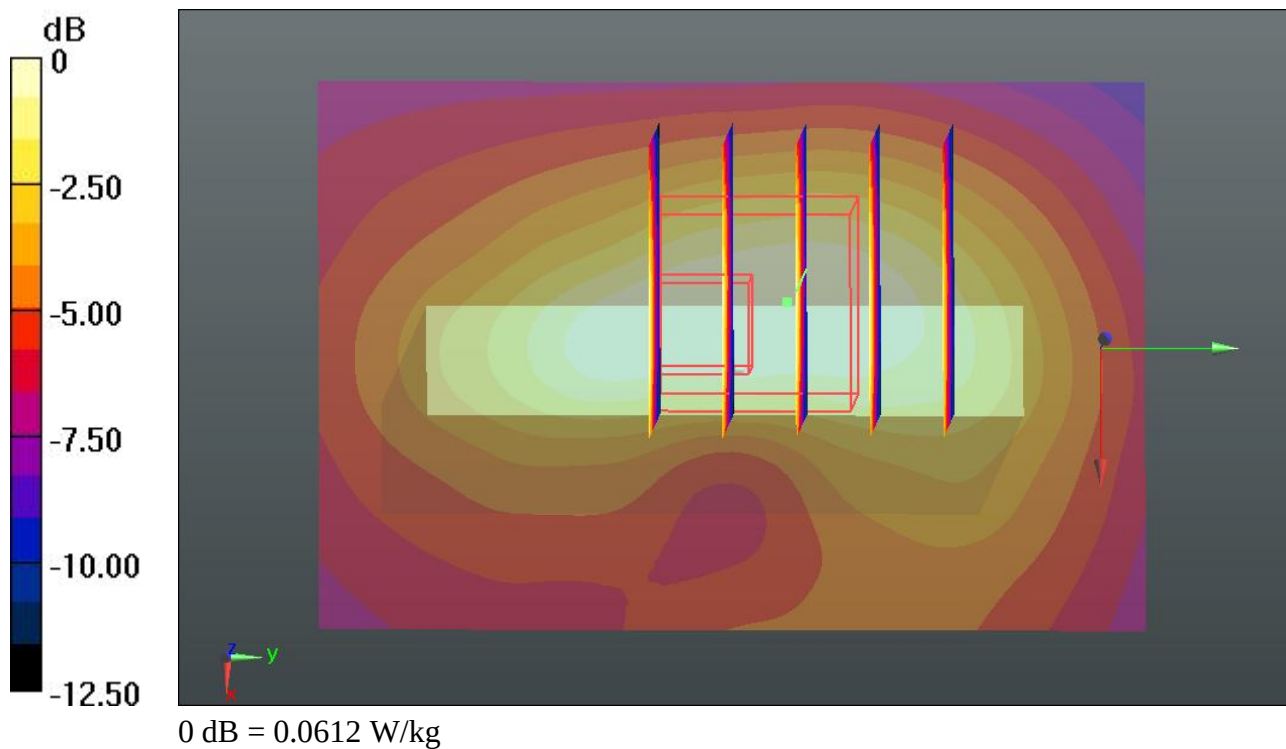
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.618 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.102 mW/g

SAR(1 g) = 0.058 mW/g; SAR(10 g) = 0.035 mW/g

Maximum value of SAR (measured) = 0.0612 W/kg



32 WCDMA Band V_RMC 12.2K_Back_1cm_Ch4233_Headset**DUT: 2O1102**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL_835_121030 Medium parameters used: $f = 847$ MHz; $\sigma = 0.987$ mho/m; $\epsilon_r = 54.279$;

$\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(9.72, 9.72, 9.72); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch4233/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.590 W/kg

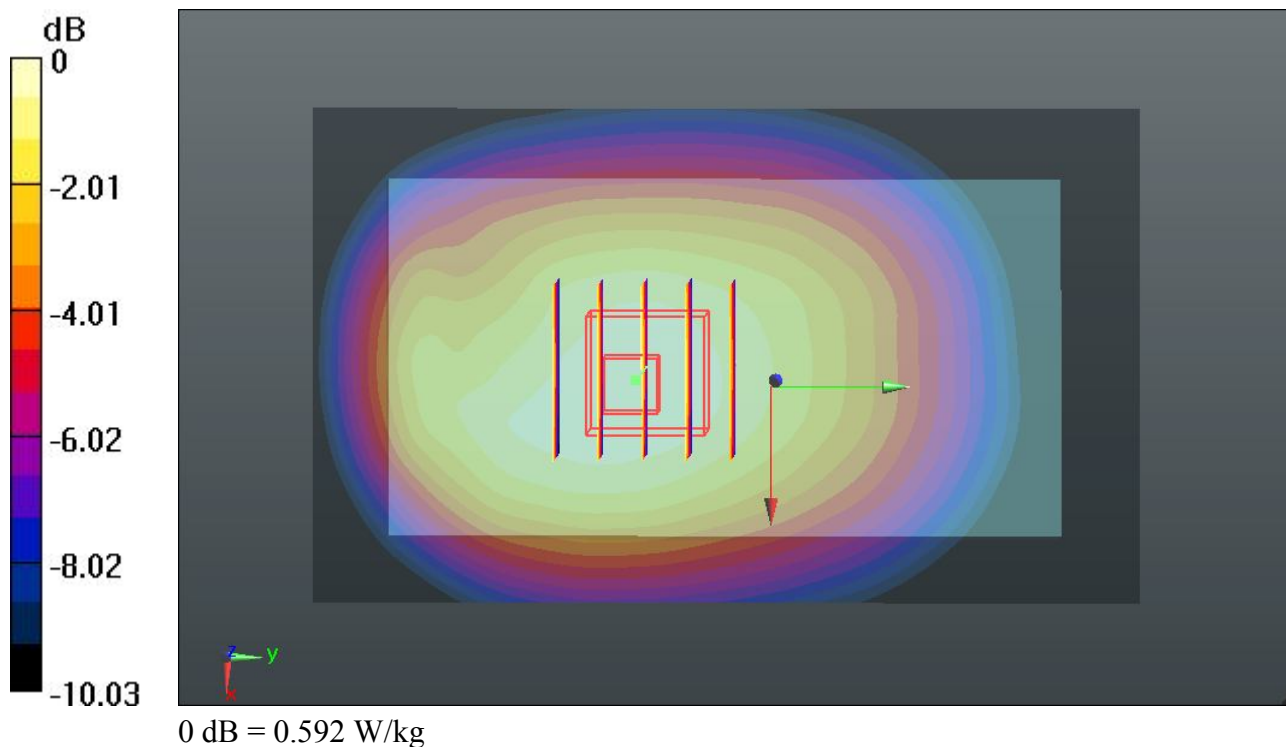
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.481 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.736 mW/g

SAR(1 g) = 0.561 mW/g; SAR(10 g) = 0.415 mW/g

Maximum value of SAR (measured) = 0.592 W/kg



49 WCDMA Band II_RMC 12.2K_Front_1cm_Ch9400**DUT: 201102**

Communication System: UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r = 54.538$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9400/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.909 W/kg

Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.679 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.437 mW/g

SAR(1 g) = 0.843 mW/g; SAR(10 g) = 0.498 mW/g

Maximum value of SAR (measured) = 0.889 W/kg

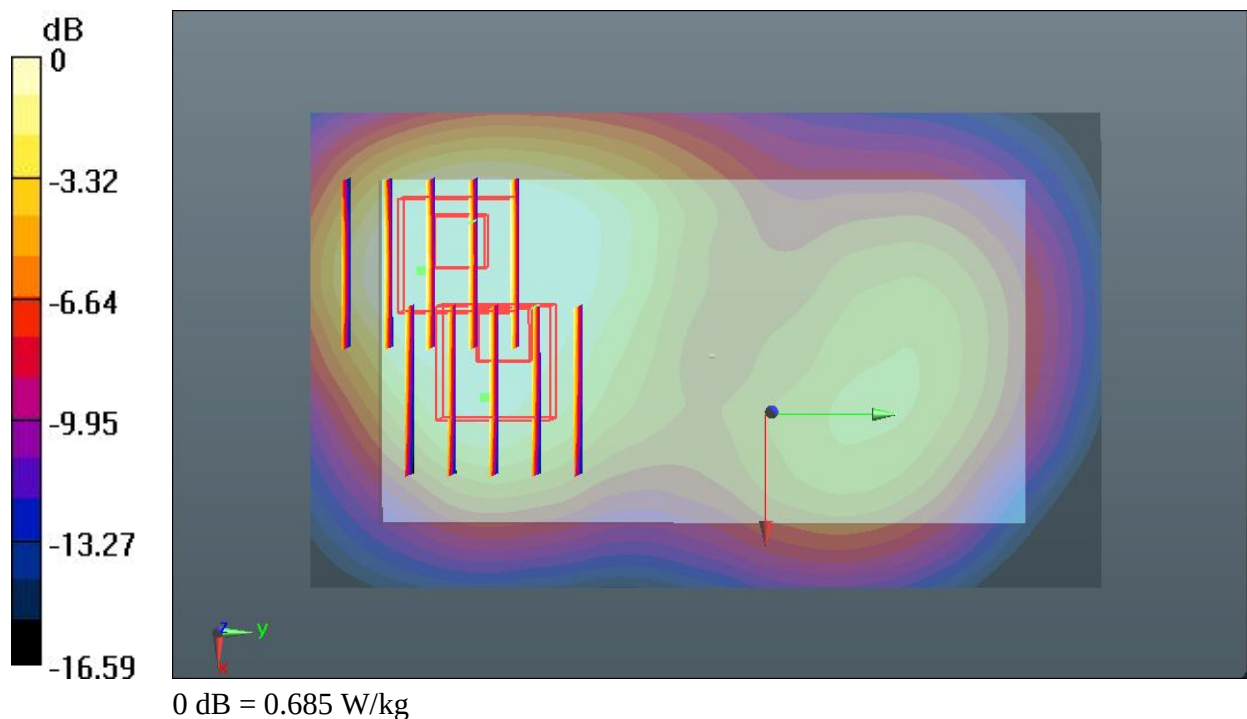
Ch9400/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.679 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.022 mW/g

SAR(1 g) = 0.597 mW/g; SAR(10 g) = 0.367 mW/g

Maximum value of SAR (measured) = 0.685 W/kg



50 WCDMA Band II_RMC 12.2K_Back_1cm_Ch9400**DUT: 2O1102**

Communication System: UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r =$

54.538; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9400/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.15 W/kg

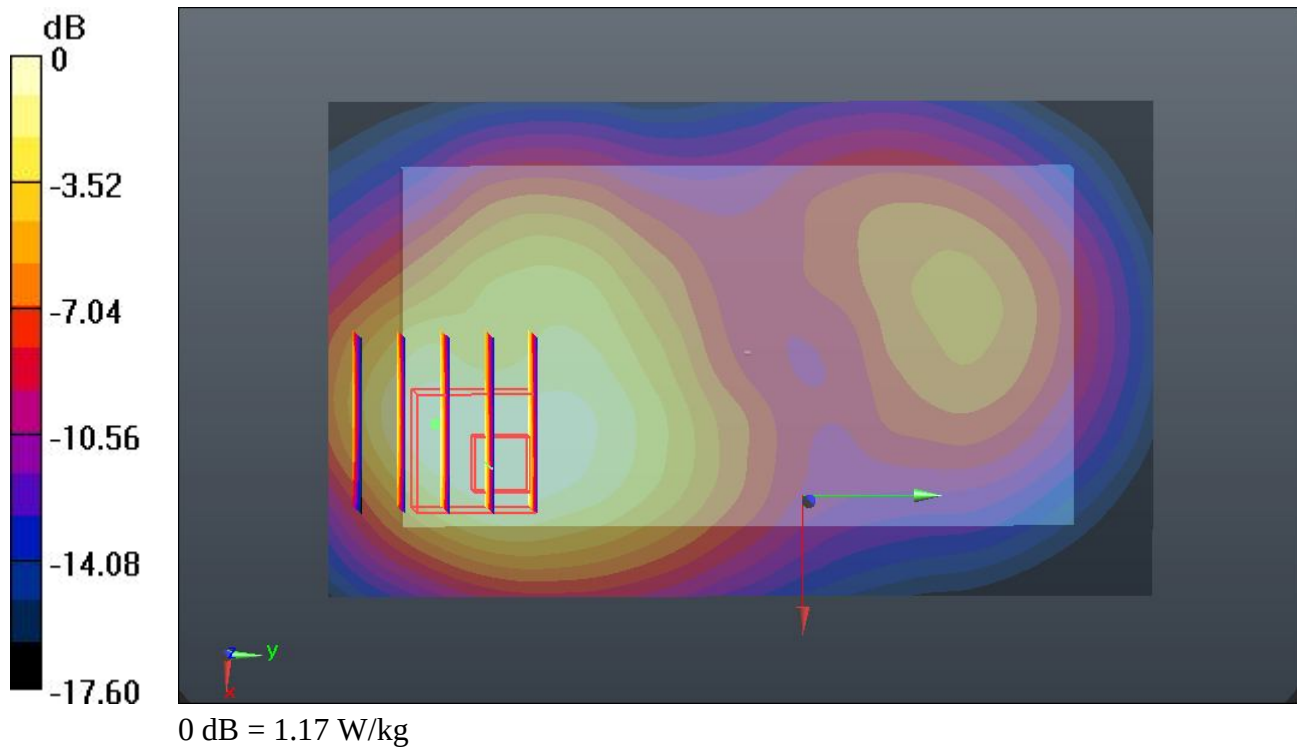
Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.560 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.849 mW/g

SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.601 mW/g

Maximum value of SAR (measured) = 1.17 W/kg



51 WCDMA Band II_RMC 12.2K_Left Side_1cm_Ch9400**DUT: 2O1102**

Communication System: UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r =$

54.538; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9400/Area Scan (41x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.420 W/kg

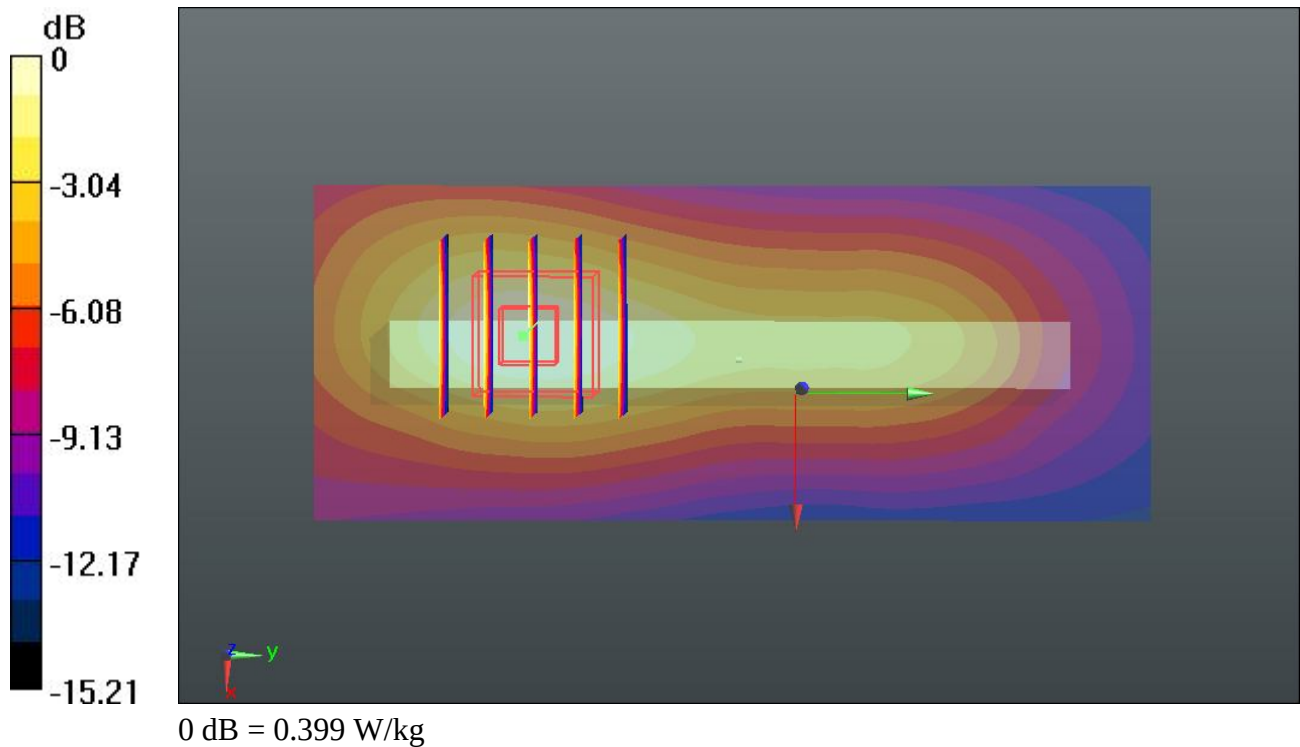
Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.198 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.602 mW/g

SAR(1 g) = 0.364 mW/g; SAR(10 g) = 0.211 mW/g

Maximum value of SAR (measured) = 0.399 W/kg



52 WCDMA Band II_RMC 12.2K_Right Side_1cm_Ch9400**DUT: 2O1102**

Communication System: UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r =$

54.538; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9400/Area Scan (41x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.214 W/kg

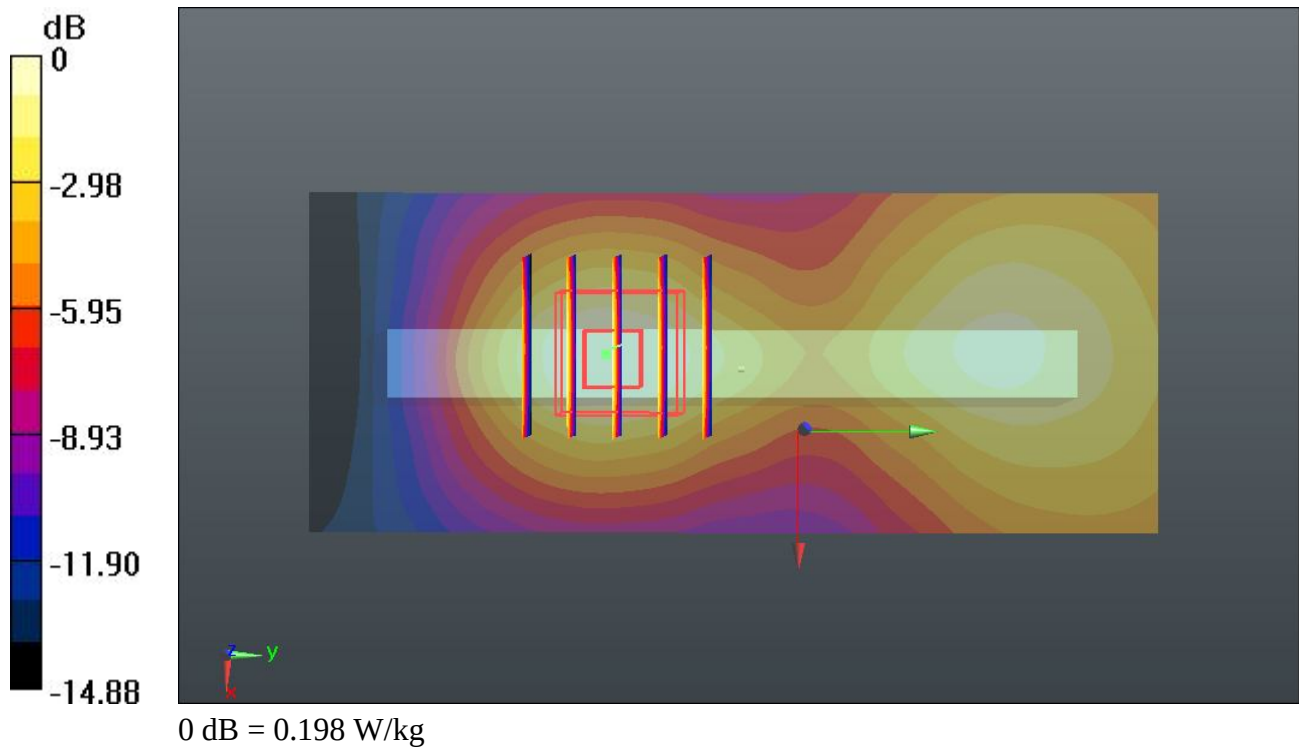
Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.973 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.299 mW/g

SAR(1 g) = 0.182 mW/g; SAR(10 g) = 0.107 mW/g

Maximum value of SAR (measured) = 0.198 W/kg



53 WCDMA Band II_RMC 12.2K_Bottom Side_1cm_Ch9400**DUT: 2O1102**

Communication System: UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r =$

54.538; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9400/Area Scan (41x61x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.765 W/kg

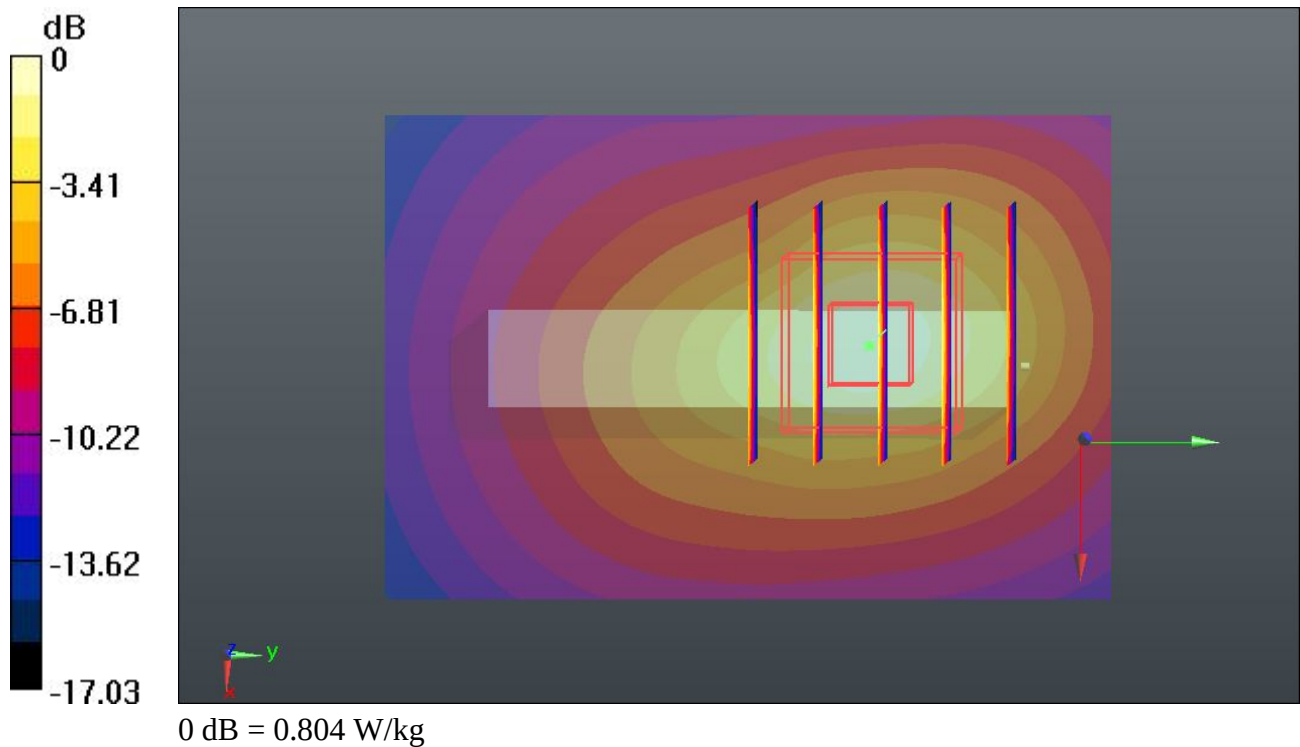
Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.792 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 1.243 mW/g

SAR(1 g) = 0.706 mW/g; SAR(10 g) = 0.373 mW/g

Maximum value of SAR (measured) = 0.804 W/kg



54 WCDMA Band II_RMC 12.2K_Front_1cm_Ch9262**DUT: 201102**

Communication System: UMTS; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.467$ mho/m; $\epsilon_r = 54.6$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9262/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.883 W/kg

Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.726 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.392 mW/g

SAR(1 g) = 0.831 mW/g; SAR(10 g) = 0.491 mW/g

Maximum value of SAR (measured) = 0.876 W/kg

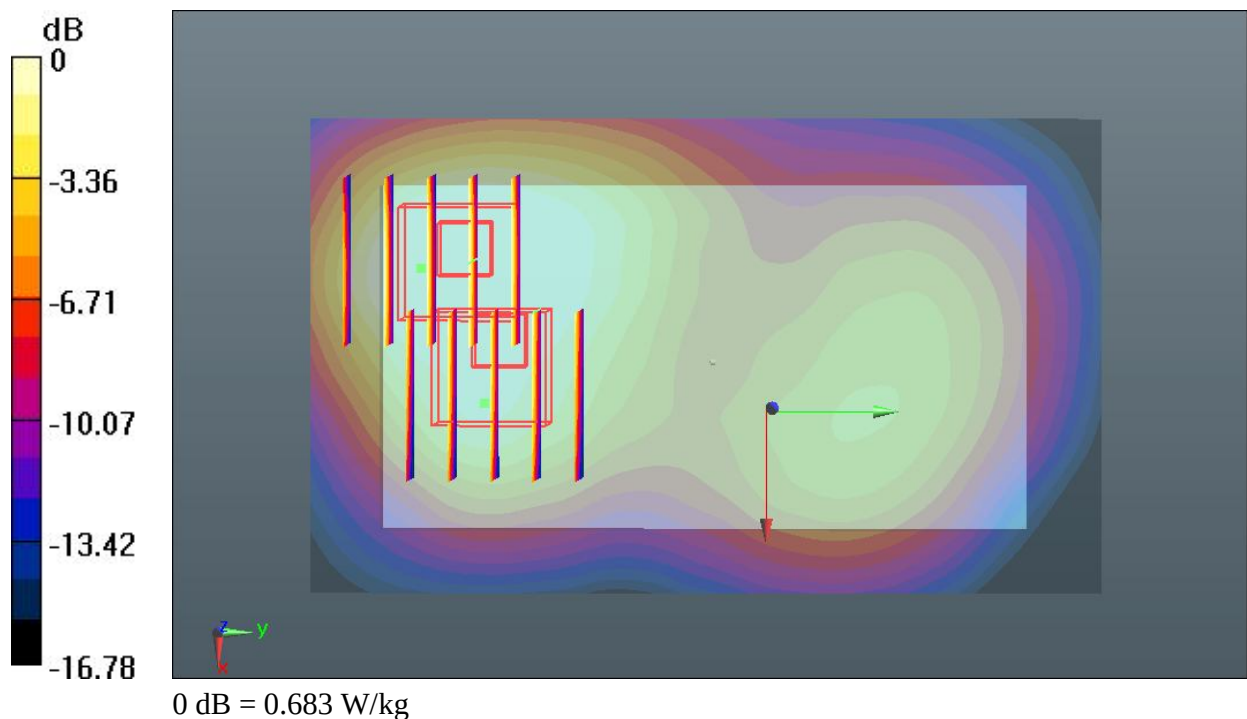
Ch9262/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.726 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.002 mW/g

SAR(1 g) = 0.590 mW/g; SAR(10 g) = 0.362 mW/g

Maximum value of SAR (measured) = 0.683 W/kg



55 WCDMA Band II_RMC 12.2K_Front_1cm_Ch9538**DUT: 201102**

Communication System: UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1908$ MHz; $\sigma = 1.532$ mho/m; $\epsilon_r = 54.489$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9538/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.815 W/kg

Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.045 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.266 mW/g

SAR(1 g) = 0.738 mW/g; SAR(10 g) = 0.435 mW/g

Maximum value of SAR (measured) = 0.778 W/kg

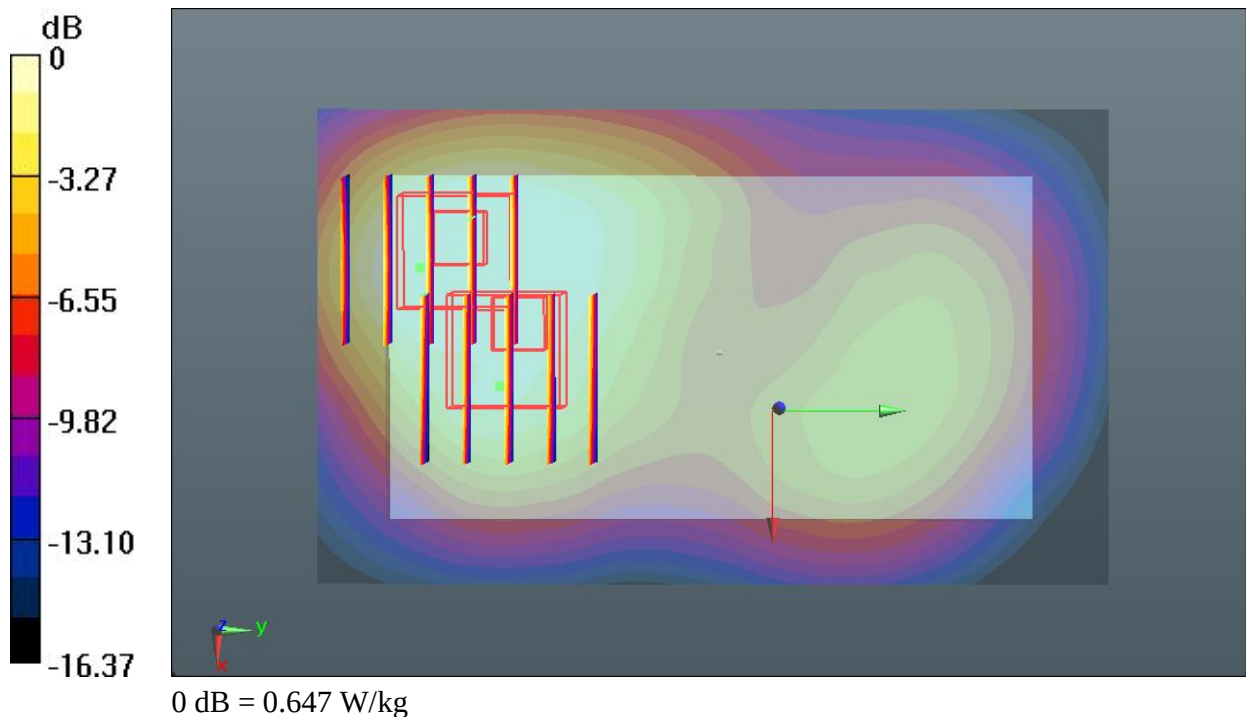
Ch9538/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.045 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.955 mW/g

SAR(1 g) = 0.554 mW/g; SAR(10 g) = 0.340 mW/g

Maximum value of SAR (measured) = 0.647 W/kg



56 WCDMA Band II_RMC 12.2K_Back_1cm_Ch9262**DUT: 2O1102**

Communication System: UMTS; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.467$ mho/m; $\epsilon_r =$

54.6; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9262/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.11 W/kg

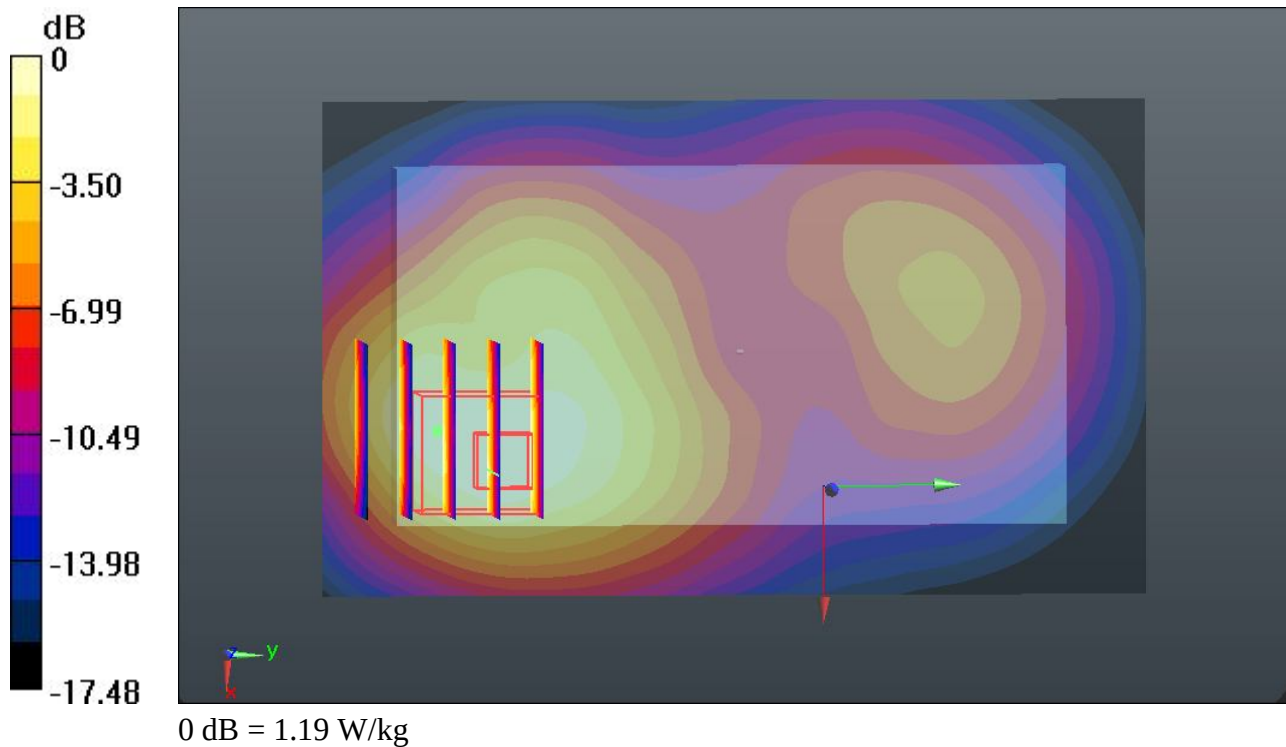
Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.576 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 1.879 mW/g

SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.610 mW/g

Maximum value of SAR (measured) = 1.19 W/kg



56 WCDMA Band II_RMC 12.2K_Back_1cm_Ch9262_2D**DUT: 2O1102**

Communication System: UMTS; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.467$ mho/m; $\epsilon_r =$

54.6; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9262/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.11 W/kg

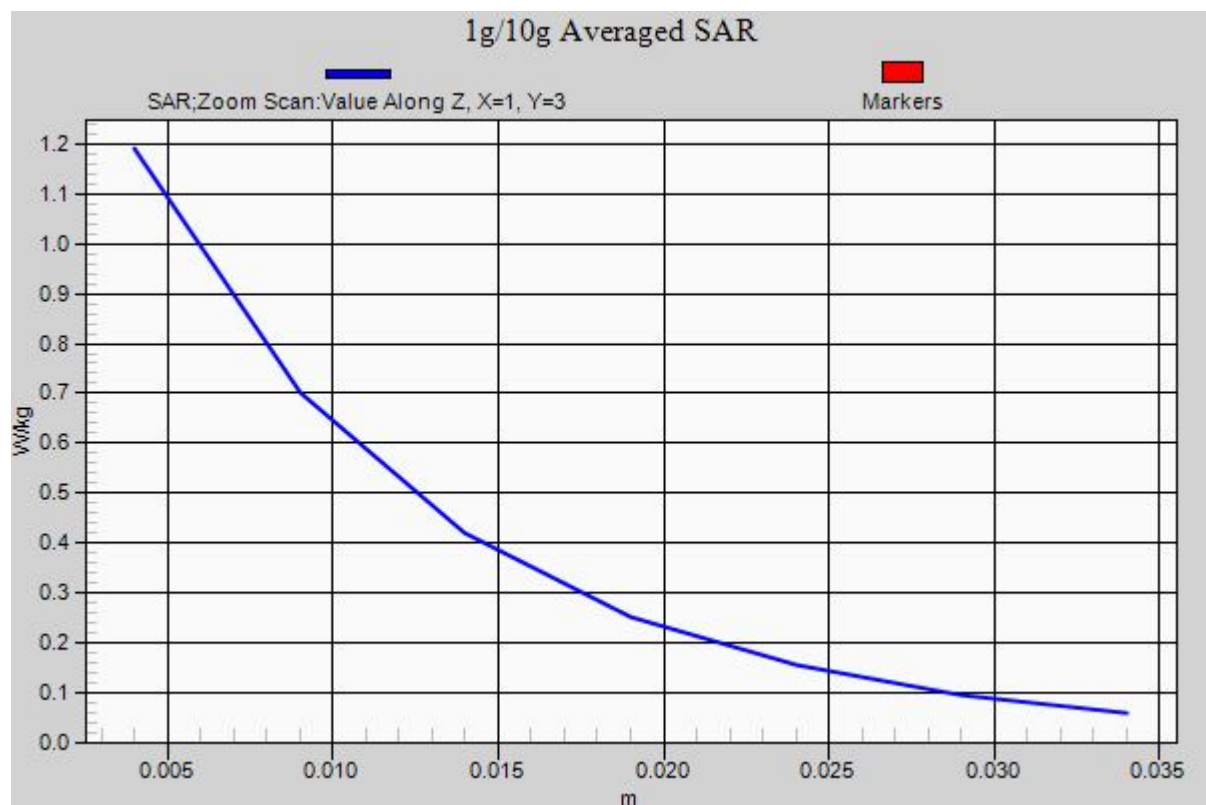
Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.576 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 1.879 mW/g

SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.610 mW/g

Maximum value of SAR (measured) = 1.19 W/kg



57 WCDMA Band II_RMC 12.2K_Back_1cm_Ch9538**DUT: 2O1102**

Communication System: UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1908$ MHz; $\sigma = 1.532$ mho/m; $\epsilon_r =$

54.489; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9538/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.01 W/kg

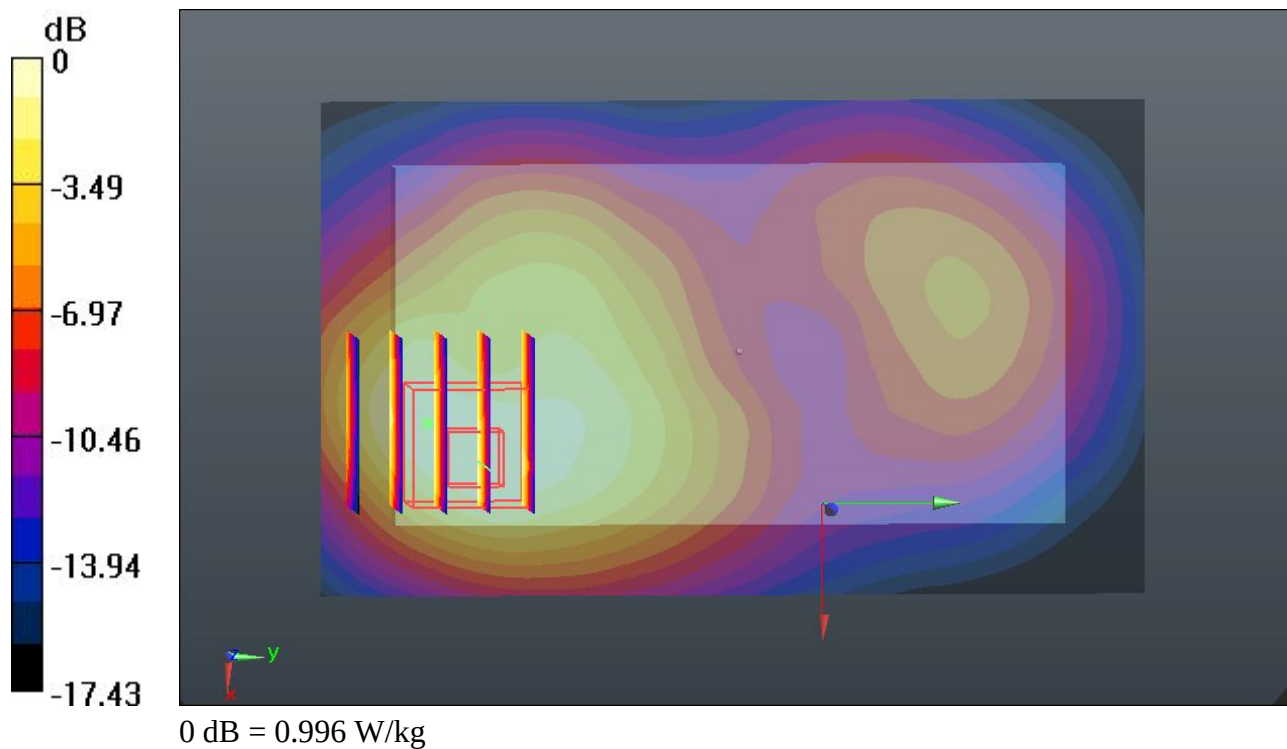
Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.796 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.579 mW/g

SAR(1 g) = 0.897 mW/g; SAR(10 g) = 0.514 mW/g

Maximum value of SAR (measured) = 0.996 W/kg



58 WCDMA Band II_RMC 12.2K_Back_1cm_Ch9262_Headset**DUT: 2O1102**

Communication System: UMTS; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.467$ mho/m; $\epsilon_r =$

54.6; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9262/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.06 W/kg

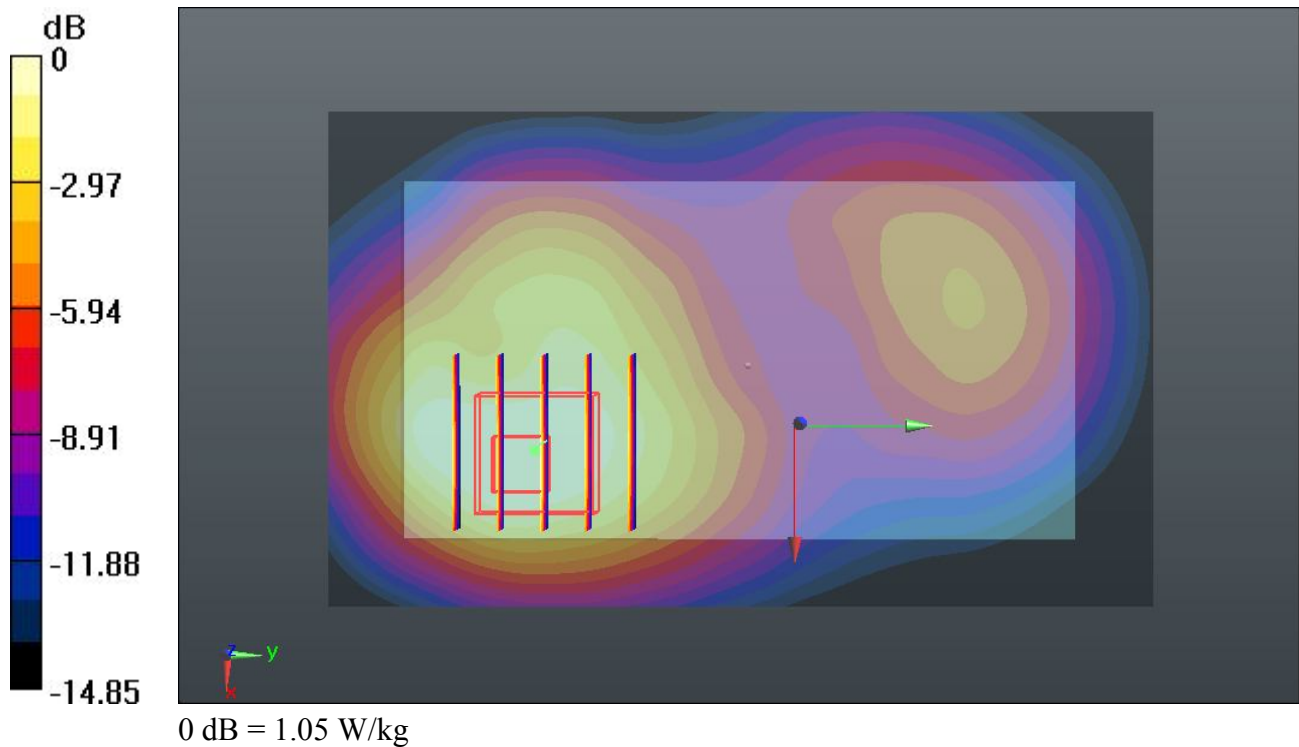
Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.286 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.725 mW/g

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.583 mW/g

Maximum value of SAR (measured) = 1.05 W/kg



59 WCDMA Band II_RMC 12.2K_Back_1cm_Ch9400_Headset**DUT: 2O1102**

Communication System: UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r =$

54.538; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9400/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.02 W/kg

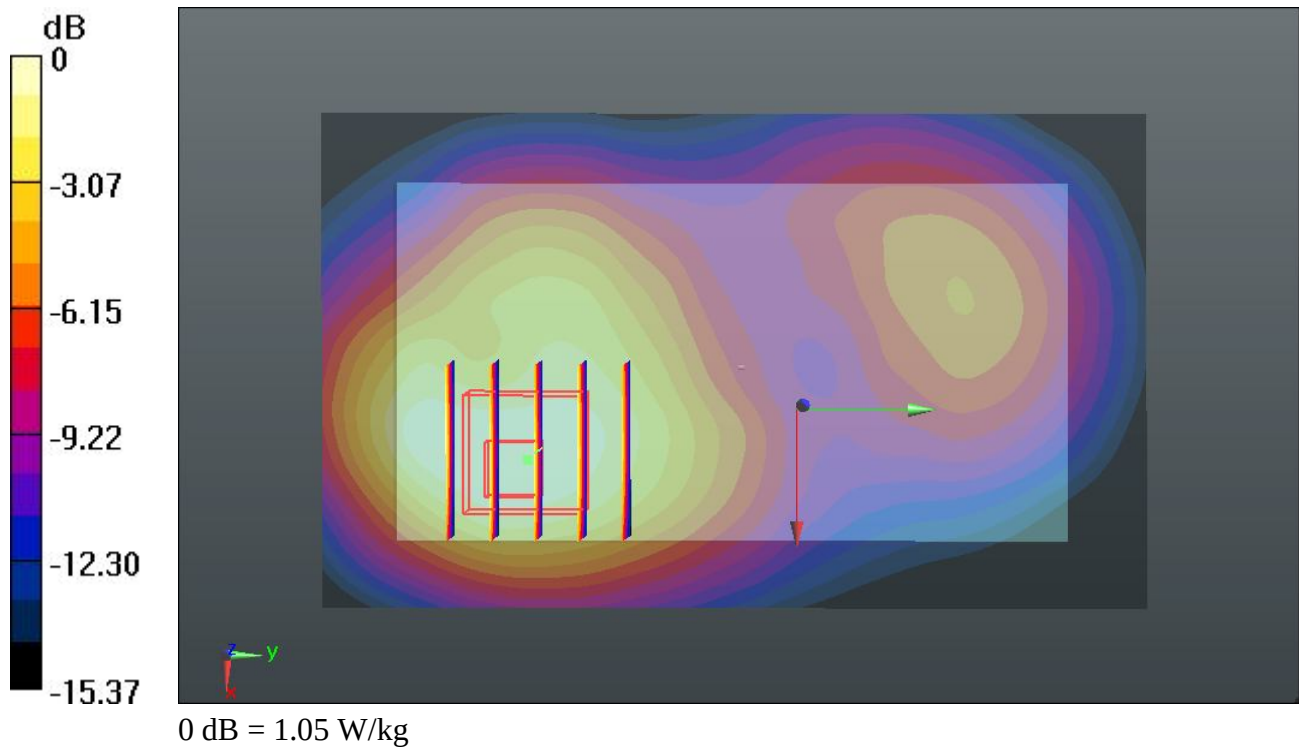
Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.515 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.682 mW/g

SAR(1 g) = 0.977 mW/g; SAR(10 g) = 0.565 mW/g

Maximum value of SAR (measured) = 1.05 W/kg



60 WCDMA Band II_RMC 12.2K_Back_1cm_Ch9538_Headset**DUT: 2O1102**

Communication System: UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: MSL_1900_121103 Medium parameters used: $f = 1908$ MHz; $\sigma = 1.532$ mho/m; $\epsilon_r =$

54.489; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3819; ConvF(7.71, 7.71, 7.71); Calibrated: 16.11.2011;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

Ch9538/Area Scan (61x101x1): Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.922 W/kg

Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.982 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.470 mW/g

SAR(1 g) = 0.831 mW/g; SAR(10 g) = 0.472 mW/g

Maximum value of SAR (measured) = 0.913 W/kg

