

TEST REPORT

Test Report No.: 1-6234/13-01-13



Testing Laboratory

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Test Standard/s

IEEE 1528-2003 OET Bulletin 65 Supplement C RSS-102 Issue 4	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
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For further applied test standards please refer to section 3 of this test report.

Test Item

Kind of test item:	Blackberry GSM Phones
Device type:	portable device
Model name:	RFU81UW
S/N serial number:	N/A
FCC-ID:	L6ARFU80UW
IC:	2503A-RFU80UW
IMEI-Number:	004402242283657
Hardware status:	CER-56900-001-Rev1-x03-00 (903)
Software status:	7.1.0.980 (b2678)
Frequency:	see technical details
Antenna:	integrated antenna
Battery option:	Lithium Ion Battery 3.7V 1450mAh
Accessories:	Samoa, Blackbird HS 3-button HDW-53005-001 Rev.A
Test sample status:	identical prototype
Exposure category:	general population / uncontrolled environment

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Test Report authorised:

Test performed:

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2 General information

2.1 Notes and disclaimer

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2.2 Application details

Date of receipt of order:	2013-05-10
Date of receipt of test item:	2013-05-13
Start of test:	2013-05-14
End of test:	2013-06-04
Person(s) present during the test:	

2.3 Statement of compliance

The SAR values found for the RFU81UW Blackberry GSM Phones are below the maximum recommended levels of 1.6 W/Kg as averaged over any 1 g tissue according to the FCC rule §2.1093, the ANSI/IEEE C 95.1:1992, the NCRP Report Number 86 for uncontrolled environment, according to the Health Canada's Safety Code 6 and the Industry Canada Radio Standards Specification RSS-102 for General Population/Uncontrolled exposure.

For body worn operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal and that positions the handset a minimum of 15 mm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

According to KDB pub 941225 D06 this device has been tested with 10 mm distance to the phantom for operation in WLAN hot spot mode.

2.4 Technical details

Band tested for this test report	Technology	Lowest transmit frequency/MHz	Highest transmit frequency/MHz	Lowest receive Frequency/MHz	Highest receive Frequency/MHz	Kind of modulation	Power Class	Tested power control level	GPRS/EGPRS mobile station class	GPRS/EGPRS multislots class	(E)GPRS voice mode or DTM	Test channel low	Test channel middle	Test channel high	Maximum output power/dBm)*	
															Full power	Power back off
<input type="checkbox"/>	GSM	880.2	914.8	925.2	959.8	GMSK 8-PSK	4 E2	5	B	10	no	975	37	124	32.9	--
<input type="checkbox"/>	GSM DCS	1710.2	1784.8	1805.2	1879.8	GMSK 8-PSK	1 E2	0	B	10	no	512	698	885	30.8	--
<input checked="" type="checkbox"/>	GSM cellular	824.2	848.8	869.2	893.8	GMSK 8-PSK	4 E2	5	B	10	no	128	190	251	32.9	30.8
<input checked="" type="checkbox"/>	GSM PCS	1850.2	1909.8	1930.2	1989.8	GMSK 8-PSK	1 E2	0	B	10	no	512	661	810	30.4	--
<input type="checkbox"/>	UMTS FDD I	1922.4	1977.6	2112.4	2167.6	QPSK	3	max	--	--	--	9612	9750	9888	23.8	--
<input checked="" type="checkbox"/>	UMTS FDD II	1852.4	1907.6	1982.4	1987.6	QPSK	3	max	--	--	--	9262	9400	9538	21.2	--
<input checked="" type="checkbox"/>	UMTS FDD V	826.4	846.6	871.4	891.6	QPSK	3	max	--	--	--	4132	4182	4233	24.3	22.3
<input type="checkbox"/>	UMTS FDD VIII	882.4	912.6	927.4	957.6	QPSK	3	max	--	--	--	2712	2787	2863	24.1	--
<input type="checkbox"/>	WLAN	2412	2472	2412	2472	CCK OFDM	--	max	--	--	--	1	7	13	17.0	--
<input checked="" type="checkbox"/>	WLAN US	2412	2462	2412	2462	CCK OFDM	--	max	--	--	--	1	6	11	17.0	--
<input type="checkbox"/>	BT	2402	2480	2402	2480	GFSK	3	max	--	--	--	0	39	78	6.3	--
supported UMTS features		category			remarks											
Release 5 HSDPA		8			QPSK, 16QAM, 1.2 Mbit/s											
Release 6 HSUPA		6			no 16QAM , no MIMO, 5.76 Mbit/s											

)*: measured slotted peak power for GSM, averaged max. RMS power for UMTS, WLAN and BT.

2.5 Transmitter and Antenna Operating Configurations

Simultaneous transmission conditions
GSM / GPRS / EDGE + BT/BLE
GSM / GPRS / EDGE + WLAN 2.4GHz
UMTS / HSPA + BT/BLE
UMTS / HSPA + WLAN 2.4GHz

Table 1: Simultaneous transmission conditions

Note: BT and WLAN can be active at the same time, but only with interleaving of packages switched on board level. That means that they don't transmit at the same time.

3 Test standards/ procedures references

Test Standard	Version	Test Standard Description
IEEE 1528-2003	2003-04	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
OET Bulletin 65 Supplement C	1997-01 2001-01	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields
RSS-102 Issue 4	2010-03	Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
Canada's Safety Code No. 6	99-EHD-237	Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz
IEEE Std. C95-3	2002	IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave
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.
IEC 62209-2	2010	Human exposure to radio frequency fields from hand-held and bodymounted wireless communication devices. Human models, instrumentation, and procedures. Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)
FCC KDBs:		
KDB 865664D01v01	May 28, 2013	FCC OET SAR measurement requirements 100 MHz to 6 GHz
KDB 865664D02v01	May 28, 2013	RF Exposure Compliance Reporting and Documentation Considerations
KDB 447498D01v05	May 28, 2013	Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies
KDB 648474D04v01	May 28, 2013	SAR Evaluation Considerations for Wireless Handsets
KDB 941225D01v02	April 10, 2007	SAR Measurements Procedures for 3G Devices
KDB 941225D02v01	December 14, 2009	3GPP R6 HSPA and R7 HSPA+ SAR Guidance
KDB 941225D02v02	May 28, 2013	SAR Guidance for HSPA, HSPA+, DC-HSDPA and 1x-Advanced
KDB 941225D03v01	December, 2008	SAR Test Reduction Procedure for GSM/GPRS/EDGE
KDB 941225D06v01	May 28, 2013	SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities
KDB 248227D01v01	May, 2007	SAR Measurement Procedures for 802.11 a/b/g Transmitters
KDB 450824D01v01	January, 2007	SAR Probe Calibration and System Verification considerations for measurements from 150 MHz to 3 GHz
KDB 450824D01v01	March 4, 2012	Dipole Requirements for SAR System Validation and Verification

3.1 RF exposure limits

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR* (Brain and Trunk)	1.60 mW/g	8.00 mW/g
Spatial Average SAR** (Whole Body)	0.08 mW/g	0.40 mW/g
Spatial Peak SAR*** (Hands/Feet/Ankle/Wrist)	4.00 mW/g	20.00 mW/g

Table 2: RF exposure limits

The limit applied in this test report is shown in bold letters

Notes:

- * The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time
- ** The Spatial Average value of the SAR averaged over the whole body.
- *** The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

4 Summary of Measurement Results

<input checked="" type="checkbox"/>	No deviations from the technical specifications ascertained		
<input type="checkbox"/>	Deviations from the technical specifications ascertained		
Maximum SAR value reported for 1g (W/kg)			
	PCE	DTS	UNII
head	1.016	0.407	---
body worn 15 mm distance	1.004	0.160	---
hotspot operation 10 mm distance	1.058	0.320	---
collocated situations	ΣSAR evaluation	1.400	

4.1 SAR measurement variability and measurement uncertainty analysis

This analysis is required for worst case results larger than 0.8 W/kg.

frequency band	first measurement result at worst case position (W/kg)	second measurement result at worst case position (W/kg)	ratio <1.2
GSM 835	0.902	1.010	1.12
GSM 1900 head	0.822	0.813	1.01
GSM 1900 body	0.978	0.955	1.02
UMTS FDD II	0.926	0.993	1.07
UMTS FDD V head	0.944	0.948	1.00
UMTS FDD V body	0.980	0.856	1.14

5 Test Environment

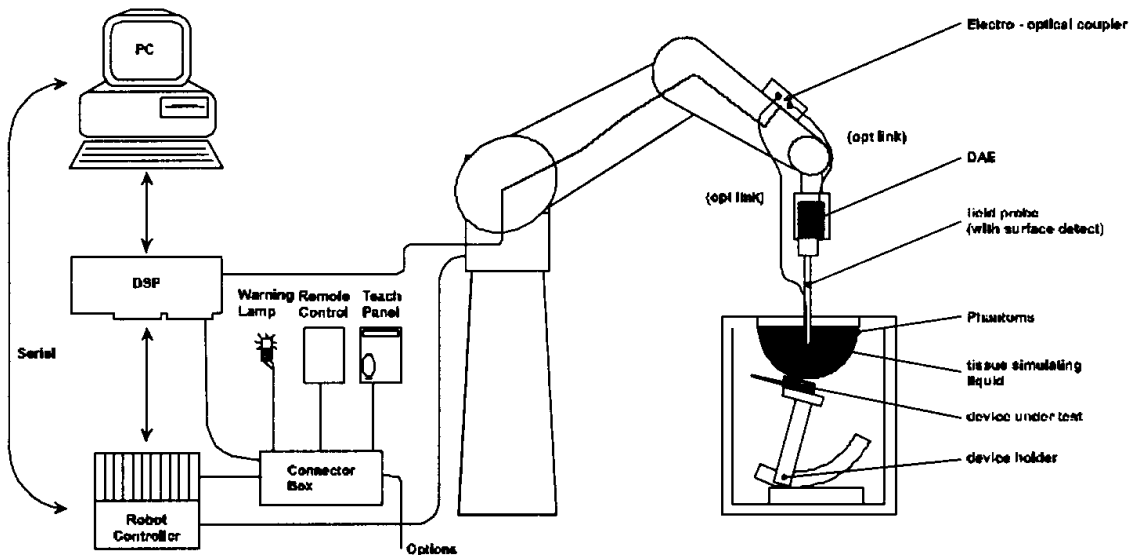
Ambient temperature:	20 – 24 °C
Tissue Simulating liquid:	20 – 24 °C
Relative humidity content:	40 – 50 %
Air pressure:	not relevant for this kind of testing
Power supply:	230 V / 50 Hz

Exact temperature values for each test are shown in the table(s) under 7.1 and/or on the measurement plots.

6 Test Set-up

6.1 Measurement system

6.1.1 System Description



- The DASYS system for performing compliance tests consists of the following items:
- A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- A unit to operate the optical surface detector which is connected to the EOC.
- The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASYS measurement server.
- The DASYS measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows XP or Windows 7.
- DASYS software and SEMCAD data evaluation software.
- Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
- The generic twin phantom enabling the testing of left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- System check dipoles allowing to validate the proper functioning of the system.

6.1.2 Test environment

The DASY measurement system is placed at the head end of a room with dimensions: 5 x 2.5 x 3 m³, the SAM phantom is placed in a distance of 75 cm from the side walls and 1.1m from the rear wall. Above the test system a 1.5 x 1.5 m² array of pyramid absorbers is installed to reduce reflections from the ceiling.

Picture 1 of the photo documentation shows a complete view of the test environment.

The system allows the measurement of SAR values larger than 0.005 mW/g.

6.1.3 Probe description

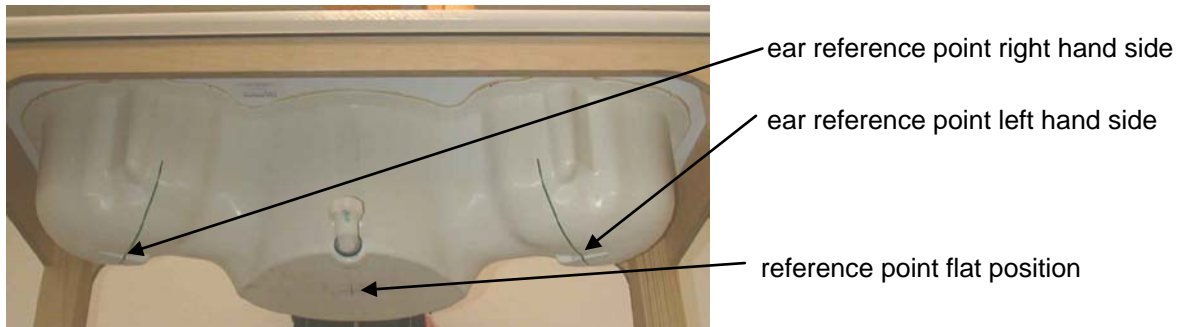
Isotropic E-Field Probe ET3DV6 for Dosimetric Measurements

Technical data according to manufacturer information	
Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycoether)
Calibration	In air from 10 MHz to 2.5 GHz In head tissue simulating liquid (HSL) at 900 (800-1000) MHz and 1.8 GHz (1700-1910 MHz) (accuracy $\pm 9.5\%$; $k=2$) Calibration for other liquids and frequencies upon request
Frequency	10 MHz to 3 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic range	5 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB
Optical Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces (ET3DV6 only)
Dimensions	Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms (ET3DV6)

6.1.4 Phantom description

The used SAM Phantom meets the requirements specified in Edition 01-01 of Supplement C to OET Bulletin 65 for Specific Absorption Rate (SAR) measurements.

The phantom consists of a fibreglass shell integrated in a wooden table. It allows left-hand and right-hand head as well as body-worn measurements with a maximum liquid depth of 18 cm in head position and 22 cm in planar position (body measurements). The thickness of the Phantom shell is 2 mm +/- 0.1 mm.



6.1.5 Device holder description

The DASY device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. 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. This device holder is used for standard mobile phones or PDA's only. If necessary an additional support of polystyrene material is used.



Larger DUT's (e.g. notebooks) cannot be tested using this device holder. Instead a support of bigger polystyrene cubes and thin polystyrene plates is used to position the DUT in all relevant positions to find and measure spots with maximum SAR values.

Therefore those devices are normally only tested at the flat part of the SAM.

6.1.6 Scanning procedure

- The DASY installation includes predefined files with recommended procedures for measurements and system check. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.
- The „reference“ and „drift“ measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT's output power and should vary max. +/- 5 %.
- The „surface check“ measurement tests the optical surface detection system of the DASY system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above $\pm 0.1\text{mm}$). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within $\pm 30^\circ$.)
- The „area scan“ measures the SAR above the DUT or verification dipole on a parallel plane to the surface. It is used to locate the approximate location of the peak SAR with 2D spline interpolation. The robot performs a stepped movement along one grid axis while the local electrical field strength is measured by the probe. The probe is touching the surface of the SAM during acquisition of measurement values. The standard scan uses large grid spacing for faster measurement. Standard grid spacing for head measurements is 15 mm in x- and y- dimension. If a finer resolution is needed, the grid spacing can be reduced. Grid spacing and orientation have no influence on the SAR result. For special applications where the standard scan method does not find the peak SAR within the grid, e.g. mobile phones with flip cover, the grid can be adapted in orientation. Results of this coarse scan are shown in annex 2.
- A „7x7x7 zoom scan“ measures the field in a volume around the 2D peak SAR value acquired in the previous „coarse“ scan. This is a fine 7x7 grid where the robot additionally moves the probe in 7 steps along the z-axis away from the bottom of the Phantom. Grid spacing for the cube measurement is 5 mm / 4 mm in x and y-direction and 5 mm / 2 mm in z-direction. DASY is also able to perform repeated zoom scans if more than 1 peak is found during area scan. In this document, the evaluated peak 1g and 10g averaged SAR values are shown in the 2D-graphics in annex 2. Test results relevant for the specified standard (see section 3) are shown in table form in section 7.
- A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 2mm steps. This measurement shows the continuity of the liquid and can - depending in the field strength – also show the liquid depth. A z-axis scan of the measurement with maximum SAR value is shown in annex 2.

6.1.7 Spatial Peak SAR Evaluation

The spatial peak SAR - value for 1 and 10 g is evaluated after the Cube measurements have been done. The basis of the evaluation are the SAR values measured at the points of the fine cube grid consisting of 7 x 7 x 7 points. The algorithm that finds the maximal averaged volume is separated into three different stages.

- The data between the dipole center of the probe and the surface of the phantom are extrapolated. This data cannot be measured since the center of the dipole is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is about 1 mm (see probe calibration sheet). The extrapolated data from a cube measurement can be visualized by selecting 'Graph Evaluated'.
- The maximum interpolated value is searched with a straight-forward algorithm. Around this maximum the SAR - values averaged over the spatial volumes (1g or 10 g) are computed using the 3d-spline interpolation algorithm. If the volume cannot be evaluated (i.e., if a part of the grid was cut off by the boundary of the measurement area) the evaluation will be started on the corners of the bottom plane of the cube.
- All neighbouring volumes are evaluated until no neighbouring volume with a higher average value is found.

Extrapolation

The extrapolation is based on a least square algorithm [W. Gander, Computermathematik, p.168-180]. Through the points in the first 3 cm along the z-axis, polynomials of order four are calculated. These polynomials are then used to evaluate the points between the surface and the probe tip. The points, calculated from the surface, have a distance of 1 mm from each other.

Interpolation

The interpolation of the points is done with a 3d-Spline. The 3d-Spline is composed of three one-dimensional splines with the "Not a knot"-condition [W. Gander, Computermathematik, p.141-150] (x, y and z -direction) [Numerical Recipes in C, Second Edition, p.123ff].

Volume Averaging

At First the size of the cube is calculated. Then the volume is integrated with the trapezoidal algorithm. 8000 points (20x20x20) are interpolated to calculate the average.

Advanced Extrapolation

DASY uses the advanced extrapolation option which is able to compensate boundary effects on E-field probes.

6.1.8 Data Storage and Evaluation

Data Storage

The DASY software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA4", ".DA5x". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

Data Evaluation by SEMCAD

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

Probe parameters:	- Sensitivity	Norm _i , a ₁₀ , a _{i1} , a _{i2}
	- Conversion factor	ConvF _i
	- Diode compression point	Dcpi
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 multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot cf/dcp_i$$

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:

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

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

with V_i = compensated signal of channel i (i = x, y, z)
 $Norm_i$ = sensor sensitivity of channel i (i = x, y, z)
 [mV/(V/m)²] for E-field Probes
 $ConvF$ = sensitivity enhancement in solution
 a_{ij} = sensor sensitivity factors for H-field probes
 f = carrier frequency [GHz]
 E_i = electric field strength of channel i in V/m
 H_i = magnetic field strength of channel i in A/m

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

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

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

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

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/cm³

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

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

with P_{pwe} = equivalent power density of a plane wave in mW/cm²
 E_{tot} = total electric field strength in V/m
 H_{tot} = total magnetic field strength in A/m

6.1.9 Tissue simulating liquids: dielectric properties

The following materials are used for producing the tissue-equivalent materials.

(Liquids used for tests described in section 7. are marked with ☒) :

Ingredients (% of weight)	Frequency (MHz)								
	<input type="checkbox"/> 450	<input type="checkbox"/> 750	<input checked="" type="checkbox"/> 835	<input type="checkbox"/> 900	<input type="checkbox"/> 1450	<input type="checkbox"/> 1800	<input checked="" type="checkbox"/> 1900	<input checked="" type="checkbox"/> 2450	<input type="checkbox"/> 5000
frequency band									
Tissue Type	Head	Head	Head	Head	Head	Head	Head	Head	Head
Water	38.56	41.1	41.45	40.92	52.64	52.64	54.9	62.7	64 - 78
Salt (NaCl)	3.95	1.4	1.45	1.48	0.61	0.36	0.18	0.5	2 - 3
Sugar	56.32	57.0	56.0	56.5	0.0	0.0	0.0	0.0	0.0
HEC	0.98	0.2	1.0	1.0	0.0	0.0	0.0	0.0	0.0
Bactericide	0.19	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	46.75	47.0	44.92	0.0	0.0
Emulsifiers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9 - 15
Mineral Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11 - 18

Table 3: Head tissue dielectric properties

Ingredients (% of weight)	Frequency (MHz)								
	<input type="checkbox"/> 450	<input type="checkbox"/> 750	<input checked="" type="checkbox"/> 835	<input type="checkbox"/> 900	<input type="checkbox"/> 1450	<input type="checkbox"/> 1800	<input checked="" type="checkbox"/> 1900	<input checked="" type="checkbox"/> 2450	<input type="checkbox"/> 5000
frequency band									
Tissue Type	Body	Body	Body	Body	Body	Body	Body	Body	Body
Water	51.16	51.7	52.4	56.0	70.97	69.91	69.91	73.2	64 - 78
Salt (NaCl)	1.49	0.9	1.40	0.76	0.43	0.13	0.13	0.04	2 - 3
Sugar	46.78	47.2	45.0	41.76	0.0	0.0	0.0	0.0	0.0
HEC	0.52	0.0	1.0	1.21	0.0	0.0	0.0	0.0	0.0
Bactericide	0.05	0.1	0.1	0.27	0.0	0.0	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DGBE	0.0	0.0	0.0	0.0	28.60	29.96	29.96	26.7	0.0
Emulsifiers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9 - 15
Mineral Oil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11 - 18

Table 4: Body tissue dielectric properties

Salt: 99+% Pure Sodium Chloride

Water: De-ionized, 16MΩ+ resistivity

Sugar: 98+% Pure Sucrose

HEC: Hydroxyethyl Cellulose

DGBE: 99+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]

Triton X-100(ultra pure): Polyethylene glycol mono [4-(1,1,3,3-tetramethylbutyl)phenyl]ether

Note: Due to their availability body tissue simulating liquids as defined by FCC OET Bulletin 65 Supplement C are generally used for body worn SAR testing according to European standards.

6.1.10 Tissue simulating liquids: parameters

Liquid HSL	Freq. (MHz)	Target head tissue		Measurement head tissue				Measurement date
		Permittivity	Conductivity [S/m]	Permittivity	Dev. %	Conductivity [S/m]	Dev. %	
850/900	824	41.5	0.90	42.6	2.7%	0.88	-2.2%	2013-05-14
	837	41.5	0.90	42.5	2.4%	0.90	0.0%	2013-05-14
	849	41.5	0.90	42.3	1.9%	0.91	1.1%	2013-05-14
	900	41.5	0.97	41.7	0.5%	0.96	-1.0%	2013-05-14
1900	1850	40.0	1.40	40.2	0.5%	1.34	-4.3%	2013-05-15
	1880	40.0	1.40	40.0	0.0%	1.36	-2.9%	2013-05-15
	1900	40.0	1.40	40.0	0.0%	1.38	-1.4%	2013-05-15
	1910	40.0	1.40	40.0	0.0%	1.39	-0.7%	2013-05-15
2450	2412	39.2	1.80	39.3	0.3%	1.81	0.6%	2013-05-24
	2437	39.2	1.80	39.3	0.3%	1.84	2.2%	2013-05-24
	2450	39.2	1.80	39.2	0.0%	1.85	2.8%	2013-05-24
	2462	39.2	1.80	39.2	0.0%	1.86	3.3%	2013-05-24

Table 5: Parameter of the head tissue simulating liquid

Liquid MSL	Freq. (MHz)	Target body tissue		Measurement body tissue				Measurement date
		Permittivity	Conductivity [S/m]	Permittivity	Dev. %	Conductivity [S/m]	Dev. %	
850/900	824	55.2	0.97	54.6	-1.1%	0.98	1.0%	2013-05-16
	837	55.2	0.97	54.5	-1.3%	0.99	2.1%	2013-05-16
	849	55.2	0.97	54.4	-1.4%	1.00	3.1%	2013-05-16
	900	55.0	1.05	53.8	-2.2%	1.06	1.0%	2013-05-16
1900	1850	53.3	1.52	52.3	-1.9%	1.49	-2.0%	2013-05-17
	1880	53.3	1.52	52.2	-2.1%	1.52	0.0%	2013-05-17
	1900	53.3	1.52	52.1	-2.3%	1.54	1.3%	2013-05-17
	1910	53.3	1.52	52.1	-2.3%	1.55	2.0%	2013-05-17
2450	2412	52.7	1.95	51.8	-1.7%	1.93	-1.0%	2013-05-24
	2437	52.7	1.95	51.8	-1.7%	1.96	0.5%	2013-05-24
	2442	52.7	1.95	51.8	-1.7%	1.97	1.0%	2013-05-24
	2462	52.7	1.95	51.7	-1.9%	2.00	2.6%	2013-05-24

Table 6: Parameter of the body tissue simulating liquid

Note: The dielectric properties have been measured using the contact probe method at 22°C.

6.1.11 Measurement uncertainty evaluation for SAR test

Relative DASY5 Uncertainty Budget for SAR Tests								
According to IEEE 1528/2011 and IEC62209-1/2011 (0.3-3GHz range)								
Error Description	Uncertainty Value	Probability Distribution	Divisor	c_i	c_i	Standard Uncertainty		v_i^2 or v_{eff}
				(1g)	(10g)	± %, (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 %	∞
Probe linearity	± 4.7 %	Rectangular	√ 3	1	1	± 2.7 %	± 2.7 %	∞
System detection limits	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Modulation Response	± 2.4 %	Rectangular	√ 3	1	1	± 1.4 %	± 1.4 %	∞
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 evaluation	± 2.0 %	Rectangular	√ 3	1	1	± 1.2 %	± 1.2 %	∞
Test Sample Related								
Device positioning	± 2.9 %	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device holder uncertainty	± 3.6 %	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power drift	± 5.0 %	Rectangular	√ 3	1	1	± 2.9 %	± 2.9 %	∞
Phantom and Set-up								
Phantom uncertainty	± 6.1 %	Rectangular	√ 3	1	1	± 3.5 %	± 3.5 %	∞
SAR correction	± 1.9 %	Rectangular	√ 3	1	0.84	± 1.1 %	± 0.9 %	∞
Liquid conductivity (meas.)	± 5.0 %	Rectangular	√ 3	0.78	0.71	± 2.3 %	± 2.0 %	∞
Liquid permittivity (meas.)	± 5.0 %	Rectangular	√ 3	0.26	0.26	± 0.8 %	± 0.8 %	∞
Temp. Unc. - Conductivity	± 3.4 %	Rectangular	√ 3	0.78	0.71	± 1.5 %	± 1.4 %	∞
Temp. Unc. - Permittivity	± 0.4 %	Rectangular	√ 3	0.23	0.26	± 0.1 %	± 0.1 %	∞
Combined Uncertainty						± 11.3 %	± 11.3 %	330
Expanded Std. Uncertainty						± 22.7 %	± 22.5 %	

Table 7: Measurement uncertainties

Worst-Case uncertainty budget for DASY5 assessed according to IEEE 1528/2011 and IEC 62209-1/2011 draft standards. The budget is valid for the frequency range 300MHz -3 GHz and represents a worst-case analysis. For specific tests and configurations, the uncertainty could be considerable smaller.

Relative DASY5 Uncertainty Budget for SAR Tests								
According to IEC62209-2/2010 (30 MHz - 6 GHz range)								
Error Description	Uncertainty Value	Probability Distribution	Divisor	c _i	c _i	Standard Uncertainty		v _i ² or v _{eff}
				(1g)	(10g)	± %, (1g)	± %, (10g)	
Measurement System								
Probe calibration	± 6.6 %	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
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	± 2.0 %	Rectangular	√ 3	1	1	± 1.2 %	± 1.2 %	∞
Probe linearity	± 4.7 %	Rectangular	√ 3	1	1	± 2.7 %	± 2.7 %	∞
System detection limits	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Modulation Response	± 2.4 %	Rectangular	√ 3	1	1	± 1.4 %	± 1.4 %	∞
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	± 0.8 %	Rectangular	√ 3	1	1	± 0.5 %	± 0.5 %	∞
Probe positioning	± 6.7 %	Rectangular	√ 3	1	1	± 3.9 %	± 3.9 %	∞
Post-processing	± 4.0 %	Rectangular	√ 3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device positioning	± 2.9 %	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device holder uncertainty	± 3.6 %	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power drift	± 5.0 %	Rectangular	√ 3	1	1	± 2.9 %	± 2.9 %	∞
Phantom and Set-up								
Phantom uncertainty	± 7.9 %	Rectangular	√ 3	1	1	± 4.6 %	± 4.6 %	∞
SAR correction	± 1.9 %	Rectangular	√ 3	1	0.84	± 1.1 %	± 0.9 %	∞
Liquid conductivity (meas.)	± 5.0 %	Rectangular	√ 3	0.78	0.71	± 2.3 %	± 2.0 %	∞
Liquid permittivity (meas.)	± 5.0 %	Rectangular	√ 3	0.26	0.26	± 0.8 %	± 0.8 %	∞
Temp. Unc. - Conductivity	± 3.4 %	Rectangular	√ 3	0.78	0.71	± 1.5 %	± 1.4 %	∞
Temp. Unc. - Permittivity	± 0.4 %	Rectangular	√ 3	0.23	0.26	± 0.1 %	± 0.1 %	∞
Combined Uncertainty						± 12.7 %	± 12.6 %	330
Expanded Std. Uncertainty						± 25.4 %	± 25.3 %	

Table 8: Measurement uncertainties. Worst-Case uncertainty budget for DASY5 assessed according to according to IEC 62209-2/2010 standard. The budget is valid for the frequency range 30MHz - 6 GHz and represents a worst-case analysis. For specific tests and configurations, the uncertainty could be considerable smaller.

6.1.12 Measurement uncertainty evaluation for System Check

Uncertainty of a System Performance Check with DASY5 System for the 0.3 - 3 GHz range								
Source of uncertainty	Uncertainty Value	Probability Distribution	Divisor	c_i	c_i	Standard Uncertainty		v_i^2 or
				(1g)	(10g)	± %, (1g)	± %, (10g)	v_{eff}
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	± 0.0 %	Rectangular	√ 3	0.7	0.7	± 0.0 %	± 0.0 %	∞
Boundary effects	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Probe 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	± 0.0 %	Rectangular	√ 3	1	1	± 0.0 %	± 0.0 %	∞
Integration time	± 0.0 %	Rectangular	√ 3	1	1	± 0.0 %	± 0.0 %	∞
RF ambient conditions	± 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 evaluation	± 1.0 %	Rectangular	√ 3	1	1	± 0.6 %	± 0.6 %	∞
Test Sample Related								
Dev. of experimental dipole	± 0.0 %	Rectangular	√ 3	1	1	± 0.0 %	± 0.0 %	∞
Source to liquid distance	± 2.0 %	Rectangular	√ 3	1	1	± 1.2 %	± 1.2 %	∞
Power drift	± 3.4 %	Rectangular	√ 3	1	1	± 2.0 %	± 2.0 %	∞
Phantom and Set-up								
Phantom uncertainty	± 4.0 %	Rectangular	√ 3	1	1	± 2.3 %	± 2.3 %	∞
SAR correction	± 1.9 %	Rectangular	√ 3	1	0.84	± 1.1 %	± 0.9 %	∞
Liquid conductivity (meas.)	± 5.0 %	Normal	1	0.78	0.71	± 3.9 %	± 3.6 %	∞
Liquid permittivity (meas.)	± 5.0 %	Normal	1	0.26	0.26	± 1.3 %	± 1.3 %	∞
Temp. unc. - Conductivity	± 1.7 %	Rectangular	√ 3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 0.3 %	Rectangular	√ 3	0.23	0.26	± 0.0 %	± 0.0 %	∞
Combined Uncertainty						± 9.1 %	± 8.9 %	330
Expanded Std. Uncertainty						± 18.2 %	± 17.9 %	

Table 9: Measurement uncertainties of the System Check with DASY5 (0.3-3GHz)

Note: Worst case probe calibration uncertainty has been applied for all probes used during the measurements.

6.1.13 System check

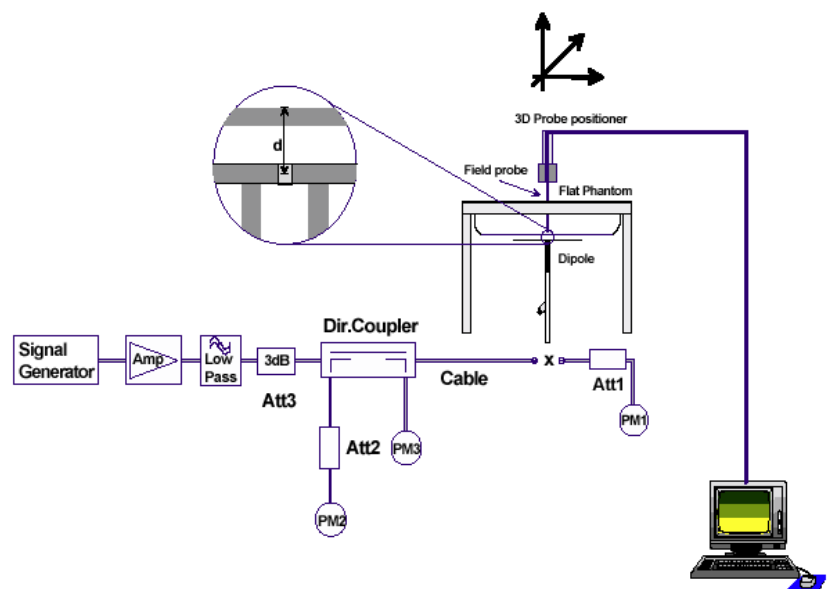
The system check is performed for verifying the accuracy of the complete measurement system and performance of the software. The system check is performed with tissue equivalent material according to IEEE 1528. The following table shows system check results for all frequency bands and tissue liquids used during the tests (plot(s) see annex A).

System performance check (1000 mW)								
System validation Kit	Frequency	Target SAR _{1g} (+/- 10%)	Target SAR _{10g} (+/- 10%)	Measured SAR _{1g} mW/g	SAR _{1g} dev. %	Measured SAR _{10g} mW/g	SAR _{10g} dev. %	Measured date
D900V2 S/N: 099	900 MHz head	10.7	6.84	10.4	-2.8%	6.70	-2.0%	2013-05-14
D900V2 S/N: 099	900 MHz head	10.7	6.84	10.4	-2.8%	6.73	-1.6%	2013-05-15
D900V2 S/N: 099	900 MHz body	10.9	7.06	10.7	-1.8%	7.00	-0.8%	2013-05-17
D900V2 S/N: 102	900 MHz body	10.9	7.03	11.0	0.9%	7.11	1.1%	2013-06-04
D1900V2 S/N: 531	1900 MHz head	39.1	20.60	37.0	-5.4%	19.50	-5.3%	2013-05-15
D1900V2 S/N: 531	1900 MHz body	40.3	21.40	39.8	-1.2%	21.30	-0.5%	2013-05-18
D1900V2 S/N: 531	1900 MHz body	40.3	21.40	40.7	1.0%	21.90	2.3%	2013-05-21
D2450V2 S/N: 710	2450 MHz head	51.5	24.00	50.9	-1.2%	23.80	-0.8%	2013-05-24
D2450V2 S/N: 710	2450 MHz body	51.2	23.90	51.5	0.6%	23.20	-2.9%	2013-05-24

Table 10: Results system check

6.1.14 System check procedure

The system check is performed by using a validation dipole which is positioned parallel to the planar part of the SAM phantom at the reference point. The distance of the dipole to the SAM phantom is determined by a plexiglass spacer. The dipole is connected to the signal source consisting of signal generator and amplifier via a directional coupler, N-connector cable and adaption to SMA. It is fed with a power of 1000 mW for frequencies below 2 GHz or 100 mW for frequencies above 2 GHz. To adjust this power a power meter is used. The power sensor is connected to the cable before the system check to measure the power at this point and do adjustments at the signal generator. At the outputs of the directional coupler both return loss as well as forward power are controlled during the validation to make sure that emitted power at the dipole is kept constant. This can also be checked by the power drift measurement after the test (result on plot). System check results have to be equal or near the values determined during dipole calibration (target SAR in table above) with the relevant liquids and test system.



7 Detailed Test Results

7.1 Conducted power measurements

For the measurements a Rohde & Schwarz Radio Communication Tester CMU 200 was used. The output power was measured using an integrated RF connector and attached RF cable. The conducted output power was also checked before and after each SAR measurement. The resulting power values were within a 0.2 dB tolerance of the values shown below.

Note: CMU200 measures GSM peak and average output power for active timeslots.

For SAR the time based average power is relevant. The difference in-between depends on the duty cycle of the TDMA signal:

No. of timeslots	1	2	3	4
Duty Cycle	1 : 8	1: 4	1 : 2.66	1 : 2
time based avg. power compared to slotted avg. power	- 9 dB	- 6 dB	- 4.25 dB	- 3 dB

The signalling modes differ as follows :

mode	coding scheme	modulation
GPRS	CS1 to CS4	GMSK
EGPRS (EDGE)	MCS1 to MCS4	GMSK
EGPRS (EDGE)	MCS5 to MCS9	8PSK

Apart from modulation change (GMSK/8PSK) coding schemes differ in code rate without influence on the RF signal. Therefore one coding scheme per mode was selected for conducted power measurements.

7.1.1 Conducted power measurements GSM 850 MHz

Channel / frequency	modulation	timeslots	slotted avg. Power (dBm)			calculated time based avg. Power (dBm)	
			full	back off	diff.	full	back off
128 / 824.2 MHz	GMSK	1	32.9	30.8	2.1	23.9	21.8
190 / 836.6 MHz	GMSK	1	32.9	30.8	2.1	23.9	21.8
251 / 848.0 MHz	GMSK	1	32.9	30.8	2.1	23.9	21.8
128 / 824.2 MHz	GMSK	2	30.8	28.8	2.0	24.8	22.8
190 / 836.6 MHz	GMSK	2	30.8	28.8	2.0	24.8	22.8
251 / 848.0 MHz	GMSK	2	30.8	28.8	2.0	24.8	22.8
128 / 824.2 MHz	8PSK	1	26.8	26.8	0.0	17.8	17.8
190 / 836.6 MHz	8PSK	1	26.7	26.7	0.0	17.7	17.7
251 / 848.0 MHz	8PSK	1	26.9	26.9	0.0	17.9	17.9
128 / 824.2 MHz	8PSK	2	26.8	26.8	0.0	20.8	20.8
190 / 836.6 MHz	8PSK	2	26.8	26.8	0.0	20.8	20.8
251 / 848.0 MHz	8PSK	2	26.8	26.8	0.0	20.8	20.8

Table 11: Test results conducted power measurement GSM 850 MHz

7.1.2 Conducted power measurements GSM 1900 MHz

Channel / frequency	modulation	timeslots	slotted avg. power	time based avg. Power
512 / 1850.2 MHz	GMSK	1	30.4 dBm	21.4 dBm
661 / 1880.0 MHz	GMSK	1	30.1 dBm	21.1 dBm
810 / 1909.8 MHz	GMSK	1	30.3 dBm	21.3 dBm
512 / 1850.2 MHz	GMSK	2	27.2 dBm	21.2 dBm
661 / 1880.0 MHz	GMSK	2	27.1 dBm	21.1 dBm
810 / 1909.8 MHz	GMSK	2	27.3 dBm	21.3 dBm
512 / 1850.2 MHz	8PSK	1	28.0 dBm	19.0 dBm
661 / 1880.0 MHz	8PSK	1	27.7 dBm	18.7 dBm
810 / 1909.8 MHz	8PSK	1	27.9 dBm	18.9 dBm
512 / 1850.2 MHz	8PSK	2	28.0 dBm	22.0 dBm
661 / 1880.0 MHz	8PSK	2	27.7 dBm	21.7 dBm
810 / 1909.8 MHz	8PSK	2	27.9 dBm	21.9 dBm

Table 12: Test results conducted power measurement GSM 1900 MHz

7.1.3 Justification of SAR measurements in GSM mode

SAR measurements were performed in the configuration with highest calculated time based averaged output power.

EGRPS was additionally tested because conducted power was at the higher level as GPRS.

7.1.4 Conducted power measurements WCDMA FDD V (850 MHz)

Max. RMS output power UMTS 850 MHz (FDD V) / dBm									
mode	Channel / frequency								
	4132 / 826.4 MHz			4182 / 836.4 MHz			4233 / 846.6 MHz		
	full	back off	diff.	full	back off	diff.	full	back off	diff.
RMC 12.2 kbit/s	24.3	22.3	2	24.2	22.2	2	24.2	22.2	2
RMC 64 kbit/s	24.3	22.3	2	24.1	22.1	2	24.2	22.2	2
RMC 144 kbit/s	24.3	22.3	2	24.1	22.1	2	24.2	22.2	2
RMC 384 kbit/s	24.3	22.3	2	24.1	22.1	2	24.2	22.2	2
AMR 4.75 kbit/s	24.3	22.3	2	24.1	22.1	2	24.2	22.2	2
AMR 5.15 kbit/s	24.3	22.3	2	24.1	22.1	2	24.2	22.2	2
AMR 5.9 kbit/s	24.3	22.3	2	24.1	22.1	2	24.2	22.2	2
AMR 6.7 kbit/s	24.3	22.3	2	24.1	22.1	2	24.2	22.2	2
AMR 7.4 kbit/s	24.3	22.3	2	24.1	22.1	2	24.2	22.2	2
AMR 7.95 kbit/s	24.3	22.3	2	24.1	22.1	2	24.2	22.2	2
AMR 10.2 kbit/s	24.3	22.3	2	24.1	22.1	2	24.2	22.2	2
AMR 12.2 kbit/s	24.3	22.3	2	24.1	22.1	2	24.2	22.2	2
HSDPA Sub test 1	24.3	22.3	2	24.1	22.1	2	24.1	22.1	2
HSDPA Sub test 2	24.3	22.3	2	24.1	22.1	2	24.1	22.1	2
HSDPA Sub test 3	24.3	22.3	2	24.1	22.1	2	24.1	22.1	2
HSDPA Sub test 4	24.3	22.3	2	24.2	22.2	2	24.2	22.2	2
HSUPA Sub test 1	24.1	22.1	2	24.0	22.0	2	24.2	22.2	2
HSUPA Sub test 2	21.8	19.8	2	21.7	19.7	2	21.7	19.7	2
HSUPA Sub test 3	22.8	21.8	2	22.7	22.7	2	22.7	20.7	2
HSUPA Sub test 4	21.8	19.8	2	21.9	19.9	2	21.7	19.7	2
HSUPA Sub test 5	24.1	22.1	2	24.0	22.0	2	24.0	22.0	2

Table 13: Test results conducted power measurement UMTS FDD V 850MHz

7.1.5 Conducted power measurements WCDMA FDD II (1900 MHz)

mode	Max. RMS output power 1900 MHz (FDD II) / dBm		
	9262 / 1852.4 MHz	Channel / frequency 9400 / 1880.0 MHz	9538 / 1907.6 MHz
RMC 12.2 kbit/s	20.7	20.5	21.2
RMC 64 kbit/s	20.7	20.5	21.2
RMC 144 kbit/s	20.7	20.5	21.2
RMC 384 kbit/s	20.7	20.5	21.2
AMR 4.75 kbit/s	20.7	20.5	21.2
AMR 5.15 kbit/s	20.7	20.5	21.2
AMR 5.9 kbit/s	20.6	20.5	21.1
AMR 6.7 kbit/s	20.7	20.5	21.2
AMR 7.4 kbit/s	20.6	20.4	21.2
AMR 7.95 kbit/s	20.6	20.4	21.2
AMR 10.2 kbit/s	20.7	20.5	21.2
AMR 12.2 kbit/s	20.7	20.5	21.2
HSDPA Sub test 1	20.7	20.5	21.2
HSDPA Sub test 2	20.2	20.0	20.7
HSDPA Sub test 3	20.2	20.0	20.7
HSDPA Sub test 4	17.2	17.1	17.7
HSUPA Sub test 1	19.0	19.4	20.1
HSUPA Sub test 2	17.6	17.6	18.0
HSUPA Sub test 3	18.6	18.5	19.2
HSUPA Sub test 4	17.7	17.4	18.2
HSUPA Sub test 5	19.6	19.4	20.1

Table 14: Test results conducted power measurement UMTS FDD II 1900MHz

Remark: None of the HSDPA/HSUPA settings leads to conducted power values exceeding the conducted power in RMC mode by more than 0.25 dB.

Therefore no additional SAR measurements should be performed in HSDPA/HSUPA mode.

7.1.6 Test-set-up information for WCDMA / HSPDA / HSUPA

a) WCDMA RMC

In RMC (reference measurement channel) mode the conducted power at 4 different bit rates was measured. They correspond with the used spreading factors as follows:

Bit rate	12.2 kbit/s	64 kbit/s	144 kbit/s	384 kbit/s
Spreading factor (SF)	64	16	8	4

In RMC mode only DPCCH and DPDCH are active. As bit rate changes do not influence the relative power of any code channel the measured RMS output power remains on the same level which is set to maximum by TPC (Transmit power control) pattern type 'All 1'.

b) HSDPA

HSDPA adds the HS-DPCCH in uplink as a control channel for high speed data transfer in downlink. In HSDPA mode 4 sub-tests are defined by 3GPP 34.121 according to the following table:

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	CM(dB) ⁽²⁾
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 ⁽³⁾	15/15 ⁽³⁾	64	12/15 ⁽³⁾	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

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

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

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

Table 15: Sub-tests for UMTS Release 5 HSDPA

The β_c and β_d gain factors for DPCCH and DPDCH were set according to the values in the above table, β_{hs} for HS-DPCCH is set automatically to the correct value when $\Delta_{ACK}, \Delta_{NACK}, \Delta_{CQI} = 8$. The variation of the β_c/β_d ratio causes a power reduction at sub-tests 2 - 4.

The measurements were performed with a Fixed Reference Channel (FRC) and H-Set 1 QPSK.

Parameter	Value
Nominal average inf. bit rate	534 kbit/s
Inter-TTI Distance	3 TTI's
Number of HARQ Processes	2 Processes
Information Bit Payload	3202 Bits
MAC-d PDU size	336 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	4800 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	9600 SMLs
Coding Rate	0.67
Number of Physical Channel Codes	5

Table 16: settings of required H-Set 1 QPSK acc. to 3GPP 34.121

c) HSUPA

In HSUPA mode additional code channels (E-DPCCH, E-DPDCHn) are added for data transfer in uplink at higher bit rates.

5 sub-tests are defined by 3GPP 34.121 according to the following table :

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	β_{ec}	β_{ed}	β_{ec} (SF)	β_{ed} (code)	CM ⁽²⁾ (dB)	MPR (dB)	AG ⁽⁴⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}:47/15$ $\beta_{ed2}:47/15$	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	15/15 ⁽⁴⁾	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1 : $\Delta_{ACK}, \Delta_{NACK}, \Delta_{CQI} = 8 \iff A_{hs} = \beta_{hs}/\beta_c = 30/15 \iff \beta_{hs} = 30/15 * \beta_c$
 Note 2 : CM = 1 for $\beta_c/\beta_d = 12/15, \beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference
 Note 3 : For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1,TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$
 Note 4 : For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1,TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$
 Note 5 : Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g
 Note 6 : β_{ed} can not be set directly; it is set by Absolute Grant Value

Table 17: Subtests for UMTS Release 6 HSUPA

To achieve the settings above some additional procedures were defined by 3GPP 34.121. Those have been included in an application note for the CMU200 and were exactly followed:

- Test mode connection (BS signal tab) :
- RMC 12.2 kbit/s + HSPA 34.108 with loop mode 1
- HS-DSCH settings (BS signal tab):
- FRC with H-set 1 QPSK
- ACK-NACK repetition factor = 3
- CQI feedback cycle = 4ms
- CQI repetition factor = 2
- HSUPA-specific signalling settings (UE signal tab) :
- E-TFCI table index = 0
- E-DCH minimum set E-TFCI = 9
- Puncturing limit non-max = 0.84
- max. number of channelisation codes = 2x SF4
- Initial Serving Grant Value = Off
- HSDPA and HSUPA Gain factors (UE signal tab)

Sub-test	β_c	β_d	$\Delta_{ACK}, \Delta_{NACK}, \Delta_{CQI}$	$\Delta E-DPCCH$)*
1	10	15	8	6
2	6	15	8	8
3	15	9	8	8
4	2	15	8	5
5	14	15	8	7

)* : β_{ec} and β_{ed} ratios (relative to β_c and β_d) are set by $\Delta E-DPCCH$

- HSUPA Reference E-TFCIs (UE signal tab > HSUPA gain factors) :

Sub-test	1, 2, 4, 5				
Number of E-TFCIs	5				
Reference E-TFCI	11	67	71	75	81
Reference E-TFCI power offset	4	18	23	26	27

Sub-test	3	
Number of E-TFCIs	2	
Reference E-TFCI	11	92
Reference E-TFCI power offset	4	18

- HSUPA-specific generator parameters (BS Signal tab > HSUPA > E-AGCH > AG Pattern)

Sub-test	Absolute Grant Value (AG Index)
1	20
2	12
3	15
4	17
5	21

- Power Level settings (BS Signal tab > Node B-settings):

- Level reference: Output Channel Power (Ior)
- Output Channel Power (Ior) : -86 dBm

- Downlink Physical Channel Settings (BS signal tab)

- P-CPICH: -10 dB
- S-CPICH: Off
- P-SCH : -15 dB
- S-SCH : -15 dB
- P-CCPCH: -12 dB
- S-CCPCH: -12 dB
- PICH : -15 dB
- AICH : -12 dB
- DPDCH : -10 dB
- HS-SCCH : -8 dB
- HS-PDSCH : -3 dB
- E-AGCH : -20 dB
- E-RGCH/E-HICH - 20 dB
- E-RGCH Active: Off

The settings above were stored once for each sub-test and recalled before the measurement.

HSUPA test procedure:

To reach maximum output power in HSUPA mode the following procedures were followed:

3 different TPC patterns were defined :

Set 1 : Closed loop with target power 10 dBm

Set 2 : Single Pattern+Alternating with binary pattern '11111' for 1 dB steps 'up'

Set 3 : Single Pattern+Alternating with binary pattern '00000' for 1 dB steps 'down'

After recalling a certain HSUPA sub-test the HSUPA E-AGCH graph with E-TFCI event counter is displayed. After starting with the closed loop command the power is increased in 1 dB steps by activating pattern set 2 until the UE decreases the transmitted E-TFCI.

At this point set 3 is activated once to reduce the output power to the value at which the original E-TFCI, which is required for the sub-test, appears again.

For conducted power measurements the same steps are repeated in the power menu to read out the corresponding maximum RMS output power with the target E-TFCI.

For SAR measurements it is useful to switch to Code Domain Power vs. Time display.

Here the CMU200 shows relative power values (max. and min.) of each code channel which should roughly correspond to the numerators of the gain factors e.g. :

Sub-test	β_c	β_d	β_{hs}	β_{ec}	β_{ed}
5	15	15	30	24	134

By this way a surveillance of signalling conditions is possible to make sure that HSUPA code channels are active during the complete SAR measurement.

7.1.7 Conducted power measurements WLAN 2.4 GHz

Channel / frequency	modulation	bit rate	time based avg. power
1 / 2412 MHz	CCK	1 MBit/s	16.8 dBm
6 / 2437 MHz	CCK	1 MBit/s	17.0 dBm
11 / 2462 MHz	CCK	1 MBit/s	16.2 dBm
1 / 2412 MHz	OFDM	6 MBit/s	11.6 dBm
6 / 2437 MHz	OFDM	6 MBit/s	14.6 dBm
11 / 2462 MHz	OFDM	6 MBit/s	11.0 dBm
1 / 2412 MHz	OFDM	6.5 MBit/s	11.5 dBm
6 / 2437 MHz	OFDM	6.5 MBit/s	14.4 dBm
11 / 2462 MHz	OFDM	6.5 MBit/s	10.8 dBm

Table 18: Test results conducted power measurement WLAN 2.4 GHz

7.1.8 Standalone SAR Test Exclusion

a) Head position

Standalone SAR test exclusion considerations					
Communication system	freq. (MHz)	P _{avg} * (dBm)	P _{avg} * (mW)	threshold _{1-g} comparison value	SAR test exclusion
GSM 850	835	33.0	1995.3	364.6	no
GSM 1900	1900	30.5	1122.0	309.3	no
FDD II	1900	21.0	125.9	34.7	no
FDD V	835	24.5	281.8	51.5	no
WLAN 2450	2450	18.0	63.1	19.8	no
Bluetooth 2450	2450	6.3	4.3	1.3	yes

Table 19: Standalone SAR test exclusion considerations in head position

b) Body position

Standalone SAR test exclusion considerations						
Communication system	freq. (MHz)	distance (mm)	P _{avg} * (dBm)	P _{avg} * (mW)	threshold _{1-g} comparison value	SAR test exclusion
GSM 850	835	10	29.0	794.3	72.6	no
GSM 1900	1900	10	30.5	1122.0	154.7	no
UMTS FDD II	1900	10	21.0	125.9	17.4	no
UMTS FDD V	835	10	22.5	177.8	16.2	no
WLAN 2450	2450	10	18.0	63.1	9.9	no
Bluetooth 2450	2450	10	6.3	4.3	0.7	yes

Table 20: Standalone SAR test exclusion considerations in body position

P_{avg}* - maximum possible output power declared by manufacturer

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

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR, where:

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

7.1.9 Multiple Transmitter Information

The following tables list information which is relevant for the decision if a simultaneous transmit evaluation is necessary according to FCC KDB 447498D01 General RF Exposure Guidance v05.

Minimum antenna separation distance between MAIN antenna and WLAN antenna – 13 mm

Reported SAR WWAN and WLAN 2.4GHz , Σ SAR evaluation				
Frequency band	Position	SAR _{max} /W/kg		Σ SAR <1.6W/kg
		WWAN	WLAN	
GSM 850	left cheek	0.535	0.407	0.942
GSM 850	right cheek	0.747	0.102	0.849
GSM 850	front	0.510	0.029	0.539
GSM 850	rear	1.058	0.320	1.378
GSM 1900	left cheek	0.868	0.407	1.275
GSM 1900	right cheek	0.818	0.102	0.920
GSM 1900	front	0.688	0.029	0.717
GSM 1900	rear	0.978	0.320	1.298
WCDMA FDD II	left cheek	0.993	0.407	1.400
WCDMA FDD II	right cheek	0.753	0.102	0.855
WCDMA FDD II	front	0.729	0.029	0.758
WCDMA FDD II	rear	0.806	0.320	1.126
WCDMA FDD V	left cheek	0.920	0.407	1.327
WCDMA FDD V	right cheek	1.016	0.102	1.118
WCDMA FDD V	front	0.653	0.029	0.682
WCDMA FDD V	rear	1.050	0.320	1.370

Table 21: SAR_{max} WWAN and **WLAN 2.4GHz**, Σ SAR evaluation.

reported SAR WWAN and Bluetooth 2.4GHz , Σ SAR evaluation				
Frequency band	Position	SAR _{max} /W/kg		Σ SAR <1.6W/kg
		WWAN	Bluetooth	
GSM 850	left cheek	0.535	0.178	0.713
GSM 850	right cheek	0.747	0.178	0.925
GSM 850	front	0.510	0.089	0.599
GSM 850	rear	1.058	0.089	1.147
GSM 1900	left cheek	0.868	0.178	1.046
GSM 1900	right cheek	0.818	0.178	0.996
GSM 1900	front	0.688	0.089	0.777
GSM 1900	rear	0.978	0.089	1.067
WCDMA FDD II	left cheek	0.993	0.178	1.171
WCDMA FDD II	right cheek	0.753	0.178	0.931
WCDMA FDD II	front	0.729	0.089	0.818
WCDMA FDD II	rear	0.806	0.089	0.895
WCDMA FDD V	left cheek	0.920	0.178	1.098
WCDMA FDD V	right cheek	1.016	0.178	1.194
WCDMA FDD V	front	0.653	0.089	0.742
WCDMA FDD V	rear	1.050	0.089	1.139

Table 22: SAR_{max} WWAN and **Bluetooth 2450MHz**, Σ SAR evaluation

Estimated stand alone SAR					
Communication system	freq. (GHz)	distance (mm)	P _{avg} * (dBm)	P _{avg} * (mW)	estimated _{1-g} (W/kg)
Bluetooth 2450 head	2.45	5	6.3	4.3	0.178
Bluetooth 2450 body	2.45	10	6.3	4.3	0.089

Table 23: Estimated stand alone SAR for **Bluetooth 2450MHz** head and body

P_{avg}* - maximum possible output power declared by manufacturer

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

$(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})} / x]$
W/kg for test separation distances ≤ 50 mm;
where $x = 7.5$ for 1-g SAR.

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

Conclusion:

Σ SAR < 1.6 W/kg, therefore simultaneous transmissions SAR with Volume Scans is **not** required.

7.1.10 Mobile hotspot SAR measurement positions

Mobile hotspot SAR measurement positions						
mode	front	rear	left edge	right edge	top edge	bottom edge
GSM 850	yes	yes	yes	yes	no	yes
GSM 1900	yes	yes	yes	yes	no	yes
WCDMA FDD II	yes	yes	yes	yes	no	yes
WCDMA FDD V	yes	yes	yes	yes	no	yes
WLAN 2450	yes	yes	no	yes	no	yes

The edges with less than 2.5 cm distance to the TX antennas need to be tested for hotspot SAR.

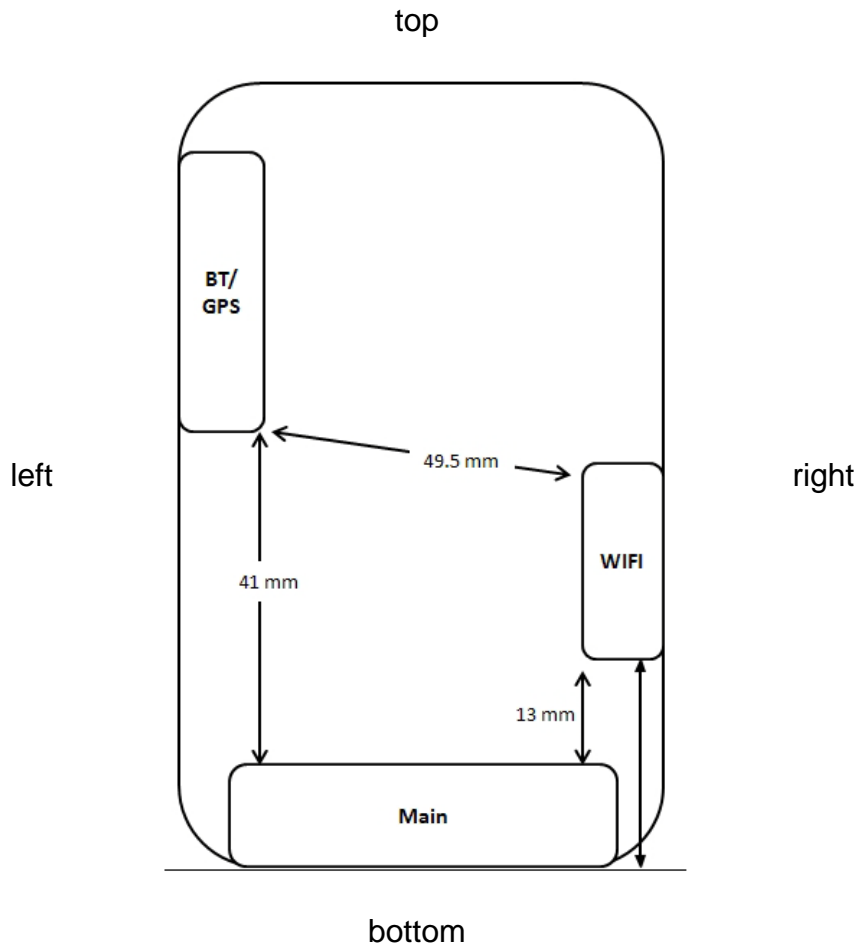


Table 24: Antenna distances and SPLSR evaluation in head position

7.2 SAR test results

7.2.1 Results overview

measured / extrapolated SAR numbers - Head - GSM 850 MHz							
Channel	Frequency (MHz)	Position	cond. output power (dBm)		SAR _{1g} max. results(W/kg)		liquid temp. (°C)
			declared**	measured	Measured	Extrapolated	
190	836.6	left cheek	33.0	32.9	0.523	0.535	22.1
190	836.6	left tilted 15°	33.0	32.9	0.321	0.328	22.1
128	824.2	right cheek	33.0	32.9	0.573	0.586	22.1
190	836.6	right cheek	33.0	32.9	0.603	0.617	22.1
251	848.8	right cheek	33.0	32.9	0.730	0.747	22.1
190	836.6	right tilted 15°	33.0	32.9	0.343	0.351	22.1

Table 25: Test results head SAR GSM 850 MHz

measured / extrapolated SAR numbers - Body - GSM 850 MHz									
Ch.	freq. (MHz)	time slots	distance (mm)	Position	cond. output power (dBm)		SAR _{1g} results(W/kg)		liquid temp. (°C)
					declared**	measured	measured	extrapolated	
190	836.6	2	10	front	29.0	28.8	0.487	0.510	21.8
128	824.2	2	10	rear	29.0	28.8	0.848	0.888	21.8
190	836.6	2	10	rear	29.0	28.8	0.868	0.909	21.8
251	848.8	2	10	rear	29.0	28.8	0.902	0.945	21.8
190	824.2	2	10	left edge	29.0	28.8	0.295	0.309	21.8
190	836.6	2	10	right dege	29.0	28.8	0.377	0.395	21.8
190	848.8	2	10	bottom edge	29.0	28.8	0.049	0.051	21.8
251	848.8	2	10	rear*	29.0	28.8	1.010	1.058	21.8
190	836.6	2	15	front	31.0	30.8	0.590	0.618	21.8
128	824.2	2	15	rear	31.0	30.8	0.880	0.921	21.8
190	836.6	2	15	rear	31.0	30.8	0.920	0.963	21.8
251	848.8	2	15	rear	31.0	30.8	0.959	1.004	21.8

Table 26: Test results body SAR GSM 850 MHz

* - repeated at the highest SAR measurement according to the FCC KDB 865664

** - maximum possible output power declared by manufacturer

Top edge position is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

measured / extrapolated SAR numbers - Head - GSM 1900 MHz							
Ch.	frequency (MHz)	Position	cond. output power (dBm)		SAR _{1g} results(W/kg)		liquid temp. (°C)
			declared**	measured	measured	extrapolated	
512	1850.2	left cheek	30.5	30.4	0.822	0.841	21.3
661	1880.0	left cheek	30.5	30.2	0.810	0.868	21.3
810	1909.8	left cheek	30.5	30.3	0.797	0.835	21.3
661	1880.0	left tilted 15°	30.5	30.2	0.328	0.351	21.3
512	1850.2	left cheek*	30.5	30.4	0.813	0.832	21.3
661	1880.0	right cheek	30.5	30.2	0.763	0.818	21.3
661	1880.0	right tilted 15°	30.5	30.2	0.416	0.446	21.3

Table 27: Test results head SAR GSM 1900 MHz

measured / extrapolated SAR numbers - Body - GSM 1900 MHz										
Ch.	freq. (MHz)	time slots	distance (mm)	modulation	Position	cond. output power (dBm)		SAR _{1g} results(W/kg)		liquid temp. (°C)
						declared**	measured	measured	extrapolated	
661	1880.0	1	10	GMSK	front	30.5	30.2	0.642	0.688	20.7
512	1850.2	1	10	GMSK	rear	30.5	30.4	0.759	0.777	20.7
661	1880.0	1	10	GMSK	rear	30.5	30.2	0.700	0.750	20.7
810	1909.8	1	10	GMSK	rear	30.5	30.3	0.672	0.704	20.7
661	1880.0	1	10	GMSK	left edge	30.5	30.2	0.273	0.293	20.7
661	1880.0	1	10	GMSK	right dege	30.5	30.2	0.252	0.270	20.7
661	1880.0	1	10	GMSK	bottom edge	30.5	30.2	0.239	0.256	20.7
512	1850.2	2	10	8PSK	rear	28.0	28.0	0.978	0.978	20.7
512	1850.2	2	10	8PSK	rear*	28.0	28.0	0.955	0.955	20.7
810	1909.8	1	15	GMSK	front	30.5	30.2	0.378	0.405	20.7
810	1909.8	1	15	GMSK	rear	30.5	30.2	0.361	0.387	20.7
810	1909.8	2	15	8PSK	front	28.0	28.0	0.425	0.425	20.7

Table 28: Test results body SAR GSM 1900 MHz

* - repeated at the highest SAR measurement according to the FCC KDB 865664

** - maximum possible output power declared by manufacturer

Top edge position is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

measured / extrapolated SAR numbers - Head - UMTS FDD II 1880 MHz							
Ch.	frequency (MHz)	Position	cond. output power (dBm)		SAR _{1g} results(W/kg)		liquid temp. (°C)
			declared**	measured	measured	extrapolated	
9262	1852.4	left cheek	21.0	20.7	0.765	0.820	21.3
9400	1880	left cheek	21.0	20.5	0.814	0.913	21.3
9538	1907.6	left cheek	21.0	21.2	0.926	0.926	21.3
9538	1907.6	left tilted 15°	21.0	21.2	0.366	0.366	21.3
9538	1907.6	left cheek*	21.0	21.2	0.993	0.993	21.3
9538	1907.6	right cheek	21.0	21.2	0.753	0.753	21.3
9538	1907.6	right tilted 15°	21.0	21.2	0.490	0.490	21.3

Table 29: Test results head SAR UMTS FDD V 850 MHz

measured / extrapolated SAR numbers - Body - UMTS FDD II 1880 MHz									
Ch.	freq. (MHz)	test condition	distance (mm)	Position	cond. output power (dBm)		SAR _{1g} results(W/kg)		liquid temp. (°C)
					declared**	measured	measured	extrapolated	
9538	1907.6	RMC	10	front	21.0	21.2	0.729	0.729	21.1
9262	1852.4	RMC	10	rear	21.0	20.7	0.713	0.764	21.1
9400	1880	RMC	10	rear	21.0	20.5	0.718	0.806	21.1
9538	1907.6	RMC	10	rear	21.0	21.2	0.773	0.773	21.1
9538	1907.6	RMC	10	left edge	21.0	21.2	0.283	0.283	21.1
9538	1907.6	RMC	10	right dege	21.0	21.2	0.267	0.267	21.1
9538	1907.6	RMC	10	bottom edge	21.0	21.2	0.243	0.243	21.1
9538	1907.6	RMC	15	front	21.0	21.2	0.454	0.454	21.1
9538	1907.6	RMC	15	rear	21.0	21.2	0.400	0.400	21.1

Table 30: Test results body SAR UMTS FDD V 850 MHz

* - repeated at the highest SAR measurement according to the FCC KDB 865664

** - maximum possible output power declared by manufacturer

Top edge position is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

measured / extrapolated SAR numbers - Head - UMTS FDD V 850 MHz							
Ch.	frequency (MHz)	Position	cond. output power (dBm)		SAR _{1g} results(W/kg)		liquid temp. (°C)
			declared**	measured	measured	extrapolated	
4132	826.4	left cheek	24.5	24.3	0.746	0.781	21.9
4182	836.4	left cheek	24.5	24.2	0.810	0.868	21.9
4233	846.6	left cheek	24.5	24.2	0.859	0.920	21.9
4182	836.4	left tilted 15°	24.5	24.2	0.450	0.482	21.9
4132	826.4	right cheek	24.5	24.3	0.805	0.843	21.9
4182	836.4	right cheek	24.5	24.2	0.879	0.942	21.9
4233	846.6	right cheek	24.5	24.2	0.944	1.012	21.9
4182	836.4	right tilted 15°	24.5	24.2	0.492	0.527	21.9
4233	846.6	right cheek*	24.5	24.2	0.948	1.016	21.9

Table 31: Test results head SAR UMTS FDD V 850 MHz

measured / extrapolated SAR numbers - Body - UMTS FDD V 850 MHz									
Ch.	freq. (MHz)	test condition	distance (mm)	Position	cond. output power (dBm)		SAR _{1g} results(W/kg)		liquid temp. (°C)
					declared**	measured	measured	extrapolated	
4182	836.4	RMC	10	front	22.5	22.2	0.609	0.653	21.8
4132	826.4	RMC	10	rear	22.5	22.3	0.864	0.905	21.8
4182	836.4	RMC	10	rear	22.5	22.2	0.980	1.050	21.8
4233	846.6	RMC	10	rear	22.5	22.2	0.859	0.920	21.8
4182	836.4	RMC	10	left edge	22.5	22.2	0.324	0.347	21.8
4182	836.4	RMC	10	right dege	22.5	22.2	0.398	0.426	21.8
4182	836.4	RMC	10	bottom edge	22.5	22.2	0.052	0.056	21.8
4182	836.4	RMC	10	rear*	22.5	22.2	0.856	0.917	21.8
4182	836.4	RMC	15	front	22.5	24.2	0.595	0.402	21.8
4132	826.4	RMC	15	rear	22.5	24.3	0.929	0.614	21.8
4182	836.4	RMC	15	rear	22.5	24.2	0.997	0.674	21.8
4233	846.6	RMC	15	rear	22.5	24.2	0.938	0.634	21.8

Table 32: Test results body SAR UMTS FDD V 850 MHz

* - repeated at the highest SAR measurement according to the FCC KDB 865664

** - maximum possible output power declared by manufacturer

Top edge position is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

measured / extrapolated SAR numbers - Head - WLAN 2450 MHz							
Ch.	frequency (MHz)	Position	cond. output power (dBm)		SAR _{1g} results(W/kg)		liquid temp. (°C)
			declared**	measured	measured	extrapolated	
1	2412	left cheek	18.0	16.8	0.309	0.407	20.9
6	2437	left cheek	18.0	17.0	0.190	0.239	20.9
11	2462	left cheek	18.0	16.2	0.084	0.127	20.9
6	2437	left tilted 15°	18.0	17.0	0.029	0.037	20.9
6	2437	right cheek	18.0	17.0	0.081	0.102	20.9
6	2437	right tilted 15°	18.0	17.0	0.032	0.040	20.9

Table 33: Test results head SAR WLAN 2450 MHz

** - maximum possible output power declared by manufacturer

measured / extrapolated SAR numbers - Body - WLAN 2450 MHz									
Ch.	freq. (MHz)	Test condition	distance (mm)	Position	cond. output power (dBm)		SAR _{1g} results(W/kg)		liquid temp.(°C)
					declared**	measured	measured	extrapolated	
6	2437	1Mbit/s	10	front	18.0	17.0	0.023	0.029	20.9
1	2412	1Mbit/s	10	rear	18.0	16.8	0.243	0.320	20.9
6	2437	1Mbit/s	10	rear	18.0	17.0	0.221	0.278	20.9
11	2462	1Mbit/s	10	rear	18.0	16.2	0.091	0.138	20.9
6	2437	1Mbit/s	10	left dege	18.0	17.0	0.141	0.178	20.9
6	2437	1Mbit/s	10	bottom edge	18.0	17.0	0.007	0.009	20.9
6	2437	1Mbit/s	15	front	18.0	17.0	0.013	0.016	20.9
1	2412	1Mbit/s	15	rear	18.0	16.8	0.121	0.160	20.9
6	2437	1Mbit/s	15	rear	18.0	17.0	0.114	0.144	20.9
11	2462	1Mbit/s	15	rear	18.0	16.2	0.046	0.069	20.9
11	2462	1Mbit/s	15	rear	18.0	16.7	0.050	0.067	20.9

Table 34: Test results body SAR WLAN 2450 MHz

** - maximum possible output power declared by manufacturer

Top and right side edge positions are not required since the distance from the WLAN antenna to the edge is greater than 2.5cm.

Estimated stand alone SAR					
Communication system	freq. (GHz)	distance (mm)	P _{avg} * (dBm)	P _{avg} * (mW)	estimated _{1-g} (W/kg)
Bluetooth 2450 head	2.45	5	6.3	4.3	0.178
Bluetooth 2450 body	2.45	10	6.3	4.3	0.089

Table 35: Estimated stand alone SAR for **Bluetooth 2450MHz** head and body

P_{avg}* - maximum possible output power declared by manufacturer

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

*(max. power of channel, including **tune-up tolerance**, mW)/(min. test separation distance, mm)]·[√f(GHz)/x]*
 W/kg for test separation distances ≤ 50 mm;

where x = 7.5 for 1-g SAR.

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

7.2.2 General description of test procedures

- The DUT is tested using a CMU 200 communications tester as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted peak power.
- Test positions as described in the tables above are in accordance with the specified test standard.
- Tests in body position were performed in that configuration, which generates the highest time based averaged output power (see conducted power results).
- Tests in head position with GSM were performed in voice mode with 1 timeslot unless GPRS/EGPRS/DTM function allows parallel voice and data traffic on 2 or more timeslots (see section 2.4 for details).
- UMTS was tested in RMC mode with 12.2 kbit/s and TPC bits set to 'all 1'.
- WLAN was tested in 802.11b mode with 1 MBit/s. According to KDB 248227 the SAR testing for 802.11g/n is not required since the maximum power of 802.11g/n is less ¼ dB higher than maximum power of 802.11b.
- Required WLAN test channels were selected according to KDB 248227
- Per FCC KDB pub 941225 D06 the edges with antennas within 2.5 cm are required to be evaluated for SAR to cover WLAN hot spot function.
- Tests in body position were performed for hotspot operation with 10 mm air gap between DUT and SAM, and additional measurements at 15 mm distance to cover body worn operation.
- The output power was reduced at GSM 850 and UMTS FDD V hotspot measurements with 10 mm distance.
- According to IEEE 1528 the SAR test shall be performed at middle channel. Testing of top and bottom channel is optional.
- According to KDB 447498 D01 testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

8 Test equipment and ancillaries used for tests

To simplify the identification of the test equipment and/or ancillaries which were used, the reporting of the relevant test cases only refer to the test item number as specified in the table below.

Equipment	Type	Manufacturer	Serial No.	Last Calibration	Frequency (months)
Dosimetric E-Field Probe	ET3DV6	Schmid & Partner Engineering AG	1558	August 24, 2012	12
Dosimetric E-Field Probe	ET3DV6	Schmid & Partner Engineering AG	1559	January 16, 2013	12
900 MHz System Validation Dipole	D900V2	Schmid & Partner Engineering AG	099	May 07, 2012	24
900 MHz System Validation Dipole	D900V2	Schmid & Partner Engineering AG	102	May 14, 2013	24
1900 MHz System Validation Dipole	D1900V2	Schmid & Partner Engineering AG	531	May 09, 2012	24
2450 MHz System Validation Dipole	D2450V2	Schmid & Partner Engineering AG	710	August 13, 2012	24
Data acquisition electronics	DAE3V1	Schmid & Partner Engineering AG	413	January 11, 2013	12
Software	DASY 4 V4.5	Schmid & Partner Engineering AG	---	N/A	--
Software	DASY52 52.8.5	Schmid & Partner Engineering AG	---	N/A	--
Phantom	SAM	Schmid & Partner Engineering AG	---	N/A	--
Universal Radio Communication Tester	CMU 200	Rohde & Schwarz	106826	January 16, 2013	24
Network Analyser 300 kHz to 6 GHz	8753ES	Hewlett Packard)*	US39174436	February 24, 2012	24
Dielectric Probe Kit	85070C	Hewlett Packard	US99360146	N/A	12
Signal Generator	8671B	Hewlett Packard	2823A00656	January 15, 2013	24
Amplifier	25S1G4 (25 Watt)	Amplifier Reasearch	20452	N/A	--
Power Meter	NRP	Rohde & Schwarz	101367	January 15, 2013	24
Power Meter Sensor	NRP Z22	Rohde & Schwarz	100227	January 14, 2013	12
Power Meter Sensor	NRP Z22	Rohde & Schwarz	100234	January 14, 2013	12
Directional Coupler	778D	Hewlett Packard	19171	January 14, 2013	12

)* : Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.

9 Observations

No observations exceeding those reported with the single test cases have been made.

Annex A: System performance check

Date/Time: 14.05.2013 10:38:57

SystemPerformanceCheck-D900 head 2013-05-14

DUT: Dipole 900 MHz V2; Type: D900V2; Serial: 099

Communication System: CW; Communication System Band: D900 (900.0 MHz); Frequency: 900 MHz;
 Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.96 \text{ S/m}$; $\epsilon_r = 41.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.98, 5.98, 5.98); Calibrated: 24.08.2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

System Performance Check/d=15mm, Pin=1000 mW, dist=4.0mm/Area

Scan (51x51x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

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

System Performance Check/d=15mm, Pin=1000 mW, dist=4.0mm/Zoom

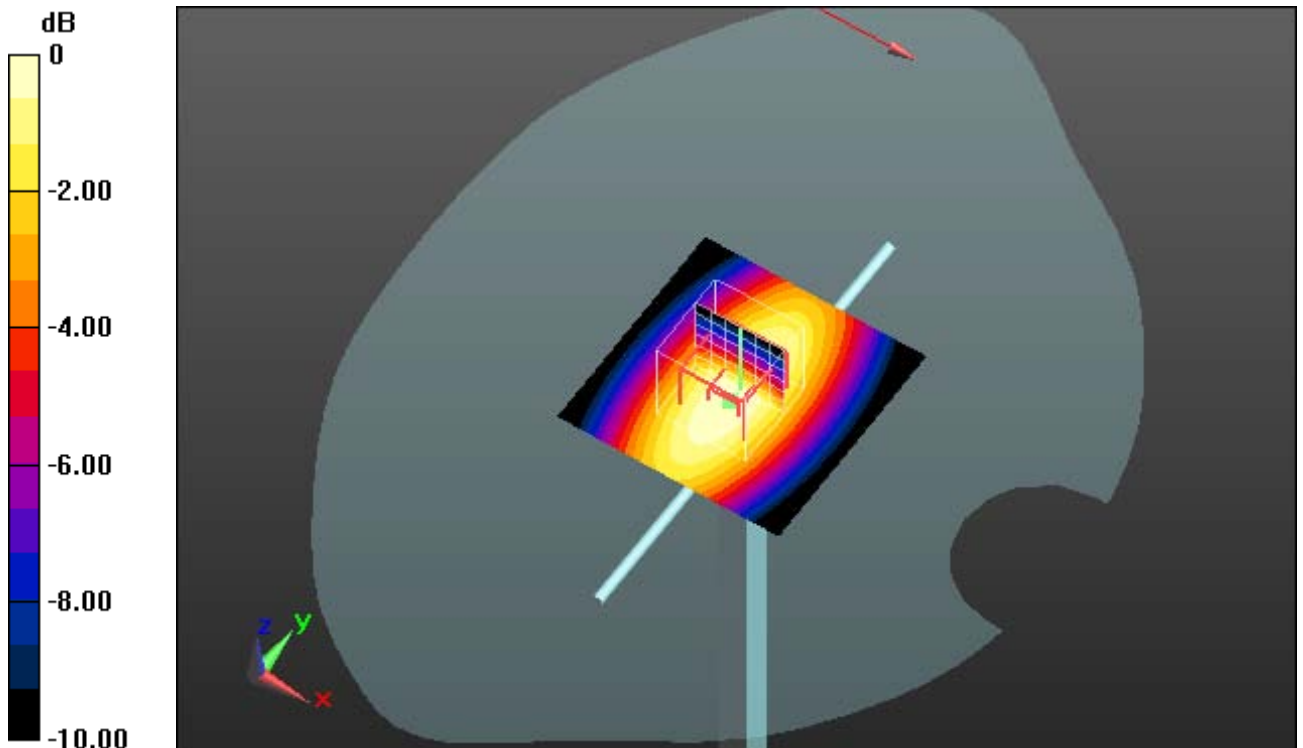
Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 112.2 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 15.5 W/kg

SAR(1 g) = 10.4 W/kg; SAR(10 g) = 6.7 W/kg

Maximum value of SAR (measured) = 11.3 W/kg



0 dB = 11.3 W/kg = 10.53 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 21.9°C

Date/Time: 15.05.2013 09:51:09

SystemPerformanceCheck-D900 head 2013-05-15

DUT: Dipole 900 MHz V2; Type: D900V2; Serial: 099

Communication System: CW; Communication System Band: D900 (900.0 MHz); Frequency: 900 MHz;

Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 900$ MHz; $\sigma = 0.96$ S/m; $\epsilon_r = 41.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.98, 5.98, 5.98); Calibrated: 24.08.2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

System Performance Check/d=15mm, Pin=1000 mW, dist=4.0mm/Area

Scan (51x51x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 11.1 W/kg

System Performance Check/d=15mm, Pin=1000 mW, dist=4.0mm/Zoom

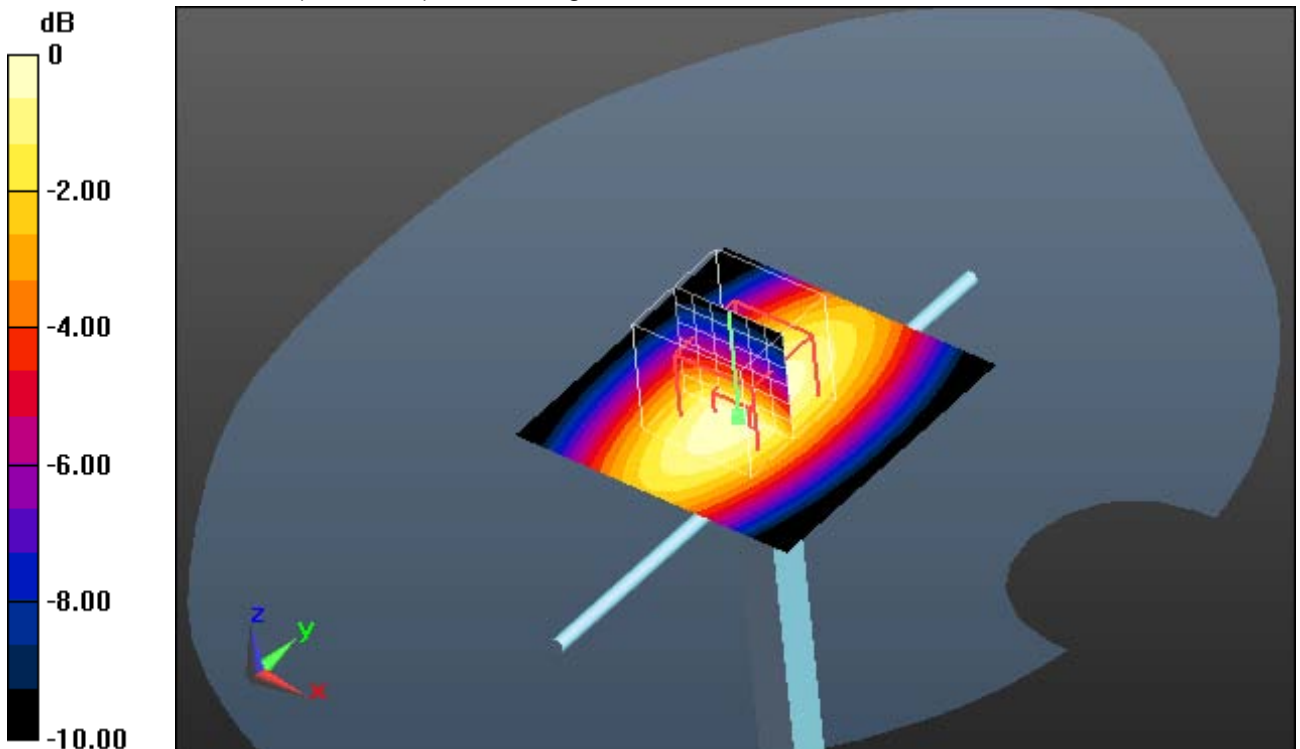
Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 111.9 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 15.6 W/kg

SAR(1 g) = 10.4 W/kg; SAR(10 g) = 6.73 W/kg

Maximum value of SAR (measured) = 11.4 W/kg



0 dB = 11.4 W/kg = 10.57 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 22.1°C

Date/Time: 17.05.2013 09:24:50

SystemPerformanceCheck-D900 body 2013-05-17

DUT: Dipole 900 MHz V2; Type: D900V2; Serial: 099

Communication System: CW; Communication System Band: D900 (900.0 MHz); Frequency: 900 MHz;

Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 900$ MHz; $\sigma = 1.06$ S/m; $\epsilon_r = 53.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.92, 5.92, 5.92); Calibrated: 24.08.2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

System Performance Check/d=15mm, Pin=1000 mW, dist=4.0mm/Area

Scan (51x51x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 11.6 W/kg

System Performance Check/d=15mm, Pin=1000 mW, dist=4.0mm/Zoom

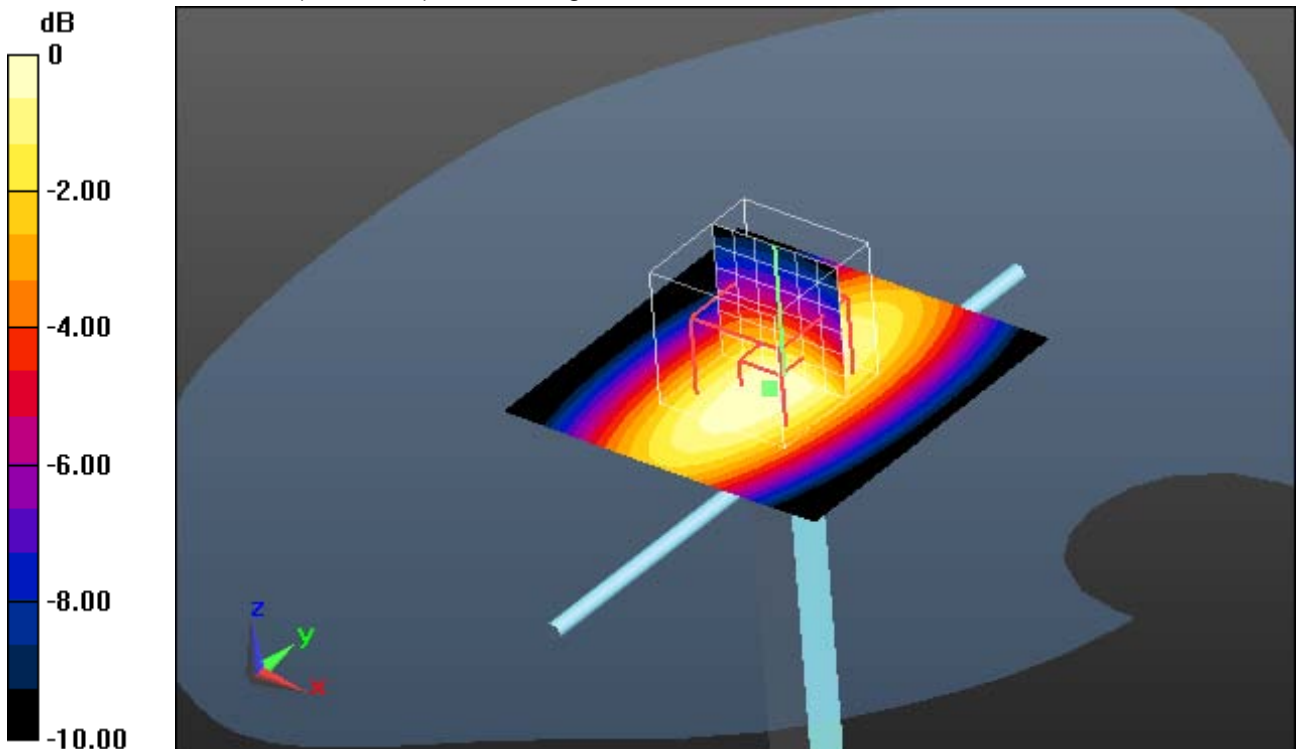
Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 108.4 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 15.5 W/kg

SAR(1 g) = 10.7 W/kg; SAR(10 g) = 7 W/kg

Maximum value of SAR (measured) = 11.6 W/kg



0 dB = 11.6 W/kg = 10.64 dBW/kg

Additional information:

ambient temperature: 22.3°C; liquid temperature: 21.7°C

Date/Time: 04.06.2013 10:38:01

SystemPerformanceCheck-D900 body 2013-06-04

DUT: Dipole 900 MHz; Type: D900V2; Serial: 102

Communication System: CW; Communication System Band: D900 (900.0 MHz); Frequency: 900 MHz;

Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 900$ MHz; $\sigma = 1.06$ S/m; $\epsilon_r = 53.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.92, 5.92, 5.92); Calibrated: 24.08.2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

System Performance Check/d=15mm, Pin=1000 mW, dist=4.0mm/Area

Scan (51x51x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

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

System Performance Check/d=15mm, Pin=1000 mW, dist=4.0mm/Zoom

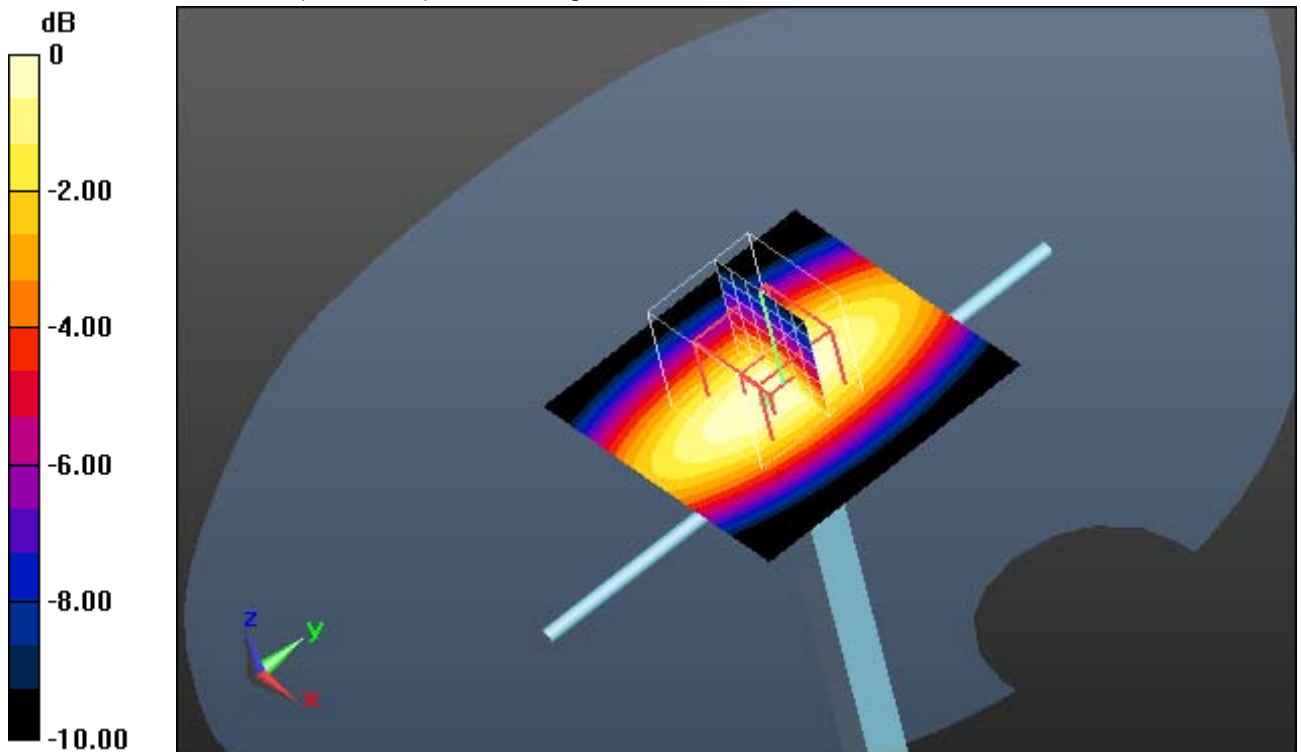
Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 110.4 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 16.1 W/kg

SAR(1 g) = 11 W/kg; SAR(10 g) = 7.11 W/kg

Maximum value of SAR (measured) = 11.9 W/kg



0 dB = 11.9 W/kg = 10.76 dBW/kg

Additional information:

ambient temperature: 21.7°C; liquid temperature: 21.7°C

Date/Time: 15.05.2013 10:58:07

SystemPerformanceCheck-D1900 head 2013-05-15

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 531

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

Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.38$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

System Performance Check/d=10mm, Pin=1000 mW, dist=4.0mm/Area

Scan (51x51x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 49.0 W/kg

System Performance Check/d=10mm, Pin=1000 mW, dist=4.0mm/Zoom

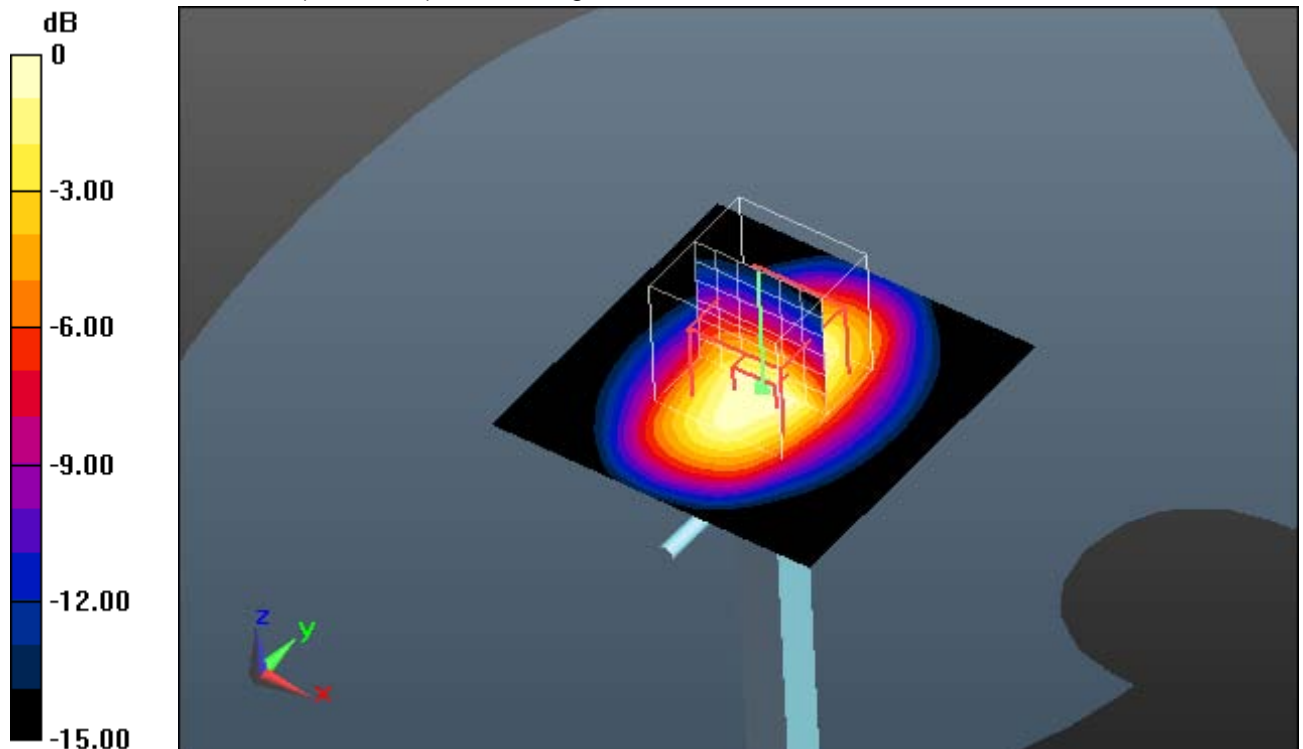
Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 184.7 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 61.5 W/kg

SAR(1 g) = 37.0 W/kg; SAR(10 g) = 19.5 W/kg

Maximum value of SAR (measured) = 41.4 W/kg



0 dB = 41.4 W/kg = 16.17 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 18.05.2013 12:03:01

SystemPerformanceCheck-D1900 body 2013-05-18

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 531

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

Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.54$ S/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

System Performance Check/d=10mm, Pin=1000 mW, dist=4.0mm/Area

Scan (51x51x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 56.6 W/kg

System Performance Check/d=10mm, Pin=1000 mW, dist=4.0mm/Zoom

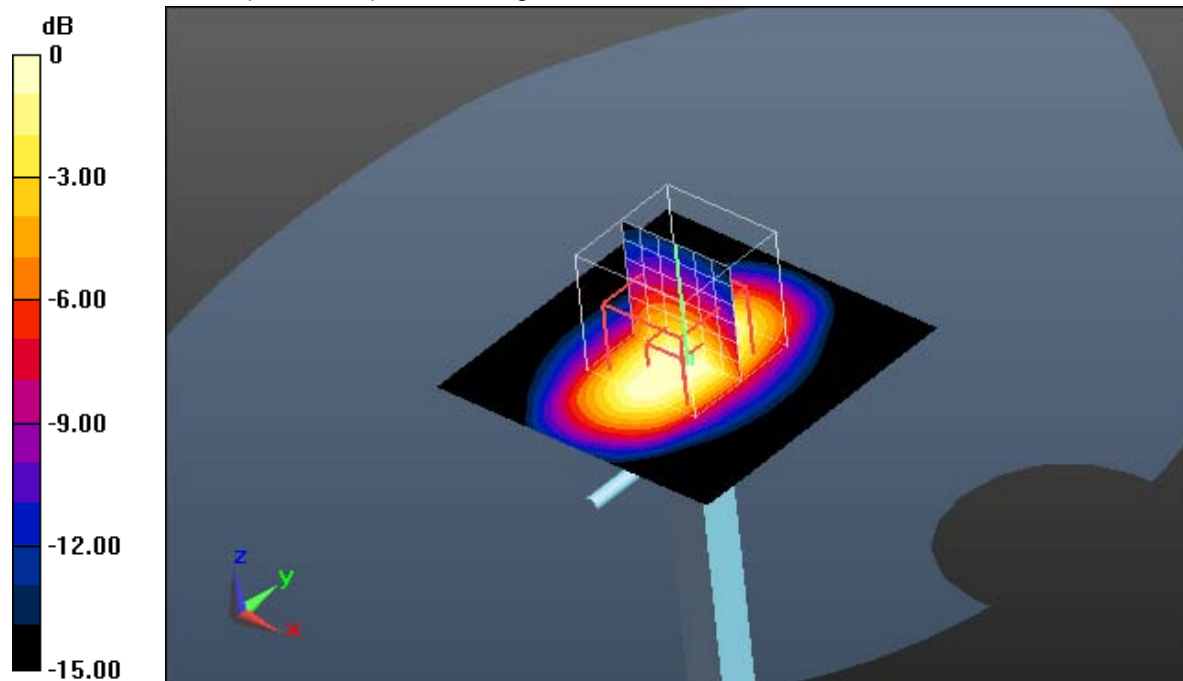
Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 184.0 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 65.4 W/kg

SAR(1 g) = 39.8 W/kg; SAR(10 g) = 21.3 W/kg

Maximum value of SAR (measured) = 45.4 W/kg



0 dB = 45.4 W/kg = 16.57 dBW/kg

Additional information:

ambient temperature: 21.9°C; liquid temperature: 20.5°C

Date/Time: 21.05.2013 10:52:00

SystemPerformanceCheck-D1900 body 2013-05-21

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 531

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

Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.54$ S/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

System Performance Check/d=10mm, Pin=1000 mW, dist=4.0mm/Area

Scan (51x51x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 58.7 W/kg

System Performance Check/d=10mm, Pin=1000 mW, dist=4.0mm/Zoom

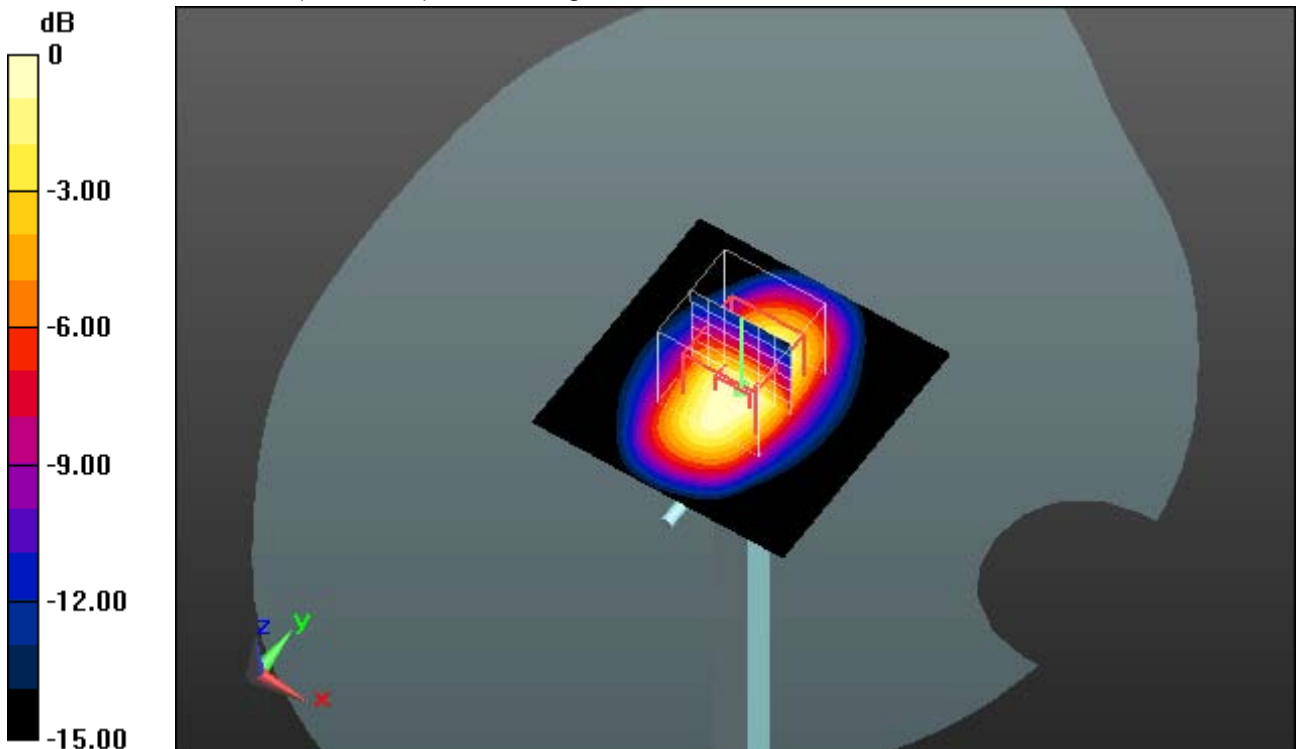
Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 186.1 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 66.4 W/kg

SAR(1 g) = 40.7 W/kg; SAR(10 g) = 21.9 W/kg

Maximum value of SAR (measured) = 46.6 W/kg



0 dB = 46.6 W/kg = 16.68 dBW/kg

Additional information:

ambient temperature: 21.9°C; liquid temperature: 21.1°C

Date/Time: 24.05.2013 12:53:30

SystemPerformanceCheck-D2450 head 2013-05-24

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 710

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

Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.85$ S/m; $\epsilon_r = 39.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.15, 4.15, 4.15); Calibrated: 24.08.2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

System Performance Check/d=10mm, Pin=100 mW, dist=4.0mm/Area Scan

(51x51x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 7.08 W/kg

System Performance Check/d=10mm, Pin=100 mW, dist=4.0mm/Zoom

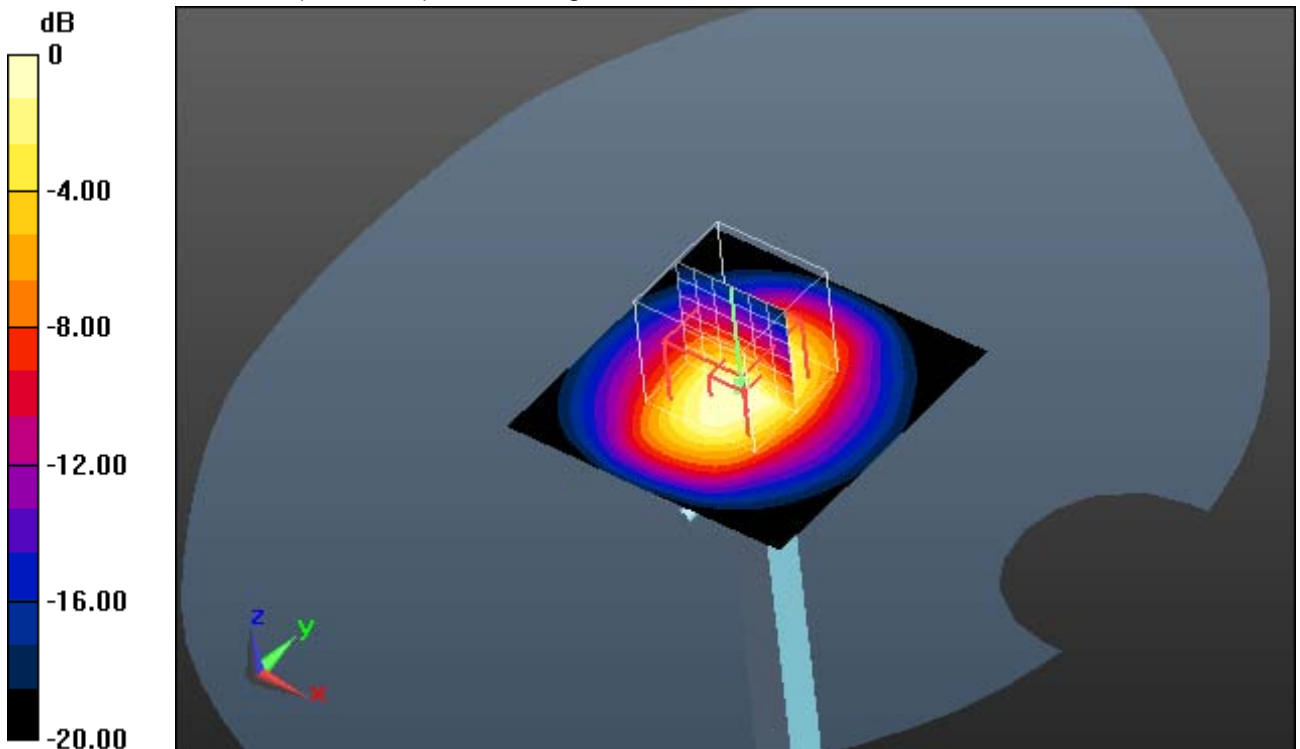
Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 56.971 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 11.4 W/kg

SAR(1 g) = 5.09 W/kg; SAR(10 g) = 2.38 W/kg

Maximum value of SAR (measured) = 5.60 W/kg



0 dB = 5.60 W/kg = 7.48 dBW/kg

Additional information:

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 15:02:42

SystemPerformanceCheck-D2450 body 2013-05-24

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 710

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

Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.99$ S/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.06, 4.06, 4.06); Calibrated: 24.08.2012;
- Modulation Compensation:
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

System Performance Check/d=10mm, Pin=100 mW, dist=4.0mm/Area Scan

(51x51x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 7.76 W/kg

System Performance Check/d=10mm, Pin=100 mW, dist=4.0mm/Zoom

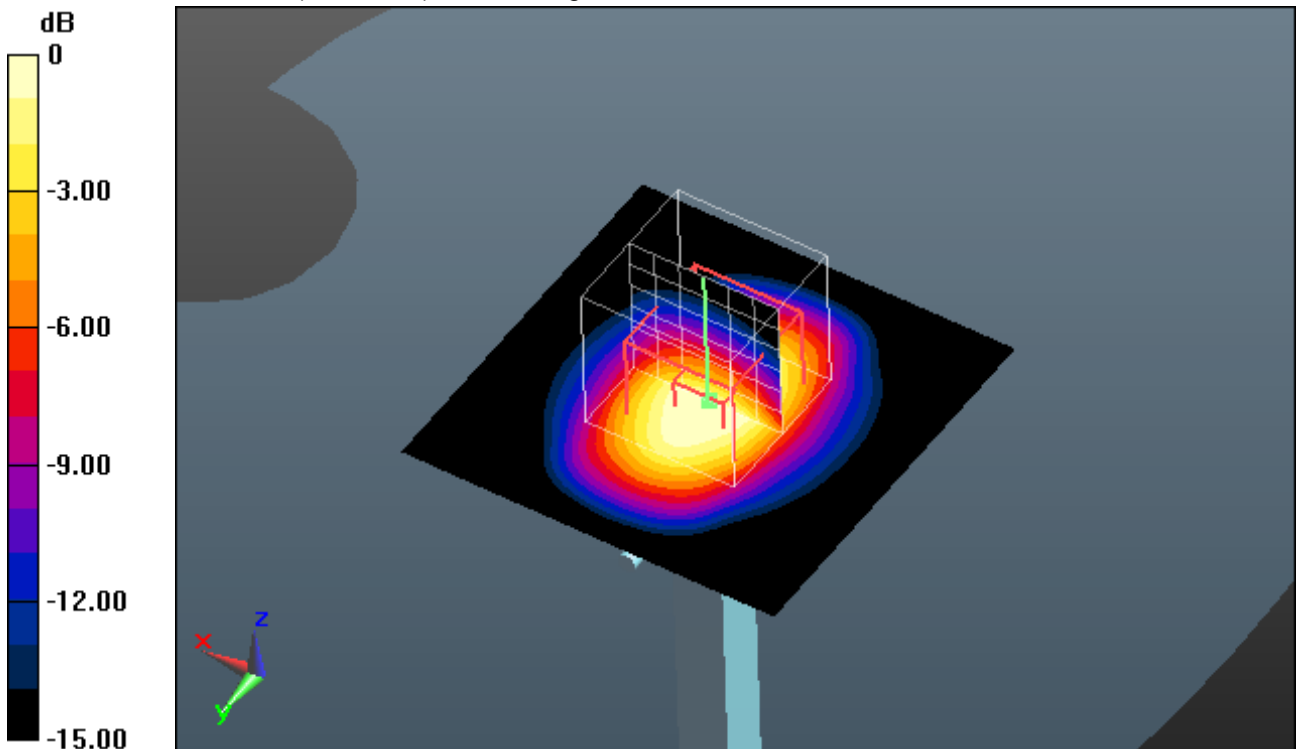
Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 52.457 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 13.9 W/kg

SAR(1 g) = 5.15 W/kg; SAR(10 g) = 2.32 W/kg

Maximum value of SAR (measured) = 5.53 W/kg



0 dB = 5.53 W/kg = 7.43 dBW/kg

Additional information:

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Annex B: DASY measurement results

Annex B.1: GSM 850MHz

Date/Time: 15.05.2013 08:01:26

IEEE1528-GSM850 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 836.6$ MHz; $\sigma = 0.9$ S/m; $\epsilon_r = 42.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB√μV, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB√μV, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB√μV, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Middle/Area Scan (61x101x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.537 W/kg

Left-Hand-Side HSL/Touch Position - Middle/Zoom Scan (7x7x7)/Cube 0:

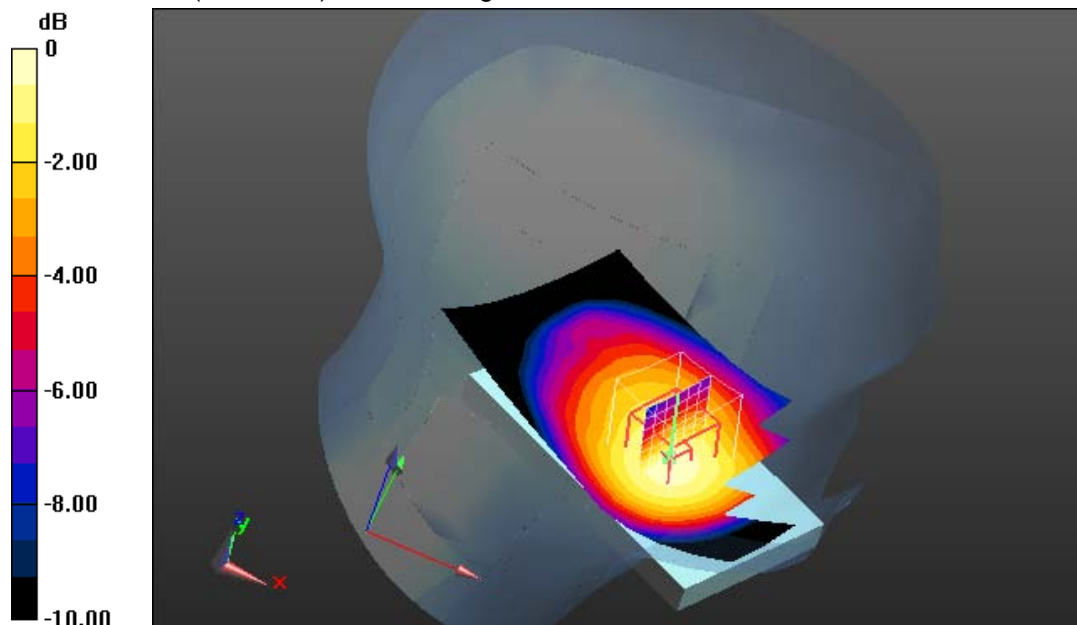
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.002 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.692 W/kg

SAR(1 g) = 0.523 W/kg; SAR(10 g) = 0.383 W/kg

Maximum value of SAR (measured) = 0.564 W/kg



0 dB = 0.564 W/kg = -2.49 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 22.1°C

Date/Time: 15.05.2013 08:21:22

IEEE1528-GSM850 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 836.6$ MHz; $\sigma = 0.9$ S/m; $\epsilon_r = 42.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB $\sqrt{\mu}$ V, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB $\sqrt{\mu}$ V, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB $\sqrt{\mu}$ V, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Tilt Position - Mid/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.328 W/kg

Left-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (7x7x7)/Cube 0:

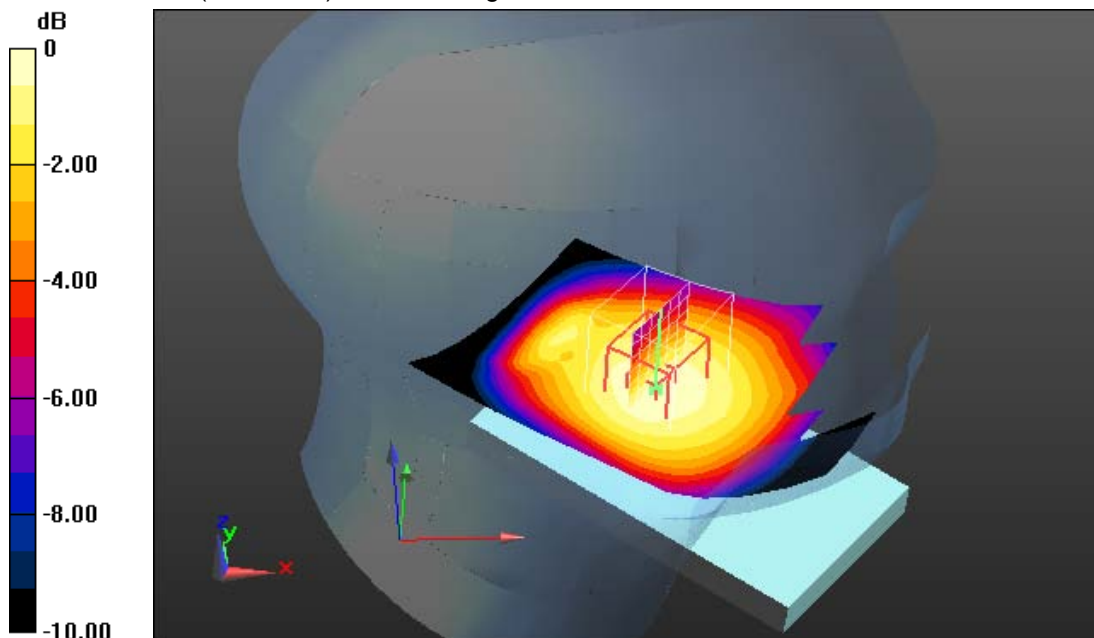
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.743 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.392 W/kg

SAR(1 g) = 0.321 W/kg; SAR(10 g) = 0.247 W/kg

Maximum value of SAR (measured) = 0.339 W/kg



0 dB = 0.339 W/kg = -4.70 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 22.1°C

Date/Time: 15.05.2013 09:33:33

IEEE1528-GSM850 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 824.2 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 824.2$ MHz; $\sigma = 0.88$ S/m; $\epsilon_r = 42.6$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB $\sqrt{\mu}$ V, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB $\sqrt{\mu}$ V, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB $\sqrt{\mu}$ V, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Touch Position - Low/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.594 W/kg

Right-Hand-Side HSL/Touch Position - Low/Zoom Scan (7x7x7)/Cube 0:

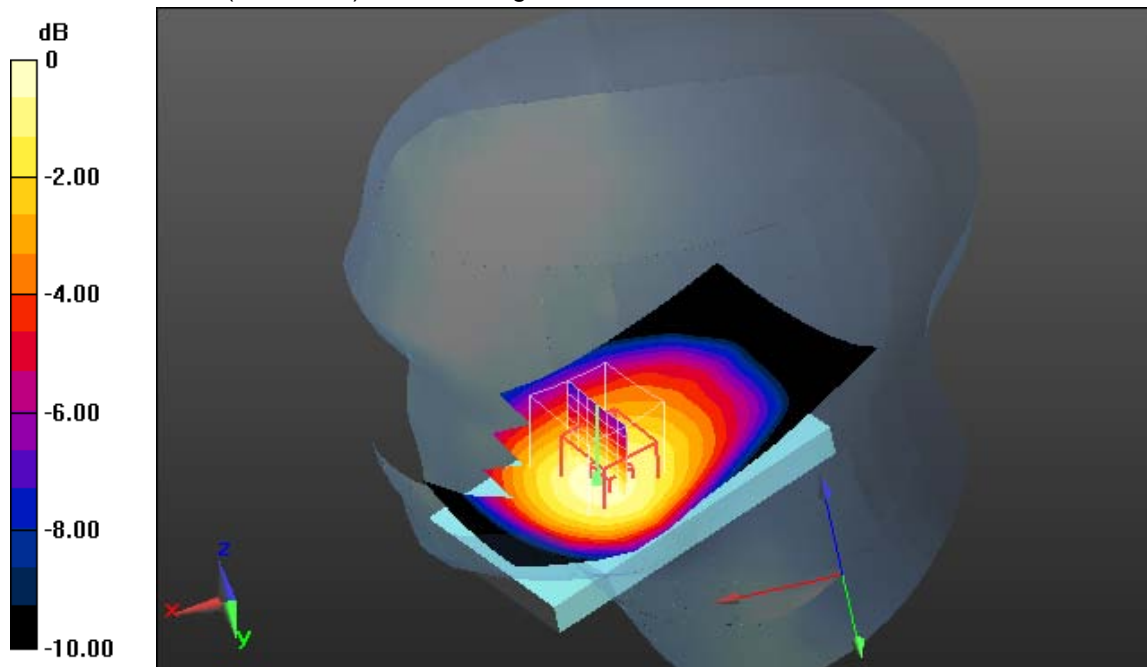
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.618 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.734 W/kg

SAR(1 g) = 0.573 W/kg; SAR(10 g) = 0.426 W/kg

Maximum value of SAR (measured) = 0.604 W/kg



0 dB = 0.604 W/kg = -2.19 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 22.1°C

Date/Time: 15.05.2013 08:58:02

IEEE1528-GSM850 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 836.6$ MHz; $\sigma = 0.9$ S/m; $\epsilon_r = 42.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB $\sqrt{\mu}$ V, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB $\sqrt{\mu}$ V, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB $\sqrt{\mu}$ V, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Touch Position - Mid/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.625 W/kg

Right-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0:

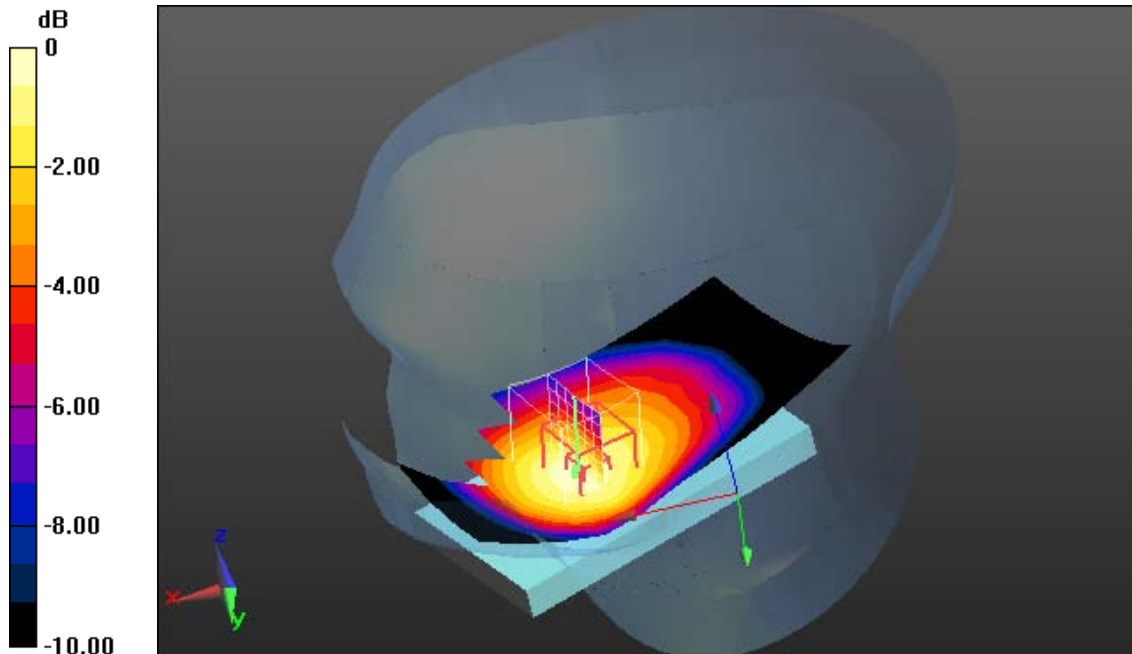
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 27.105 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.777 W/kg

SAR(1 g) = 0.603 W/kg; SAR(10 g) = 0.446 W/kg

Maximum value of SAR (measured) = 0.641 W/kg



0 dB = 0.641 W/kg = -1.93 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 22.1°C

Date/Time: 15.05.2013 09:16:40

IEEE1528-GSM850 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 848.6 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 848.8$ MHz; $\sigma = 0.91$ S/m; $\epsilon_r = 42.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB√μV, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB√μV, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB√μV, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Touch Position - Hi/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.756 W/kg

Right-Hand-Side HSL/Touch Position - Hi/Zoom Scan (7x7x7)/Cube 0:

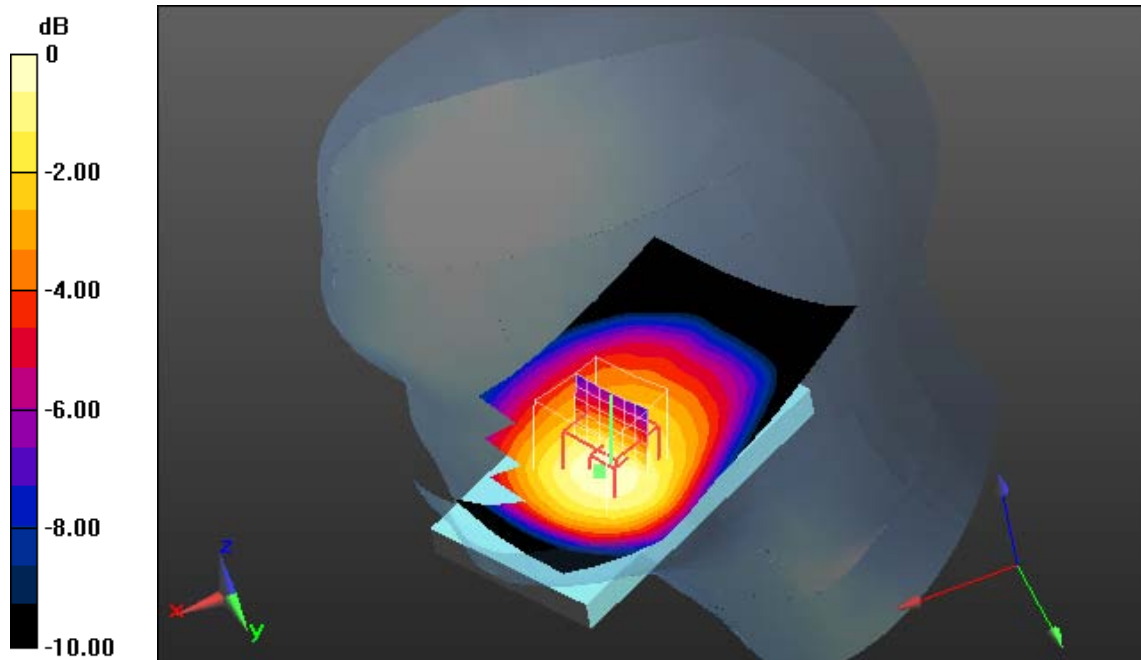
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 29.564 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.937 W/kg

SAR(1 g) = 0.730 W/kg; SAR(10 g) = 0.540 W/kg

Maximum value of SAR (measured) = 0.771 W/kg



0 dB = 0.771 W/kg = -1.13 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 22.1°C

Date/Time: 15.05.2013 08:38:25

IEEE1528-GSM850 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 836.6$ MHz; $\sigma = 0.9$ S/m; $\epsilon_r = 42.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB $\sqrt{\mu}$ V, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB $\sqrt{\mu}$ V, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB $\sqrt{\mu}$ V, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Tilt Position - Middle/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.361 W/kg

Right-Hand-Side HSL/Tilt Position - Middle/Zoom Scan (7x7x7)/Cube 0:

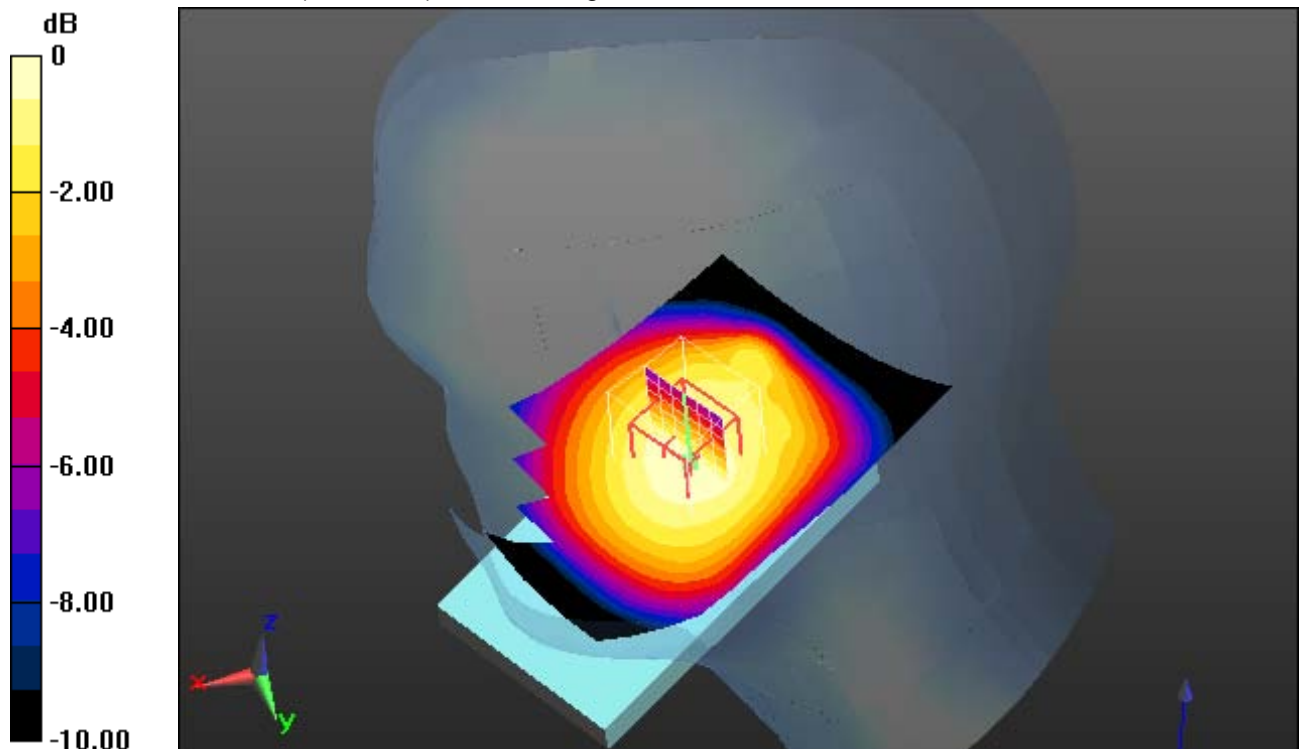
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.576 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.422 W/kg

SAR(1 g) = 0.343 W/kg; SAR(10 g) = 0.263 W/kg

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



0 dB = 0.362 W/kg = -4.41 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 22.1°C

Date/Time: 04.06.2013 11:21:43

OET65-GSM850 body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0-1); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 6.56 dB; PMF: 2.12814

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.499$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=30.4 dB, b=100 dB√μV, c=25.8, d=6.6 dB / Y: a=27.8 dB, b=99.5 dB√μV, c=25.5, d=6.6 dB / Z: a=26.9 dB, b=99.7 dB√μV, c=25.9, d=6.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Front Position - Mid/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.513 W/kg

Body MSL/Front Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

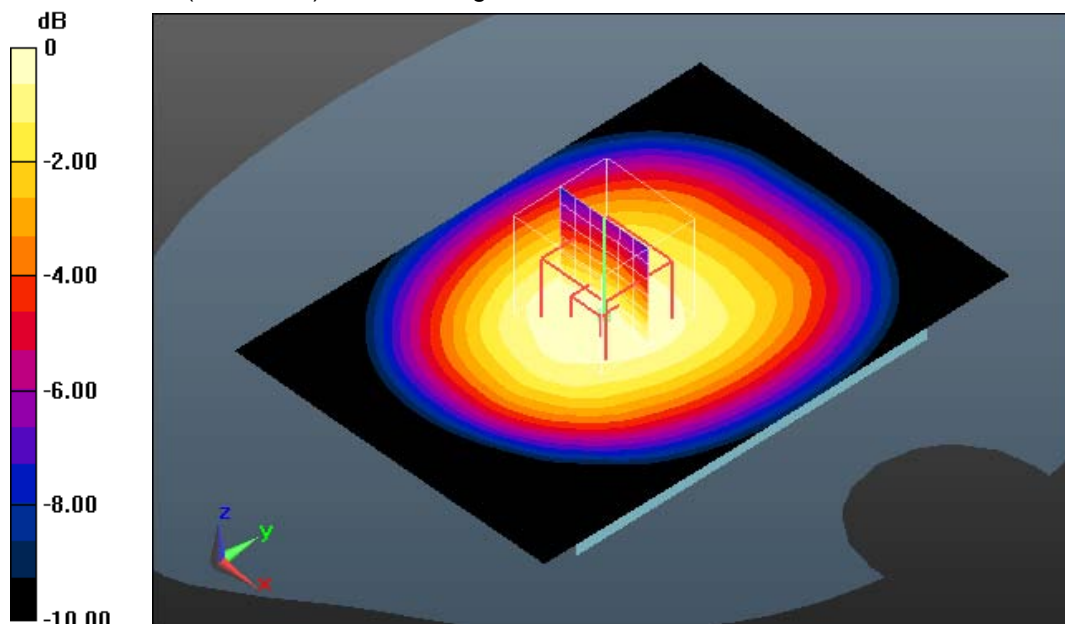
dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.324 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.605 W/kg

SAR(1 g) = 0.487 W/kg; SAR(10 g) = 0.370 W/kg

Maximum value of SAR (measured) = 0.512 W/kg



0 dB = 0.512 W/kg = -2.91 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 12:08:12

OET65-GSM850 body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0-1); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 824.2 MHz; Communication System PAR: 6.56 dB; PMF: 2.12814

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.98$ S/m; $\epsilon_r = 54.599$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=30.4 dB, b=100 dB√μV, c=25.8, d=6.6 dB / Y: a=27.8 dB, b=99.5 dB√μV, c=25.5, d=6.6 dB / Z: a=26.9 dB, b=99.7 dB√μV, c=25.9, d=6.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Low/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.957 W/kg

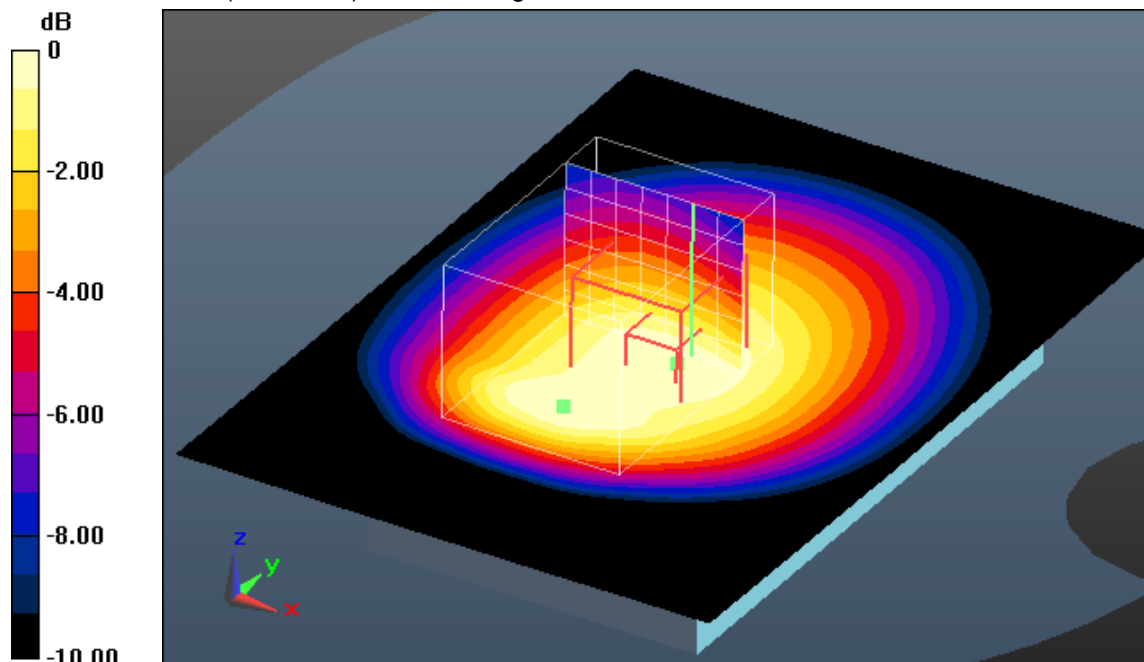
Body MSL/Rear Position - Low/Zoom Scan (8x11x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 30.893 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 1.16 W/kg

SAR(1 g) = 0.848 W/kg; SAR(10 g) = 0.623 W/kg

Maximum value of SAR (measured) = 0.890 W/kg



0 dB = 0.890 W/kg = -0.51 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 11:42:27

OET65-GSM850 body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0-1); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 6.56 dB; PMF: 2.12814

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.499$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=30.4 dB, b=100 dB√μV, c=25.8, d=6.6 dB / Y: a=27.8 dB, b=99.5 dB√μV, c=25.5, d=6.6 dB / Z: a=26.9 dB, b=99.7 dB√μV, c=25.9, d=6.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Mid/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.989 W/kg

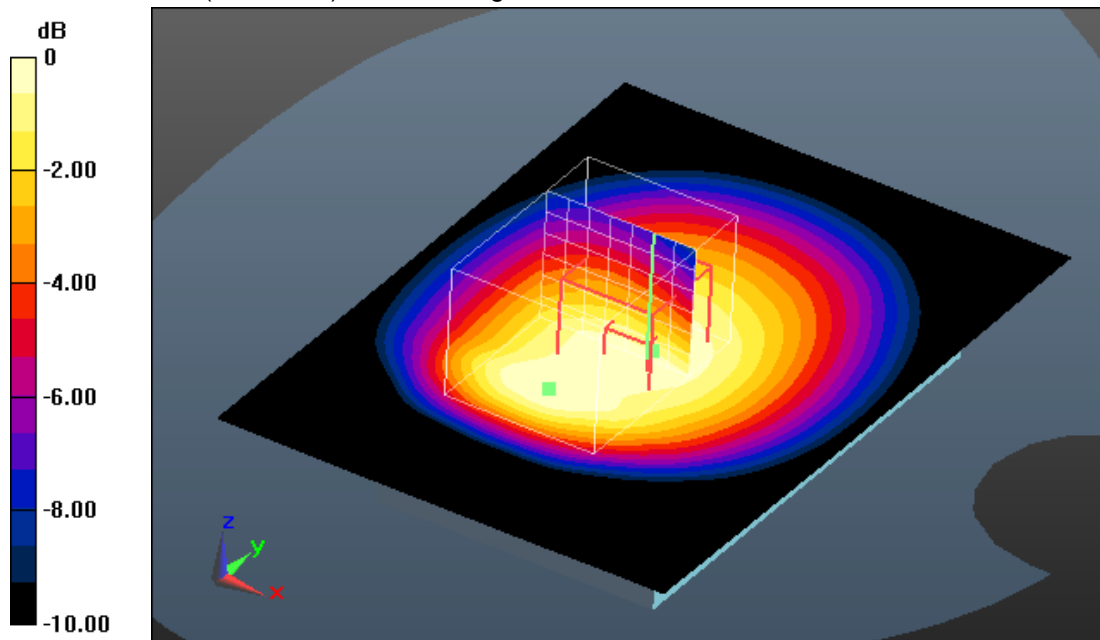
Body MSL/Rear Position - Mid/Zoom Scan (8x11x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 31.159 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.20 W/kg

SAR(1 g) = 0.868 W/kg; SAR(10 g) = 0.637 W/kg

Maximum value of SAR (measured) = 0.911 W/kg



0 dB = 0.911 W/kg = -0.40 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm
 ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 12:32:53

OET65-GSM850 body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0-1); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 848.6 MHz; Communication System PAR: 6.56 dB; PMF: 2.12814

Medium parameters used (interpolated): $f = 848.6$ MHz; $\sigma = 0.999$ S/m; $\epsilon_r = 54.41$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=30.4 dB, b=100 dB√μV, c=25.8, d=6.6 dB / Y: a=27.8 dB, b=99.5 dB√μV, c=25.5, d=6.6 dB / Z: a=26.9 dB, b=99.7 dB√μV, c=25.9, d=6.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Hi/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.04 W/kg

Body MSL/Rear Position - Hi/Zoom Scan (7x9x7)/Cube 0: Measurement grid:

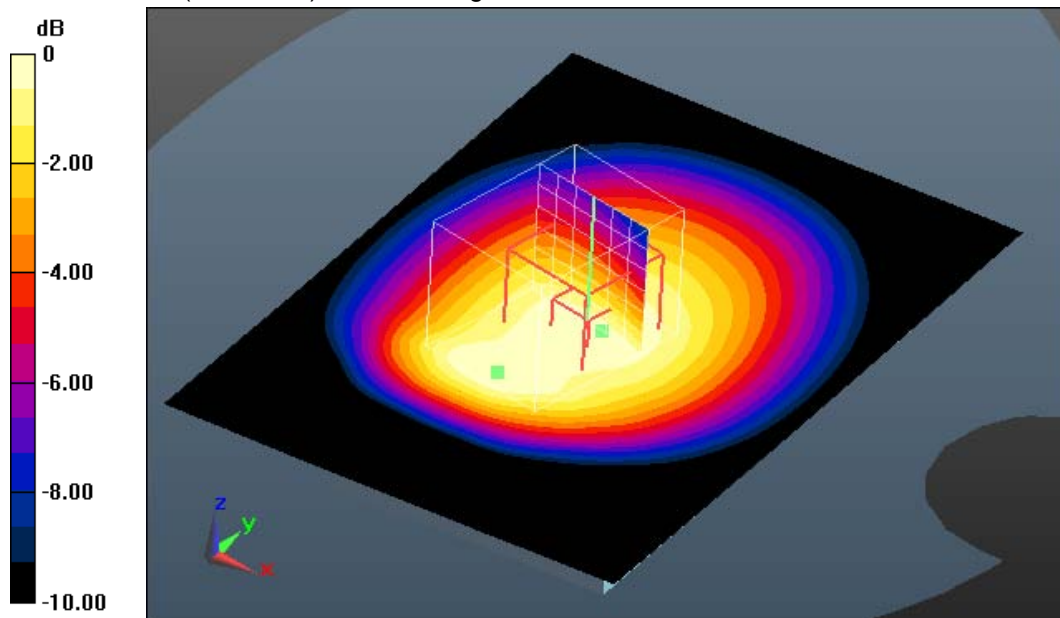
dx=5mm, dy=5mm, dz=5mm

Reference Value = 31.584 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.27 W/kg

SAR(1 g) = 0.902 W/kg; SAR(10 g) = 0.661 W/kg

Maximum value of SAR (measured) = 0.959 W/kg



0 dB = 0.959 W/kg = -0.18 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 12:56:16

OET65-GSM850 body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0-1); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 6.56 dB; PMF: 2.12814

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.499$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=30.4 dB, b=100 dB√μV, c=25.8, d=6.6 dB / Y: a=27.8 dB, b=99.5 dB√μV, c=25.5, d=6.6 dB / Z: a=26.9 dB, b=99.7 dB√μV, c=25.9, d=6.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Left Side Position - Mid/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

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

Body MSL/Left Side Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement

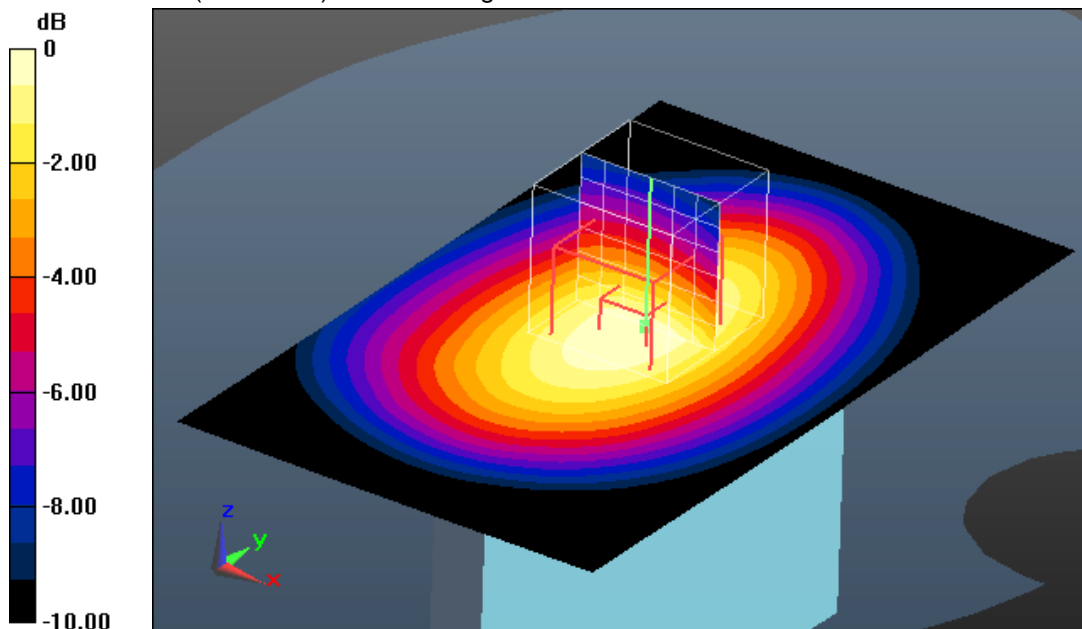
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.583 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.419 W/kg

SAR(1 g) = 0.295 W/kg; SAR(10 g) = 0.203 W/kg

Maximum value of SAR (measured) = 0.315 W/kg



0 dB = 0.315 W/kg = -5.02 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 13:15:09

OET65-GSM850 body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0-1); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 6.56 dB; PMF: 2.12814

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.499$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=30.4 dB, b=100 dB√μV, c=25.8, d=6.6 dB / Y: a=27.8 dB, b=99.5 dB√μV, c=25.5, d=6.6 dB / Z: a=26.9 dB, b=99.7 dB√μV, c=25.9, d=6.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Right Side Position - Mid/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.402 W/kg

Body MSL/Right Side Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement

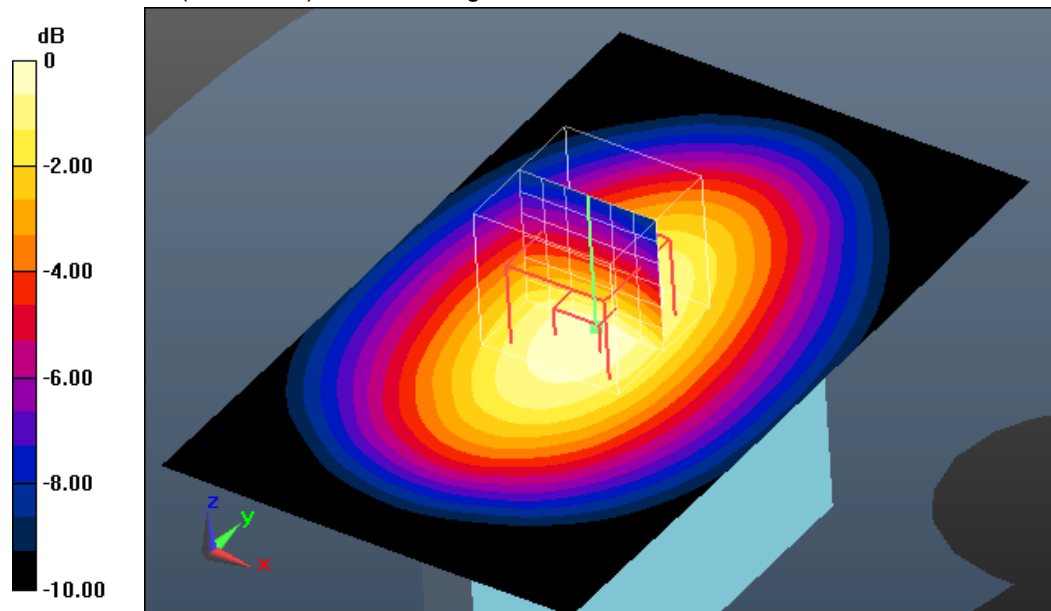
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.802 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.527 W/kg

SAR(1 g) = 0.377 W/kg; SAR(10 g) = 0.261 W/kg

Maximum value of SAR (measured) = 0.406 W/kg



0 dB = 0.406 W/kg = -3.91 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 13:33:33

OET65-GSM850 body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0-1); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 6.56 dB; PMF: 2.12814

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.499$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=30.4 dB, b=100 dB√μV, c=25.8, d=6.6 dB / Y: a=27.8 dB, b=99.5 dB√μV, c=25.5, d=6.6 dB / Z: a=26.9 dB, b=99.7 dB√μV, c=25.9, d=6.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Bottom Position - Mid/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0505 W/kg

Body MSL/Bottom Position - Mid/Zoom Scan (9x8x7)/Cube 0: Measurement grid:

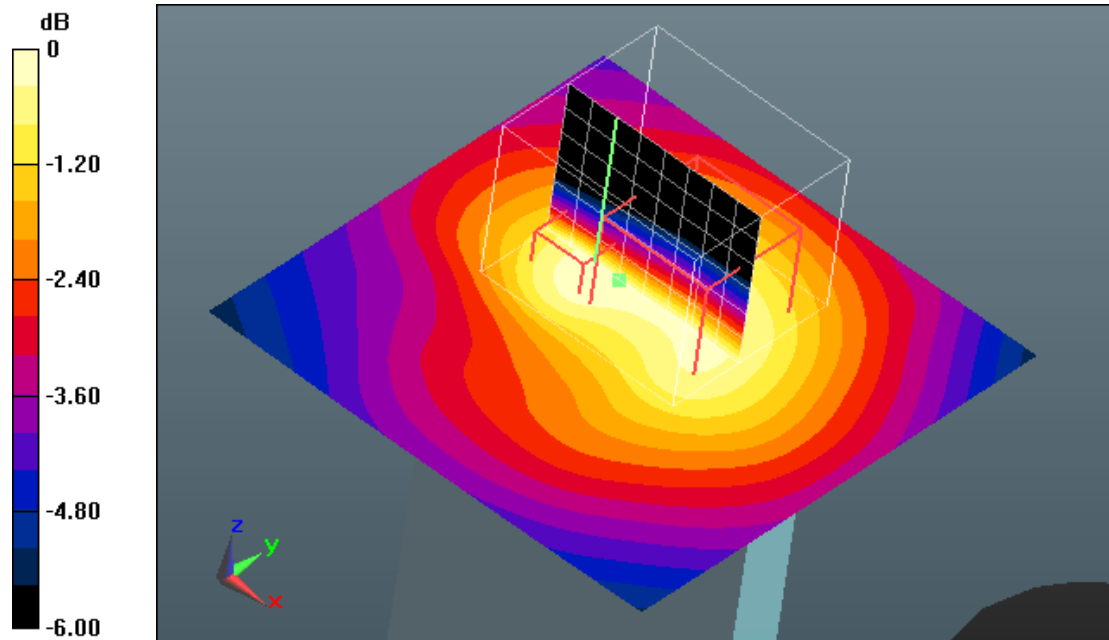
dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.231 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.117 W/kg

SAR(1 g) = 0.049 W/kg; SAR(10 g) = 0.031 W/kg

Maximum value of SAR (measured) = 0.0504 W/kg



0 dB = 0.0504 W/kg = -12.98 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 17:40:37

OET65-GSM850 body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0-1); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 848.6 MHz; Communication System PAR: 6.56 dB; PMF: 2.12814

Medium parameters used (interpolated): $f = 848.6$ MHz; $\sigma = 0.999$ S/m; $\epsilon_r = 54.41$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=30.4 dB, b=100 dB√μV, c=25.8, d=6.6 dB / Y: a=27.8 dB, b=99.5 dB√μV, c=25.5, d=6.6 dB / Z: a=26.9 dB, b=99.7 dB√μV, c=25.9, d=6.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Hi WC/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.21 W/kg

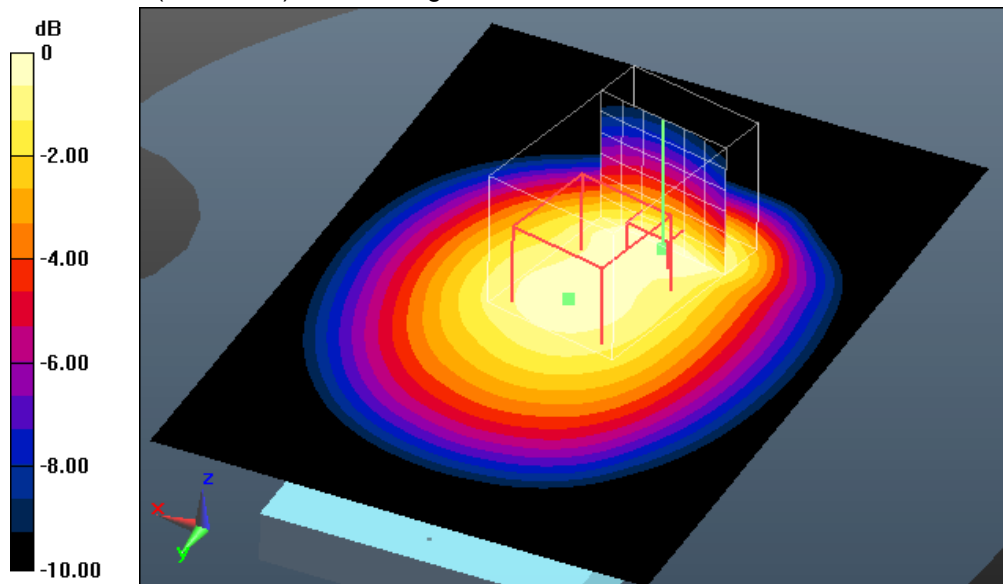
Body MSL/Rear Position - Hi WC/Zoom Scan (7x10x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 33.354 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.55 W/kg

SAR(1 g) = 1.01 W/kg; SAR(10 g) = 0.713 W/kg

Maximum value of SAR (measured) = 1.08 W/kg



0 dB = 1.08 W/kg = 0.33 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 17.05.2013 09:49:07

OET65-GSM850 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0-1); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 6.56 dB; PMF: 2.12814

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.499$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=30.4 dB, b=100 dB√μV, c=25.8, d=6.6 dB / Y: a=27.8 dB, b=99.5 dB√μV, c=25.5, d=6.6 dB / Z: a=26.9 dB, b=99.7 dB√μV, c=25.9, d=6.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Front Position - Mid 15mm/Area Scan (71x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.617 W/kg

Body MSL/Front Position - Mid 15mm/Zoom Scan (7x7x7)/Cube 0:

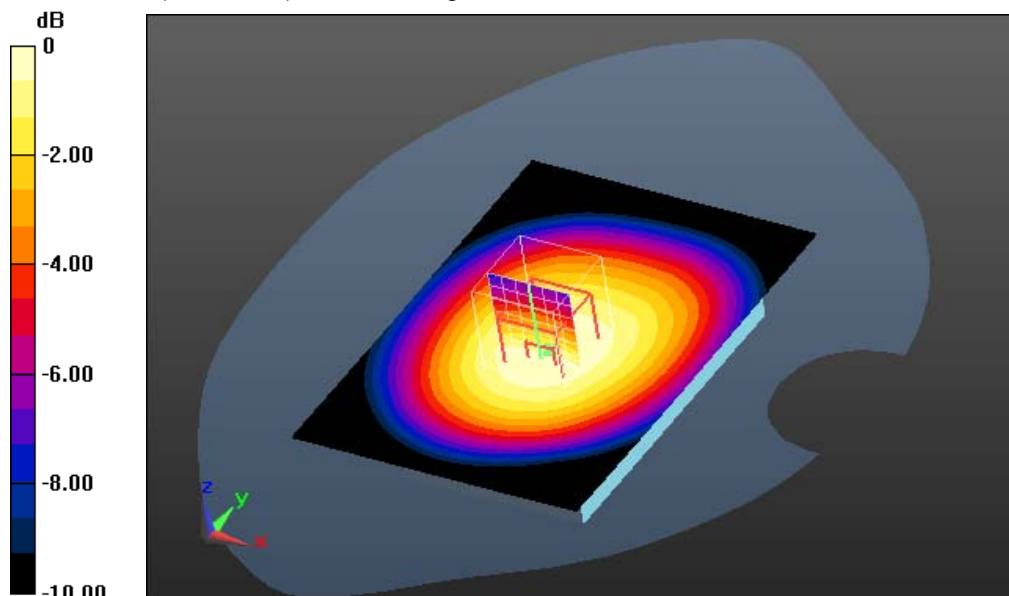
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.595 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.736 W/kg

SAR(1 g) = 0.590 W/kg; SAR(10 g) = 0.448 W/kg

Maximum value of SAR (measured) = 0.617 W/kg



0 dB = 0.617 W/kg = -2.10 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 17.05.2013 10:50:23

OET65-GSM850 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0-1); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 824.2 MHz; Communication System PAR: 6.56 dB; PMF: 2.12814

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.98$ S/m; $\epsilon_r = 54.599$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=30.4 dB, b=100 dB $\sqrt{\mu}$ V, c=25.8, d=6.6 dB / Y: a=27.8 dB, b=99.5 dB $\sqrt{\mu}$ V, c=25.5, d=6.6 dB / Z: a=26.9 dB, b=99.7 dB $\sqrt{\mu}$ V, c=25.9, d=6.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Low 15mm/Area Scan (71x101x1): Interpolated grid:
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.936 W/kg

Body MSL/Rear Position - Low 15mm/Zoom Scan (7x7x7)/Cube 0:

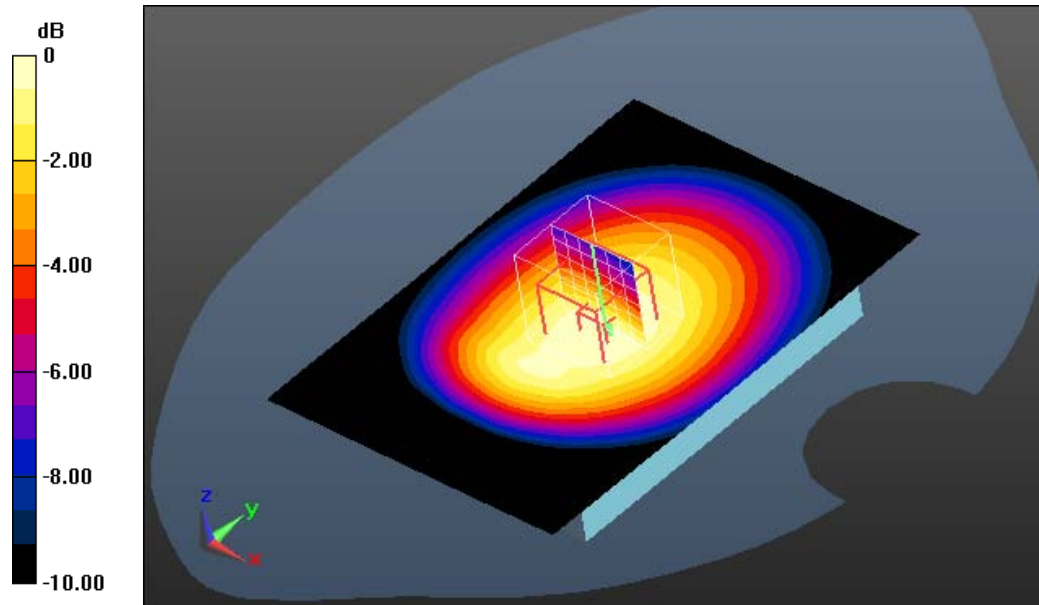
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 31.940 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.880 W/kg; SAR(10 g) = 0.647 W/kg

Maximum value of SAR (measured) = 0.928 W/kg



0 dB = 0.928 W/kg = -0.32 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 17.05.2013 10:33:12

OET65-GSM850 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0-1); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz; Communication System PAR: 6.56 dB; PMF: 2.12814

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.499$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=30.4 dB, b=100 dB $\sqrt{\mu}$ V, c=25.8, d=6.6 dB / Y: a=27.8 dB, b=99.5 dB $\sqrt{\mu}$ V, c=25.5, d=6.6 dB / Z: a=26.9 dB, b=99.7 dB $\sqrt{\mu}$ V, c=25.9, d=6.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Mid 15mm/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.969 W/kg

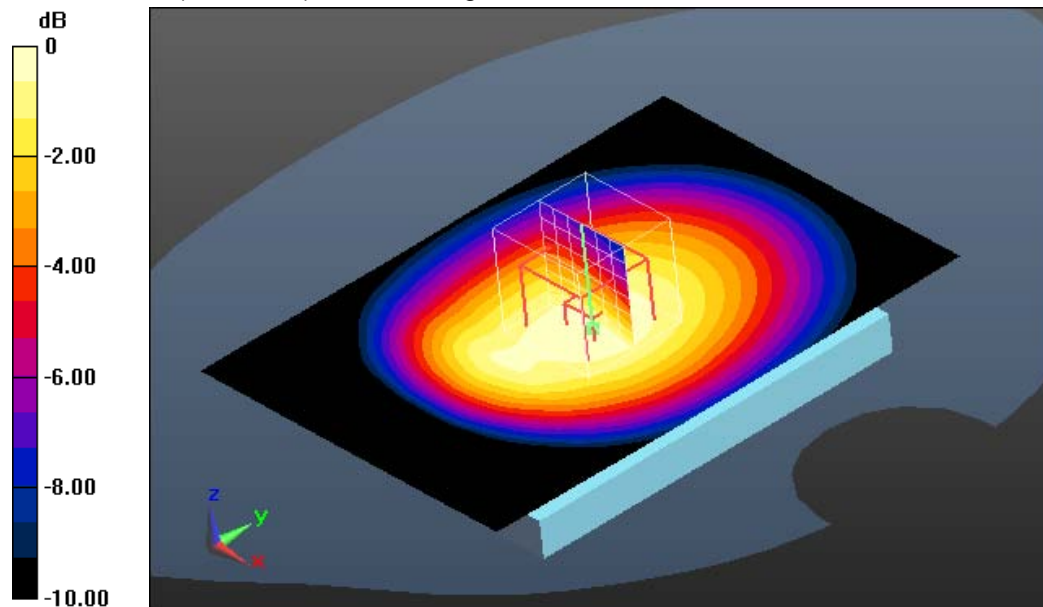
Body MSL/Rear Position - Mid 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 32.548 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.19 W/kg

SAR(1 g) = 0.920 W/kg; SAR(10 g) = 0.676 W/kg

Maximum value of SAR (measured) = 0.974 W/kg



0 dB = 0.974 W/kg = -0.11 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 17.05.2013 11:05:19

OET65-GSM850 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0-1); Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 848.6 MHz; Communication System PAR: 6.56 dB; PMF: 2.12814

Medium parameters used (interpolated): $f = 848.6$ MHz; $\sigma = 0.999$ S/m; $\epsilon_r = 54.41$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=30.4 dB, b=100 dB√μV, c=25.8, d=6.6 dB / Y: a=27.8 dB, b=99.5 dB√μV, c=25.5, d=6.6 dB / Z: a=26.9 dB, b=99.7 dB√μV, c=25.9, d=6.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - High 15mm/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

Body MSL/Rear Position - High 15mm/Zoom Scan (7x7x7)/Cube 0:

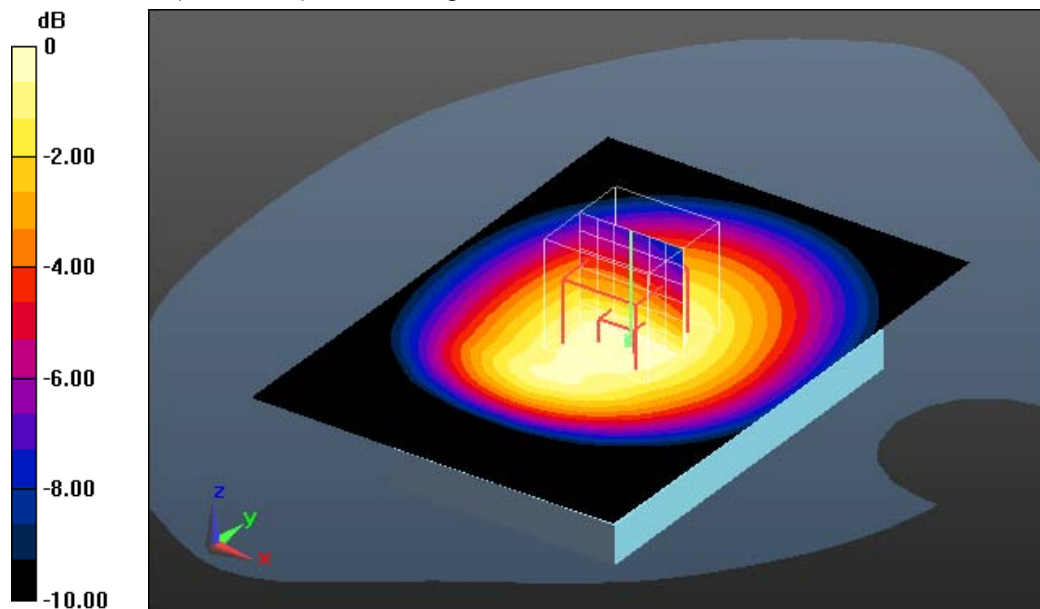
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 33.009 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.23 W/kg

SAR(1 g) = 0.959 W/kg; SAR(10 g) = 0.704 W/kg

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



0 dB = 1.02 W/kg = 0.09 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Annex B.2: GSM 1900MHz

Date/Time: 15.05.2013 11:40:16

IEEE1528-GSM1900 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1850.2 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.34$ S/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB√μV, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB√μV, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB√μV, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Low/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.885 W/kg

Left-Hand-Side HSL/Touch Position - Low/Zoom Scan (8x8x7)/Cube 0:

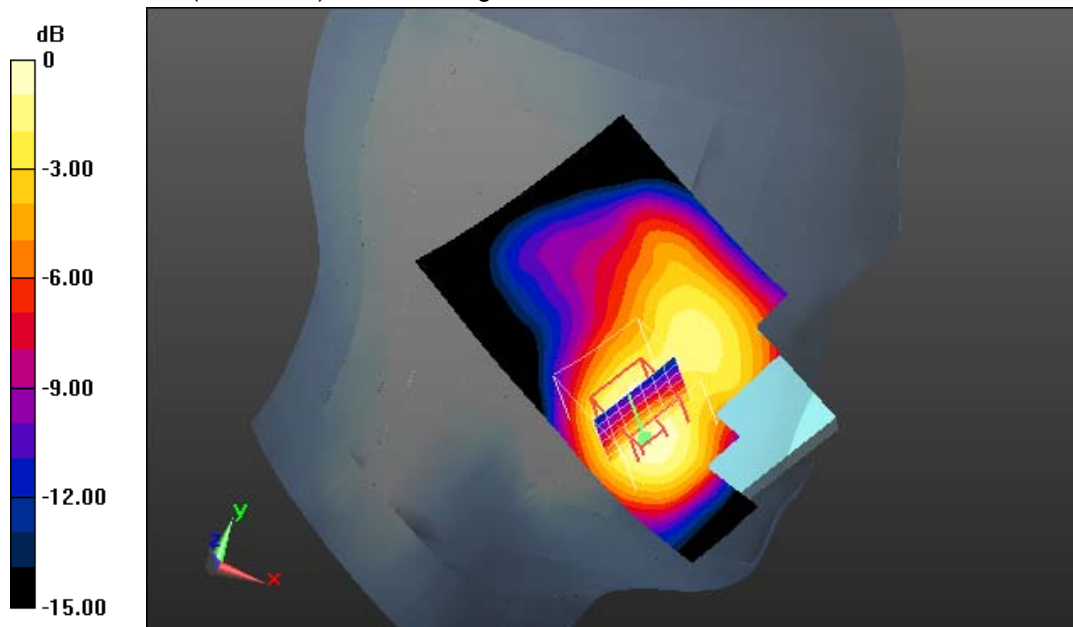
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.577 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.822 W/kg; SAR(10 g) = 0.514 W/kg

Maximum value of SAR (measured) = 0.913 W/kg



0 dB = 0.913 W/kg = -0.40 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 15.05.2013 11:18:39

IEEE1528-GSM1900 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.36$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB $\sqrt{\mu}$ V, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB $\sqrt{\mu}$ V, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB $\sqrt{\mu}$ V, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Middle/Area Scan (61x101x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.874 W/kg

Left-Hand-Side HSL/Touch Position - Middle/Zoom Scan (8x7x7)/Cube 0:

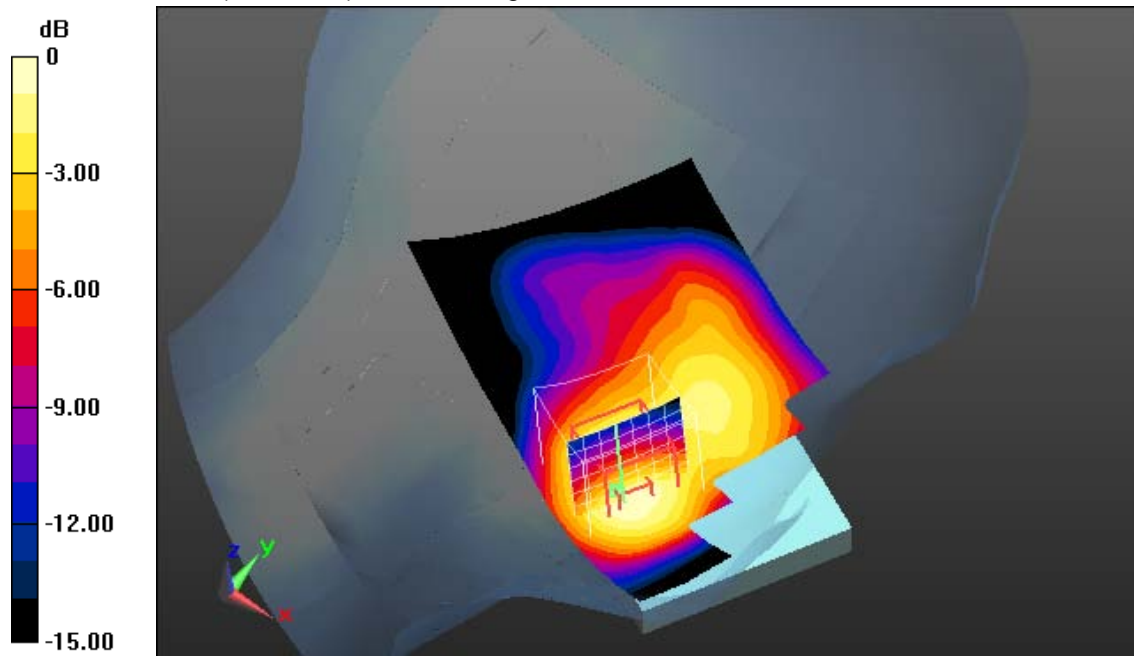
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.985 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.23 W/kg

SAR(1 g) = 0.810 W/kg; SAR(10 g) = 0.499 W/kg

Maximum value of SAR (measured) = 0.877 W/kg



0 dB = 0.877 W/kg = -0.57 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 15.05.2013 11:59:57

IEEE1528-GSM1900 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1909.8 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 1909.8$ MHz; $\sigma = 1.39$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB√μV, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB√μV, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB√μV, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Hi/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.857 W/kg

Left-Hand-Side HSL/Touch Position - Hi/Zoom Scan (7x7x7)/Cube 0:

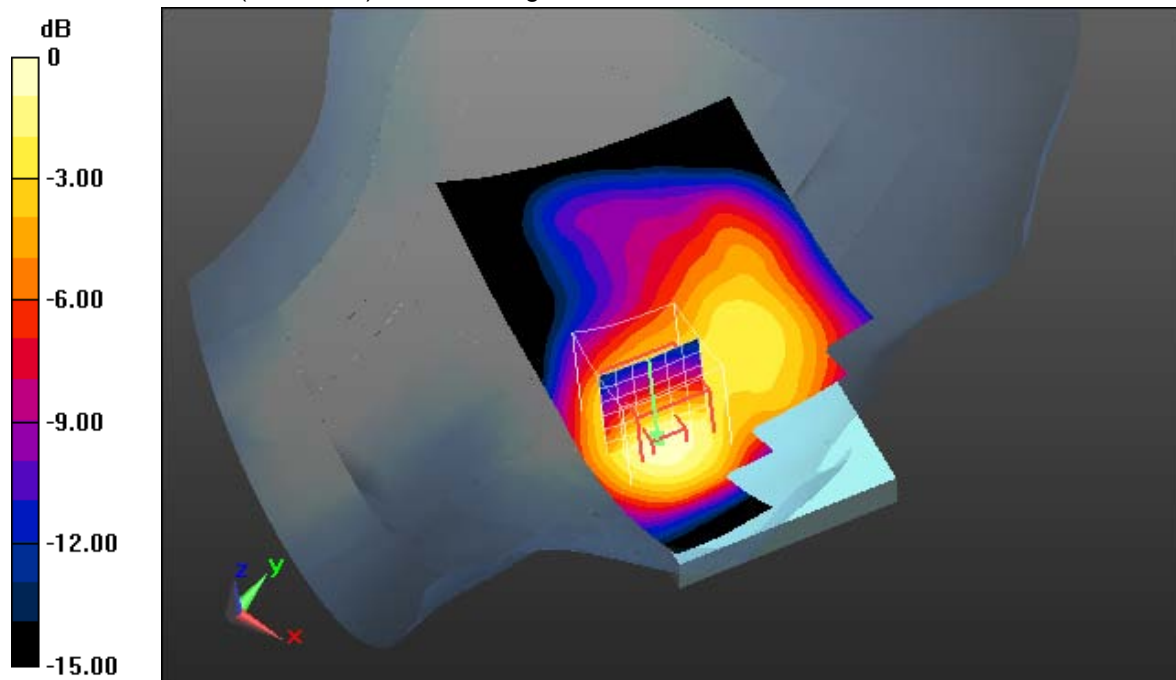
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.766 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.797 W/kg; SAR(10 g) = 0.487 W/kg

Maximum value of SAR (measured) = 0.893 W/kg



0 dB = 0.893 W/kg = -0.49 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 15.05.2013 12:16:45

IEEE1528-GSM1900 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.36$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB√μV, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB√μV, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB√μV, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Tilt Position - Mid/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.389 W/kg

Left-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (10x9x7)/Cube 0:

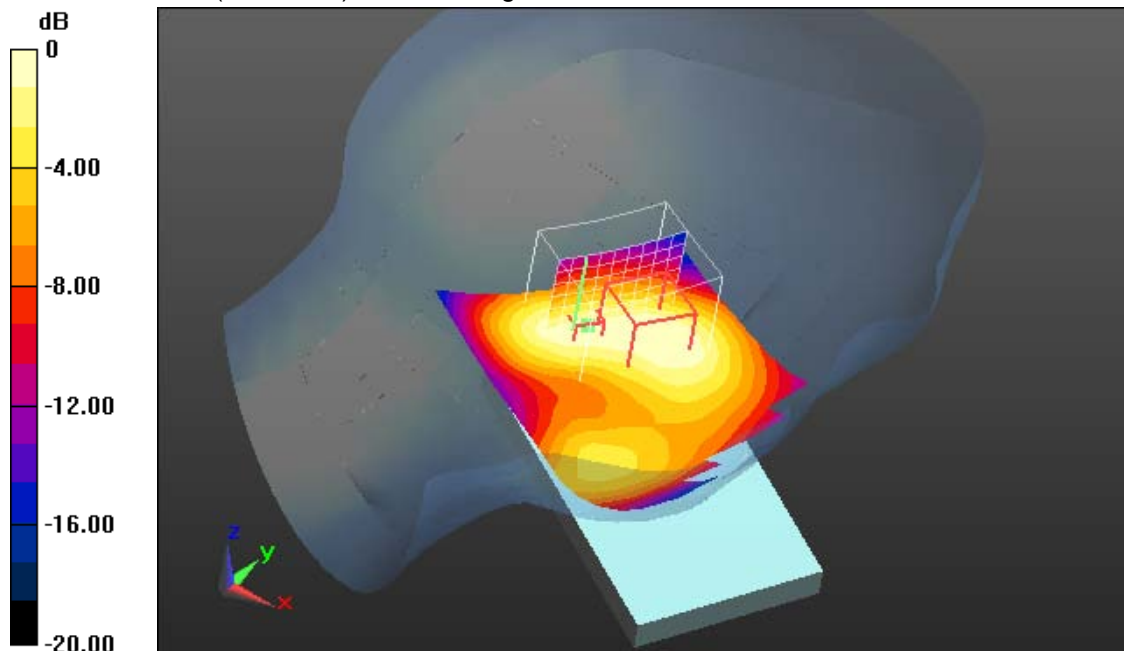
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.995 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.488 W/kg

SAR(1 g) = 0.328 W/kg; SAR(10 g) = 0.203 W/kg

Maximum value of SAR (measured) = 0.361 W/kg



0 dB = 0.361 W/kg = -4.42 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 15.05.2013 13:25:36

IEEE1528-GSM1900 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1850.2 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.34$ S/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB $\sqrt{\mu}$ V, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB $\sqrt{\mu}$ V, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB $\sqrt{\mu}$ V, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Low wc/Area Scan (61x101x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.878 W/kg

Left-Hand-Side HSL/Touch Position - Low wc/Zoom Scan (8x8x7)/Cube 0:

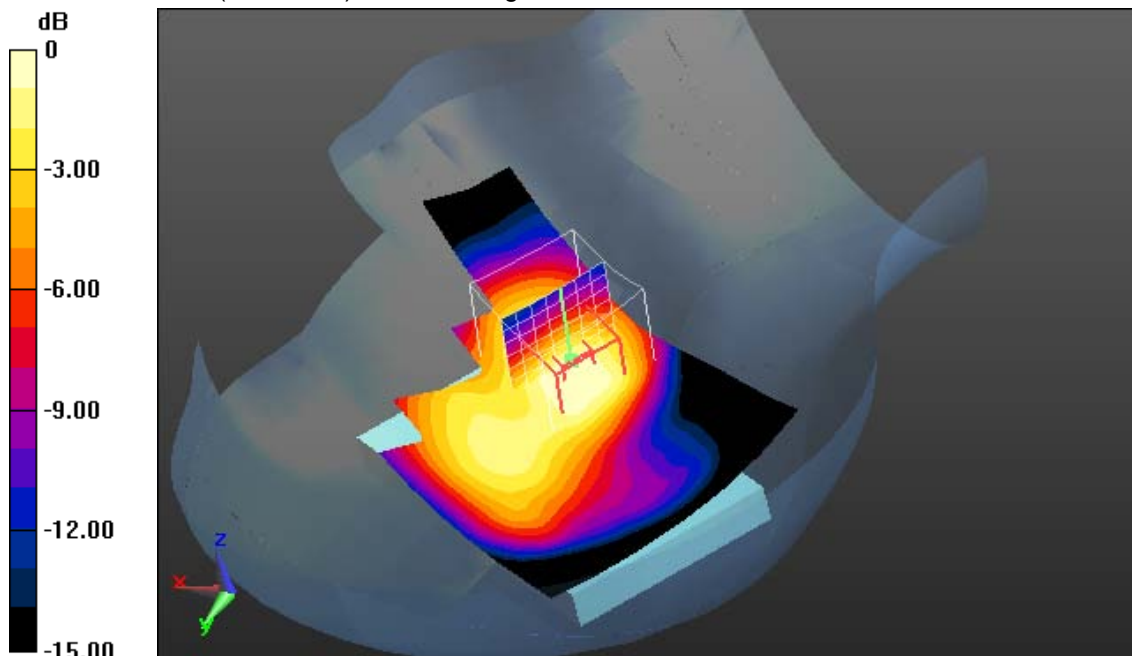
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.128 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.19 W/kg

SAR(1 g) = 0.813 W/kg; SAR(10 g) = 0.510 W/kg

Maximum value of SAR (measured) = 0.894 W/kg



0 dB = 0.894 W/kg = -0.49 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 15.05.2013 13:05:06

IEEE1528-GSM1900 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB $\sqrt{\mu}$ V, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB $\sqrt{\mu}$ V, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB $\sqrt{\mu}$ V, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Touch Position - Mid/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.856 W/kg

Right-Hand-Side HSL/Touch Position - Mid/Zoom Scan (8x7x7)/Cube 0:

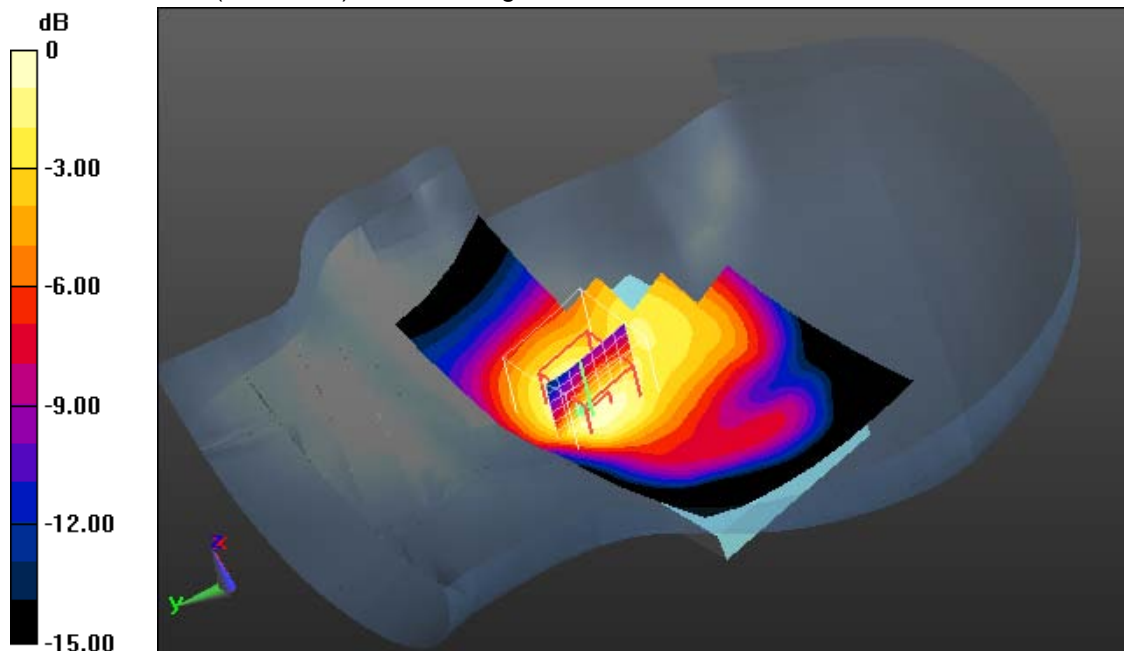
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.096 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.763 W/kg; SAR(10 g) = 0.497 W/kg

Maximum value of SAR (measured) = 0.814 W/kg



0 dB = 0.814 W/kg = -0.89 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 15.05.2013 12:44:47

IEEE1528-GSM1900 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GSM-FDD (TDMA, GMSK); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.39 dB; PMF: 2.94781

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.6 dB, b=99.9 dB√μV, c=28.7, d=9.4 dB / Y: a=16.2 dB, b=98.3 dB√μV, c=28.5, d=9.4 dB / Z: a=18.2 dB, b=99.4 dB√μV, c=28.9, d=9.4 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Tilt Position - Middle/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.460 W/kg

Right-Hand-Side HSL/Tilt Position - Middle/Zoom Scan (7x7x7)/Cube 0:

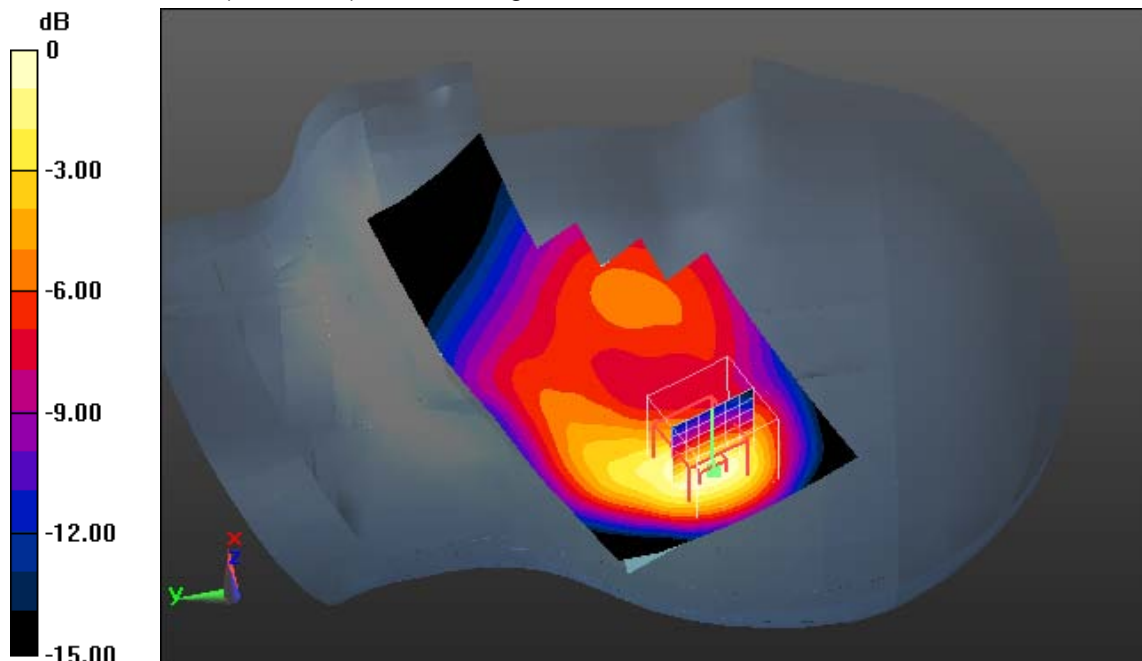
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.279 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.611 W/kg

SAR(1 g) = 0.416 W/kg; SAR(10 g) = 0.243 W/kg

Maximum value of SAR (measured) = 0.459 W/kg



0 dB = 0.459 W/kg = -3.38 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 18.05.2013 13:25:52

OET65-GSM1900 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.57 dB; PMF: 3.00954
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ S/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.0 dB, b=99.7 dB√μV, c=28.8, d=9.6 dB / Y: a=17.9 dB, b=98.9 dB√μV, c=28.4, d=9.6 dB / Z: a=19.3 dB, b=99.8 dB√μV, c=28.9, d=9.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Front Position - Mid/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.729 W/kg

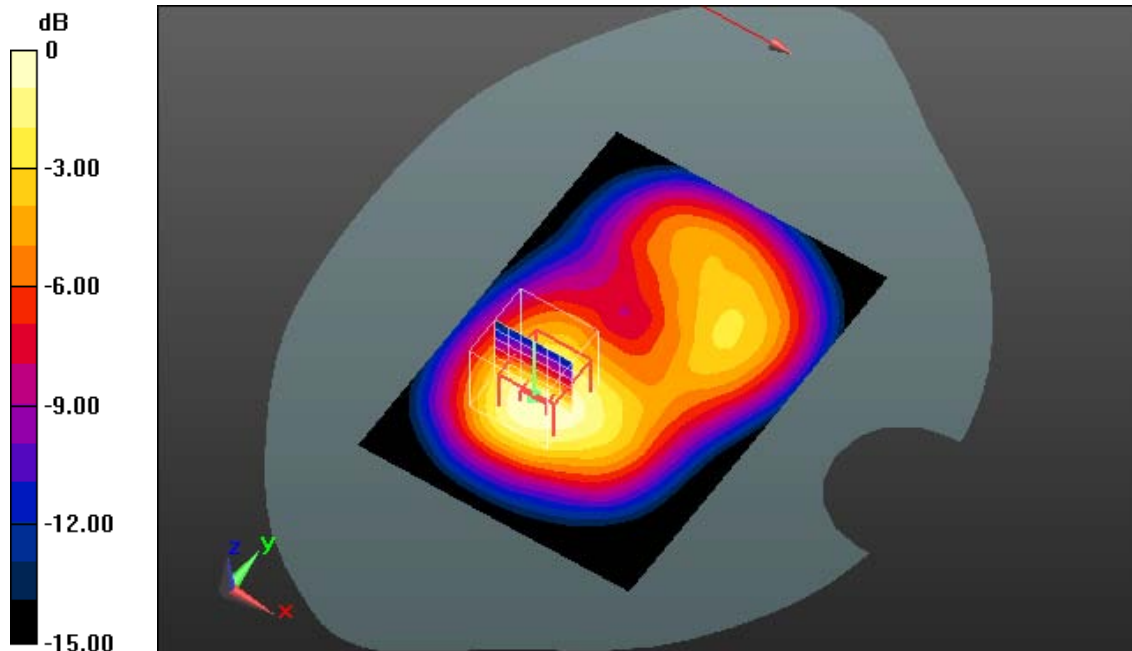
Body MSL/Front Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.236 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.642 W/kg; SAR(10 g) = 0.389 W/kg

Maximum value of SAR (measured) = 0.694 W/kg



0 dB = 0.694 W/kg = -1.59 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 22.9°C; liquid temperature: 20.7°C

Date/Time: 18.05.2013 15:21:26

OET65-GSM1900 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1850.2 MHz; Communication System PAR: 9.57 dB; PMF: 3.00954
Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.49$ S/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.0 dB, b=99.7 dB $\sqrt{\mu}$ V, c=28.8, d=9.6 dB / Y: a=17.9 dB, b=98.9 dB $\sqrt{\mu}$ V, c=28.4, d=9.6 dB / Z: a=19.3 dB, b=99.8 dB $\sqrt{\mu}$ V, c=28.9, d=9.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Low/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.842 W/kg

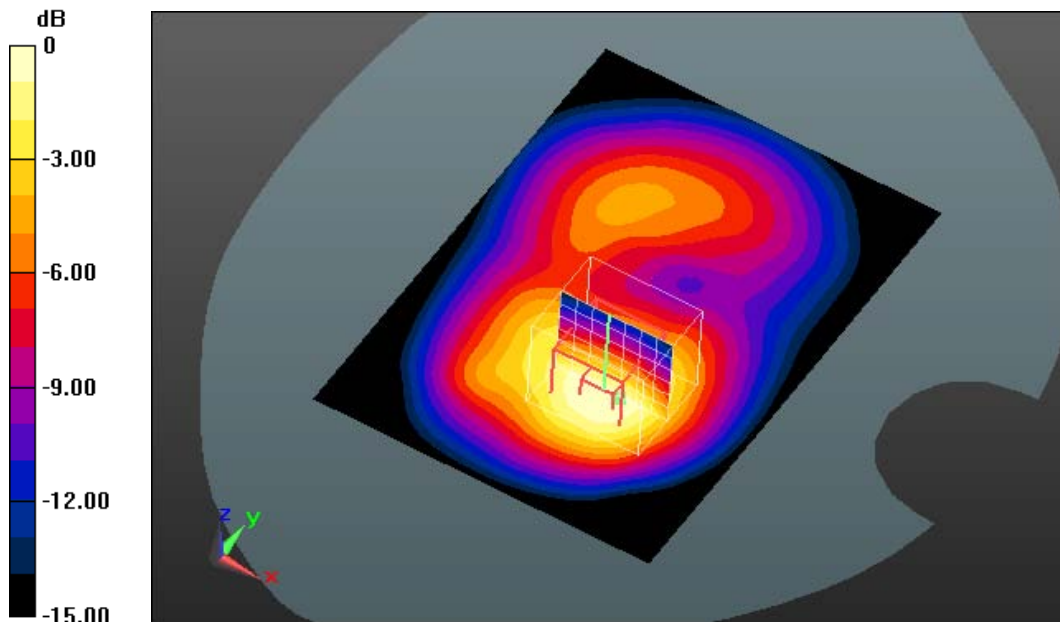
Body MSL/Rear Position - Low/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.167 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.16 W/kg

SAR(1 g) = 0.759 W/kg; SAR(10 g) = 0.460 W/kg

Maximum value of SAR (measured) = 0.828 W/kg



0 dB = 0.828 W/kg = -0.82 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 22.9°C; liquid temperature: 20.7°C

Date/Time: 18.05.2013 14:45:00

OET65-GSM1900 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.57 dB; PMF: 3.00954
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ S/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.0 dB, b=99.7 dB√μV, c=28.8, d=9.6 dB / Y: a=17.9 dB, b=98.9 dB√μV, c=28.4, d=9.6 dB / Z: a=19.3 dB, b=99.8 dB√μV, c=28.9, d=9.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Mid 1TS/Area Scan (71x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.777 W/kg

Body MSL/Rear Position - Mid 1TS/Zoom Scan (8x7x7)/Cube 0: Measurement

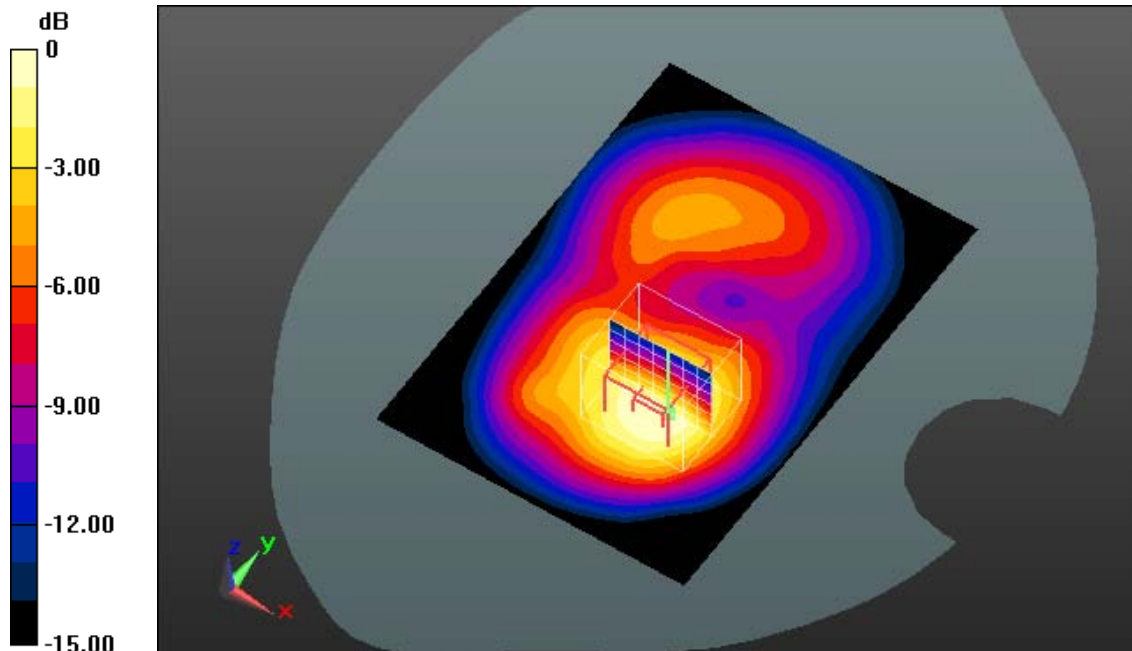
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.578 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.07 W/kg

SAR(1 g) = 0.700 W/kg; SAR(10 g) = 0.422 W/kg

Maximum value of SAR (measured) = 0.756 W/kg



0 dB = 0.756 W/kg = -1.21 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 22.9°C; liquid temperature: 20.7°C

Date/Time: 18.05.2013 15:04:12

OET65-GSM1900 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1909.8 MHz; Communication System PAR: 9.57 dB; PMF: 3.00954
Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.55 \text{ S/m}$; $\epsilon_r = 52.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.0 dB, b=99.7 dB $\sqrt{\mu\text{V}}$, c=28.8, d=9.6 dB / Y: a=17.9 dB, b=98.9 dB $\sqrt{\mu\text{V}}$, c=28.4, d=9.6 dB / Z: a=19.3 dB, b=99.8 dB $\sqrt{\mu\text{V}}$, c=28.9, d=9.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Hi/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.753 W/kg

Body MSL/Rear Position - Hi/Zoom Scan (8x7x7)/Cube 0: Measurement grid:

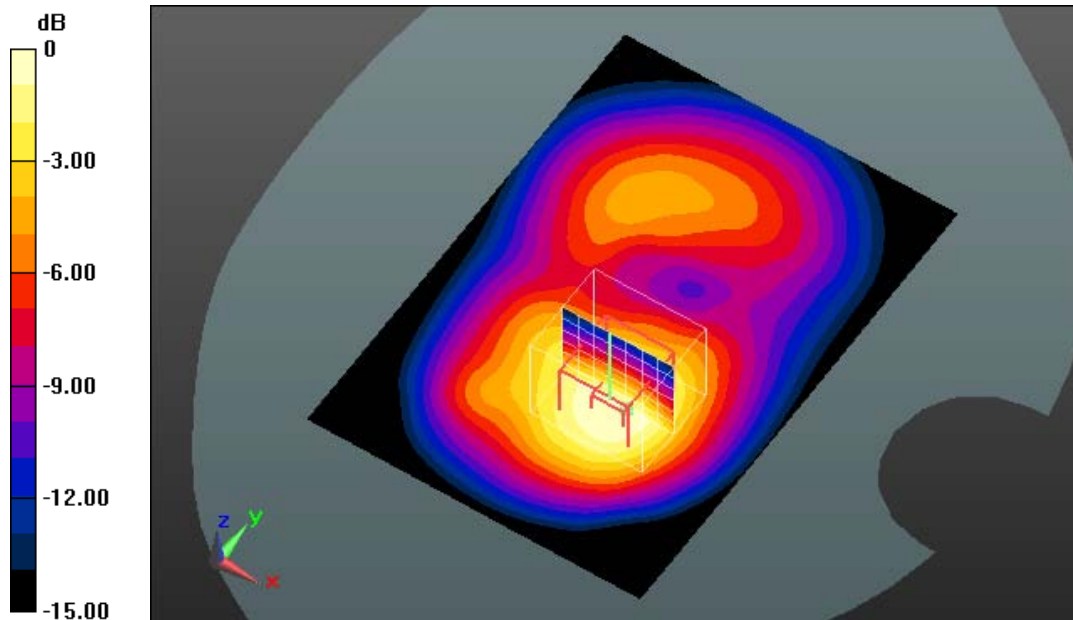
dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.570 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.672 W/kg; SAR(10 g) = 0.405 W/kg

Maximum value of SAR (measured) = 0.732 W/kg



0 dB = 0.732 W/kg = -1.35 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 22.9°C; liquid temperature: 20.7°C

Date/Time: 18.05.2013 13:45:08

OET65-GSM1900 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.57 dB; PMF: 3.00954
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ S/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.0 dB, b=99.7 dB $\sqrt{\mu}$ V, c=28.8, d=9.6 dB / Y: a=17.9 dB, b=98.9 dB $\sqrt{\mu}$ V, c=28.4, d=9.6 dB / Z: a=19.3 dB, b=99.8 dB $\sqrt{\mu}$ V, c=28.9, d=9.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Left Side Position - Mid/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.306 W/kg

Body MSL/Left Side Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement

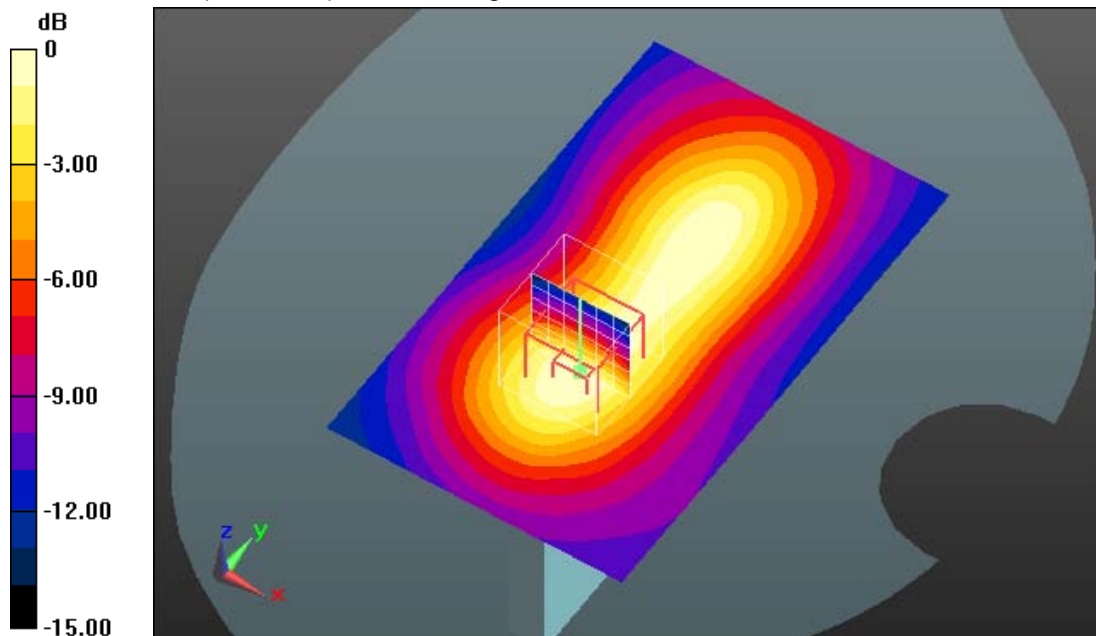
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.016 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.445 W/kg

SAR(1 g) = 0.273 W/kg; SAR(10 g) = 0.163 W/kg

Maximum value of SAR (measured) = 0.300 W/kg



0 dB = 0.300 W/kg = -5.23 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 22.9°C; liquid temperature: 20.7°C

Date/Time: 18.05.2013 14:06:35

OET65-GSM1900 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.57 dB; PMF: 3.00954
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ S/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.0 dB, b=99.7 dB√μV, c=28.8, d=9.6 dB / Y: a=17.9 dB, b=98.9 dB√μV, c=28.4, d=9.6 dB / Z: a=19.3 dB, b=99.8 dB√μV, c=28.9, d=9.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Right Side Position - Mid/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.288 W/kg

Body MSL/Right Side Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement

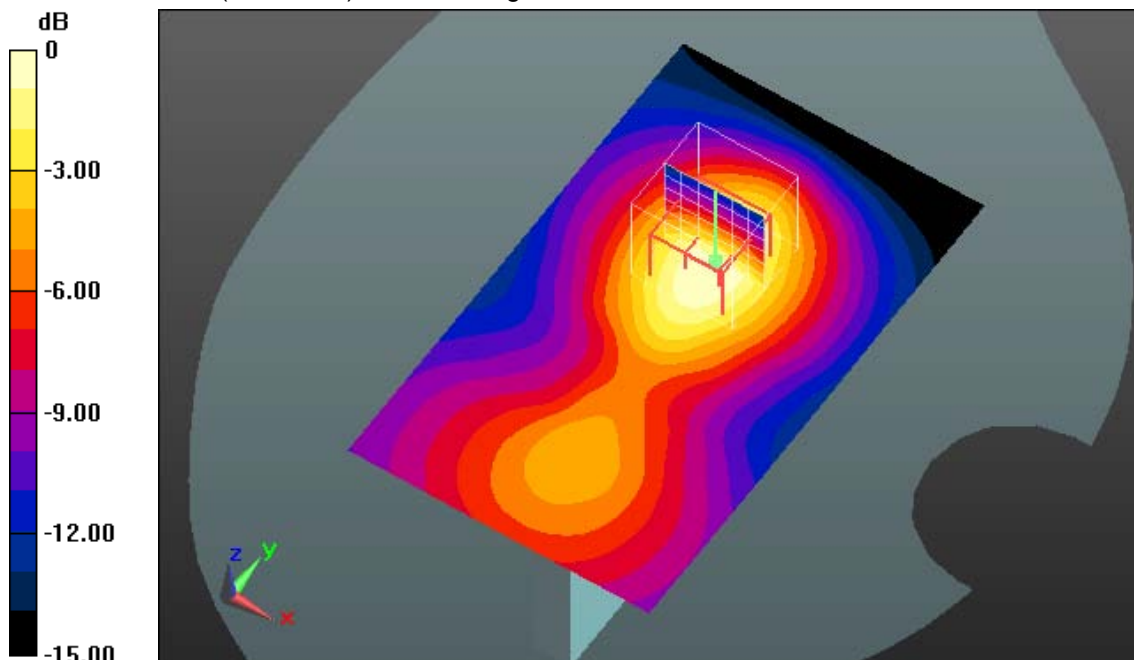
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.105 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.401 W/kg

SAR(1 g) = 0.252 W/kg; SAR(10 g) = 0.150 W/kg

Maximum value of SAR (measured) = 0.280 W/kg



0 dB = 0.280 W/kg = -5.53 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 22.9°C; liquid temperature: 20.7°C

Date/Time: 18.05.2013 14:24:35

OET65-GSM1900 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.57 dB; PMF: 3.00954
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ S/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.0 dB, b=99.7 dB $\sqrt{\mu}$ V, c=28.8, d=9.6 dB / Y: a=17.9 dB, b=98.9 dB $\sqrt{\mu}$ V, c=28.4, d=9.6 dB / Z: a=19.3 dB, b=99.8 dB $\sqrt{\mu}$ V, c=28.9, d=9.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS2 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Bottom Position - Mid/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.266 W/kg

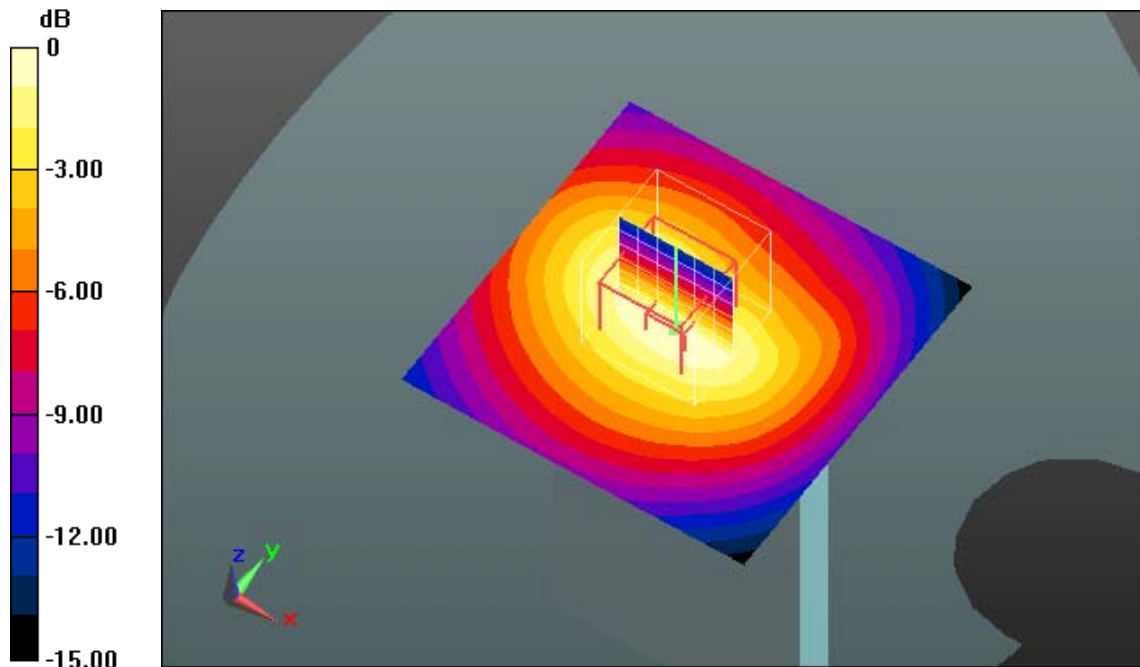
Body MSL/Bottom Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.169 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.392 W/kg

SAR(1 g) = 0.239 W/kg; SAR(10 g) = 0.141 W/kg

Maximum value of SAR (measured) = 0.263 W/kg



0 dB = 0.263 W/kg = -5.80 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 22.9°C; liquid temperature: 20.7°C

Date/Time: 18.05.2013 15:40:07

OET65-GSM1900 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: EDGE (8PSK, TN 0-1); Communication System Band: GSM1900; Frequency: 1850.2 MHz; Communication System PAR: 9.55 dB; PMF: 2.54683

Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.49$ S/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS5 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Low 8PSK/Area Scan (71x101x1): Interpolated grid:

$dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.09 W/kg

Body MSL/Rear Position - Low 8PSK/Zoom Scan (8x7x7)/Cube 0: Measurement

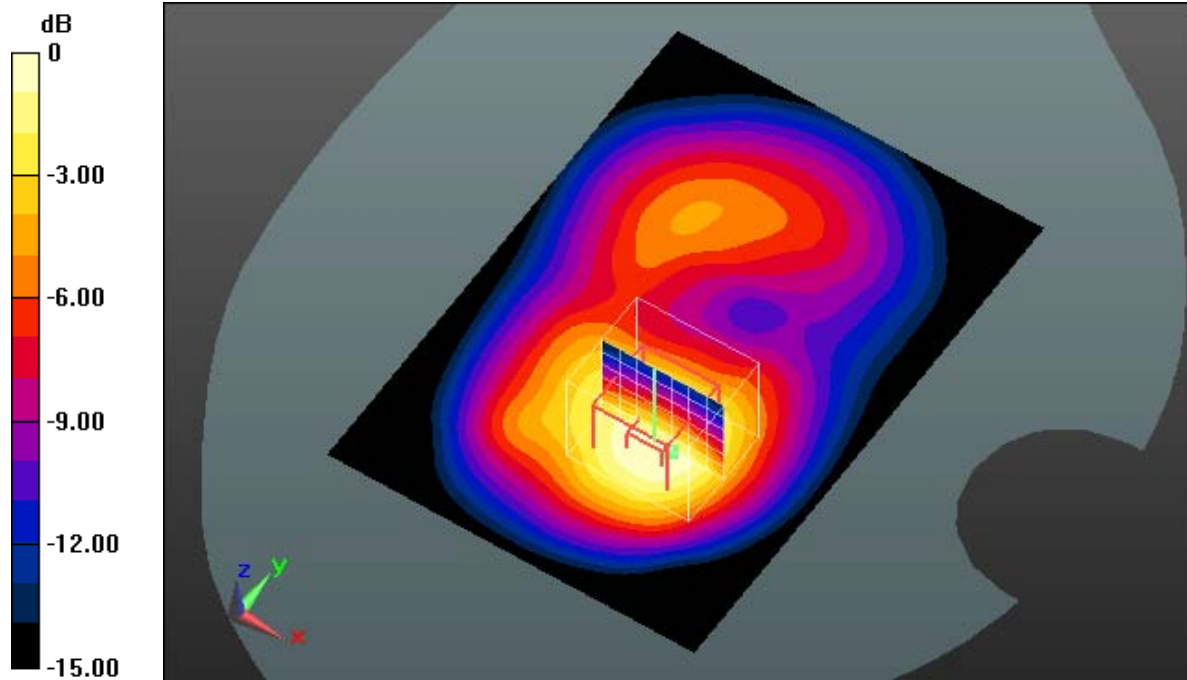
grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 28.652 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.57 W/kg

SAR(1 g) = 0.978 W/kg; SAR(10 g) = 0.577 W/kg

Maximum value of SAR (measured) = 1.07 W/kg



0 dB = 1.07 W/kg = 0.29 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 22.9°C; liquid temperature: 20.7°C

Date/Time: 18.05.2013 16:40:29

OET65-GSM1900 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: EDGE (8PSK, TN 0-1); Communication System Band: GSM1900; Frequency: 1850.2 MHz; Communication System PAR: 9.55 dB; PMF: 2.54683

Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.49$ S/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS5 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Low 8PSK wc/Area Scan (71x101x1): Interpolated grid:

$dx=1.500$ mm, $dy=1.500$ mm

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

Body MSL/Rear Position - Low 8PSK wc/Zoom Scan (7x7x7)/Cube 0:

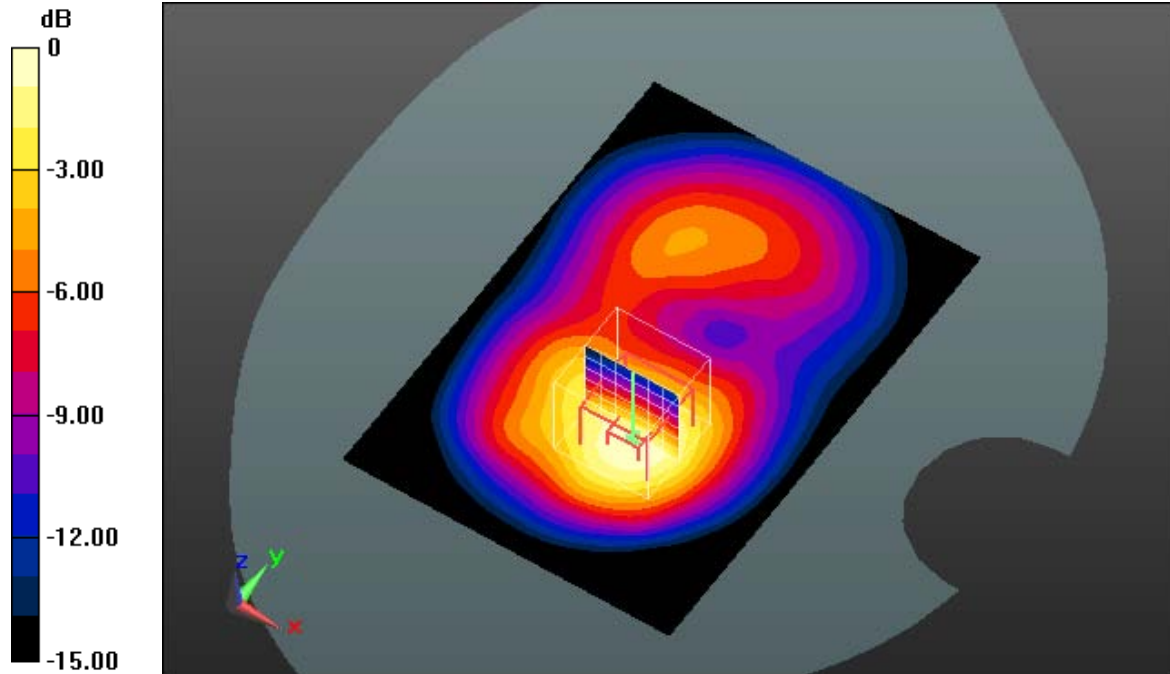
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 27.823 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 1.55 W/kg

SAR(1 g) = 0.955 W/kg; SAR(10 g) = 0.559 W/kg

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



0 dB = 1.05 W/kg = 0.21 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 22.9°C; liquid temperature: 20.7°C

Date/Time: 18.05.2013 12:27:44

OET65-GSM1900 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.57 dB; PMF: 3.00954
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ S/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.0 dB, b=99.7 dB $\sqrt{\mu}$ V, c=28.8, d=9.6 dB / Y: a=17.9 dB, b=98.9 dB $\sqrt{\mu}$ V, c=28.4, d=9.6 dB / Z: a=19.3 dB, b=99.8 dB $\sqrt{\mu}$ V, c=28.9, d=9.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Front Position - Mid 15mm/Area Scan (71x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.413 W/kg

Body MSL/Front Position - Mid 15mm/Zoom Scan (7x7x7)/Cube 0:

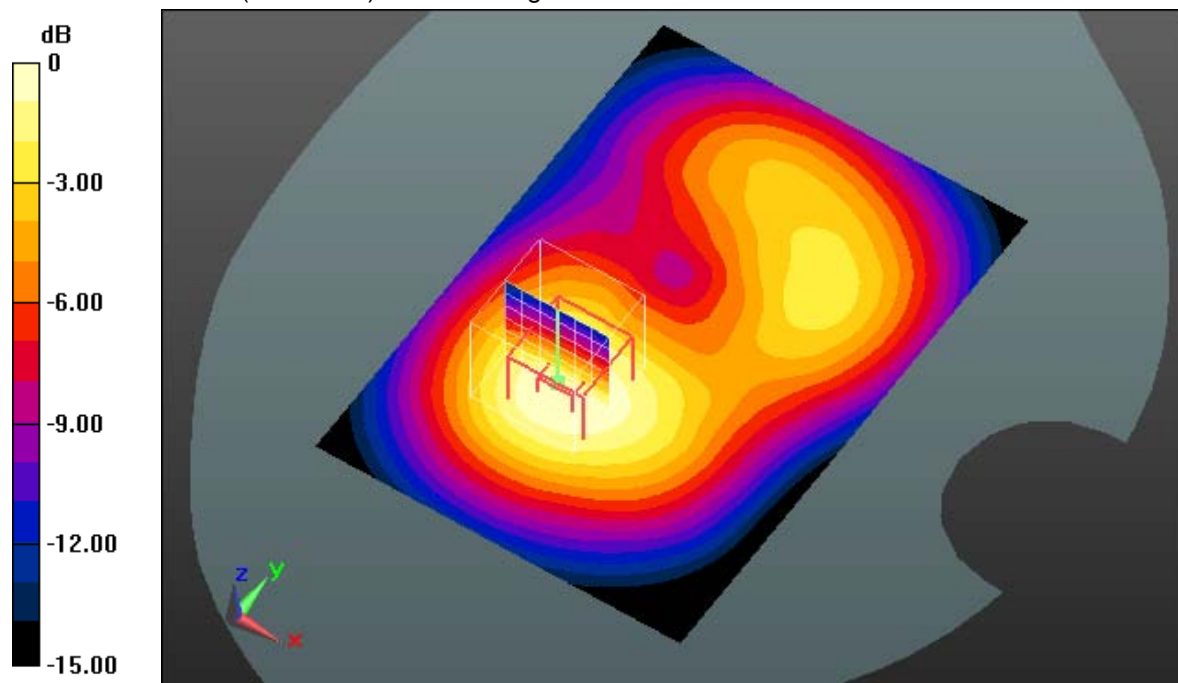
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.462 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.597 W/kg

SAR(1 g) = 0.378 W/kg; SAR(10 g) = 0.235 W/kg

Maximum value of SAR (measured) = 0.409 W/kg



0 dB = 0.409 W/kg = -3.88 dBW/kg

Additional information:

position or distance of DUT to SAM: 15 mm

ambient temperature: 22.9°C; liquid temperature: 20.7°C

Date/Time: 18.05.2013 12:49:29

OET65-GSM1900 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: GPRS-FDD (TDMA, GMSK, TN 0); Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.57 dB; PMF: 3.00954
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ S/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=20.0 dB, b=99.7 dB $\sqrt{\mu}$ V, c=28.8, d=9.6 dB / Y: a=17.9 dB, b=98.9 dB $\sqrt{\mu}$ V, c=28.4, d=9.6 dB / Z: a=19.3 dB, b=99.8 dB $\sqrt{\mu}$ V, c=28.9, d=9.6 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Mid 15mm/Area Scan (71x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

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

Body MSL/Rear Position - Mid 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement

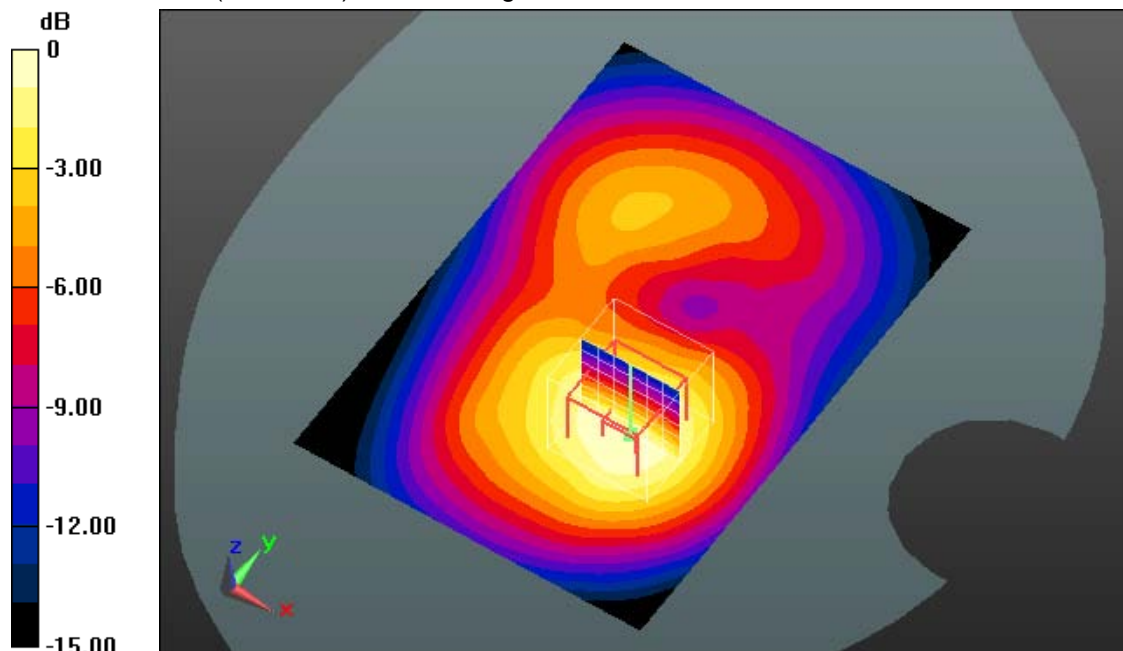
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.454 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.541 W/kg

SAR(1 g) = 0.361 W/kg; SAR(10 g) = 0.225 W/kg

Maximum value of SAR (measured) = 0.392 W/kg



0 dB = 0.392 W/kg = -4.07 dBW/kg

Additional information:

position or distance of DUT to SAM: 15 mm

ambient temperature: 22.9°C; liquid temperature: 20.7°C

Date/Time: 18.05.2013 15:59:26

OET65-GSM1900 body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: EDGE (8PSK, TN 0-1); Communication System Band: GSM1900; Frequency: 1850.2 MHz; Communication System PAR: 9.55 dB; PMF: 2.54683

Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.49 \text{ S/m}$; $\epsilon_r = 52.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS5 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Front Position - Low 8PSK 15mm/Area Scan (71x101x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.481 W/kg

Body MSL/Front Position - Low 8PSK 15mm/Zoom Scan (7x7x7)/Cube 0:

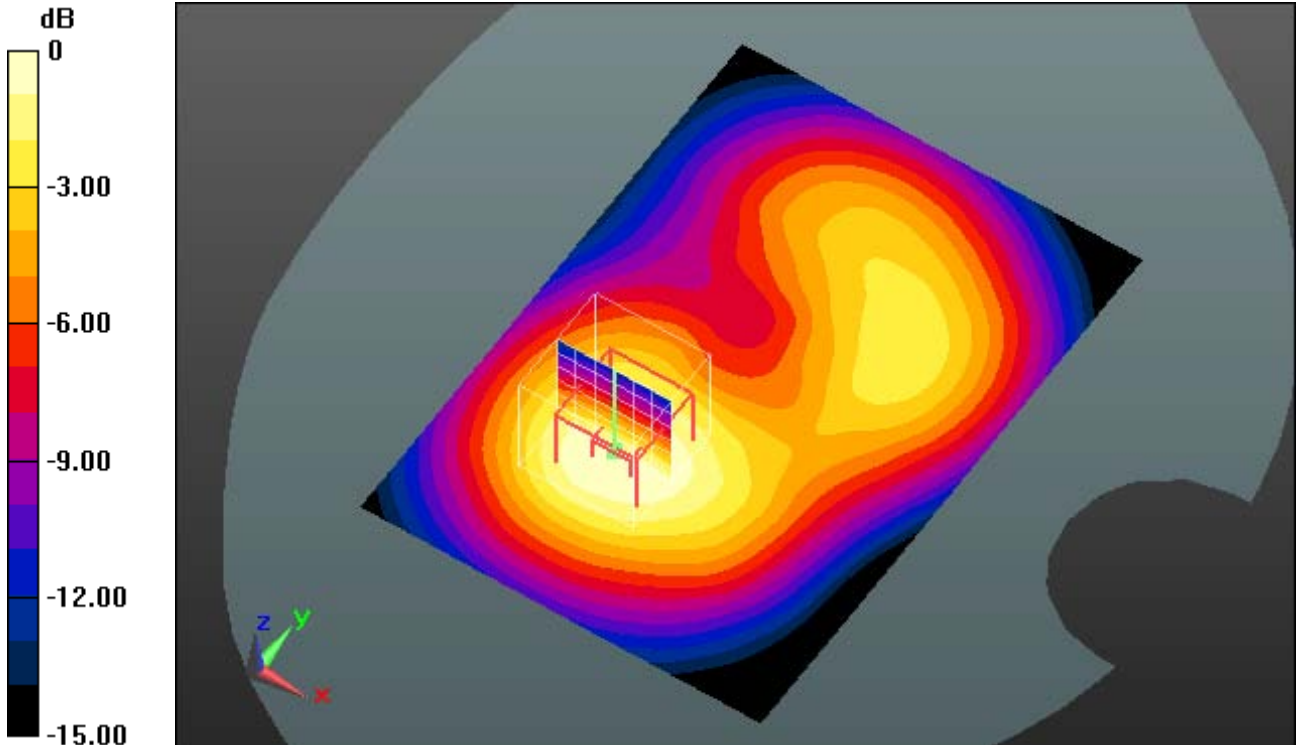
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.637 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.662 W/kg

SAR(1 g) = 0.425 W/kg; SAR(10 g) = 0.265 W/kg

Maximum value of SAR (measured) = 0.455 W/kg



0 dB = 0.455 W/kg = -3.42 dBW/kg

Additional information:

position or distance of DUT to SAM: 15 mm

ambient temperature: 22.9°C; liquid temperature: 20.7°C

Annex B.3: UMTS FDD II

Date/Time: 15.05.2013 14:38:23

IEEE1528-UMTS FDD II head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1852.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.341$ S/m; $\epsilon_r = 40.185$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB√μV, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB√μV, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB√μV, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Low/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.827 W/kg

Left-Hand-Side HSL/Touch Position - Low/Zoom Scan (8x8x7)/Cube 0:

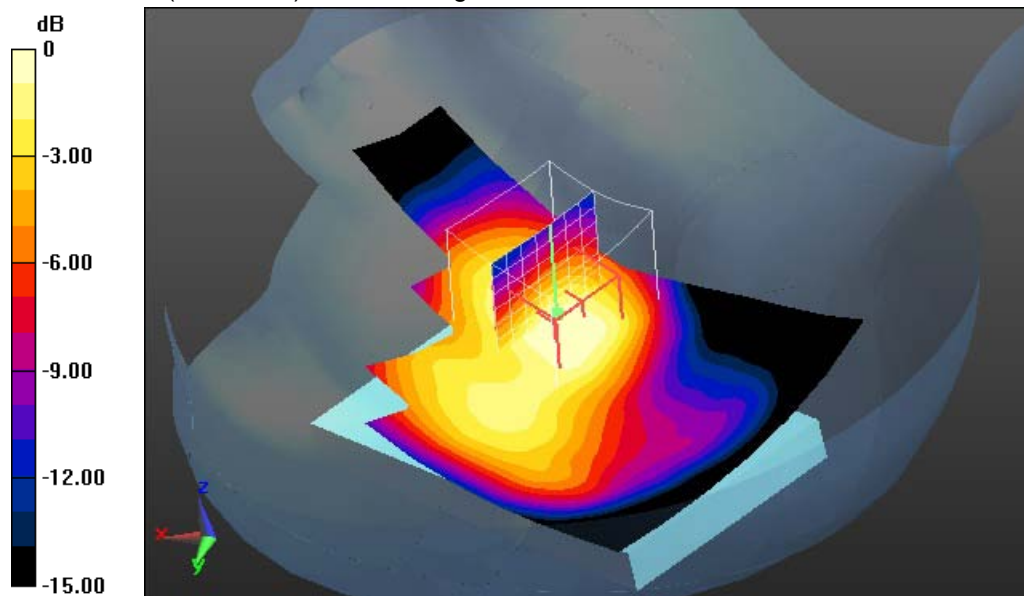
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.575 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.765 W/kg; SAR(10 g) = 0.485 W/kg

Maximum value of SAR (measured) = 0.846 W/kg



0 dB = 0.846 W/kg = -0.73 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 15.05.2013 14:18:13

IEEE1528-UMTS FDD II head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.36$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB√μV, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB√μV, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB√μV, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Middle/Area Scan (61x101x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.875 W/kg

Left-Hand-Side HSL/Touch Position - Middle/Zoom Scan (8x8x7)/Cube 0:

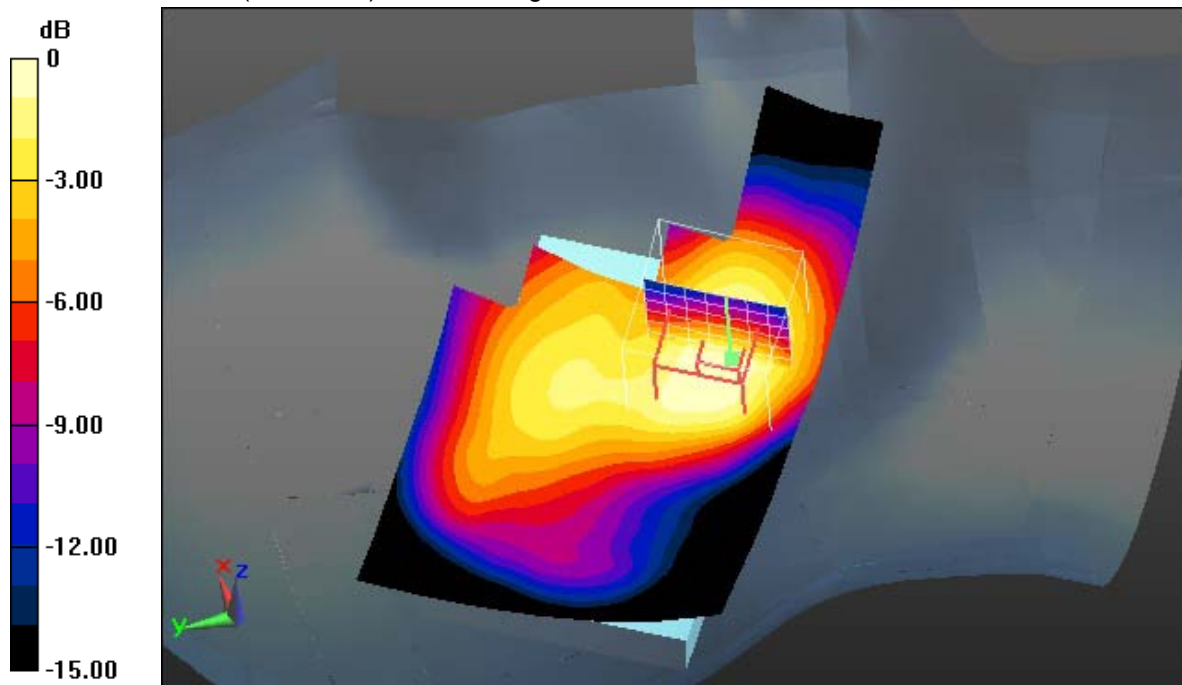
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.041 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.814 W/kg; SAR(10 g) = 0.509 W/kg

Maximum value of SAR (measured) = 0.903 W/kg



0 dB = 0.903 W/kg = -0.44 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 15.05.2013 13:54:09

IEEE1528-UMTS FDD II head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1907.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.388$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Hi/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

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

Left-Hand-Side HSL/Touch Position - Hi/Zoom Scan (8x8x7)/Cube 0:

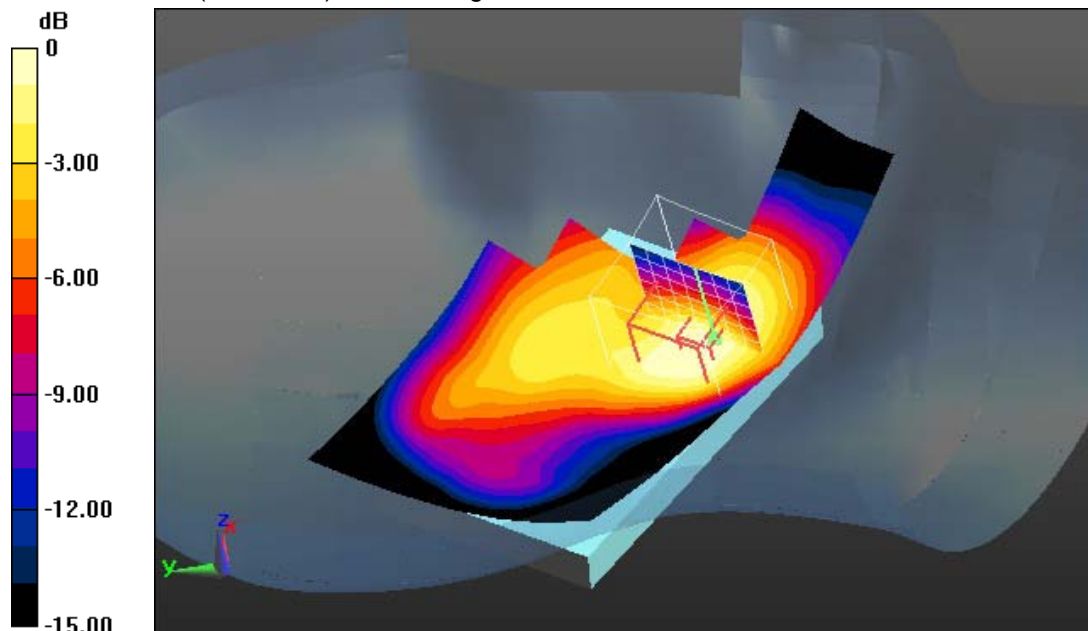
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.504 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.39 W/kg

SAR(1 g) = 0.926 W/kg; SAR(10 g) = 0.573 W/kg

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



0 dB = 1.03 W/kg = 0.13 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 15.05.2013 15:02:43

IEEE1528-UMTS FDD II head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1907.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.388$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Tilt Position - High/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.414 W/kg

Left-Hand-Side HSL/Tilt Position - High/Zoom Scan (10x10x7)/Cube 0:

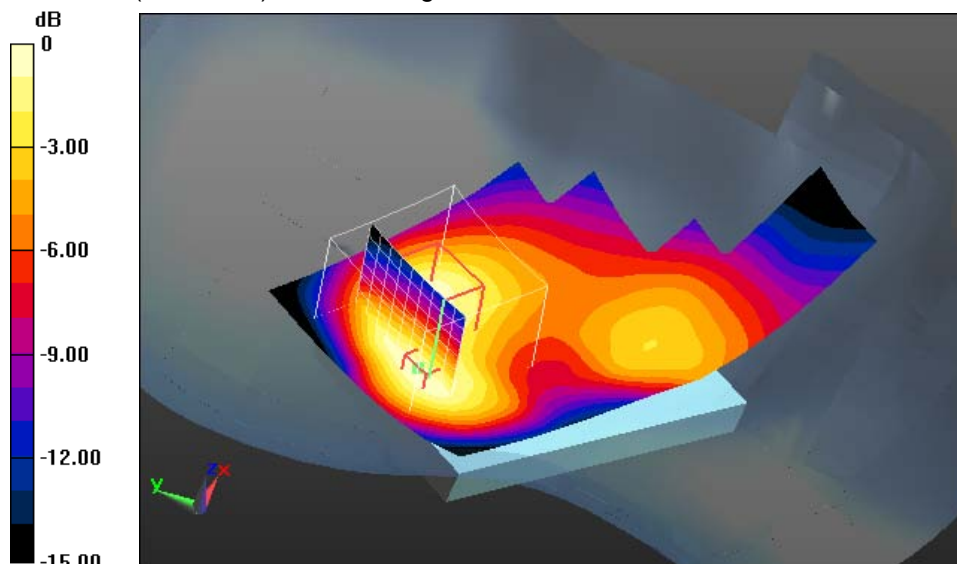
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.590 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.550 W/kg

SAR(1 g) = 0.366 W/kg; SAR(10 g) = 0.232 W/kg

Maximum value of SAR (measured) = 0.406 W/kg



0 dB = 0.406 W/kg = -3.91 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 15.05.2013 19:02:29

IEEE1528-UMTS FDD II head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1907.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.388$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Hi wc/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

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

Left-Hand-Side HSL/Touch Position - Hi wc/Zoom Scan (7x8x7)/Cube 0:

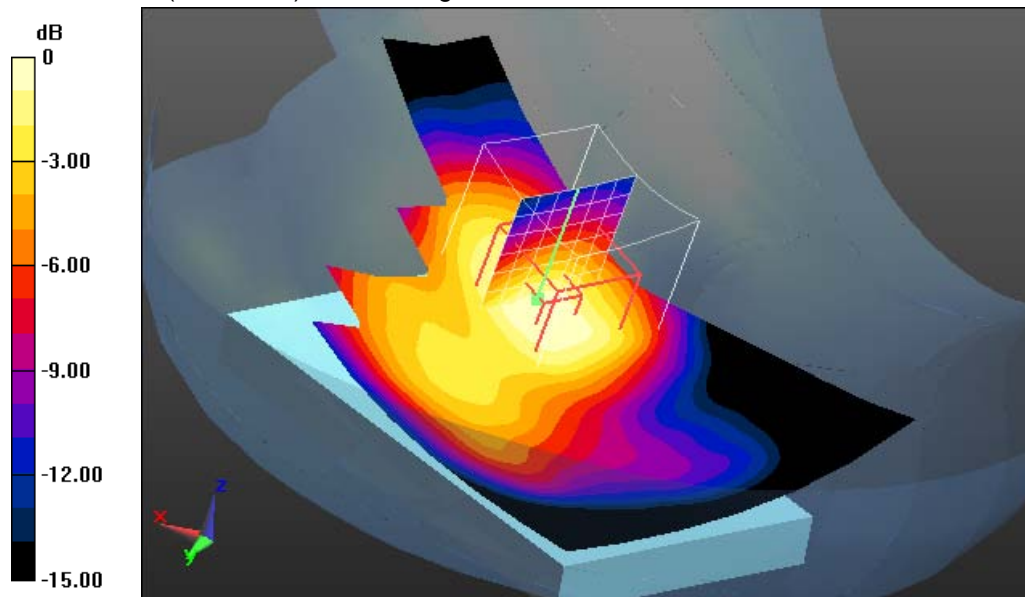
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.068 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.49 W/kg

SAR(1 g) = 0.993 W/kg; SAR(10 g) = 0.607 W/kg

Maximum value of SAR (measured) = 1.10 W/kg



0 dB = 1.10 W/kg = 0.41 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 15.05.2013 16:04:33

IEEE1528-UMTS FDD II head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1907.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.388$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS5 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Touch Position - Hi/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.839 W/kg

Right-Hand-Side HSL/Touch Position - Hi/Zoom Scan (8x7x7)/Cube 0:

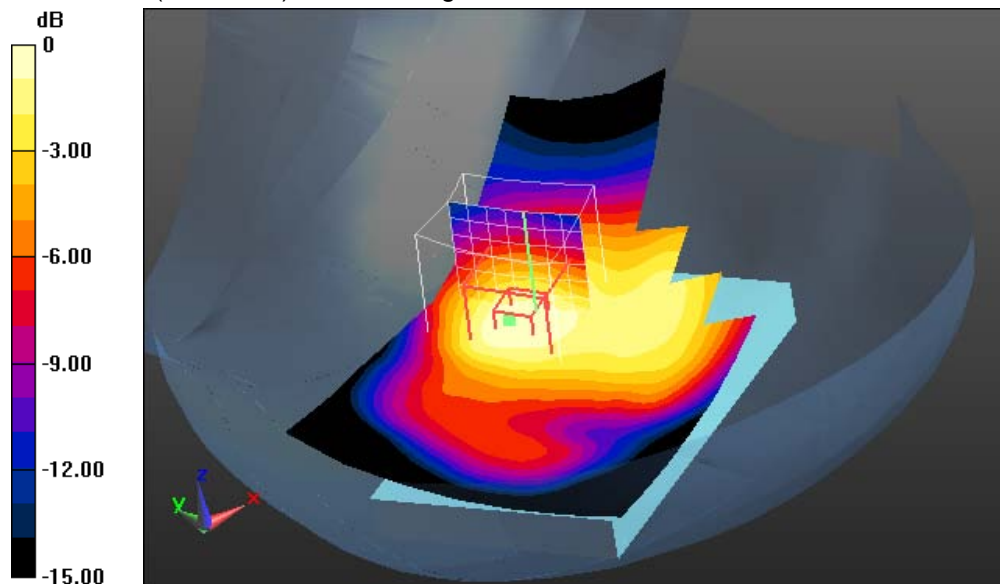
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.099 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.753 W/kg; SAR(10 g) = 0.495 W/kg

Maximum value of SAR (measured) = 0.809 W/kg



0 dB = 0.809 W/kg = -0.92 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 15.05.2013 15:36:30

IEEE1528-UMTS FDD II head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1907.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.388$ S/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.05, 5.05, 5.05); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Tilt Position - High/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.669 W/kg

Right-Hand-Side HSL/Tilt Position - High/Zoom Scan (8x7x7)/Cube 0:

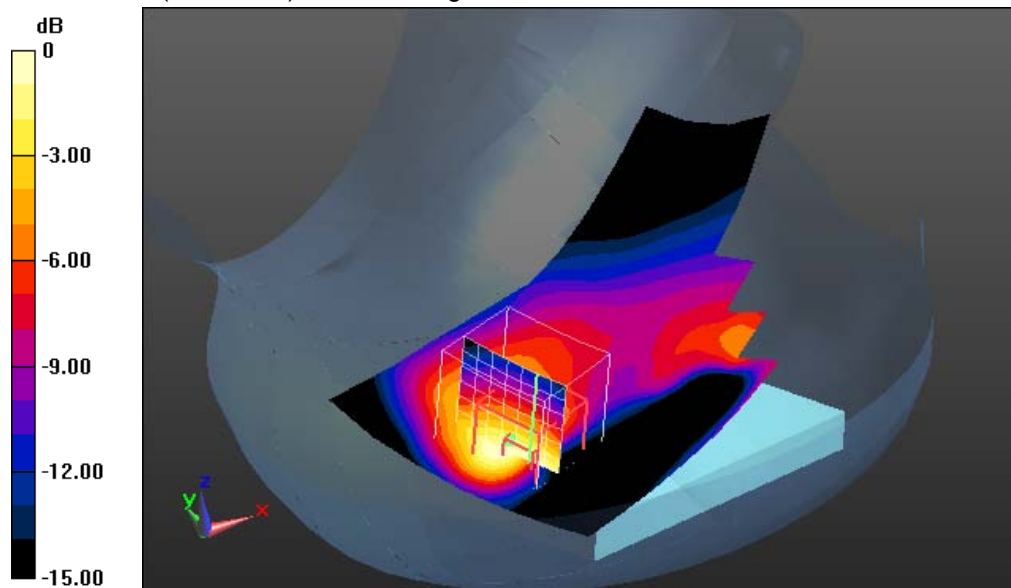
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.698 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.735 W/kg

SAR(1 g) = 0.490 W/kg; SAR(10 g) = 0.281 W/kg

Maximum value of SAR (measured) = 0.542 W/kg



0 dB = 0.542 W/kg = -2.66 dBW/kg

Additional information:

ambient temperature: 23.4°C; liquid temperature: 21.3°C

Date/Time: 21.05.2013 09:25:37

OET65-UMTS FDD II body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1907.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.548$ S/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Front Position - Hi/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.824 W/kg

Body MSL/Front Position - Hi/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

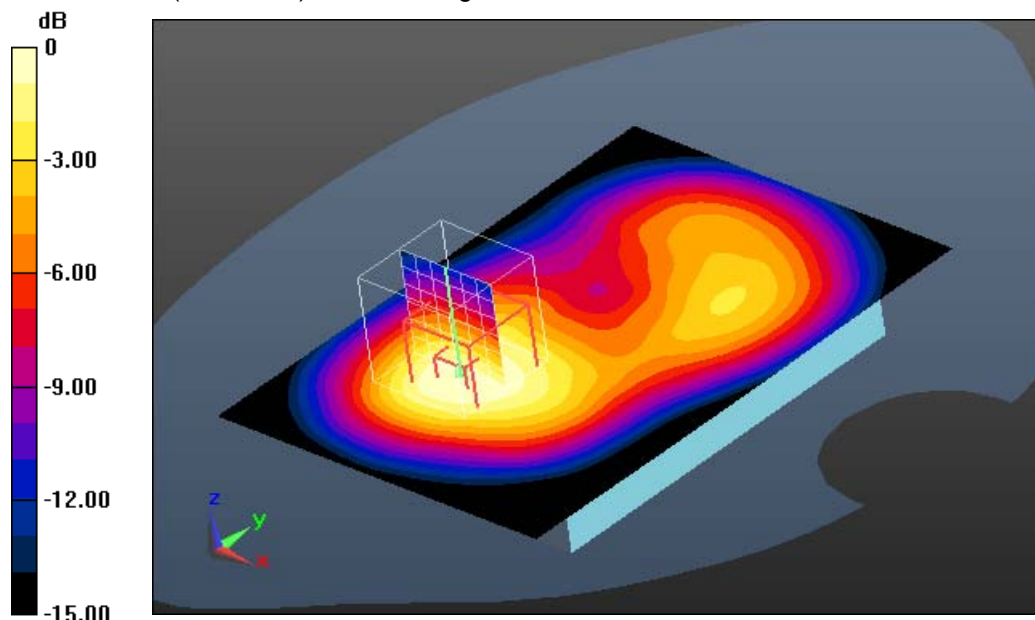
dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.844 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.729 W/kg; SAR(10 g) = 0.451 W/kg

Maximum value of SAR (measured) = 0.791 W/kg



0 dB = 0.791 W/kg = -1.02 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 21.9°C; liquid temperature: 21.1°C

Date/Time: 21.05.2013 10:35:45

OET65-UMTS FDD II body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1852.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.492$ S/m; $\epsilon_r = 52.293$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Low/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.825 W/kg

Body MSL/Rear Position - Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

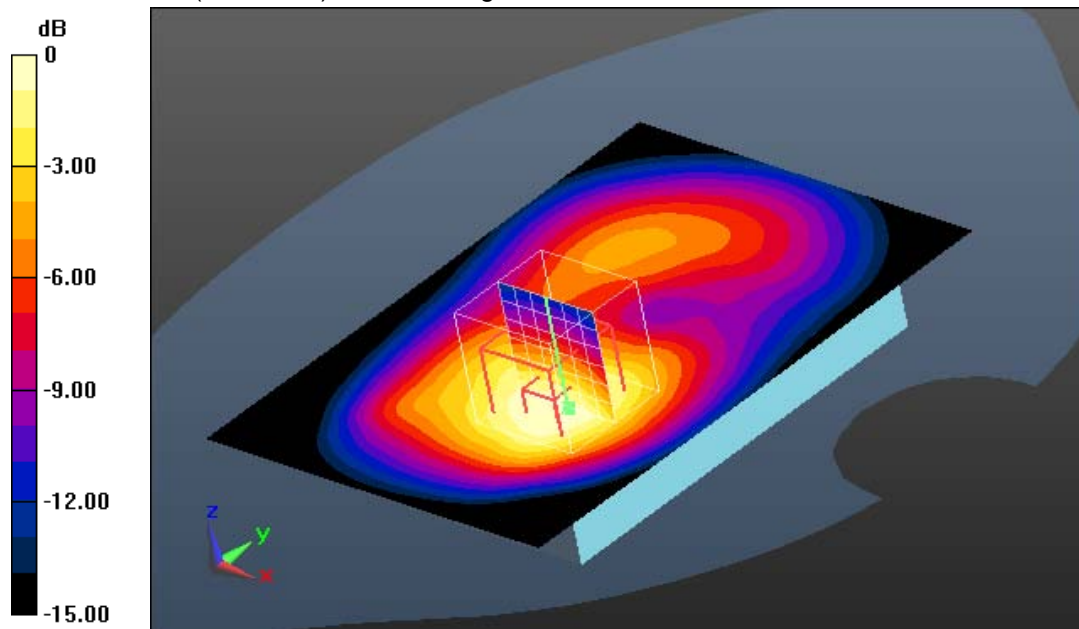
dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.465 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.713 W/kg; SAR(10 g) = 0.438 W/kg

Maximum value of SAR (measured) = 0.771 W/kg



0 dB = 0.771 W/kg = -1.13 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 21.9°C; liquid temperature: 21.1°C

Date/Time: 21.05.2013 10:19:27

OET65-UMTS FDD II body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ S/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB√μV, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB√μV, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB√μV, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Mid/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.839 W/kg

Body MSL/Rear Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

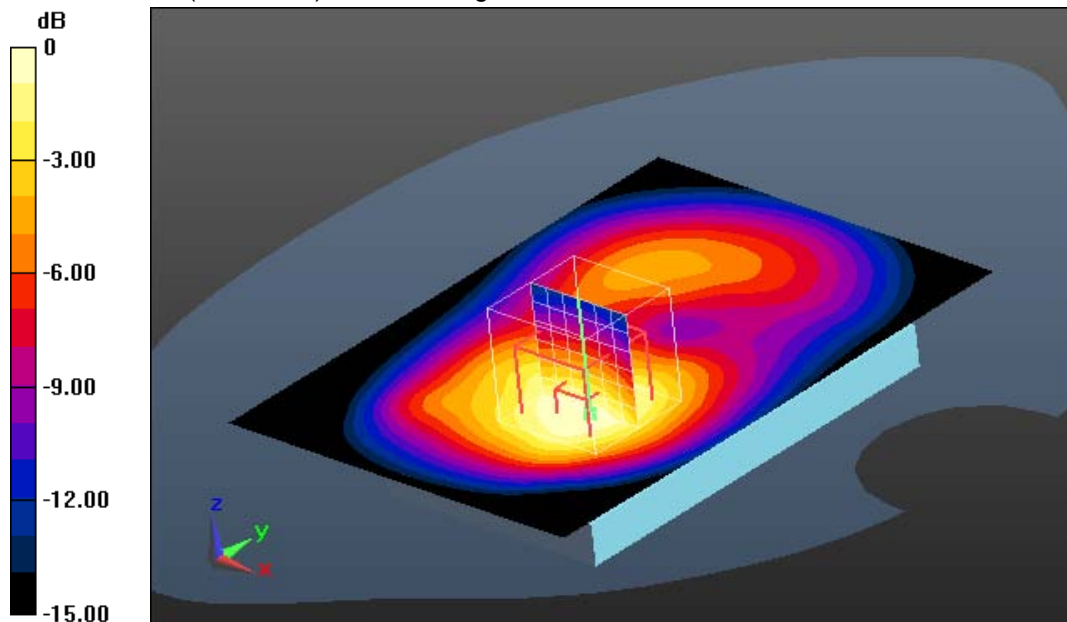
dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.920 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.09 W/kg

SAR(1 g) = 0.718 W/kg; SAR(10 g) = 0.440 W/kg

Maximum value of SAR (measured) = 0.781 W/kg



0 dB = 0.781 W/kg = -1.07 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 21.9°C; liquid temperature: 21.1°C

Date/Time: 21.05.2013 09:57:15

OET65-UMTS FDD II body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1907.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.548$ S/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Hi/Area Scan (71x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.906 W/kg

Body MSL/Rear Position - Hi/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

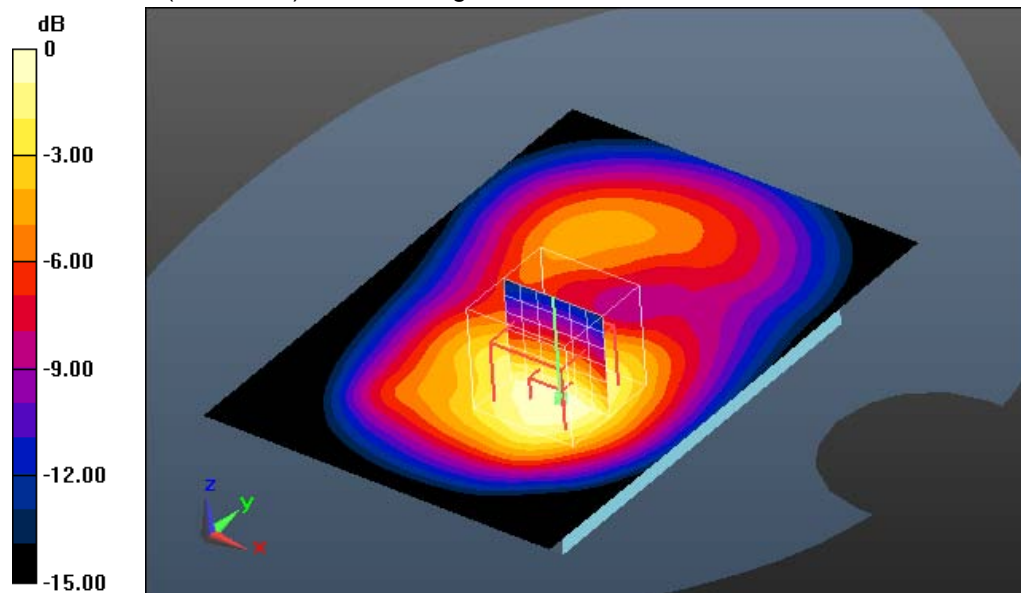
dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.012 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.16 W/kg

SAR(1 g) = 0.773 W/kg; SAR(10 g) = 0.472 W/kg

Maximum value of SAR (measured) = 0.846 W/kg



0 dB = 0.846 W/kg = -0.73 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 21.9°C; liquid temperature: 21.1°C

Date/Time: 21.05.2013 08:25:04

OET65-UMTS FDD II body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1907.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.548$ S/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Left Side Position - High/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.312 W/kg

Body MSL/Left Side Position - High/Zoom Scan (7x7x7)/Cube 0: Measurement

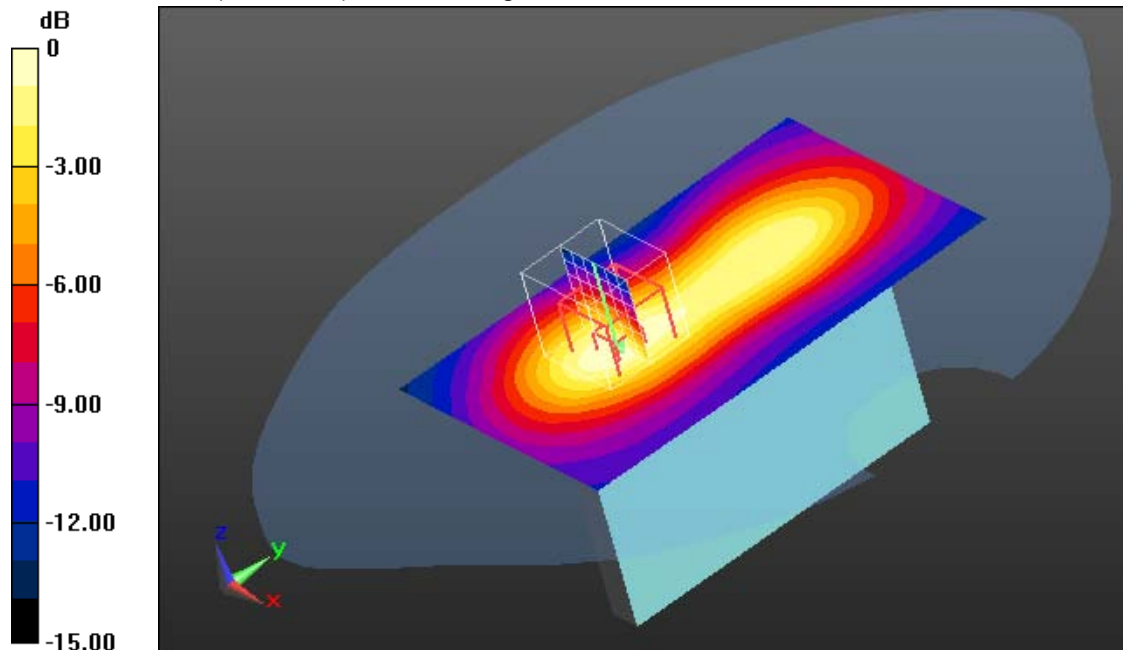
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.616 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.447 W/kg

SAR(1 g) = 0.283 W/kg; SAR(10 g) = 0.170 W/kg

Maximum value of SAR (measured) = 0.311 W/kg



0 dB = 0.311 W/kg = -5.07 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 21.9°C; liquid temperature: 21.1°C

Date/Time: 21.05.2013 08:44:07

OET65-UMTS FDD II body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1907.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.548$ S/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Right Side Position - High/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.305 W/kg

Body MSL/Right Side Position - High/Zoom Scan (7x7x7)/Cube 0: Measurement

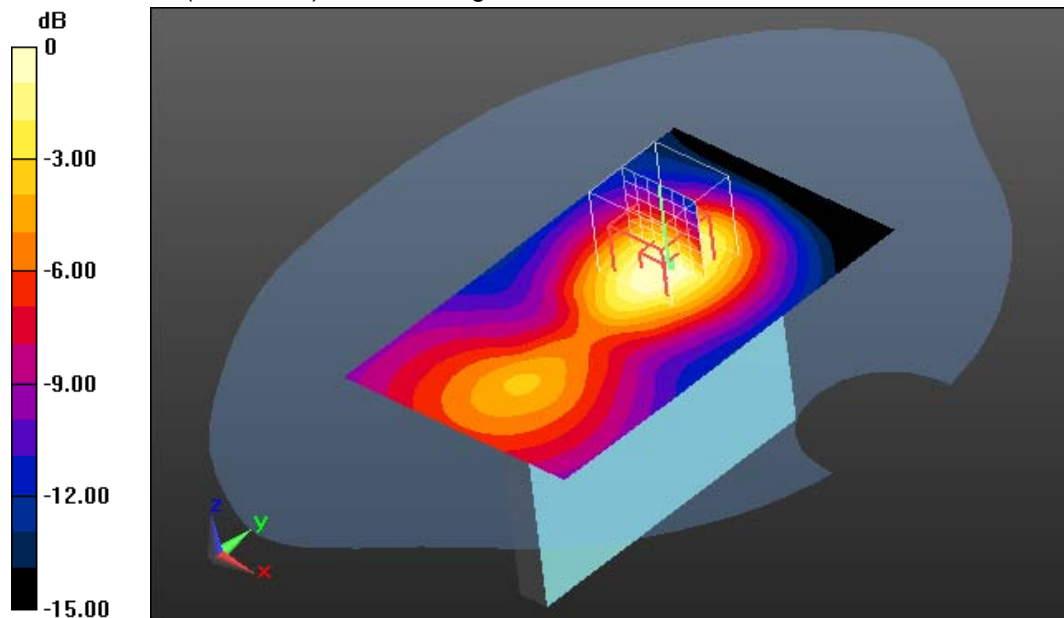
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.359 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.412 W/kg

SAR(1 g) = 0.267 W/kg; SAR(10 g) = 0.160 W/kg

Maximum value of SAR (measured) = 0.292 W/kg



0 dB = 0.292 W/kg = -5.35 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 21.9°C; liquid temperature: 21.1°C

Date/Time: 21.05.2013 08:06:31

OET65-UMTS FDD II body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1907.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.548$ S/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB√μV, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB√μV, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB√μV, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Bottom Position - High/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.265 W/kg

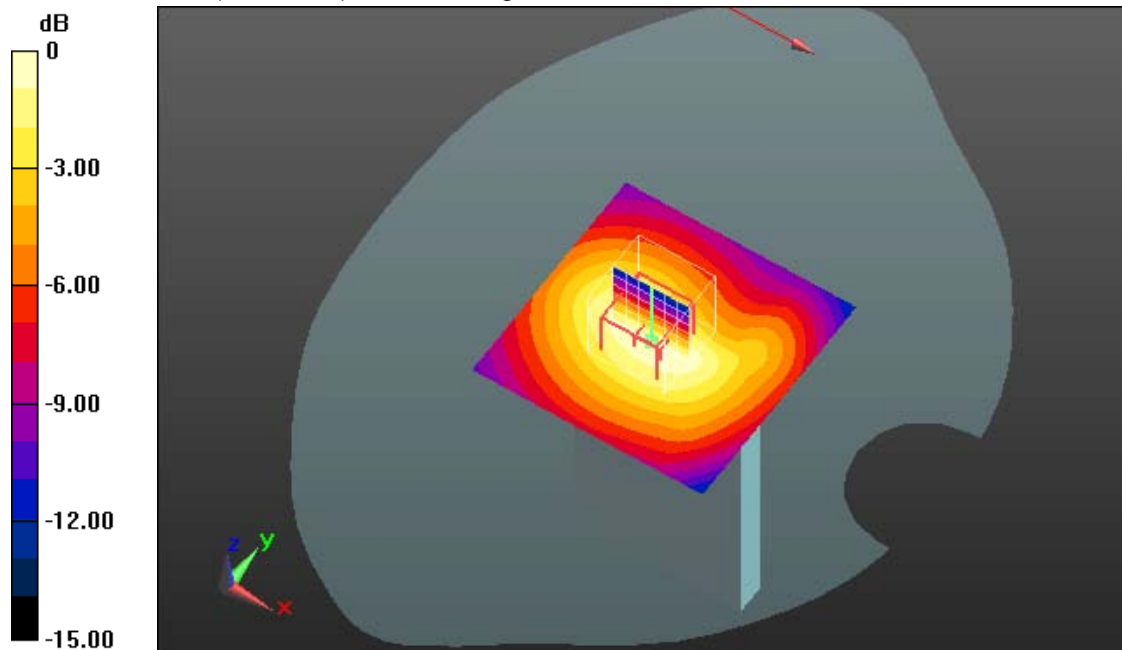
Body MSL/Bottom Position - High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.992 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.397 W/kg

SAR(1 g) = 0.243 W/kg; SAR(10 g) = 0.147 W/kg

Maximum value of SAR (measured) = 0.265 W/kg



0 dB = 0.265 W/kg = -5.77 dBW/kg

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 21.9°C; liquid temperature: 21.1°C

Date/Time: 21.05.2013 09:03:53

OET65-UMTS FDD II body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1907.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.548$ S/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB√μV, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB√μV, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB√μV, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Front Position - High 15mm/Area Scan (71x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.498 W/kg

Body MSL/Front Position - High 15mm/Zoom Scan (7x7x7)/Cube 0:

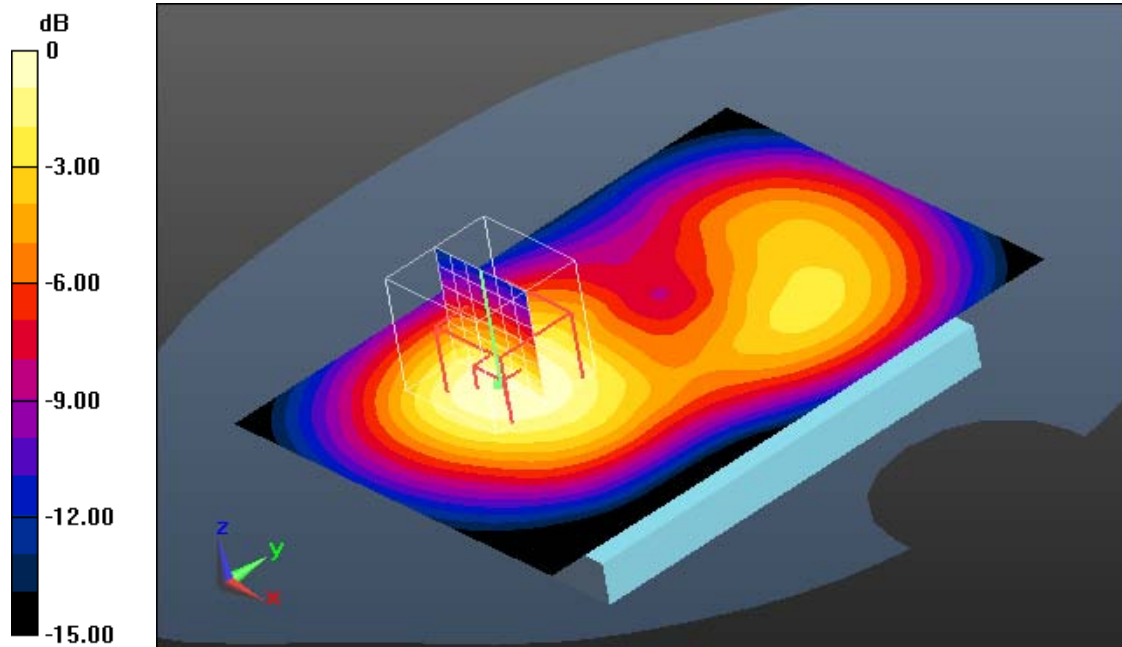
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.922 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.696 W/kg

SAR(1 g) = 0.454 W/kg; SAR(10 g) = 0.285 W/kg

Maximum value of SAR (measured) = 0.488 W/kg



0 dB = 0.488 W/kg = -3.12 dBW/kg

Additional information:

position or distance of DUT to SAM: 15 mm

ambient temperature: 21.9°C; liquid temperature: 21.1°C

Date/Time: 21.05.2013 09:41:50

OET65-UMTS FDD II body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 2, UTRA/FDD (1850.0 - 1910.0 MHz); Frequency: 1907.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.548$ S/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.2, 4.2, 4.2); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Hi 15mm/Area Scan (71x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.450 W/kg

Body MSL/Rear Position - Hi 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement

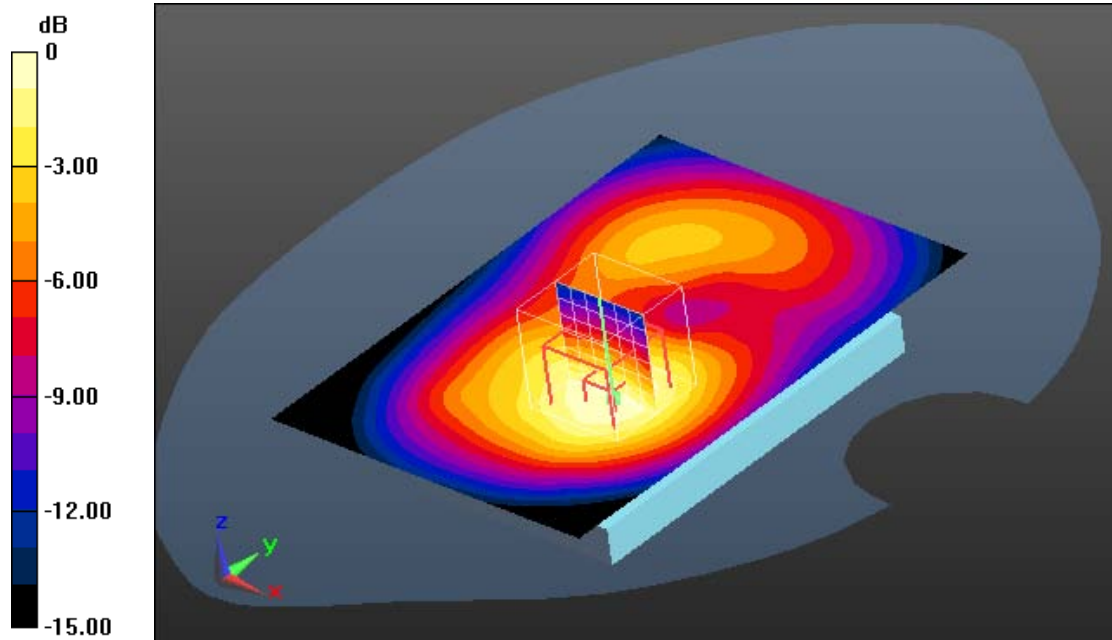
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.944 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.593 W/kg

SAR(1 g) = 0.400 W/kg; SAR(10 g) = 0.249 W/kg

Maximum value of SAR (measured) = 0.437 W/kg



0 dB = 0.437 W/kg = -3.60 dBW/kg

Additional information:

position or distance of DUT to SAM: 15 mm

ambient temperature: 21.9°C; liquid temperature: 21.1°C

Annex B.4: UMTS FDD V

Date/Time: 14.05.2013 15:23:54

IEEE1528-UMTS FDD V head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 826.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.884$ S/m; $\epsilon_r = 42.582$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS2 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Low/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.768 W/kg

Left-Hand-Side HSL/Touch Position - Low/Zoom Scan (8x7x7)/Cube 0:

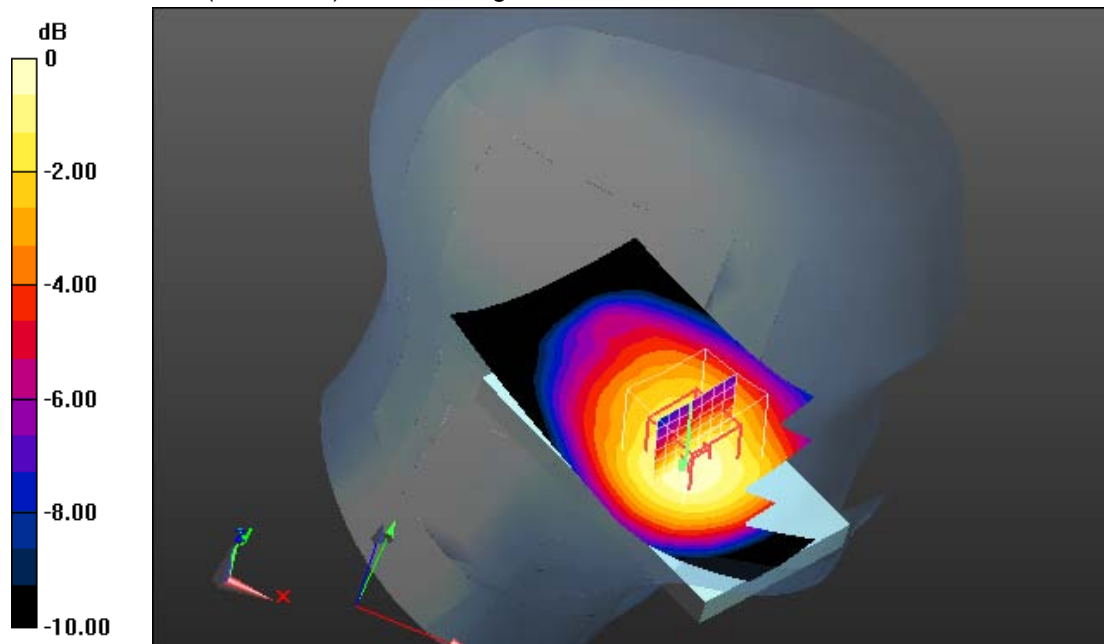
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 30.089 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.985 W/kg

SAR(1 g) = 0.746 W/kg; SAR(10 g) = 0.544 W/kg

Maximum value of SAR (measured) = 0.791 W/kg



0 dB = 0.791 W/kg = -1.02 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 21.9°C

Date/Time: 14.05.2013 15:08:00

IEEE1528-UMTS FDD V head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.9 \text{ S/m}$; $\epsilon_r = 42.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: $a=3.22 \text{ dB}$, $b=66.3 \text{ dB}\sqrt{\mu\text{V}}$, $c=18.5$, $d=2.9 \text{ dB}$ / Y: $a=3.10 \text{ dB}$, $b=65.6 \text{ dB}\sqrt{\mu\text{V}}$, $c=18.0$, $d=2.9 \text{ dB}$ / Z: $a=3.31 \text{ dB}$, $b=66.5 \text{ dB}\sqrt{\mu\text{V}}$, $c=18.4$, $d=2.9 \text{ dB}$); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Middle/Area Scan (61x101x1):

Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.833 W/kg

Left-Hand-Side HSL/Touch Position - Middle/Zoom Scan (7x7x7)/Cube 0:

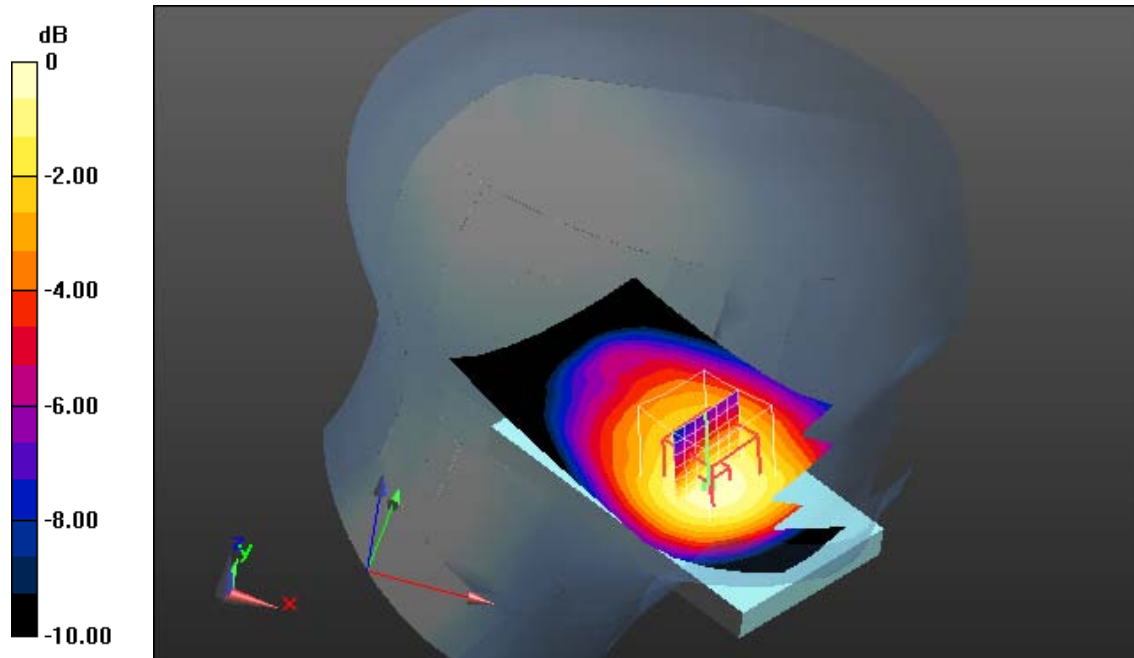
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 31.037 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.07 W/kg

SAR(1 g) = 0.810 W/kg; SAR(10 g) = 0.590 W/kg

Maximum value of SAR (measured) = 0.869 W/kg



0 dB = 0.869 W/kg = -0.61 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 21.9°C

Date/Time: 14.05.2013 15:41:43

IEEE1528-UMTS FDD V head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 846.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 846.6$ MHz; $\sigma = 0.908$ S/m; $\epsilon_r = 42.336$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB√μV, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB√μV, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB√μV, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Hi/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

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

Left-Hand-Side HSL/Touch Position - Hi/Zoom Scan (7x7x7)/Cube 0:

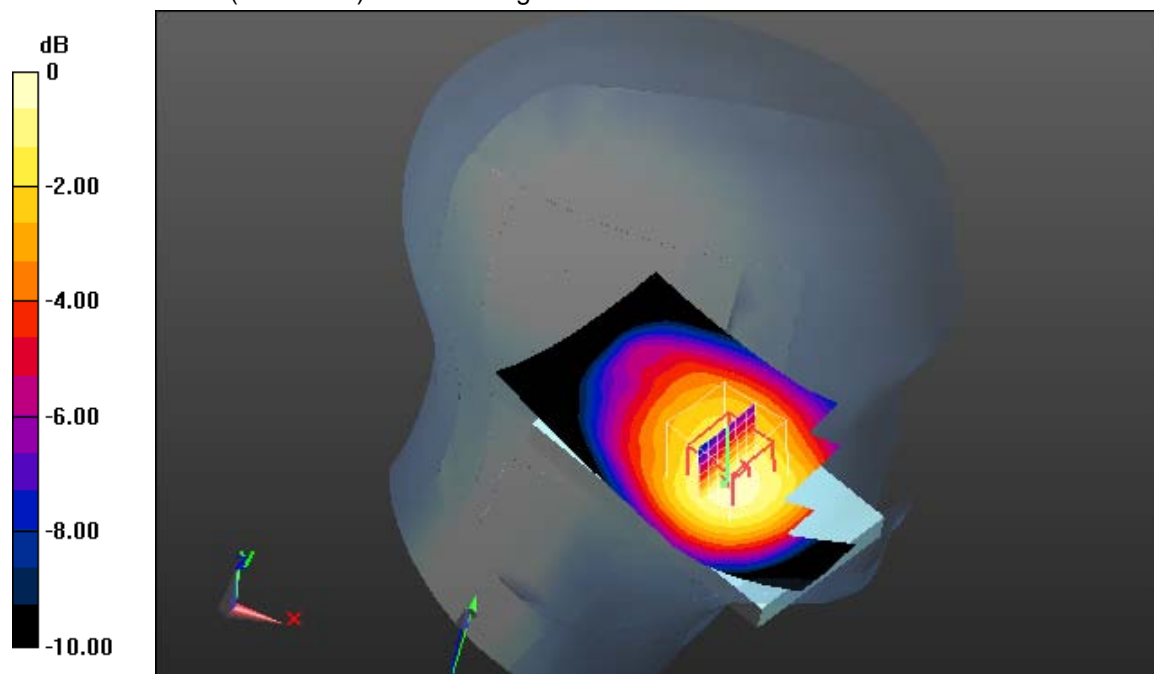
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 31.911 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.859 W/kg; SAR(10 g) = 0.627 W/kg

Maximum value of SAR (measured) = 0.913 W/kg



0 dB = 0.913 W/kg = -0.40 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 21.9°C

Date/Time: 14.05.2013 14:41:34

IEEE1528-UMTS FDD V head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 836.6$ MHz; $\sigma = 0.9$ S/m; $\epsilon_r = 42.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB√μV, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB√μV, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB√μV, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Tilt Position - Mid/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.457 W/kg

Left-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (7x7x7)/Cube 0:

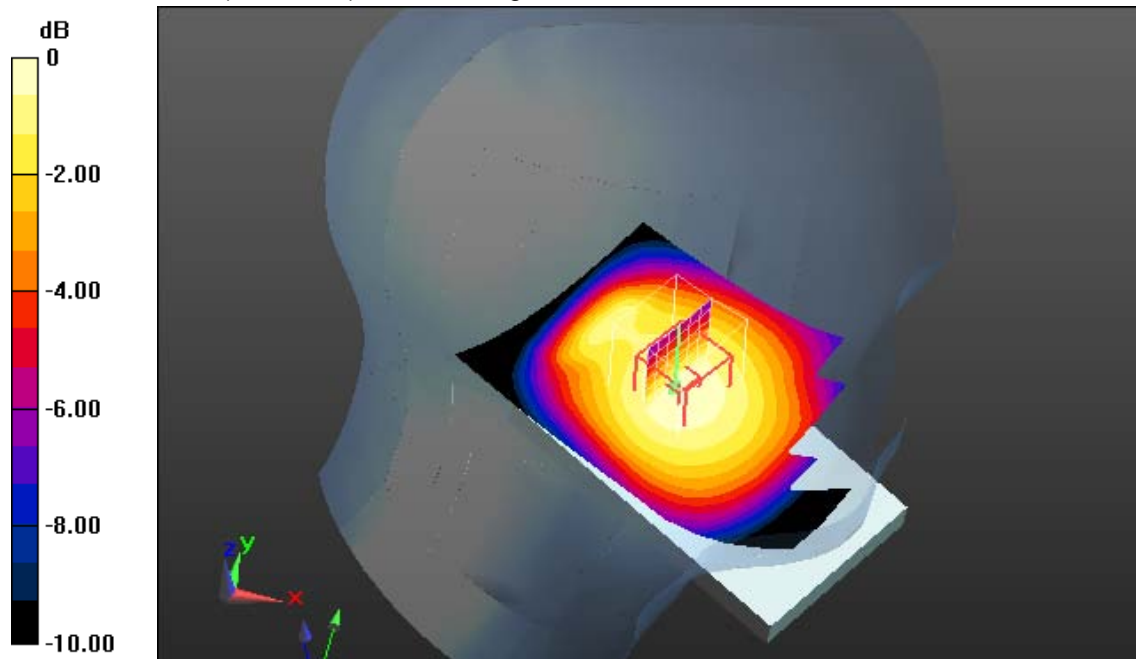
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.371 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.549 W/kg

SAR(1 g) = 0.450 W/kg; SAR(10 g) = 0.346 W/kg

Maximum value of SAR (measured) = 0.471 W/kg



0 dB = 0.471 W/kg = -3.27 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 21.9°C

Date/Time: 14.05.2013 13:23:38

IEEE1528-UMTS FDD V head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 826.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.884$ S/m; $\epsilon_r = 42.582$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Touch Position - Low/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.828 W/kg

Right-Hand-Side HSL/Touch Position - Low/Zoom Scan (7x7x7)/Cube 0:

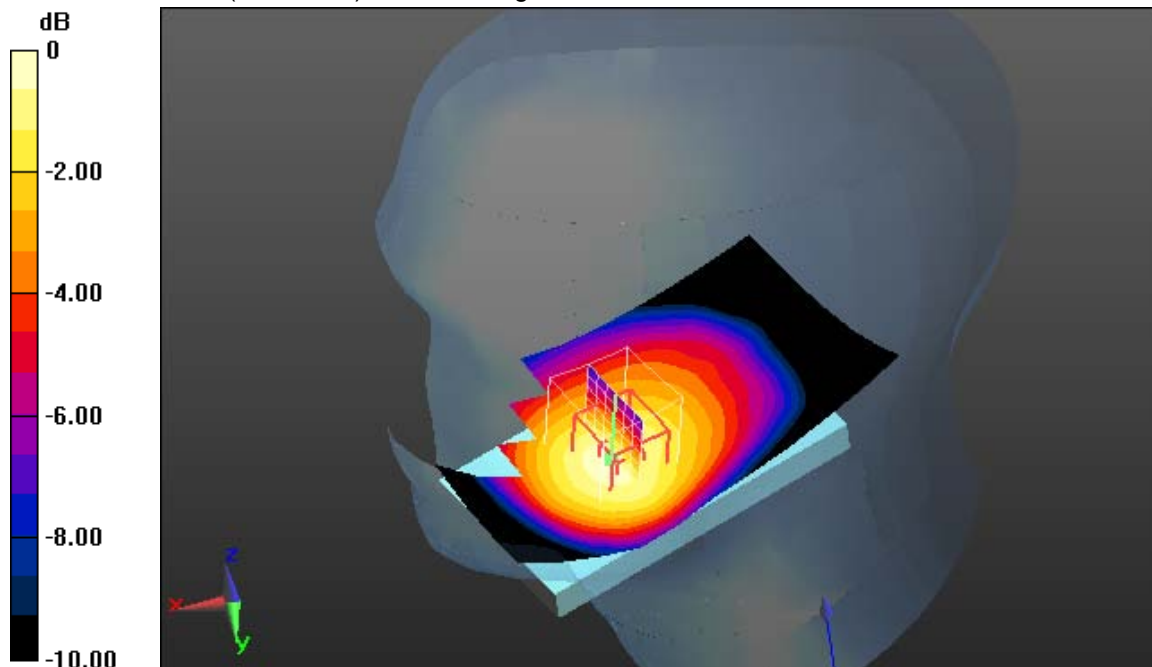
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 31.704 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.805 W/kg; SAR(10 g) = 0.600 W/kg

Maximum value of SAR (measured) = 0.859 W/kg



0 dB = 0.859 W/kg = -0.66 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 21.9°C

Date/Time: 14.05.2013 13:07:18

IEEE1528-UMTS FDD V head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 836.6$ MHz; $\sigma = 0.9$ S/m; $\epsilon_r = 42.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB√μV, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB√μV, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB√μV, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Touch Position - Mid/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.933 W/kg

Right-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0:

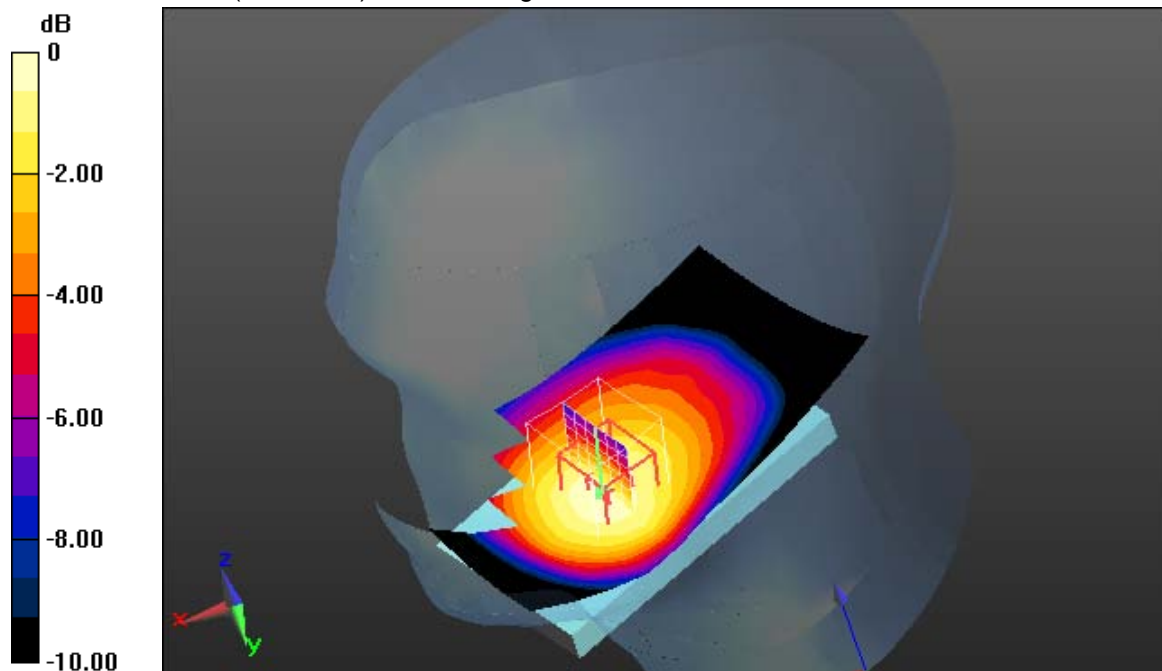
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 33.029 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.879 W/kg; SAR(10 g) = 0.653 W/kg

Maximum value of SAR (measured) = 0.936 W/kg



0 dB = 0.936 W/kg = -0.29 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 21.9°C

Date/Time: 14.05.2013 13:58:34

IEEE1528-UMTS FDD V head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 846.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 846.6$ MHz; $\sigma = 0.908$ S/m; $\epsilon_r = 42.336$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Touch Position - Hi/Area Scan (61x101x1): Interpolated

grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.982 W/kg

Right-Hand-Side HSL/Touch Position - Hi/Zoom Scan (7x7x7)/Cube 0:

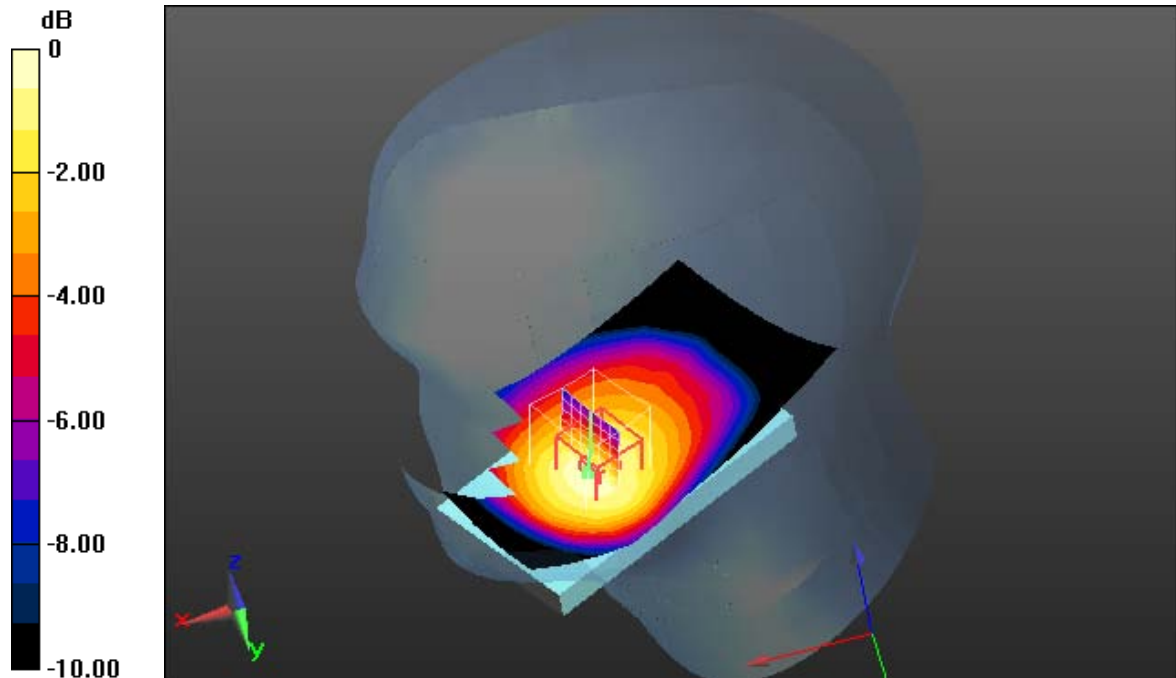
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 33.597 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.21 W/kg

SAR(1 g) = 0.944 W/kg; SAR(10 g) = 0.698 W/kg

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



0 dB = 1.00 W/kg = 0.00 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 21.9°C

Date/Time: 14.05.2013 14:16:08

IEEE1528-UMTS FDD V head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.9 \text{ S/m}$; $\epsilon_r = 42.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: $a=3.22 \text{ dB}$, $b=66.3 \text{ dB}\sqrt{\mu\text{V}}$, $c=18.5$, $d=2.9 \text{ dB}$ / Y: $a=3.10 \text{ dB}$, $b=65.6 \text{ dB}\sqrt{\mu\text{V}}$, $c=18.0$, $d=2.9 \text{ dB}$ / Z: $a=3.31 \text{ dB}$, $b=66.5 \text{ dB}\sqrt{\mu\text{V}}$, $c=18.4$, $d=2.9 \text{ dB}$); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Tilt Position - Middle/Area Scan (61x101x1): Interpolated

grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.524 W/kg

Right-Hand-Side HSL/Tilt Position - Middle/Zoom Scan (7x7x7)/Cube 0:

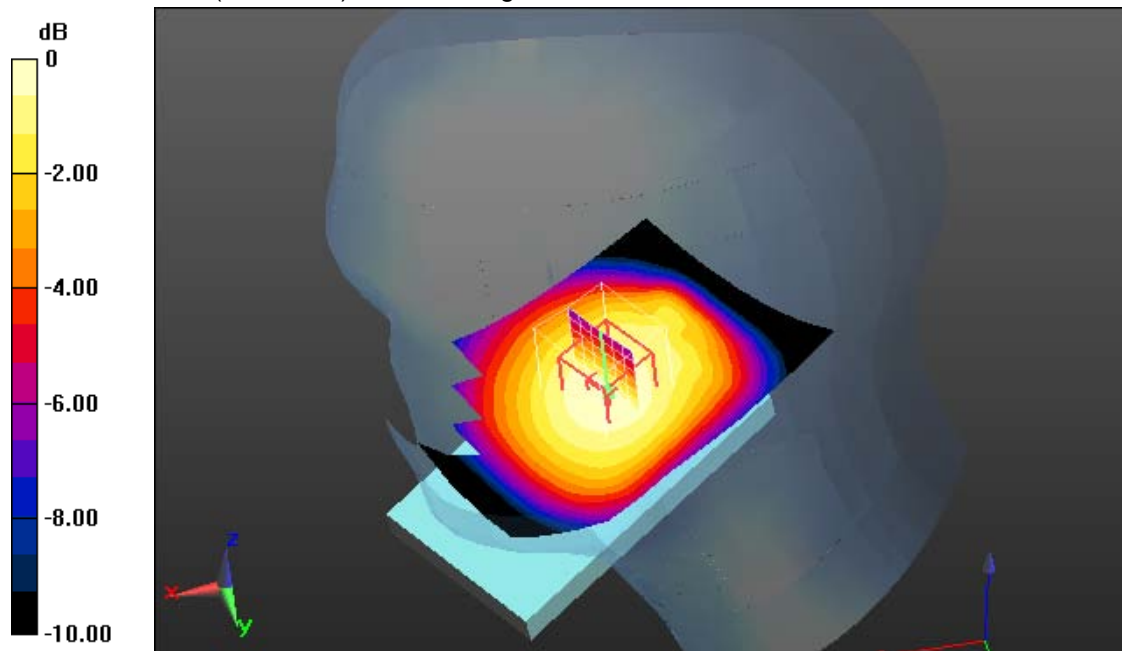
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.685 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.601 W/kg

SAR(1 g) = 0.492 W/kg; SAR(10 g) = 0.377 W/kg

Maximum value of SAR (measured) = 0.516 W/kg



0 dB = 0.516 W/kg = -2.87 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 21.9°C

Date/Time: 14.05.2013 16:00:20

IEEE1528-UMTS FDD V head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 846.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 846.6$ MHz; $\sigma = 0.908$ S/m; $\epsilon_r = 42.336$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.14, 6.14, 6.14); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB√μV, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB√μV, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB√μV, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Touch Position - Hi wc/Area Scan (61x101x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

Right-Hand-Side HSL/Touch Position - Hi wc/Zoom Scan (7x7x7)/Cube 0:

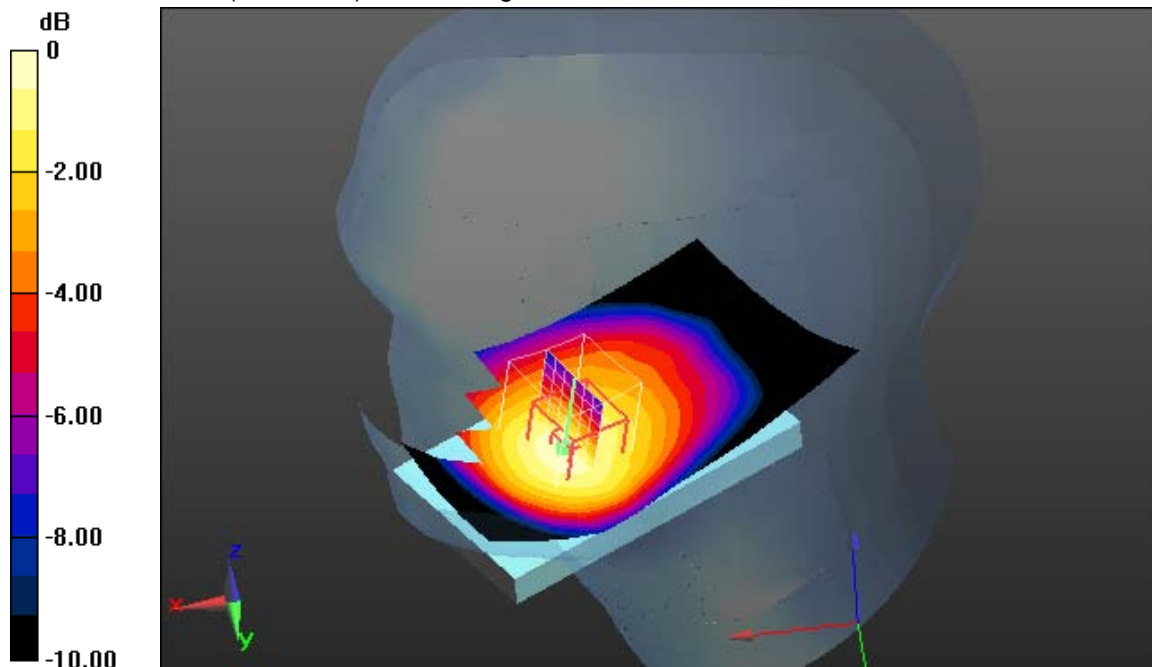
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.171 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.23 W/kg

SAR(1 g) = 0.948 W/kg; SAR(10 g) = 0.698 W/kg

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



0 dB = 1.02 W/kg = 0.09 dBW/kg

Additional information:

ambient temperature: 22.7°C; liquid temperature: 21.9°C

Date/Time: 04.06.2013 15:21:49

OET65-UMTS FDD V body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 836.41$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB√μV, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB√μV, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB√μV, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Front Position - Mid/Area Scan (71x101x1): Interpolated grid: dx=1.500

mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.639 W/kg

Body MSL/Front Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

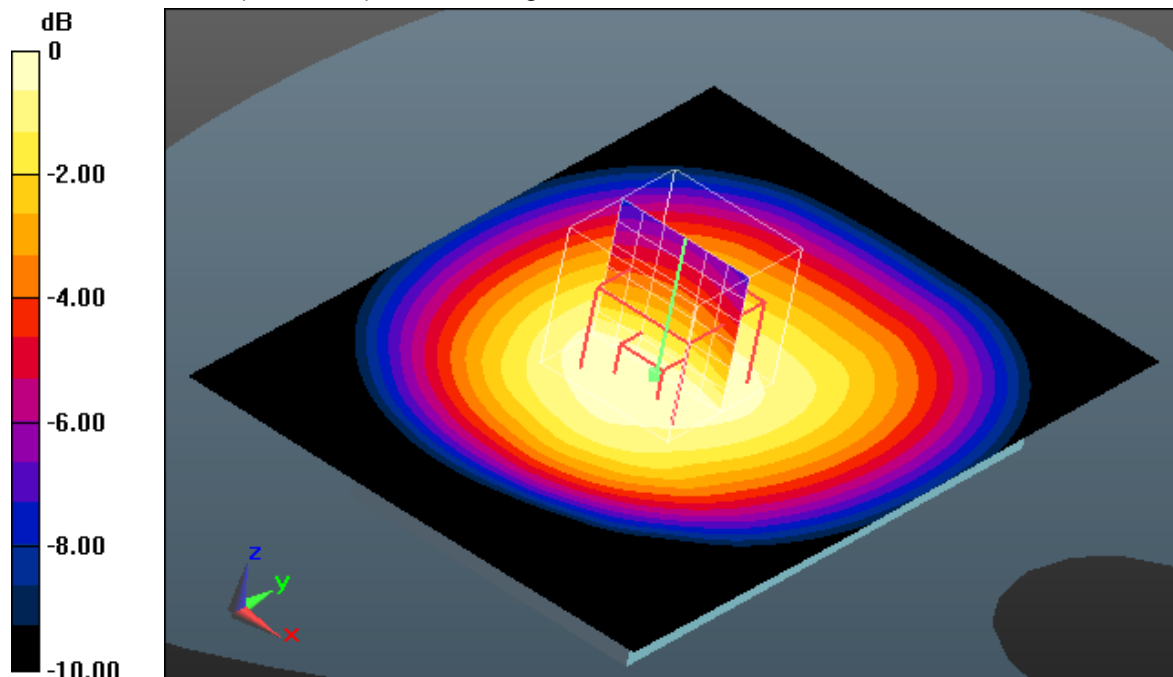
dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.055 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.755 W/kg

SAR(1 g) = 0.609 W/kg; SAR(10 g) = 0.463 W/kg

Maximum value of SAR (measured) = 0.639 W/kg



0 dB = 0.639 W/kg = -1.94 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 16:04:56

OET65-UMTS FDD V body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 826.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.982$ S/m; $\epsilon_r = 54.578$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: $a=3.22$ dB, $b=66.3$ dB $\sqrt{\mu V}$, $c=18.5$, $d=2.9$ dB / Y: $a=3.10$ dB, $b=65.6$ dB $\sqrt{\mu V}$, $c=18.0$, $d=2.9$ dB / Z: $a=3.31$ dB, $b=66.5$ dB $\sqrt{\mu V}$, $c=18.4$, $d=2.9$ dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Low/Area Scan (71x101x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.994 W/kg

Body MSL/Rear Position - Low/Zoom Scan (7x9x7)/Cube 0: Measurement grid:

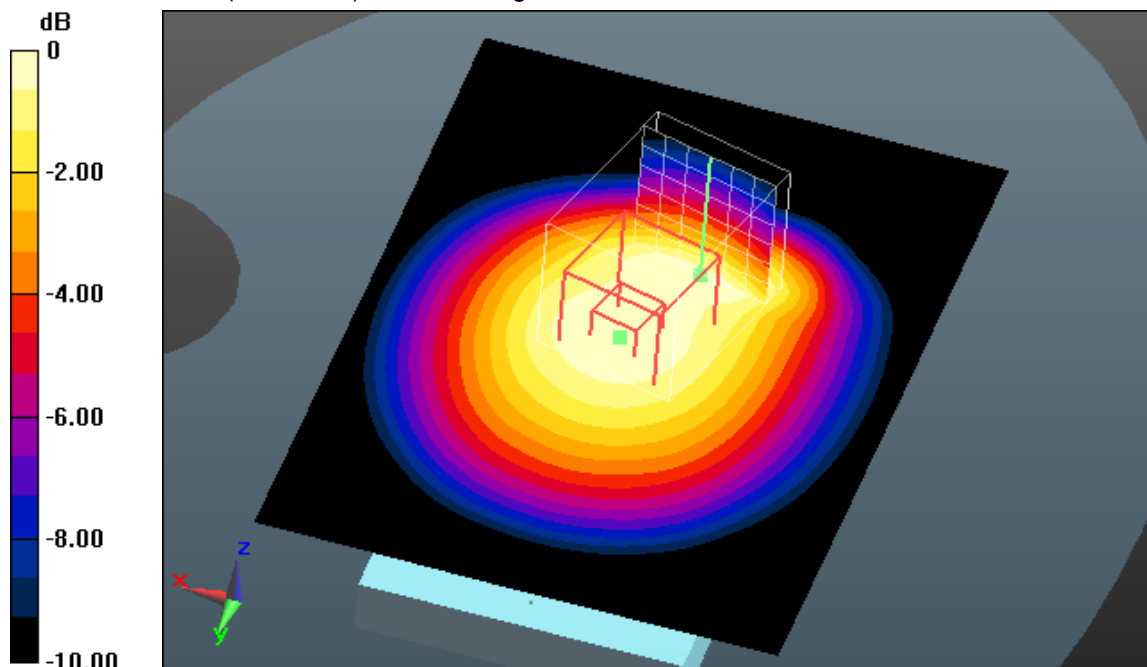
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 31.386 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.23 W/kg

SAR(1 g) = 0.864 W/kg; SAR(10 g) = 0.629 W/kg

Maximum value of SAR (measured) = 0.922 W/kg



0 dB = 0.922 W/kg = -0.35 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 15:43:11

OET65-UMTS FDD V body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 836.41$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: $a=3.22$ dB, $b=66.3$ dB $\sqrt{\mu V}$, $c=18.5$, $d=2.9$ dB / Y: $a=3.10$ dB, $b=65.6$ dB $\sqrt{\mu V}$, $c=18.0$, $d=2.9$ dB / Z: $a=3.31$ dB, $b=66.5$ dB $\sqrt{\mu V}$, $c=18.4$, $d=2.9$ dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Mid/Area Scan (71x101x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.13 W/kg

Body MSL/Rear Position - Mid/Zoom Scan (7x9x7)/Cube 0: Measurement grid:

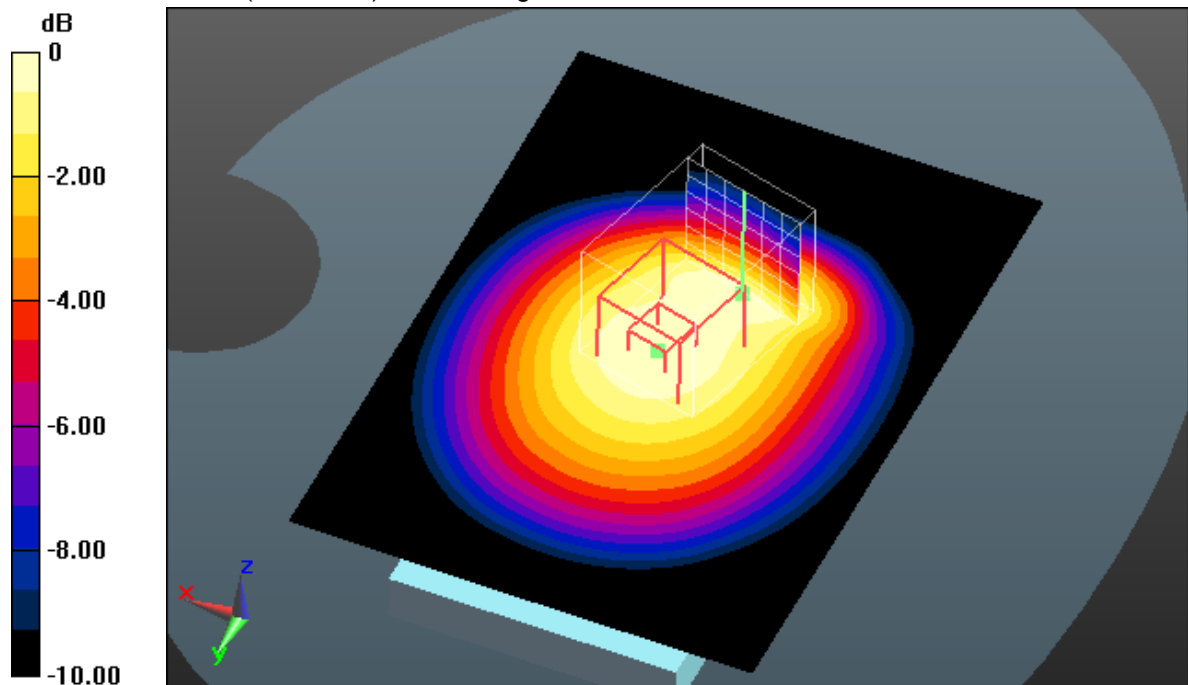
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 33.299 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.980 W/kg; SAR(10 g) = 0.714 W/kg

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



0 dB = 1.05 W/kg = 0.21 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 16:24:35

OET65-UMTS FDD V body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 846.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 846.6$ MHz; $\sigma = 0.998$ S/m; $\epsilon_r = 54.425$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: $a=3.22$ dB, $b=66.3$ dB $\sqrt{\mu V}$, $c=18.5$, $d=2.9$ dB / Y: $a=3.10$ dB, $b=65.6$ dB $\sqrt{\mu V}$, $c=18.0$, $d=2.9$ dB / Z: $a=3.31$ dB, $b=66.5$ dB $\sqrt{\mu V}$, $c=18.4$, $d=2.9$ dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Hi/Area Scan (71x101x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.995 W/kg

Body MSL/Rear Position - Hi/Zoom Scan (7x9x7)/Cube 0: Measurement grid:

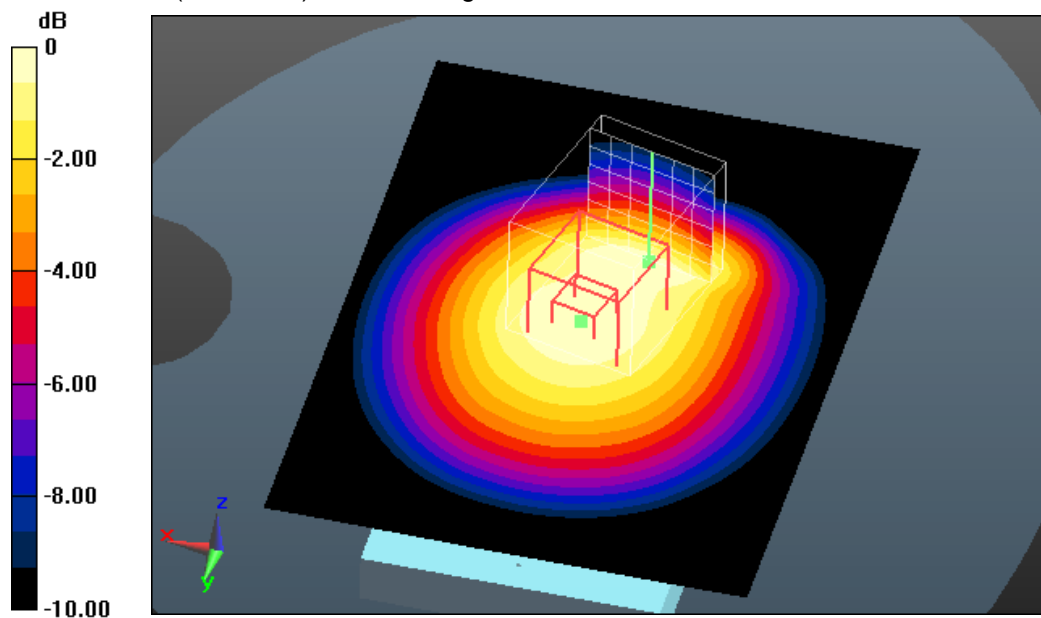
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 31.033 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.24 W/kg

SAR(1 g) = 0.859 W/kg; SAR(10 g) = 0.624 W/kg

Maximum value of SAR (measured) = 0.918 W/kg



0 dB = 0.918 W/kg = -0.37 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 14:20:52

OET65-UMTS FDD V body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 836.41$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Left Side Position - Mid/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.346 W/kg

Body MSL/Left Side Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement

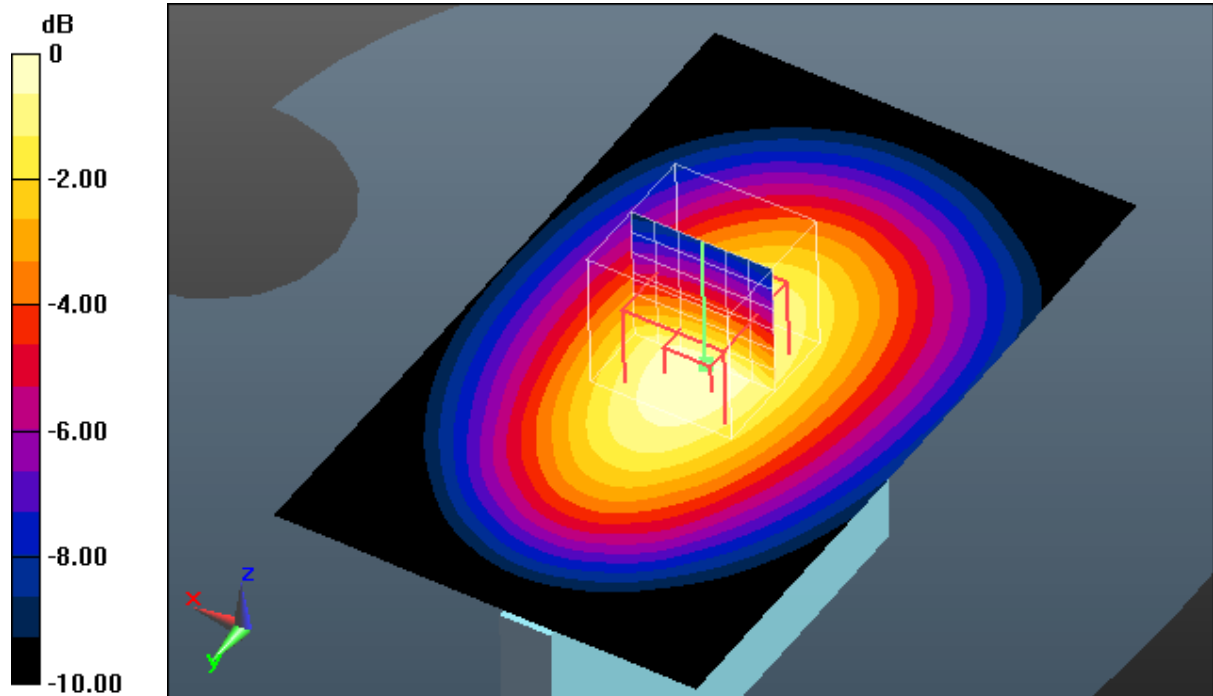
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.433 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.453 W/kg

SAR(1 g) = 0.324 W/kg; SAR(10 g) = 0.223 W/kg

Maximum value of SAR (measured) = 0.347 W/kg



0 dB = 0.347 W/kg = -4.60 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 14:42:59

OET65-UMTS FDD V body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 836.41$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Right Side Position - Mid/Area Scan (61x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.427 W/kg

Body MSL/Right Side Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement

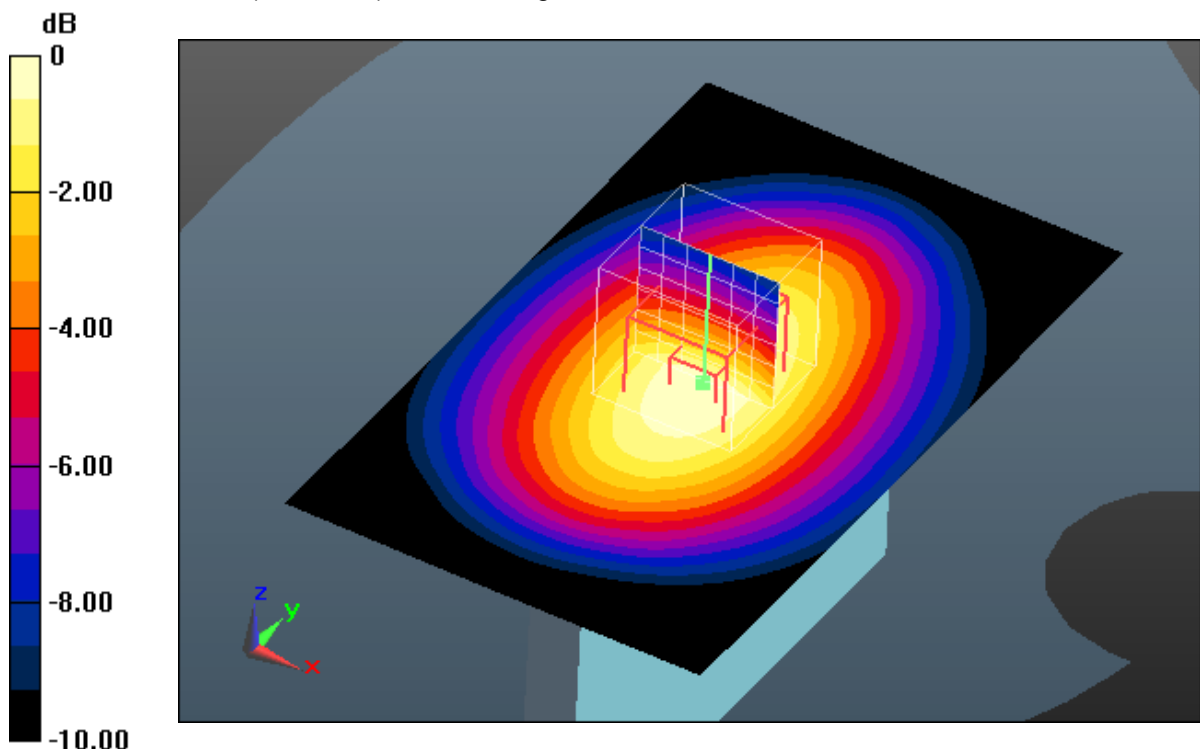
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.543 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.557 W/kg

SAR(1 g) = 0.398 W/kg; SAR(10 g) = 0.275 W/kg

Maximum value of SAR (measured) = 0.427 W/kg



0 dB = 0.427 W/kg = -3.70 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 13:59:58

OET65-UMTS FDD V body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 836.41$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: $a=3.22$ dB, $b=66.3$ dB $\sqrt{\mu}$ V, $c=18.5$, $d=2.9$ dB / Y: $a=3.10$ dB, $b=65.6$ dB $\sqrt{\mu}$ V, $c=18.0$, $d=2.9$ dB / Z: $a=3.31$ dB, $b=66.5$ dB $\sqrt{\mu}$ V, $c=18.4$, $d=2.9$ dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Bottom Position - Mid/Area Scan (61x61x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.0527 W/kg

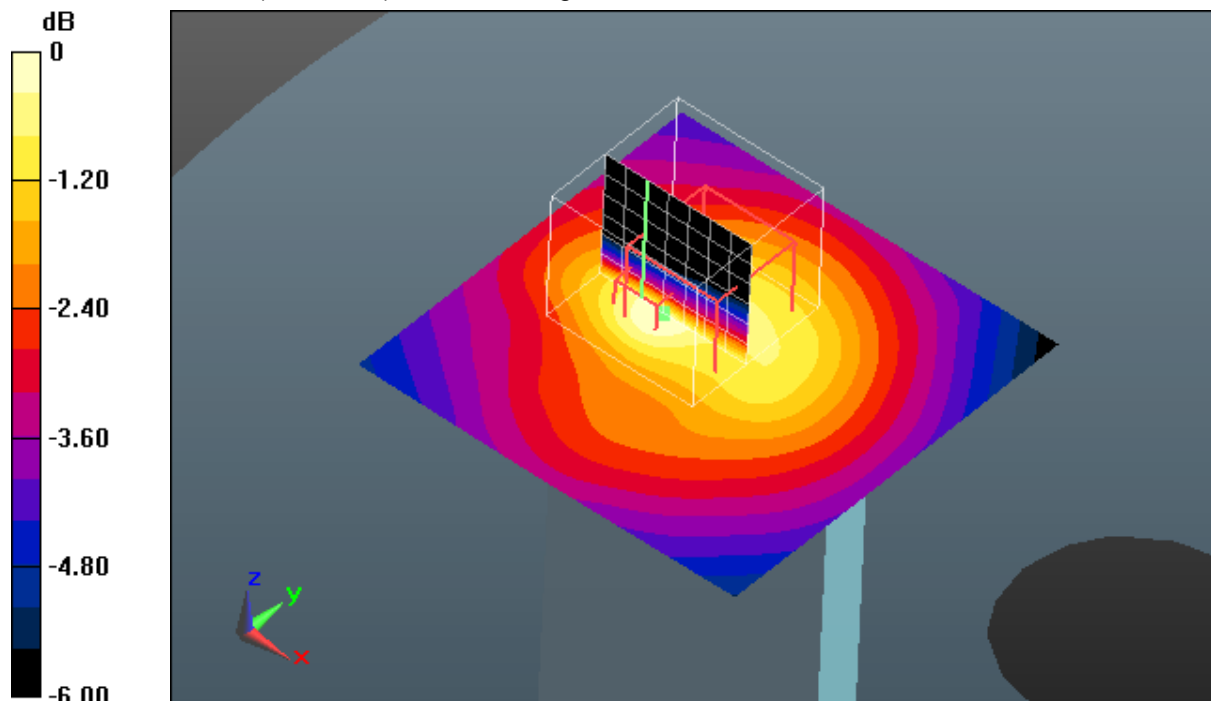
Body MSL/Bottom Position - Mid/Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 7.451 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.133 W/kg

SAR(1 g) = 0.052 W/kg; SAR(10 g) = 0.030 W/kg

Maximum value of SAR (measured) = 0.0533 W/kg



0 dB = 0.0533 W/kg = -12.73 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 04.06.2013 16:46:10

OET65-UMTS FDD V body hotspot

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 836.41$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB√μV, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB√μV, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB√μV, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn477; Calibrated: 13.05.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Mid WC/Area Scan (71x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.986 W/kg

Body MSL/Rear Position - Mid WC/Zoom Scan (7x9x7)/Cube 0: Measurement

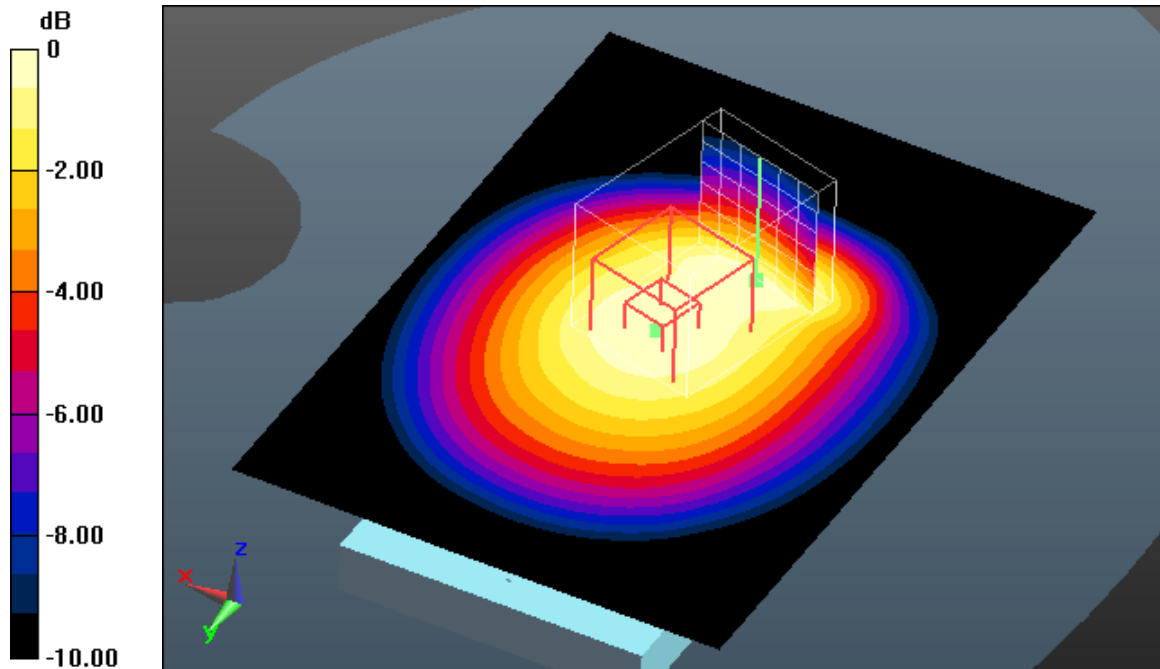
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 31.234 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.23 W/kg

SAR(1 g) = 0.856 W/kg; SAR(10 g) = 0.622 W/kg

Maximum value of SAR (measured) = 0.914 W/kg



0 dB = 0.914 W/kg = -0.39 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 17.05.2013 15:54:24

OET65-UMTS FDD V body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 836.41$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Front Position - Mid 15mm/Area Scan (71x101x1): Interpolated grid:

dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.622 W/kg

Body MSL/Front Position - Mid 15mm/Zoom Scan (7x7x7)/Cube 0:

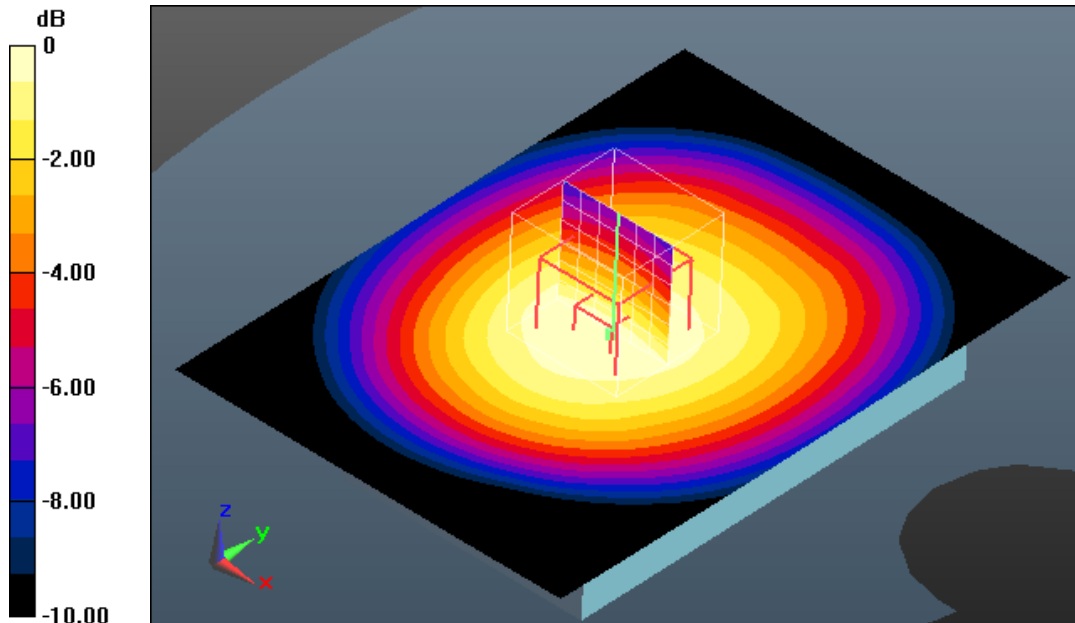
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.813 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.734 W/kg

SAR(1 g) = 0.595 W/kg; SAR(10 g) = 0.450 W/kg

Maximum value of SAR (measured) = 0.623 W/kg



0 dB = 0.623 W/kg = -2.06 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 17.05.2013 20:37:24

OET65-UMTS FDD V body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 826.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.982$ S/m; $\epsilon_r = 54.578$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=3.22 dB, b=66.3 dB $\sqrt{\mu}$ V, c=18.5, d=2.9 dB / Y: a=3.10 dB, b=65.6 dB $\sqrt{\mu}$ V, c=18.0, d=2.9 dB / Z: a=3.31 dB, b=66.5 dB $\sqrt{\mu}$ V, c=18.4, d=2.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Low 15mm/Area Scan (71x101x1): Interpolated grid:
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.983 W/kg

Body MSL/Rear Position - Low 15mm/Zoom Scan (7x7x7)/Cube 0:

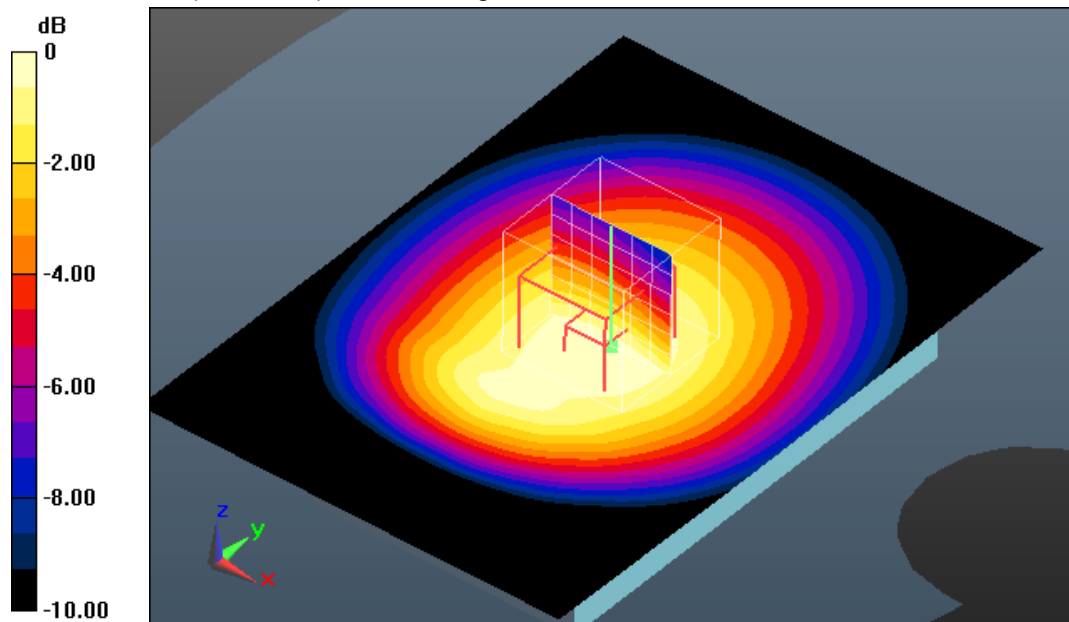
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 32.699 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.20 W/kg

SAR(1 g) = 0.929 W/kg; SAR(10 g) = 0.683 W/kg

Maximum value of SAR (measured) = 0.981 W/kg



0 dB = 0.981 W/kg = -0.08 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 17.05.2013 17:40:31

OET65-UMTS FDD V body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 836.4 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used: $f = 836.41$ MHz; $\sigma = 0.99$ S/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: $a=3.22$ dB, $b=66.3$ dB $\sqrt{\mu V}$, $c=18.5$, $d=2.9$ dB / Y: $a=3.10$ dB, $b=65.6$ dB $\sqrt{\mu V}$, $c=18.0$, $d=2.9$ dB / Z: $a=3.31$ dB, $b=66.5$ dB $\sqrt{\mu V}$, $c=18.4$, $d=2.9$ dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - Mid 15mm/Area Scan (71x101x1): Interpolated grid:

$dx=1.500$ mm, $dy=1.500$ mm

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

Body MSL/Rear Position - Mid 15mm/Zoom Scan (8x9x7)/Cube 0: Measurement

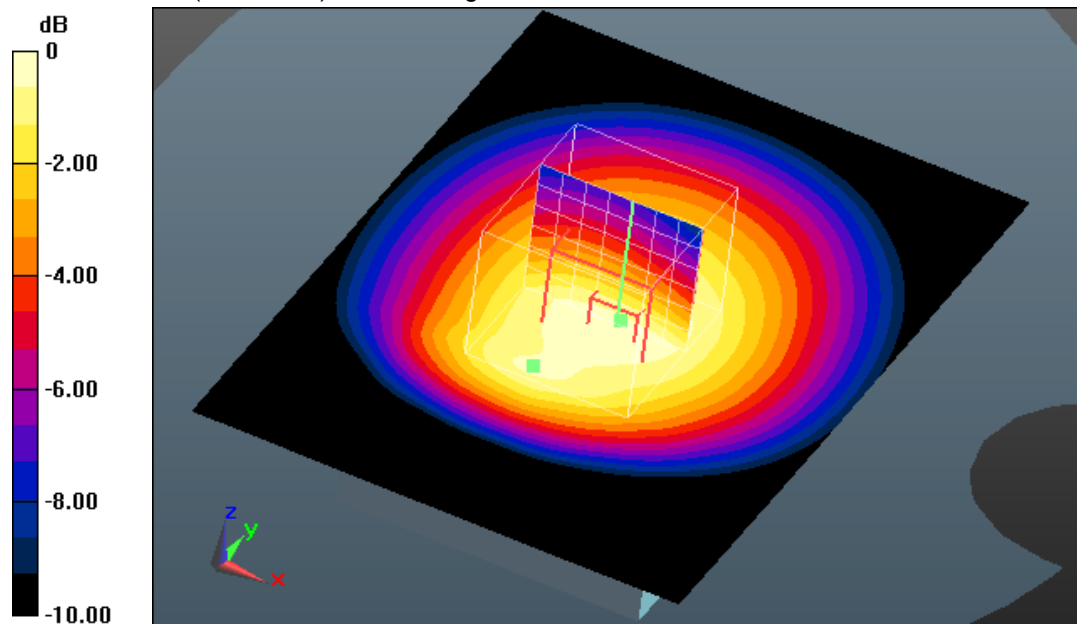
grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 33.519 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.30 W/kg

SAR(1 g) = 0.997 W/kg; SAR(10 g) = 0.730 W/kg

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



0 dB = 1.06 W/kg = 0.25 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Date/Time: 17.05.2013 20:10:30

OET65-UMTS FDD V body

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: UMTS-FDD (WCDMA); Communication System Band: Band 5, UTRA/FDD (824.0 - 849.0 MHz); Frequency: 846.6 MHz; Communication System PAR: 2.91 dB; PMF: 1.00231

Medium parameters used (interpolated): $f = 846.6$ MHz; $\sigma = 0.998$ S/m; $\epsilon_r = 54.425$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6, 6, 6); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: $a=3.22$ dB, $b=66.3$ dB $\sqrt{\mu}$ V, $c=18.5$, $d=2.9$ dB / Y: $a=3.10$ dB, $b=65.6$ dB $\sqrt{\mu}$ V, $c=18.0$, $d=2.9$ dB / Z: $a=3.31$ dB, $b=66.5$ dB $\sqrt{\mu}$ V, $c=18.4$, $d=2.9$ dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = 2.7, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Body MSL/Rear Position - High 15mm/Area Scan (71x101x1): Interpolated grid:
dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.994 W/kg

Body MSL/Rear Position - High 15mm/Zoom Scan (8x11x7)/Cube 0:

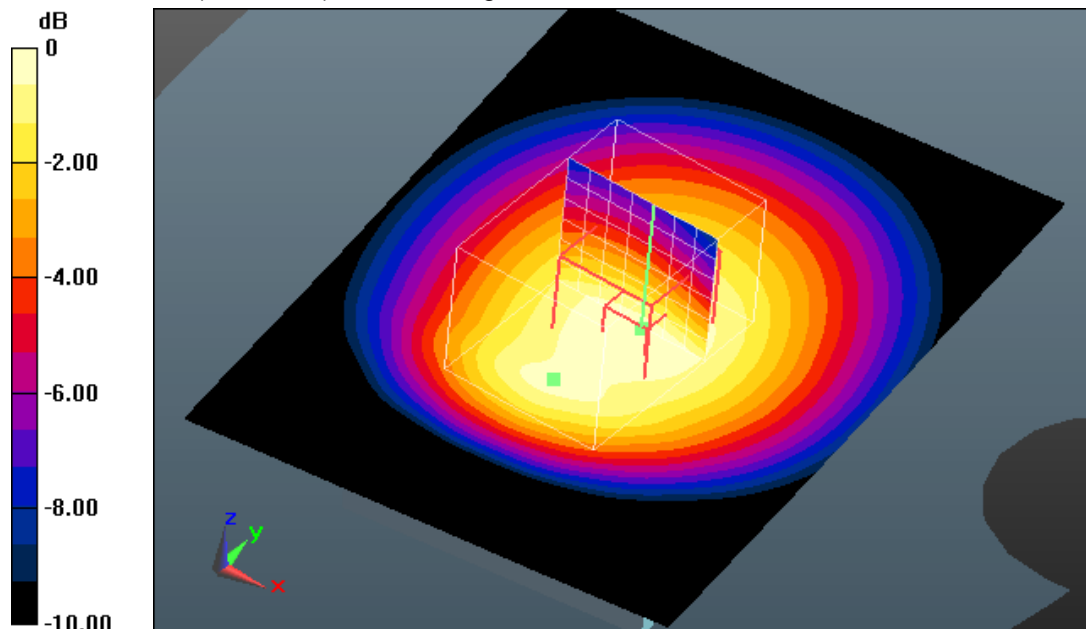
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 32.544 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.938 W/kg; SAR(10 g) = 0.686 W/kg

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



0 dB = 0.996 W/kg = -0.02 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15 mm

ambient temperature: 23.1°C; liquid temperature: 21.8°C

Annex B.5: WLAN 2450MHz

Date/Time: 24.05.2013 10:43:44

IEEE1528-GSM2450 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2412 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.81$ S/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.15, 4.15, 4.15); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB $\sqrt{\mu}$ V, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB $\sqrt{\mu}$ V, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB $\sqrt{\mu}$ V, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Low/Area Scan (101x151x1): Interpolated

grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.368 W/kg

Left-Hand-Side HSL/Touch Position - Low/Zoom Scan (7x7x7)/Cube 0:

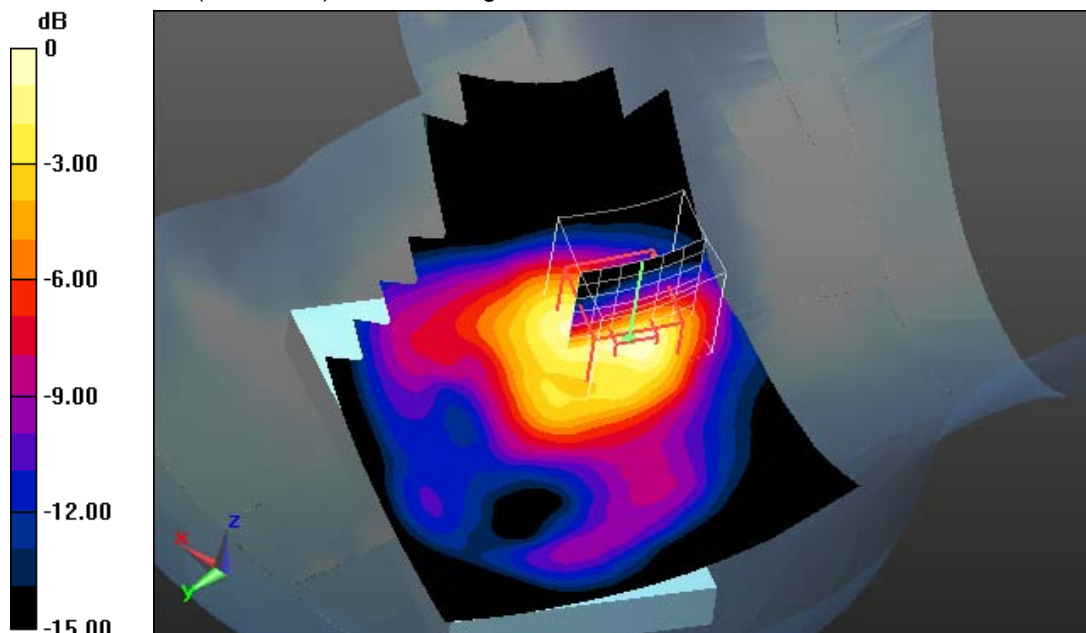
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.264 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.685 W/kg

SAR(1 g) = 0.309 W/kg; SAR(10 g) = 0.149 W/kg

Maximum value of SAR (measured) = 0.354 W/kg



0 dB = 0.354 W/kg = -4.51 dBW/kg

Additional information:

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 08:43:06

IEEE1528-GSM2450 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ S/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.15, 4.15, 4.15); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB√μV, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB√μV, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB√μV, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Middle/Area Scan (101x151x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.218 W/kg

Left-Hand-Side HSL/Touch Position - Middle/Zoom Scan (7x7x7)/Cube 0:

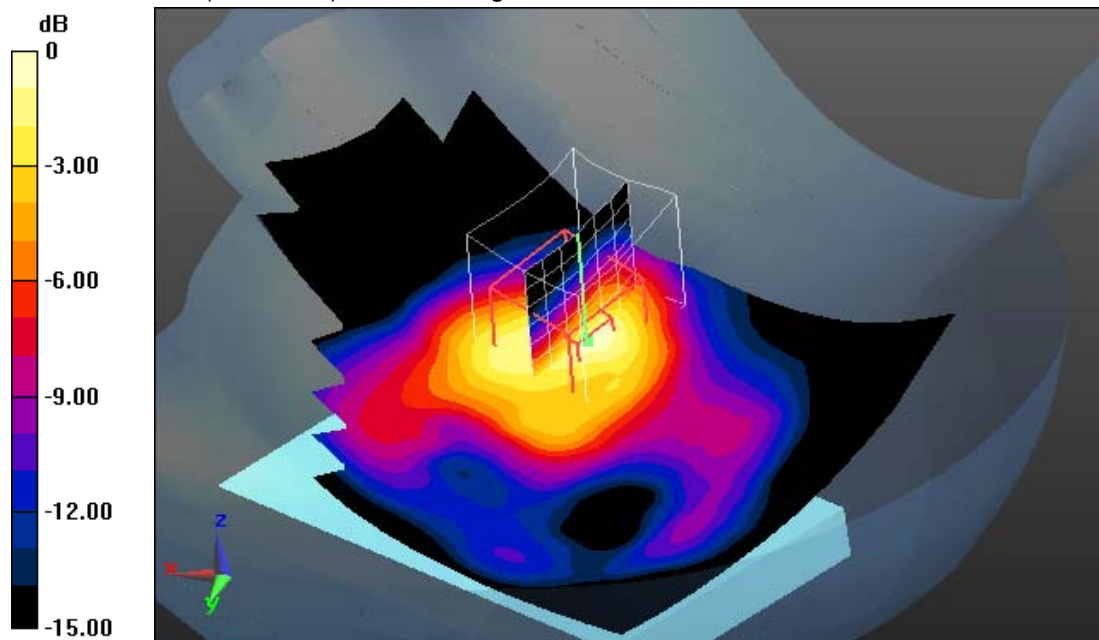
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.258 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.429 W/kg

SAR(1 g) = 0.190 W/kg; SAR(10 g) = 0.089 W/kg

Maximum value of SAR (measured) = 0.220 W/kg



0 dB = 0.220 W/kg = -6.58 dBW/kg

Additional information:

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 11:09:07

IEEE1528-GSM2450 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2462 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.86$ S/m; $\epsilon_r = 39.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.15, 4.15, 4.15); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB√μV, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB√μV, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB√μV, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Touch Position - Hi/Area Scan (101x151x1): Interpolated

grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0992 W/kg

Left-Hand-Side HSL/Touch Position - Hi/Zoom Scan (7x7x7)/Cube 0:

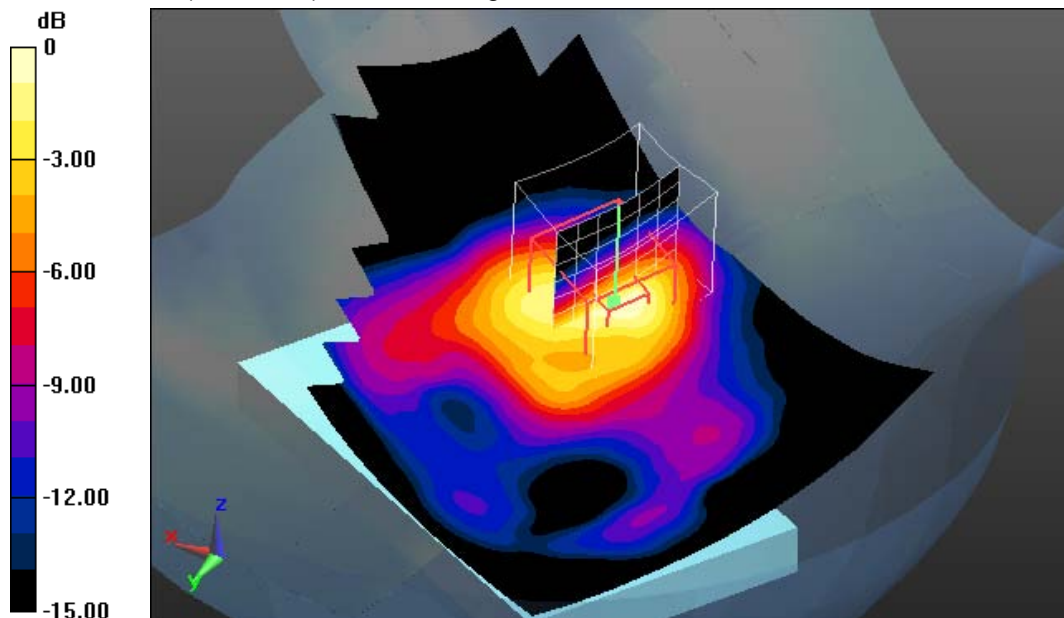
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.689 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.192 W/kg

SAR(1 g) = 0.084 W/kg; SAR(10 g) = 0.039 W/kg

Maximum value of SAR (measured) = 0.0979 W/kg



0 dB = 0.0979 W/kg = -10.09 dBW/kg

Additional information:

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 09:14:23

IEEE1528-GSM2450 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ S/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.15, 4.15, 4.15); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB√μV, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB√μV, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB√μV, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Left-Hand-Side HSL/Tilt Position - Mid/Area Scan (101x151x1): Interpolated grid:

dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0372 W/kg

Left-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (7x7x7)/Cube 0:

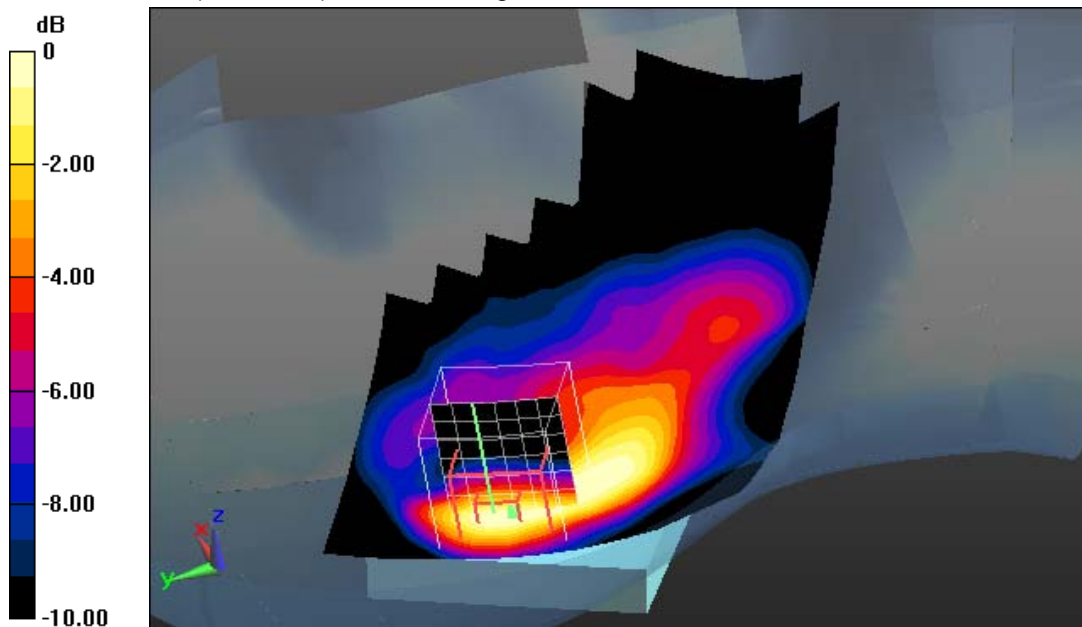
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.626 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.0620 W/kg

SAR(1 g) = 0.029 W/kg; SAR(10 g) = 0.014 W/kg

Maximum value of SAR (measured) = 0.0336 W/kg



0 dB = 0.0336 W/kg = -14.74 dBW/kg

Additional information:

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 10:11:53

IEEE1528-GSM2450 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ S/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.15, 4.15, 4.15); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB√μV, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB√μV, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB√μV, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Touch Position - Mid/Area Scan (101x151x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0865 W/kg

Right-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0:

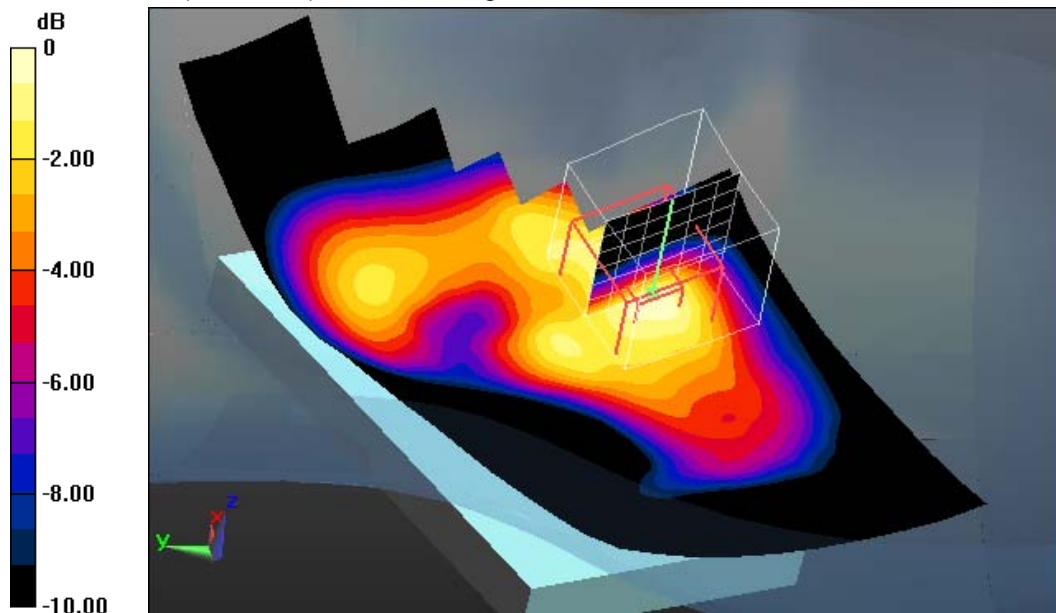
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.549 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.172 W/kg

SAR(1 g) = 0.081 W/kg; SAR(10 g) = 0.041 W/kg

Maximum value of SAR (measured) = 0.0911 W/kg



0 dB = 0.0911 W/kg = -10.40 dBW/kg

Additional information:

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 09:42:22

IEEE1528-GSM2450 head

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.84$ S/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.15, 4.15, 4.15); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB $\sqrt{\mu}$ V, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB $\sqrt{\mu}$ V, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB $\sqrt{\mu}$ V, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Right-Hand-Side HSL/Tilt Position - Middle/Area Scan (101x151x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0356 W/kg

Right-Hand-Side HSL/Tilt Position - Middle/Zoom Scan (7x7x7)/Cube 0:

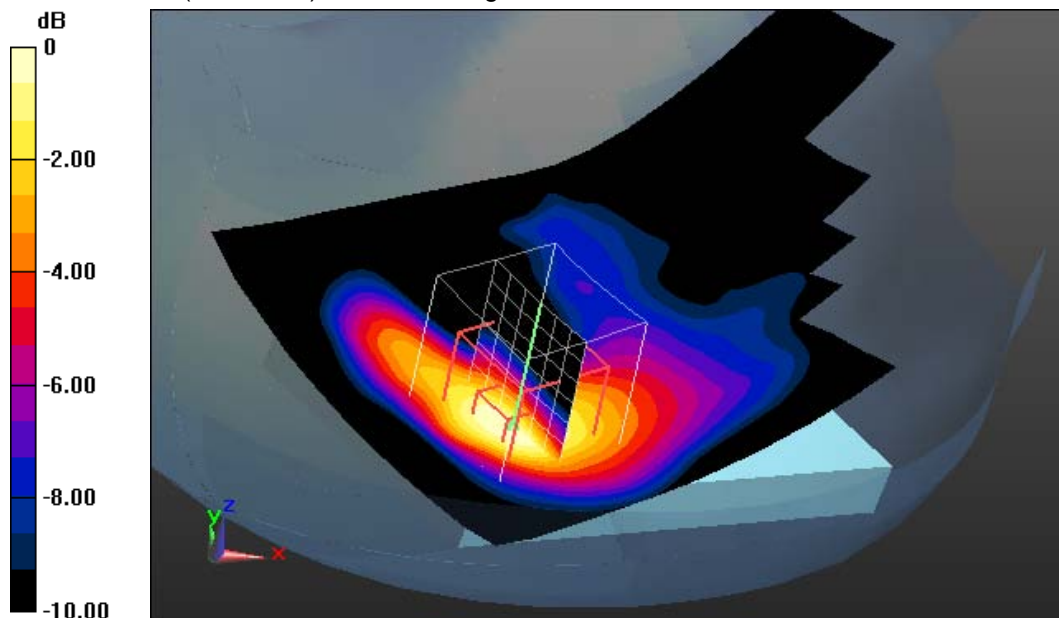
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.521 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.0690 W/kg

SAR(1 g) = 0.032 W/kg; SAR(10 g) = 0.015 W/kg

Maximum value of SAR (measured) = 0.0347 W/kg



0 dB = 0.0347 W/kg = -14.60 dBW/kg

Additional information:

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 16:13:08

OET65-Body-WLAN

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.96$ S/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.06, 4.06, 4.06); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB√μV, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB√μV, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB√μV, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -2.3, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Configuration/Front position - Mid/Area Scan (111x151x1): Interpolated grid:

dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0274 W/kg

Configuration/Front position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement

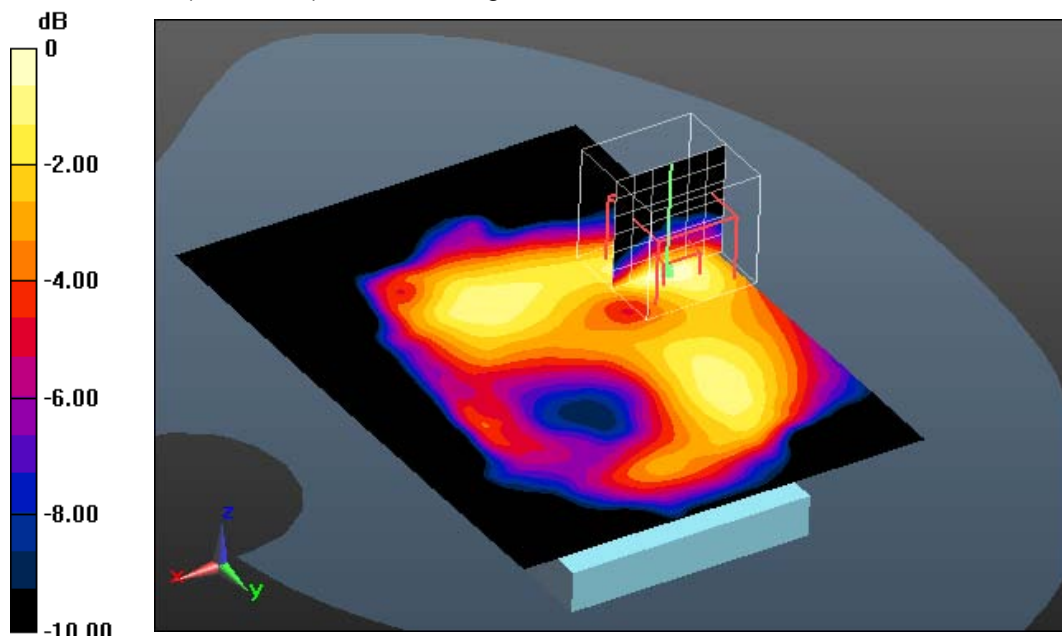
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.596 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.0560 W/kg

SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.010 W/kg

Maximum value of SAR (measured) = 0.0282 W/kg



0 dB = 0.0282 W/kg = -15.50 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 17:55:29

OET65-Body-WLAN

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2412 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.93$ S/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.06, 4.06, 4.06); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB $\sqrt{\mu}$ V, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB $\sqrt{\mu}$ V, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB $\sqrt{\mu}$ V, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -2.3, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Configuration/Rear position - Low/Area Scan (111x151x1): Interpolated grid:

dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.257 W/kg

Configuration/Rear position - Low/Zoom Scan (7x7x7)/Cube 0: Measurement

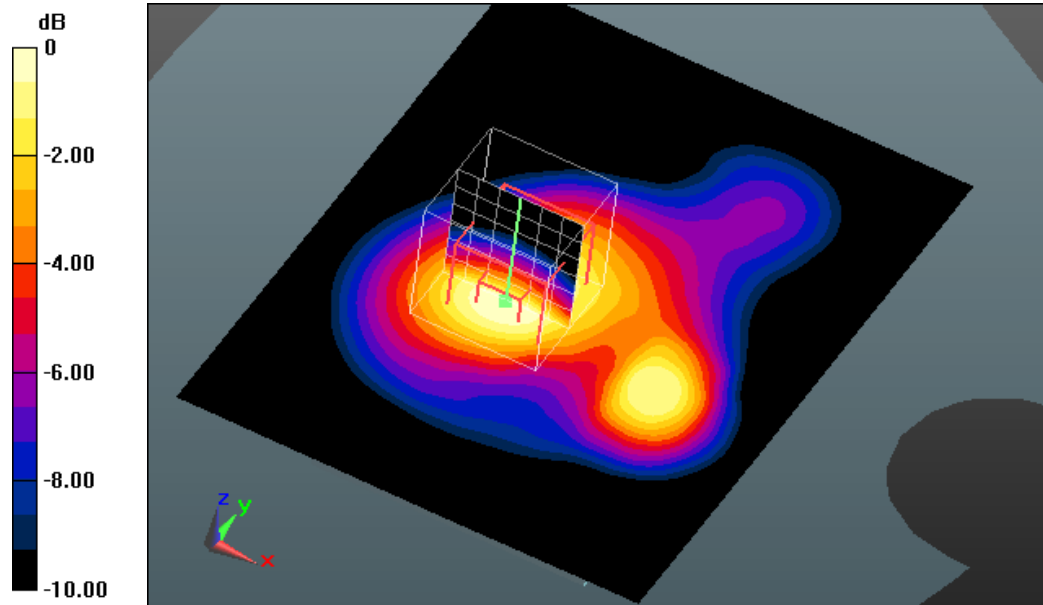
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.988 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.554 W/kg

SAR(1 g) = 0.243 W/kg; SAR(10 g) = 0.131 W/kg

Maximum value of SAR (measured) = 0.254 W/kg



0 dB = 0.254 W/kg = -5.95 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 16:35:28

OET65-Body-WLAN

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.96$ S/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.06, 4.06, 4.06); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB√μV, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB√μV, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB√μV, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -2.3, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Configuration/Rear position - Mid/Area Scan (111x151x1): Interpolated grid:

dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.243 W/kg

Configuration/Rear position - Mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid:

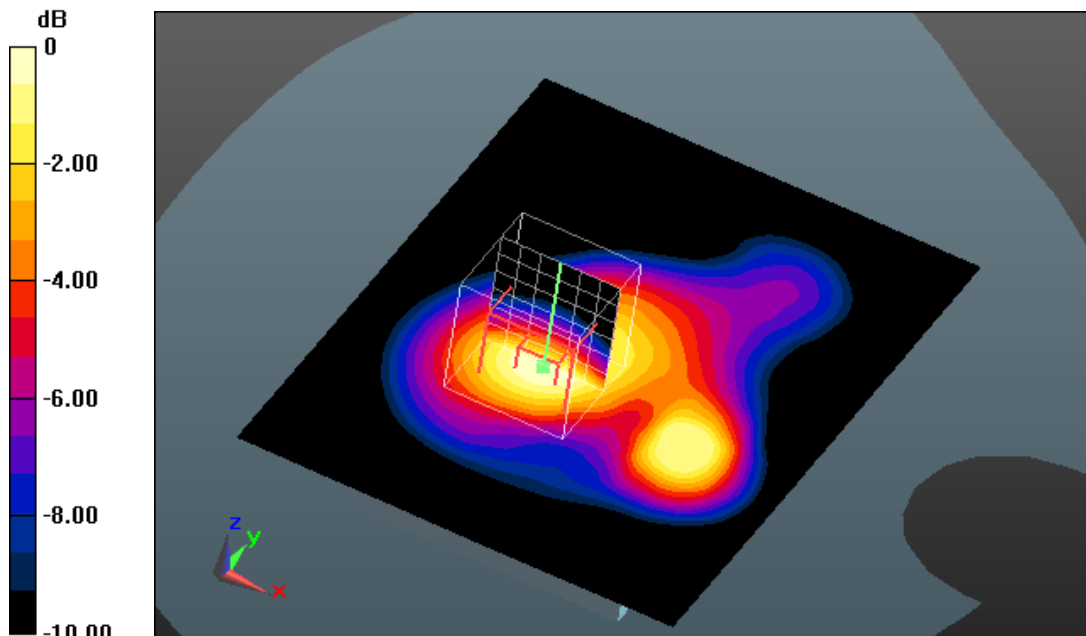
dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.452 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.499 W/kg

SAR(1 g) = 0.221 W/kg; SAR(10 g) = 0.116 W/kg

Maximum value of SAR (measured) = 0.232 W/kg



0 dB = 0.232 W/kg = -6.35 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 18:49:37

OET65-Body-WLAN

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2462 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2462$ MHz; $\sigma = 2$ S/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.06, 4.06, 4.06); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB $\sqrt{\mu}$ V, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB $\sqrt{\mu}$ V, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB $\sqrt{\mu}$ V, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -2.3, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Configuration/Rear position - High/Area Scan (111x151x1): Interpolated grid:

dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.104 W/kg

Configuration/Rear position - High/Zoom Scan (7x7x7)/Cube 0: Measurement

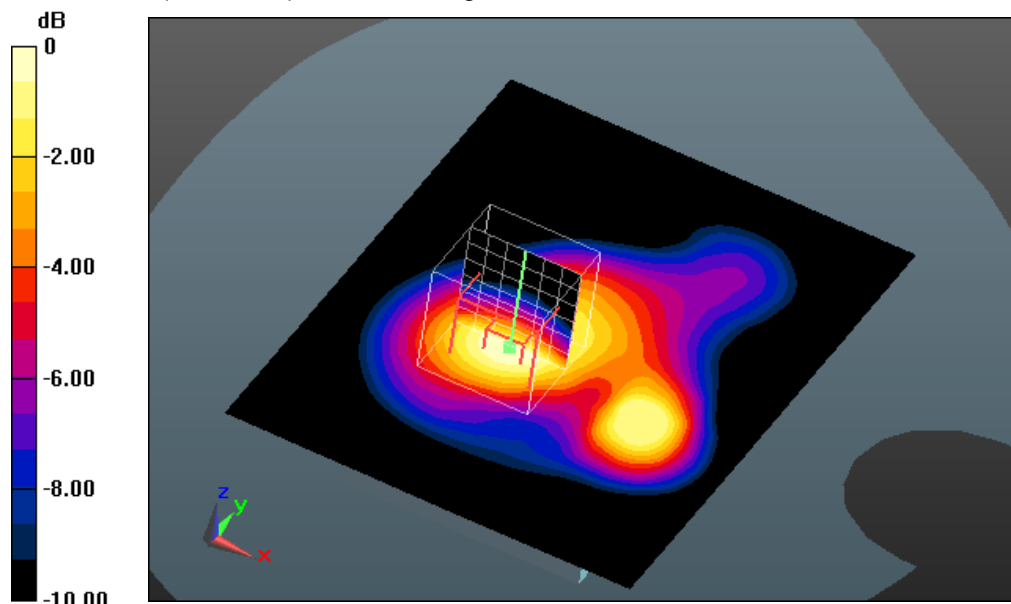
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.117 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.260 W/kg

SAR(1 g) = 0.091 W/kg; SAR(10 g) = 0.037 W/kg

Maximum value of SAR (measured) = 0.0966 W/kg



0 dB = 0.0966 W/kg = -10.15 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 14:34:25

OET65-Body-WLAN

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.96$ S/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.06, 4.06, 4.06); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB√μV, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB√μV, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB√μV, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Configuration/Edge left position - Middle/Area Scan (71x141x1): Interpolated

grid: dx=1.000 mm, dy=1.000 mm

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

Configuration/Edge left position - Middle/Zoom Scan (7x7x7)/Cube 0:

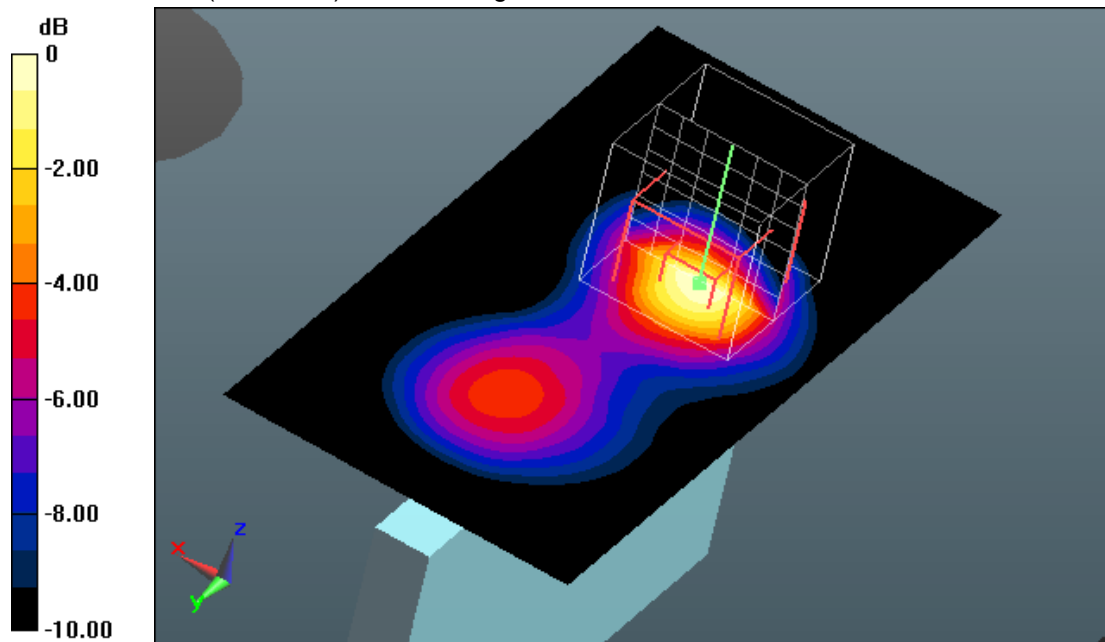
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.715 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.365 W/kg

SAR(1 g) = 0.141 W/kg; SAR(10 g) = 0.061 W/kg

Maximum value of SAR (measured) = 0.156 W/kg



0 dB = 0.156 W/kg = -8.07 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 14:02:45

OET65-Body-WLAN

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.96$ S/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.06, 4.06, 4.06); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB√μV, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB√μV, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB√μV, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 2.7, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Configuration/Edge bottom position - Middle/Area Scan (101x91x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.00752 W/kg

Configuration/Edge bottom position - Middle/Zoom Scan (7x7x7)/Cube 0:

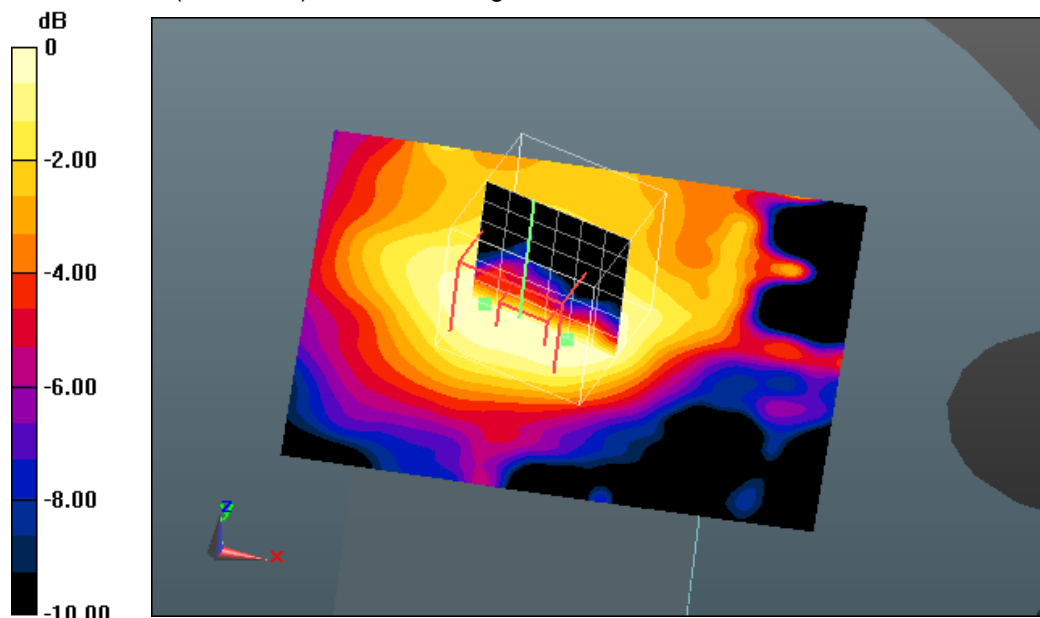
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.823 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.0220 W/kg

SAR(1 g) = 0.00688 W/kg; SAR(10 g) = 0.0032 W/kg

Maximum value of SAR (measured) = 0.00701 W/kg



0 dB = 0.00701 W/kg = -21.54 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10 mm

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 15:38:33

OET65-Body-WLAN

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.96$ S/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.06, 4.06, 4.06); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB√μV, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB√μV, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB√μV, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = -2.3, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Configuration/Front position - Mid 15mm/Area Scan (111x151x1): Interpolated

grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.0151 W/kg

Configuration/Front position - Mid 15mm/Zoom Scan (7x8x7)/Cube 0:

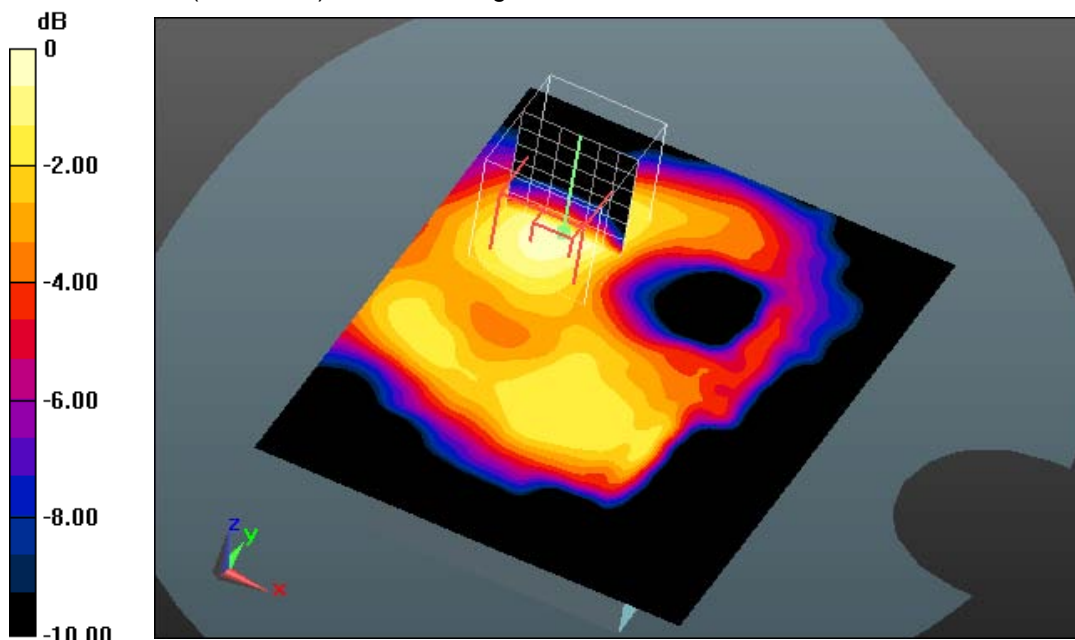
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.696 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.0410 W/kg

SAR(1 g) = 0.013 W/kg; SAR(10 g) = 0.00624 W/kg

Maximum value of SAR (measured) = 0.0149 W/kg



0 dB = 0.0149 W/kg = -18.27 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15 mm

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 17:35:28

OET65-Body-WLAN

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2412 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.93$ S/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.06, 4.06, 4.06); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB√μV, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB√μV, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB√μV, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -2.3, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Configuration/Rear position - Low 15mm/Area Scan (111x151x1): Interpolated

grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.127 W/kg

Configuration/Rear position - Low 15mm/Zoom Scan (7x7x7)/Cube 0:

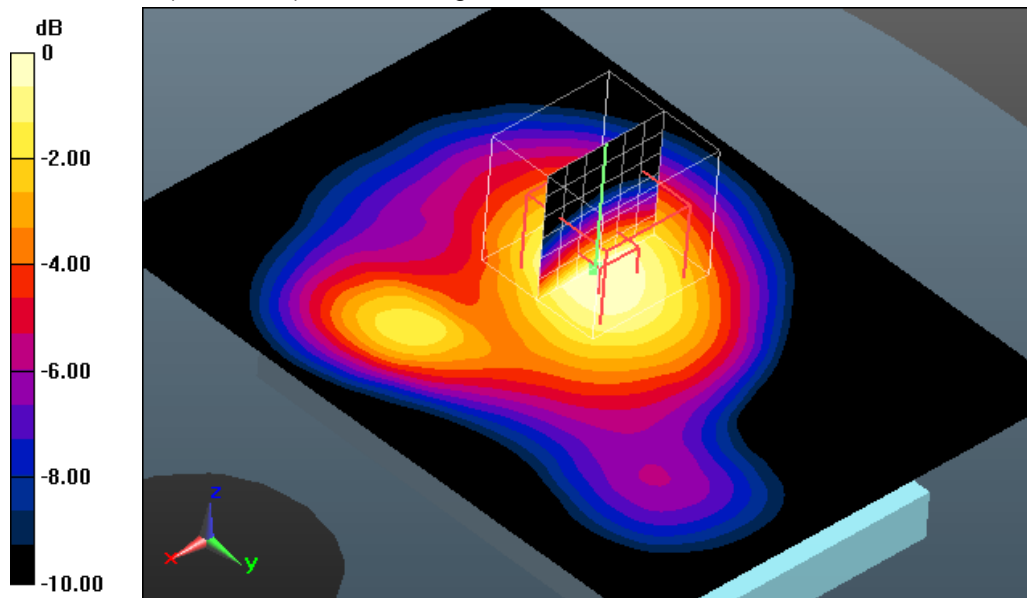
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.911 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.272 W/kg

SAR(1 g) = 0.121 W/kg; SAR(10 g) = 0.067 W/kg

Maximum value of SAR (measured) = 0.126 W/kg



0 dB = 0.126 W/kg = -9.00 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15 mm

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 17:09:14

OET65-Body-WLAN

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2437 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.96$ S/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.06, 4.06, 4.06); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: a=2.76 dB, b=67.0 dB√μV, c=18.1, d=1.9 dB / Y: a=2.60 dB, b=66.5 dB√μV, c=17.9, d=1.9 dB / Z: a=2.38 dB, b=64.1 dB√μV, c=16.5, d=1.9 dB); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), z = -2.3, 32.7
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASY52 52.8.5(1059); SEMCAD X 14.6.8(7028)

Configuration/Rear position - Mid 15mm/Area Scan (111x151x1): Interpolated

grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.120 W/kg

Configuration/Rear position - Mid 15mm/Zoom Scan (7x7x7)/Cube 0:

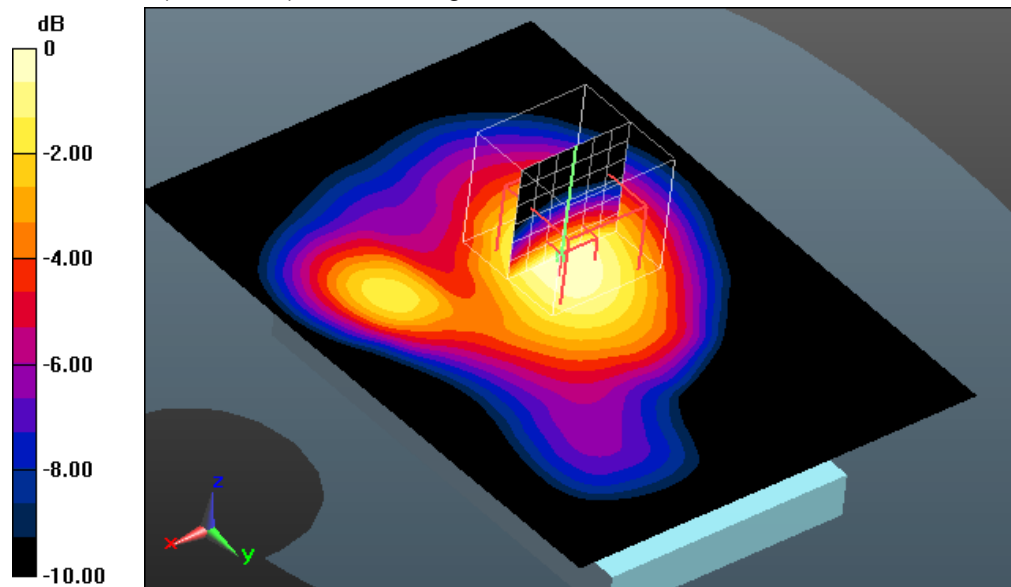
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.616 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.262 W/kg

SAR(1 g) = 0.114 W/kg; SAR(10 g) = 0.062 W/kg

Maximum value of SAR (measured) = 0.119 W/kg



0 dB = 0.119 W/kg = -9.24 dBW/kg

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15 mm

ambient temperature: 22.3°C; liquid temperature: 20.9°C

Date/Time: 24.05.2013 18:30:08

OET65-Body-WLAN

DUT: BlackBerry; Type: RFU81UW; Serial: 004402242283657

Communication System: IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: ISM 2.4 GHz Band, World but Japan (2401.5 - 2482.5 MHz); Frequency: 2462 MHz; Communication System PAR: 1.87 dB; PMF: 1.04833

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2 \text{ S/m}$; $\epsilon_r = 51.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS

DASY5 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(4.06, 4.06, 4.06); Calibrated: 24.08.2012;
- Modulation Compensation: PMR (X: $a=2.76 \text{ dB}$, $b=67.0 \text{ dB}\sqrt{\mu\text{V}}$, $c=18.1$, $d=1.9 \text{ dB}$ / Y: $a=2.60 \text{ dB}$, $b=66.5 \text{ dB}\sqrt{\mu\text{V}}$, $c=17.9$, $d=1.9 \text{ dB}$ / Z: $a=2.38 \text{ dB}$, $b=64.1 \text{ dB}\sqrt{\mu\text{V}}$, $c=16.5$, $d=1.9 \text{ dB}$); Calibrated: 24.08.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection), $z = -2.3, 32.7$
- Electronics: DAE3 Sn413; Calibrated: 11.01.2013
- Phantom: SAM Left; Type: SAM ; Serial: TP 1041
- DASYS2 52.8.5(1059); SEMCAD X 14.6.8(7028)

Configuration/Rear position - High 15mm/Area Scan (111x151x1): Interpolated

grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.0479 W/kg

Configuration/Rear position - High 15mm/Zoom Scan (7x7x7)/Cube 0:

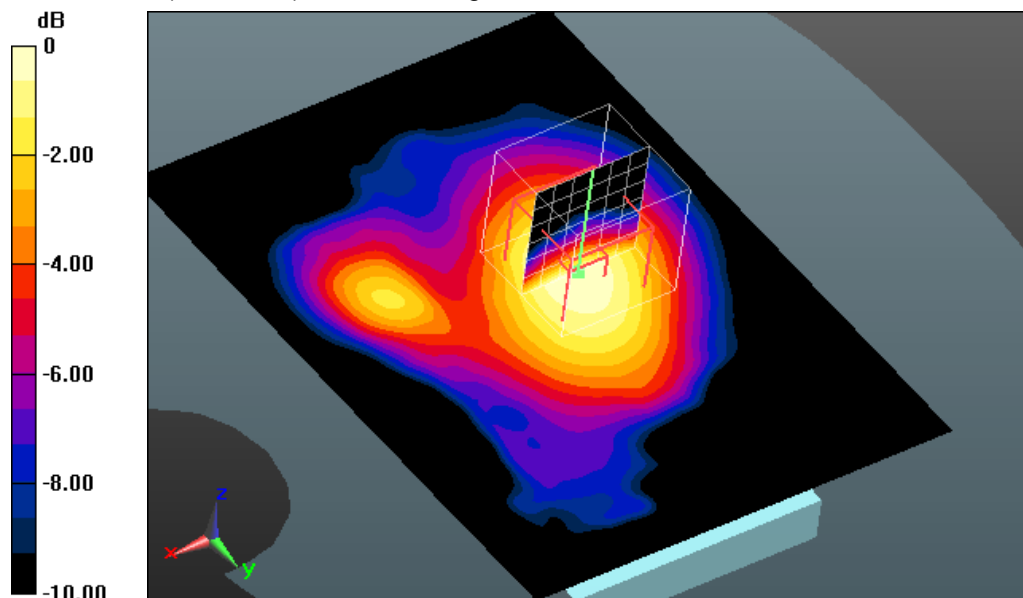
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.872 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.108 W/kg

SAR(1 g) = 0.046 W/kg; SAR(10 g) = 0.025 W/kg

Maximum value of SAR (measured) = 0.0473 W/kg



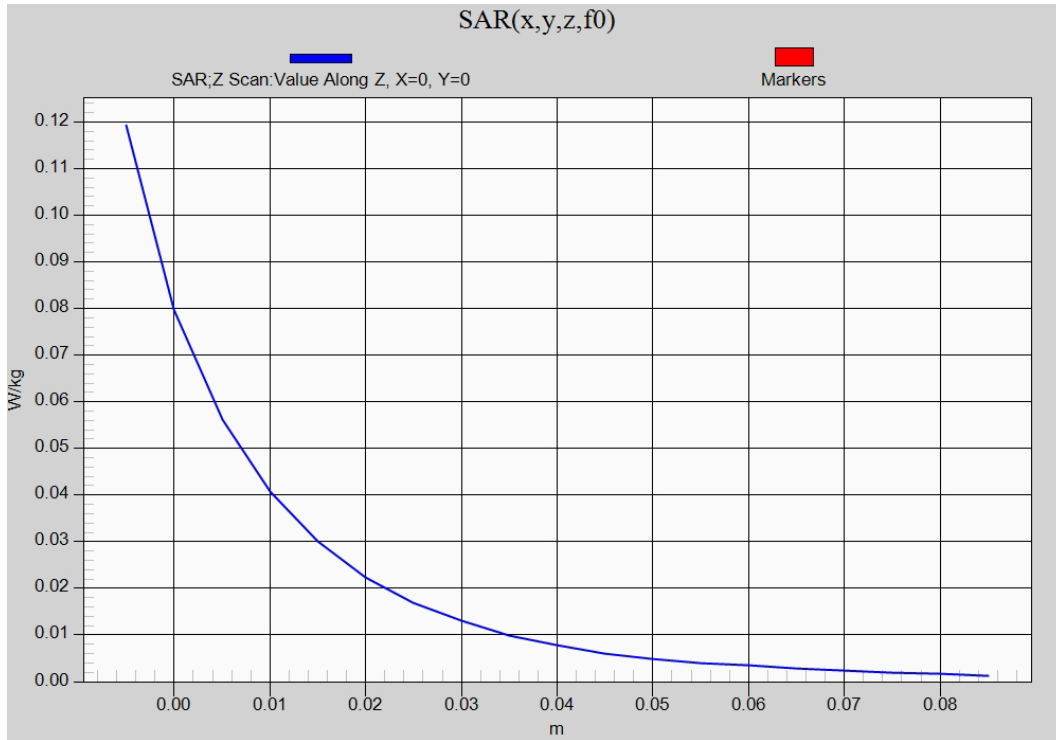
0 dB = 0.0473 W/kg = -13.25 dBW/kg

Additional information:

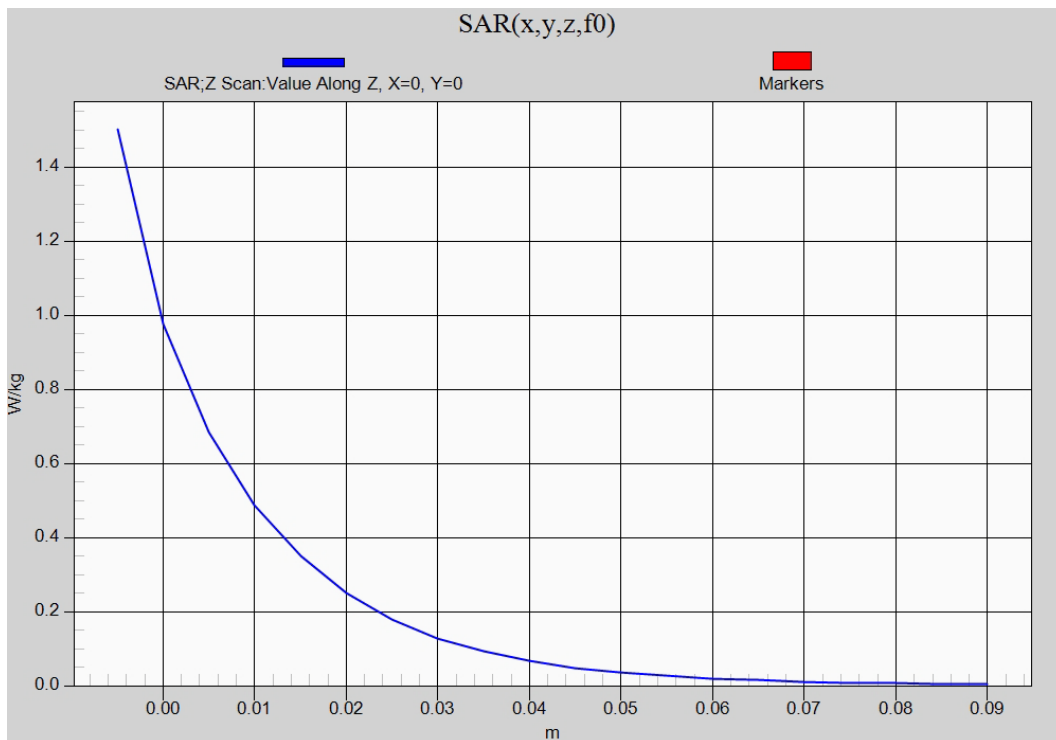
position or distance of DUT to SAM (if not standard head positions) : 15 mm

ambient temperature: 22.3°C; liquid temperature: 20.9°C

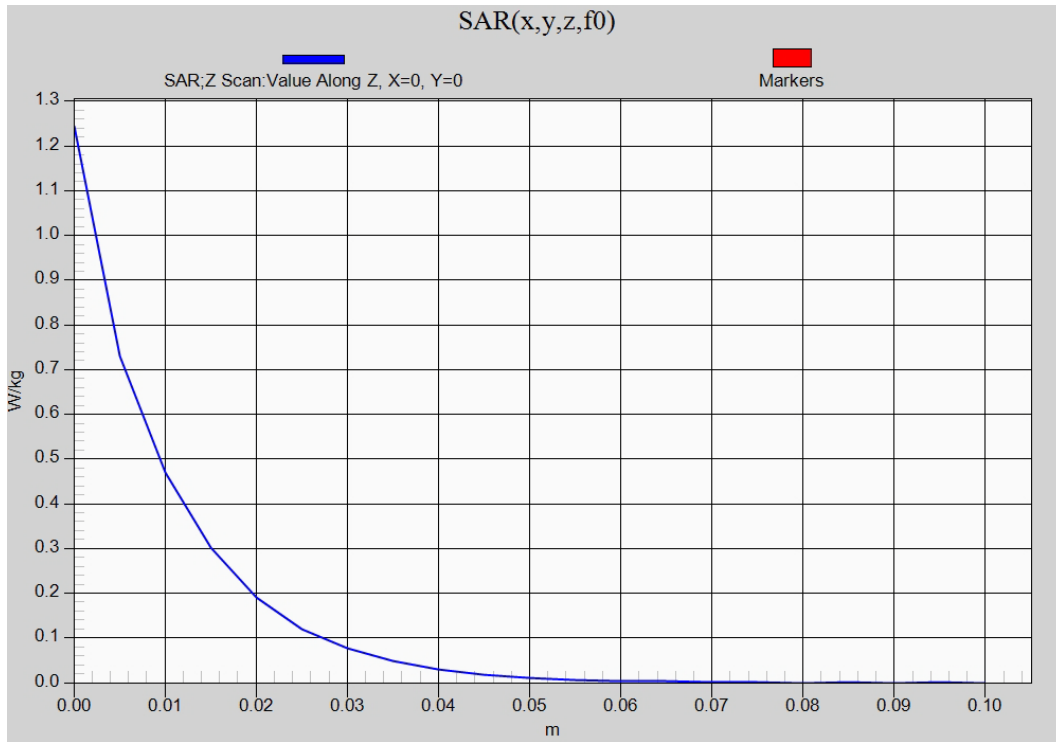
Annex B.6: Z-axis scan



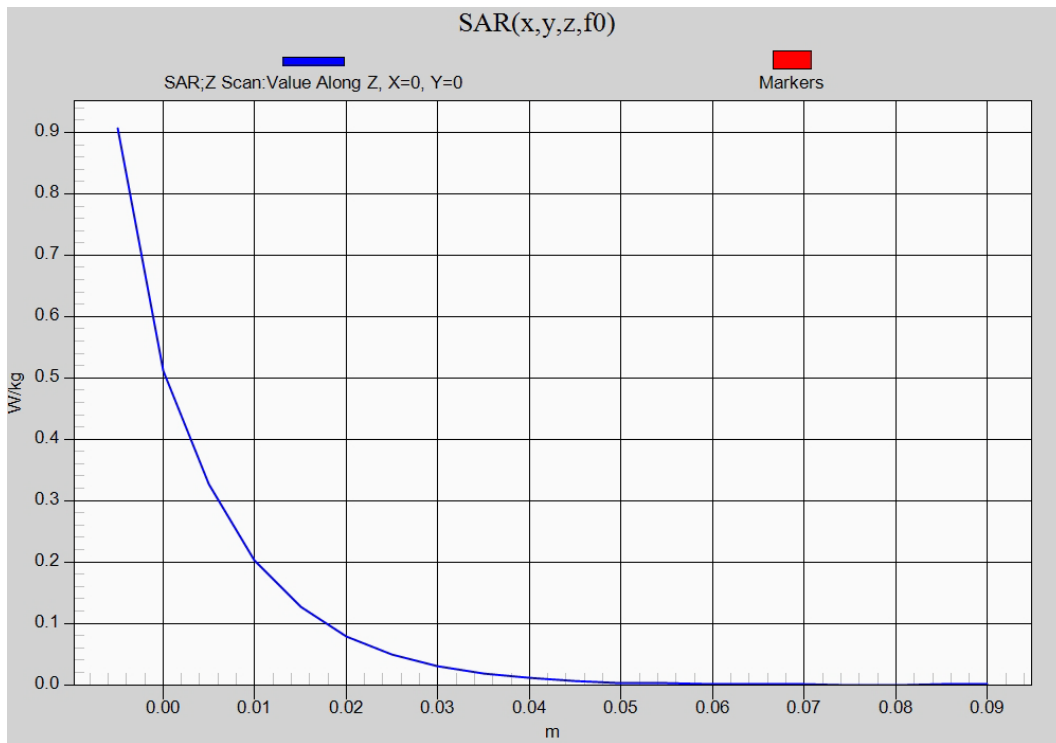
850 head



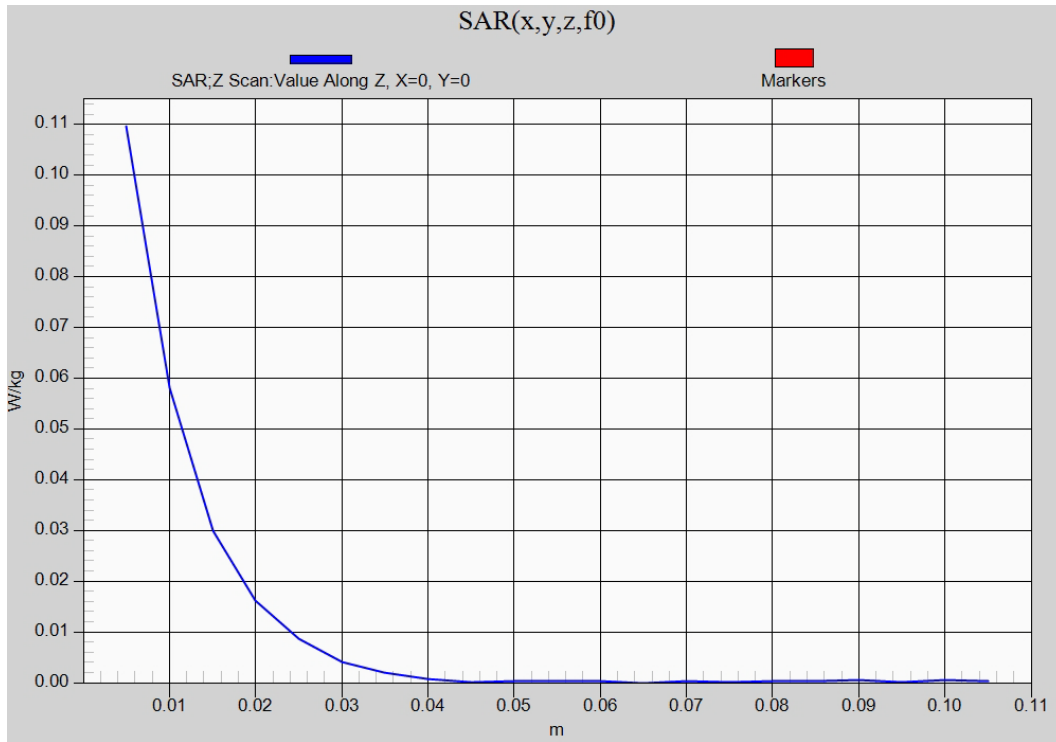
850 body



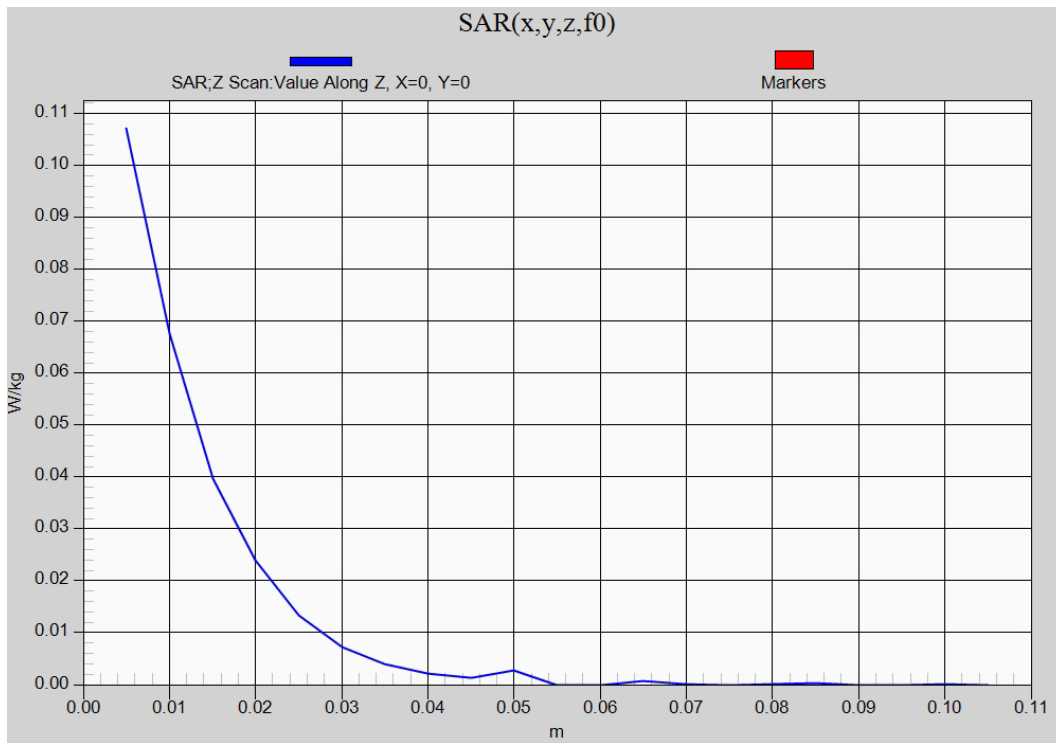
1900 head



1900 body



2450 head



2450 body

Annex B.7: Liquid depth

Photo 1: Liquid depth 850 MHz head simulating liquid

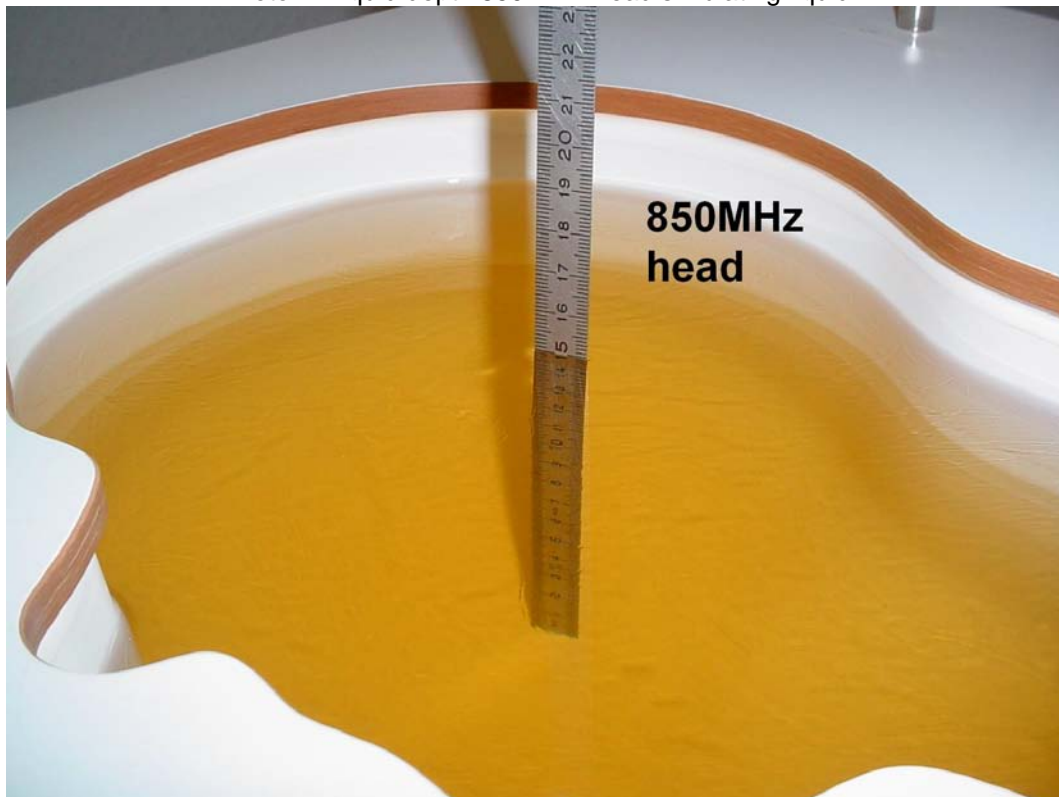


Photo 2: Liquid depth 850 MHz body simulating liquid



Photo 3: Liquid depth 1900MHz head simulating liquid

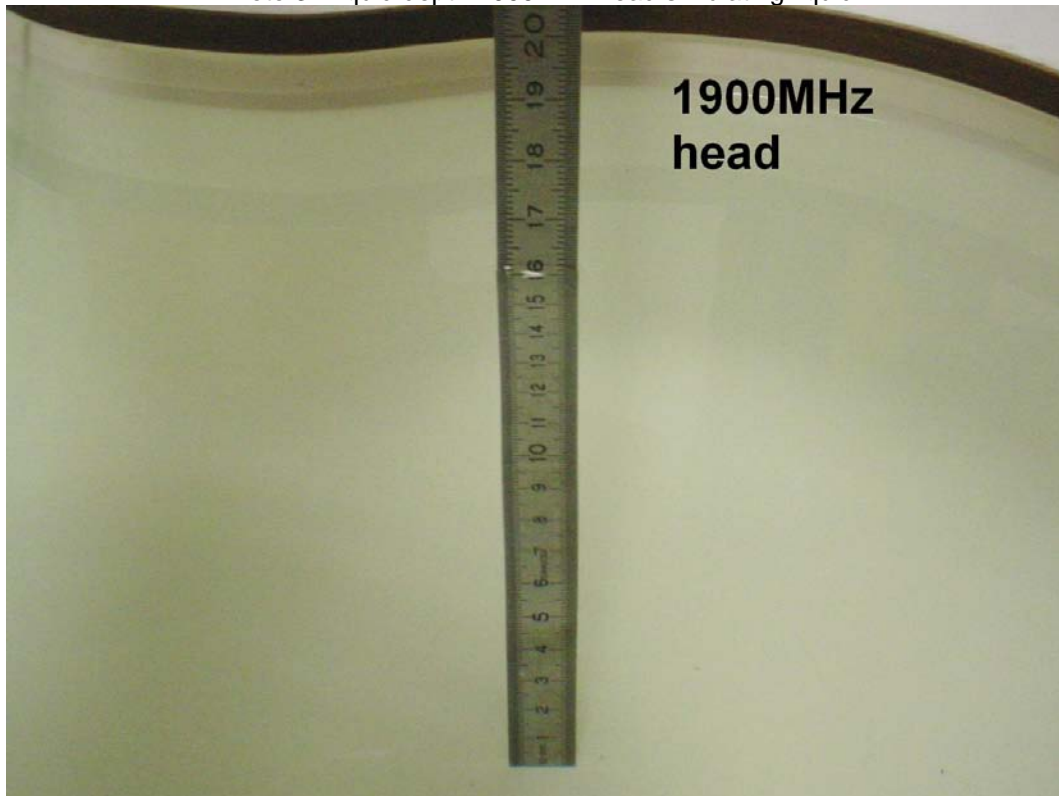


Photo 4: Liquid depth 1900 MHz body simulating liquid

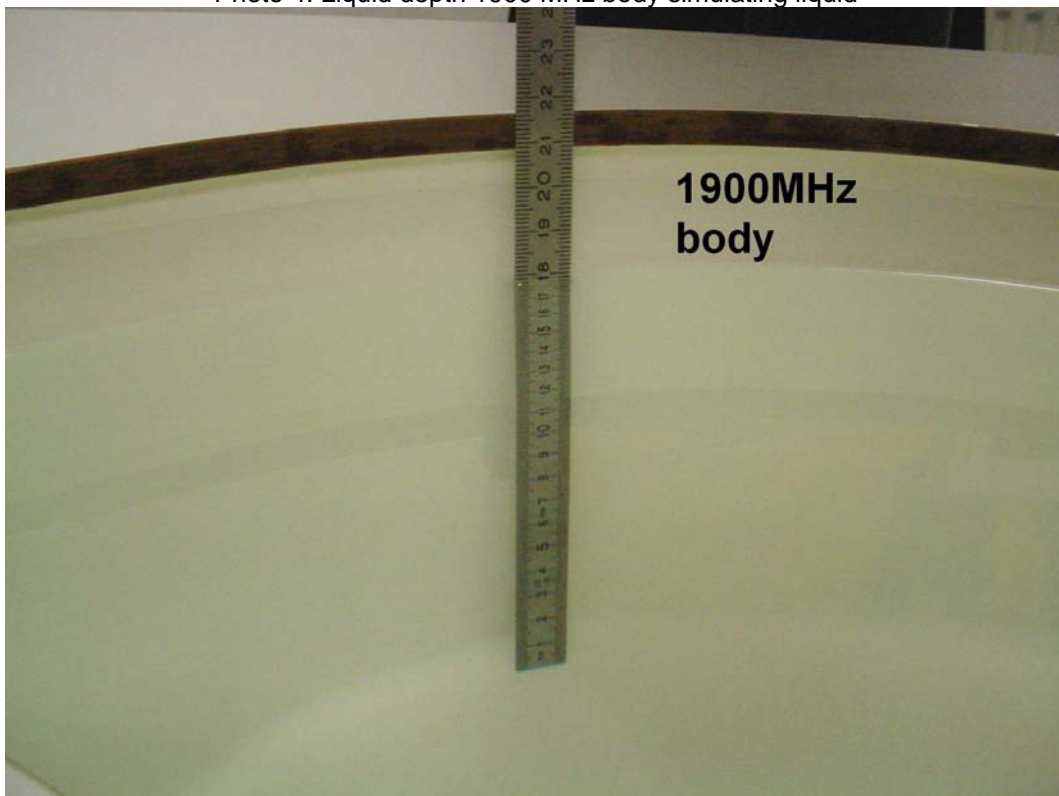
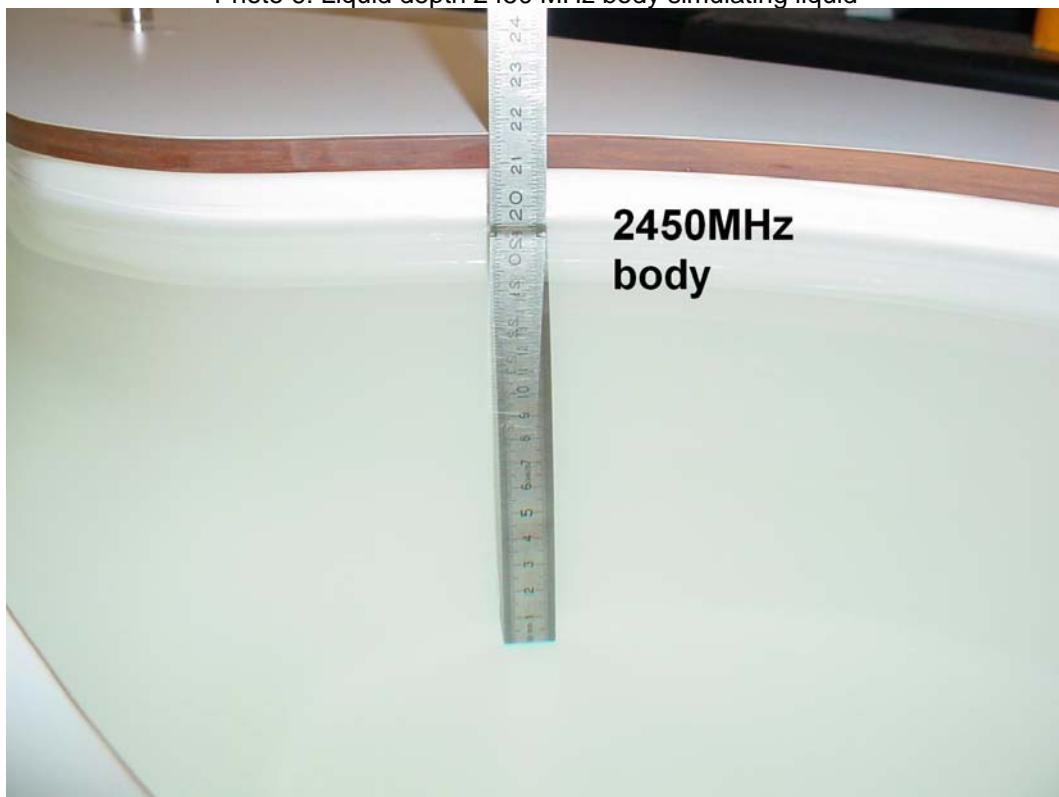


Photo 5: Liquid depth 2450MHz head simulating liquid



Photo 6: Liquid depth 2450 MHz body simulating liquid



Annex C: Photo documentation

Photo documentation is described in the additional document:

Appendix to test report no. 1-6234/13-01-13 Photo documentation

Annex D: RF Technical Brief Cover Sheet acc. to RSS-102 Annex A

- 1. COMPANY NUMBER: **2503A**
- 2. MODEL NUMBER: **RFU80UW**
- 3. MANUFACTURER: **Research In Motion Limited**
- 4. TYPE OF EVALUATION:

(a) SAR Evaluation: Device used in the Vicinity of the Human Head

- Multiple transmitters: Yes No
- Evaluated against exposure limits: General Public Use Controlled Use
- Duty cycle used in evaluation: 100 %
- Standard used for evaluation: RSS-102 Issue 4 (2010-03)
- SAR value: **1.016 W/kg.** Measured Computed Calculated

(b) SAR Evaluation: Body-worn Device

- Multiple transmitters: Yes No
- Evaluated against exposure limits: General Public Use Controlled Use
- Duty cycle used in evaluation: 25 %
- Standard used for evaluation: RSS-102 Issue 4 (2010-03)
- SAR value: **1.058 W/kg.** Measured Computed Calculated

Annex D.1: Declaration of RF Exposure Compliance

ATTESTATION: I attest that the information provided in Annex D: is correct; that a Technical Brief was prepared and the information it contains is correct; that the device evaluation was performed or supervised by me; that applicable measurement methods and evaluation methodologies have been followed and that the device meets the SAR and/or RF exposure limits of RSS-102.

Signature:

Date: 2013-06-24

NAME : **Thomas Vogler**

TITLE : Dipl.-Ing. (FH)

COMPANY : CETECOM ICT Services GmbH

Annex E: Calibration parameters

Calibration parameters are described in the additional document:

Appendix to test report no. 1-6234/13-01-13 Calibration data, Phantom certificate and detail information of the DASY System

Annex F: Document History

Version	Applied Changes	Date of Release
	Initial Release	2013-06-24

Annex G: Further Information

Glossary

BW	-	Bandwidth
DTS	-	Distributed Transmission System
DUT	-	Device under Test
EUT	-	Equipment under Test
FCC	-	Federal Communication Commission
FCC ID	-	Company Identifier at FCC
HW	-	Hardware
IC	-	Industry Canada
Inv. No.	-	Inventory number
LTE	-	Long Term Evolution
N/A	-	not applicable
PCE	-	Personal Consumption Expenditure
OET	-	Office of Engineering and Technology
RB	-	resource block(s)
SAR	-	Specific Absorption Rate
S/N	-	Serial Number
SPLSR _i	-	SAR-to-(peak-locations spacing) ratio
SW	-	Software
UNII	-	Unlicensed National Information Infrastructure