
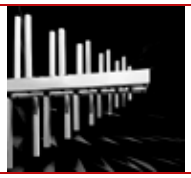
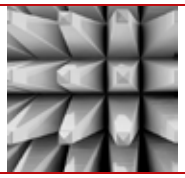

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TEST REPORT

Test Report No.: 1-3851/11-01-09

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-01

Testing Laboratory

CETECOM ICT Services GmbH
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Accredited Test Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-01

Applicant

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295 Phillip Street
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Manufacturer

Research In Motion Limited
305 Phillip Street
Waterloo, ON N2L 3W8/CANADA

Test Standard/s

IEEE 1528-2003	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	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields
RSS-102 Issue 4	Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

For further applied test standards please refer to section 3 of this test report.

Test Item

Device description:	BlackBerry Smartphone
Device type:	portable device
Model name:	**RDH71CW**
S/N serial number:	N/A
FCC-ID:	L6ARDH70CW
IC:	2503A-RDH70CW
IMEI-Number:	00440113801546-2
Hardware status:	Rev 3
Software status:	B97 (7.1.0.45)
Frequency:	see technical details
Antenna:	integrated antenna
Battery option:	Li-ion battery 3.7V / 1230mAh
Accessories:	---
Test sample status:	identical prototype
Exposure category:	general population / uncontrolled environment

This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Test Report authorised:

Thomas Vogler

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Oleksandr Hnatovskiy

1 Table of contents

2 General information

2.1 Notes and disclaimer

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2.2 Application details

Date of receipt of order:	2011-09-02
Date of receipt of test item:	2011-09-07
Start of test:	2011-09-07
End of test:	2011-09-15
Person(s) present during the test:	

2.3 Statement of compliance

The SAR values found for the RDH71CW BlackBerry Smartphone 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 95.1:1999, 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.
According to October 2010 TCB Workshop for body worn operation in WLAN hot spot mode this device has been tested with 10 mm distance to the phantom.

Note:
This test report contains extended SAR evaluation for wireless hotspot mode to the following RTS test report: **RTS-2605-1102-05**

2.4 Technical details

Band tested for this test report	Technology	Frequency band	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 multislot class	(E)GPRS voice mode or DTM	Test channel low	Test channel middle	Test channel high	Maximum output power/dBm)*
☐	GSM	GSM	880.2	914.8	925.2	959.8	GMSK 8-PSK	4 E2	5	B	12	no	975	37	124	--
☐	GSM	DCS	1710.2	1784.8	1805.2	1879.8	GMSK 8-PSK	1 E2	0	B	12	no	512	698	885	--
☒	GSM	cellular	824.2	848.8	869.2	893.8	GMSK 8-PSK	4 E2	5	B	12	no	128	190	251	33.4
☒	GSM	PCS	1850.2	1909.8	1930.2	1989.8	GMSK 8-PSK	1 E2	0	B	12	no	512	661	810	29.3
☐	UMTS	FDD I	1922.4	1977.6	2112.4	2167.6	QPSK	3	max	--	--	--	9612	9750	9888	--
☐	UMTS	FDD VIII	882.4	912.6	927.4	957.6	QPSK	3	max	--	--	--	2712	2787	2863	--
☐	CDMA[1]	BC0	815	849	860	894	QPSK	3	max	--	--	--	1013	384	777	22.95
☐	CDMA[1]	BC1	1850	1910	1930	1990	QPSK	3	max	--	--	--	25	600	1175	21.06
☐	WLAN	ISM	2412	2472	2412	2472	CCK OFDM	--	max	--	--	--	1	7	13	18.5
☒	WLAN US	ISM	2412	2462	2412	2462	CCK OFDM	--	max	--	--	--	1	6	11	18.5
☒	BT	ISM	2412	2462	2412	2462	GFSK	3	max	--	--	--	0	39	78	7

)*: slotted peak power for GSM, averaged max. RMS power for UMTS, CDMA, WLAN and BT.
CDMA[1] – measurement results for CDMA see in test report no.: SAR_CETE4_015_11001_RDH71CW

3 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	2005	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

FCC KDBs:

FCC OET SAR Measurement Procedures for 802.11 a/b/g Transmitters, May, 2007.

FCC OET SAR Evaluation Considerations for Handsets with Multiple Transmitters & Antennas, September, 2008.

FCC OET SAR Test Reduction Procedure for GSM/GPRS/EDGE, December, 2008.

FCC OET SAR Probe Calibration and System Verification Considerations for Measurements at 150 MHz – 3 GHz, January, 2007.

FCC OET RF Exposure Procedures for Mobile and Portable Devices, and Equipment Authorization Policies, November, 2009.

FCC OET SAR Measurements Procedures for 3G Devices, October, 2007.

Dipole Requirements for SAR System Validation and Verification, November, 2009.

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 1: 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

☒	**No deviations from the technical specifications ascertained**	
☐	Deviations from the technical specifications ascertained	
Maximum SAR value measured		**1.290 W/kg**

5 Test Environment

Ambient temperature: 20 – 24 °C
Tissue Simulating liquid: 20 – 24 °C

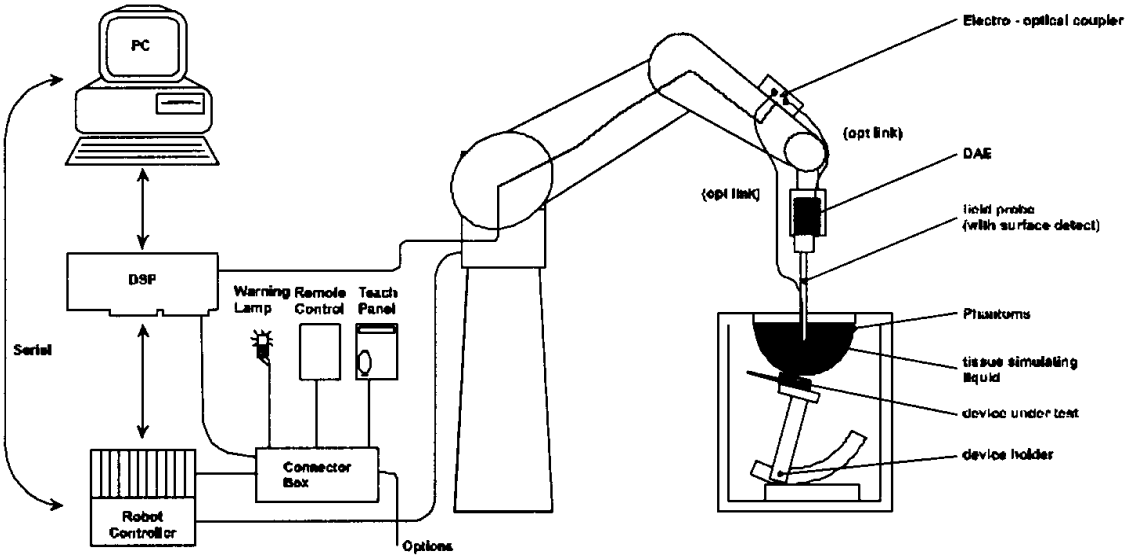
Relative humidity content: 40 – 50 %
Air pressure: not relevant for this kind of testing
Power supply: 230 V / 50 Hz

Exact temperature values for each test are shown in the table(s) under 2.5. and/or on the measurement plots.

6 Test Set-up

6.1 Measurement system

6.1.1 System Description



- The DASY4 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 DASY4 measurement server.
- The DASY4 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 2000
- DASY4 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 BlackBerry Smartphone.
- Tissue simulating liquid mixed according to the given recipes.
- System validation dipoles allowing to validate the proper functioning of the system.

6.1.2 Test environment

The DASY4 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.

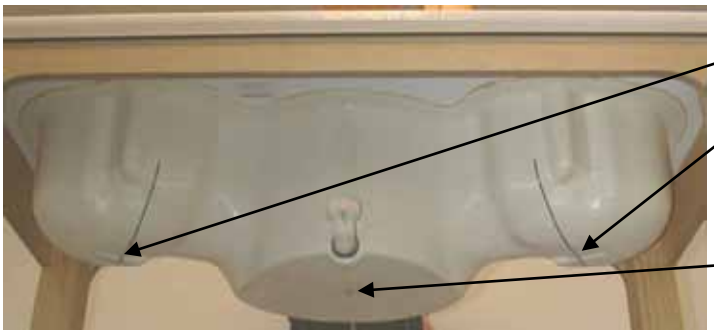
6.1.3 Probe description

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., glycolether)
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 ± 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 µW/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 BlackBerry Smartphone 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 DASY4 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 DASY4 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

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

- The „surface check“ measurement tests the optical surface detection system of the DASY4 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ± 30°.)

- 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 strenth 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 in x and y-direction and 5 mm in z-direction. DASY4 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 neighboring volumes are evaluated until no neighboring 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

DASY4 uses the advanced extrapolation option which is able to compansate boundary effects on E-field probes.

6.1.8 Data Storage and Evaluation

Data Storage

The DASY4 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

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

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_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	Dcpi
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	s
	- Density	r

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 DASY4 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 [mV/(V/m)^2] for E-field Probes	(i = x, y, z)
	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.

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

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

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/cm^2
	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)**					
frequency band	☐ 450	☐ 835	☒ 900	☐ 1800	☒ 1900	☒ 2450
Tissue Type	Body	Body	Body	Body	Body	Body
Water	51.16	52.4	56.0	69.91	69.91	73.2
Salt (NaCl)	1.49	1.40	0.76	0.13	0.13	0.04
Sugar	46.78	45.0	41.76	0.0	0.0	0.0
HEC	0.52	1.0	1.21	0.0	0.0	0.0
Bactericide	0.05	0.1	0.27	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0
DGBE	0.0	0.0	0.0	29.96	29.96	26.7

Table 2: Body tissue dielectric properties

Salt: 99+% Pure Sodium Chloride
Sugar: 98+% Pure Sucrose
Water: De-ionized, 16MW+ resistivity
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	Frequency (MHz)	Target body tissue		Measurement body tissue		Measurement date
		Permittivity	Conductivity[S/m]	Permittivity	Conductivity[S/m]	
M 850/900	824	55.2	0.97	54.8	0.97	2011-09-10
	837	55.2	0.97	54.7	0.98	2011-09-10
	849	55.2	0.97	54.6	1.00	2011-09-10
	900	55.0	1.05	54.1	1.05	2011-09-10
M 1900	1850	53.3	1.52	52.8	1.47	2011-09-07
	1880	53.3	1.52	52.7	1.50	2011-09-07
	1900	53.3	1.52	52.6	1.51	2011-09-07
	1910	53.3	1.52	52.6	1.53	2011-09-07
M 2450	2412	52.7	1.95	51.8	1.94	2011-09-14
	2437	52.7	1.95	51.8	1.97	2011-09-14
	2441	52.7	1.95	51.8	1.98	2011-09-14
	2450	52.7	1.95	51.7	1.99	2011-09-14
	2462	52.7	1.95	51.7	2.00	2011-09-14

Table 3: 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

The overall combined measurement uncertainty of the measurement system is ± 11.5% (K=1).
The expanded uncertainty (k=2) is assessed to be ± 23.0%
This measurement uncertainty budget is suggested by IEEE 1528-2003 and determined by Schmid & Partner Engineering AG. The breakdown of the individual uncertainties is as follows:

Error Sources	Uncertainty Value	Probability Distribution	Divi-sor	c_i 1g	c_i 10g	Standard Uncertainty 1g	Standard Uncertainty 10g	v_i^2 or 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	± 9.6%	Rectangular	√3	0.7	0.7	± 3.9%	± 3.9%	∞
Spatial resolution	± 0.0%	Rectangular	√3	1	1	± 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	± 1.0%	Normal	1	1	1	± 1.0%	± 1.0%	∞
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 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								
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	± 4.0%	Rectangular	√3	1	1	± 2.3%	± 2.3%	∞
Liquid conductivity (target)	± 5.0%	Rectangular	√3	0.64	0.43	± 1.8%	± 1.2%	∞
Liquid conductivity (meas.)	± 2.5%	Normal	1	0.64	0.43	± 1.6%	± 1.1%	∞
Liquid permittivity (target)	± 5.0%	Rectangular	√3	0.6	0.49	± 1.7%	± 1.4%	∞
Liquid permittivity (meas.)	± 2.5%	Normal	1	0.6	0.49	± 1.5%	± 1.2%	∞
Combined Uncertainty						± 11.5%	± 11.2%	330
Expanded Std. Uncertainty						**± 23.0%**	**± 22.5%**	

Table 4: Measurement uncertainties

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

6.1.12 Measurement uncertainty evaluation for system validation

The overall combined measurement uncertainty of the measurement system is ± 9.6% (K=1).
The expanded uncertainty (k=2) is assessed to be ± 19.2%
This measurement uncertainty budget is suggested by IEEE 1528-2003 and determined by Schmid & Partner Engineering AG. The breakdown of the individual uncertainties is as follows:

Error Sources	Uncertainty Value	Probability Distribution	Divi-sor	c_i 1g	c_i 10g	Standard Uncertainty 1g	Standard Uncertainty 10g	v_i^2 or 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%	± 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%	∞
Readout electronics	± 1.0%	Normal	1	1	1	± 1.0%	± 1.0%	∞
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								
Dipole axis to liquid distance	± 2.0%	Normal	1	1	1	± 1.2%	± 1.2%	∞
Power drift	± 4.7%	Rectangular	√3	1	1	± 2.7%	± 2.7%	∞
Phantom and Set-up								
Phantom uncertainty	± 4.0%	Rectangular	√3	1	1	± 2.3%	± 2.3%	∞
Liquid conductivity (target)	± 5.0%	Rectangular	√3	0.64	0.43	± 1.8%	± 1.2%	∞
Liquid conductivity (meas.)	± 2.5%	Normal	1	0.64	0.43	± 1.6%	± 1.1%	∞
Liquid permittivity (target)	± 5.0%	Rectangular	√3	0.6	0.49	± 1.7%	± 1.4%	∞
Liquid permittivity (meas.)	± 2.5%	Normal	1	0.6	0.49	± 1.5%	± 1.2%	∞
Combined Uncertainty						**± 9.6%**	**± 9.3%**	
Expanded Std. Uncertainty						**± 19.2%**	**± 18.6%**	

Table 5: Measurement uncertainties

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

6.1.13 System validation

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

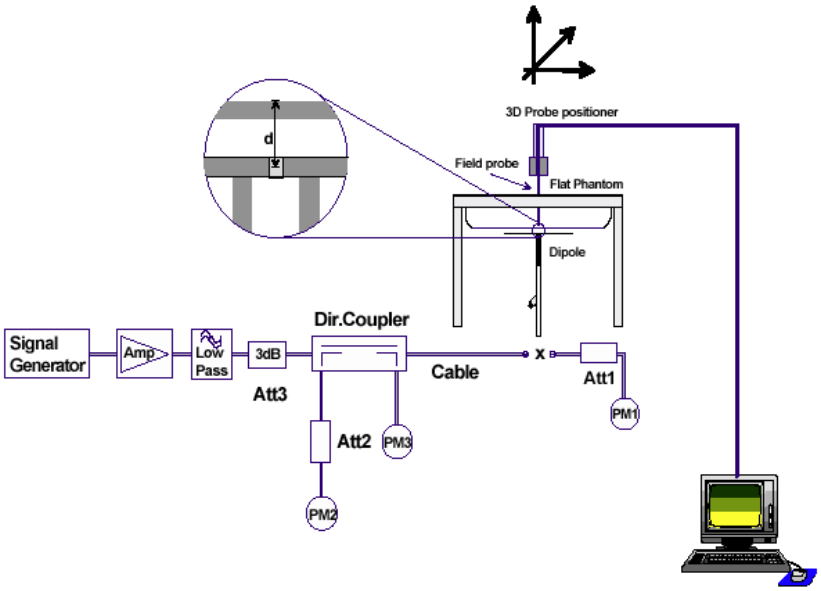
Validation Kit	Frequency	Target Peak SAR (1000 mW) (+/- 10%)	Target SAR_{1g} (1000 mW) (+/- 10%)	Measured Peak SAR (1000 mW)	Measured SAR_{1g} (1000 mW)	Measured date
D900V2 S/N: 102	**900 MHz body**	17.3 mW/g	11.2 mW/g	16.5 mW/g	11.3 mW/g	2011-09-10
D1900V2 S/N: 5d009	**1900 MHz body**	73.8 mW/g	40.9 mW/g	70.0 mW/g	40.8 mW/g	2011-09-07
D2450V2 S/N: 710	**2450 MHz body**	108.0 mW/g	51.7 mW/g	100.8 mW/g	47.2 mW/g	2011-09-14
D2450V2 S/N: 710	**2450 MHz body**	108.0 mW/g	51.7 mW/g	104.0 mW/g	49.6 mW/g	2011-09-15

Table 6: Results system validation

Note : 900 MHz probe/dipole calibration is valid +/-100 MHz and fully covers the 850 MHz band.

6.1.14 Validation procedure

The validation 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. To adjust this power a power meter is used. The power sensor is connected to the cable before the validation 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).
Validation 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 timebased average power is relevant. The difference inbetween 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
timebased 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	time based avg. power (calculated)
128 / 824.2 MHz	GMSK	1	33.4 dBm	24.4 dBm
190 / 836.6 MHz	GMSK	1	33.3 dBm	24.3 dBm
251 / 848.0 MHz	GMSK	1	33.4 dBm	24.4 dBm
128 / 824.2 MHz	GMSK	2	30.5 dBm	24.5 dBm
190 / 836.6 MHz	GMSK	2	30.5 dBm	24.5 dBm
251 / 848.0 MHz	GMSK	2	30.5 dBm	24.5 dBm
128 / 824.2 MHz	GMSK	3	29.0 dBm	**24.75 dBm**
190 / 836.6 MHz	GMSK	3	29.2 dBm	**24.95 dBm**
251 / 848.0 MHz	GMSK	3	29.3 dBm	**25.05 dBm**
128 / 824.2 MHz	GMSK	4	27.5 dBm	24.5 dBm
190 / 836.6 MHz	GMSK	4	27.6 dBm	24.6 dBm
251 / 848.0 MHz	GMSK	4	27.7 dBm	24.7 dBm
128 / 824.2 MHz	8PSK	4	21.6 dBm	18.6 dBm
190 / 836.6 MHz	8PSK	4	21.7 dBm	18.7 dBm
251 / 848.0 MHz	8PSK	4	21.8 dBm	18.8 dBm

Table 7: 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 (calculated)
512 / 1850.2 MHz	GMSK	1	29.3 dBm	20.3 dBm
661 / 1880.0 MHz	GMSK	1	29.2 dBm	20.2 dBm
810 / 1909.8 MHz	GMSK	1	29.1 dBm	20.1 dBm
512 / 1850.2 MHz	GMSK	2	27.7 dBm	**21.7 dBm**
661 / 1880.0 MHz	GMSK	2	27.8 dBm	**21.8 dBm**
810 / 1909.8 MHz	GMSK	2	27.9 dBm	**21.9 dBm**
512 / 1850.2 MHz	GMSK	3	25.2 dBm	20.95 dBm
661 / 1880.0 MHz	GMSK	3	25.4 dBm	21.15 dBm
810 / 1909.8 MHz	GMSK	3	25.1 dBm	20.85 dBm
512 / 1850.2 MHz	GMSK	4	24.3 dBm	21.3 dBm
661 / 1880.0 MHz	GMSK	4	24.2 dBm	21.2 dBm
810 / 1909.8 MHz	GMSK	4	24.1 dBm	21.1 dBm
512 / 1850.2 MHz	8PSK	4	21.2 dBm	18.2 dBm
661 / 1880.0 MHz	8PSK	4	21.1 dBm	18.1 dBm
810 / 1909.8 MHz	8PSK	4	21.0 dBm	18.0 dBm

Table 8: Test results conducted power measurement GSM 1900 MHz

7.1.3 Justification of SAR measurements in GSM mode

SAR measurements were performed in GPRS mode with 3 active timeslots at GSM 850MHz and 2 active timeslots at GSM 1900MHz because highest time based averaged output power was calculated for that configuration.
For comparison the additional delta measurements were performed with residual timeslots configuration. In EDGE mode no delta measurement was performed.
In Mobile Hotspot UI Mode, there is software power back-off in some bands to comply with RF exposure requirements with 10 mm distance.

7.1.4 Conducted power measurements WLAN 2.4 GHz

Channel / frequency	modulation	bit rate	timebased avg. power
1 / 2412 MHz	CCK	1 MBit/s	17.9 dBm
6 / 2437 MHz	CCK	1 MBit/s	18.3 dBm
11 / 2462 MHz	CCK	1 MBit/s	**18.5 dBm**
1 / 2412 MHz	OFDM	6 MBit/s	15.4 dBm
6 / 2437 MHz	OFDM	6 MBit/s	15.8 dBm
11 / 2462 MHz	OFDM	6 MBit/s	16.0 dBm
1 / 2412 MHz	OFDM	6.5 MBit/s	15.1 dBm
6 / 2437 MHz	OFDM	6.5 MBit/s	15.5 dBm
11 / 2462 MHz	OFDM	6.5 MBit/s	15.8 dBm

Table 9: Test results conducted power measurement WLAN 2.4 GHz

7.1.5 Conducted power measurements Bluetooth

Channel / frequency	mode	timebased avg. power
00 / 2402 MHz	DH5	6.9 dBm
39 / 2441 MHz	DH5	**7.0 dBm**
78 / 2480 MHz	DH5	6.8 dBm

Table 10: Test results conducted power measurement Bluetooth

7.1.6 Multiple Transmitter Information

The following tables list information which is relevant for the decision if a simultaneous transmit evaluation is necessary according to KDB 648474.

Tx No.	Communcation system and frequency band	P_{avg} (mW)	single SAR (W/kg) (see ch. 7.2)	remarks
1a	GSM 850 MHz	500	0.964	routine evaluation
1b	GSM 1900 MHz	250	1.290	routine evaluation
1c	CDMA 850 MHz	250	0.715	routine evaluation
1d	CDMA 1900 MHz	250	1.120	routine evaluation
2a	WLAN 2450 MHz	50	0.433	routine evaluation
2b	Bluetooth 2450 MHz	5	0.0036	$P_2 < P_{ref}$
Sum of all 1g-SAR values			n/a	

Table 11: Communication systems and SAR values in body position

antenna pair (x,y)	peak-locations spacing L_{xy} (cm)	Σ 1g-SAR (W/kg)	$SPLSR_{xy}$	sim.-Tx SAR	remarks
(1a,2a)	7.72	1.397	0.18	N	$SPLSR_{xy} < 0.3$ and ΣSAR < 1.6 W/kg
(1b,2a)	11.49	1.723	0.15	N	ΣSAR > 1.6 W/kg but $SPLSR_{xy} < 0.3$
(1c,2a)	7.72	1.148	0.15	N	$SPLSR_{xy} < 0.3$ and ΣSAR < 1.6 W/kg
(1d,2a)	11.49	1.553	0.14	N	$SPLSR_{xy} < 0.3$ and ΣSAR < 1.6 W/kg

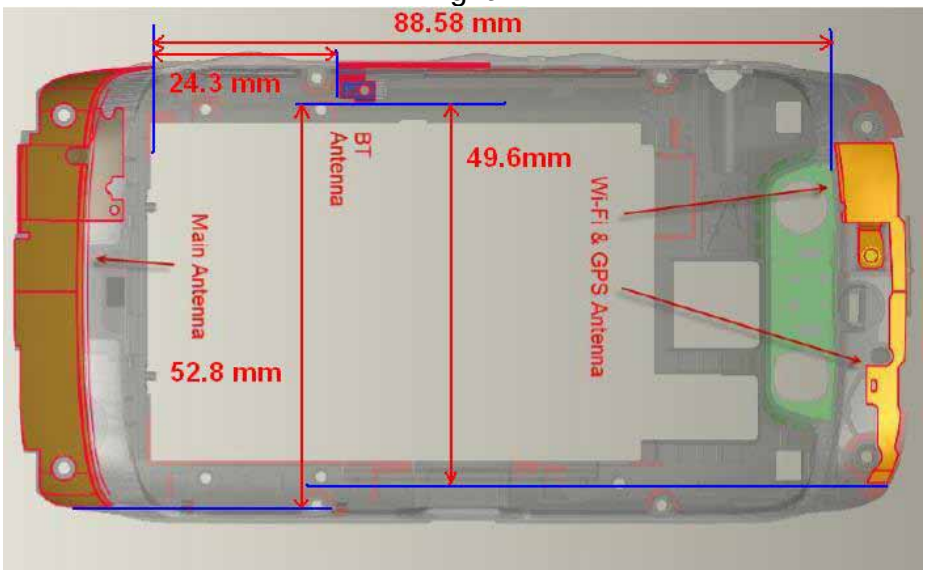
Table 12: Antenna distances and SPLSR evaluation in body position

SPLSRxy = SAR-to-(peak-locations spacing) ratio = (SARx+SARy)/Lxy
P_{ref} : 12 mW at 2.4 GHz
Minimum antenna separation distance between main antenna and WLAN – 88.58 mm
Σ 1g-SAR: sum of the highest SAR of Tx No. 1 and the SAR of Tx No. 2 at the same DUT position or orientation as the highest value of Tx No. 1 i.e. not necessarily the sum of the highest SAR values of both transmitters.

7.1.7 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
WLAN 2450	yes	yes	yes	yes	yes	no
Bluetooth 2450	yes	yes	no	yes	no	no

right



bottom top

left

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

7.2 SAR test results

7.2.1 Results overview

Body SAR GSM 850 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Distance	test condition	Body worn test result	Limit	Liquid temperature
190 / 836.6 MHz	front	10 mm	2 time slots	0.787 W/kg	1.6 W/kg	23.0 °C
128 / 824.2 MHz	rear	10 mm	2 time slots	**0.880** W/kg	1.6 W/kg	23.0 °C
190 / 836.6 MHz	rear	10 mm	2 time slots	0.851 W/kg	1.6 W/kg	23.0 °C
251 / 848.8 MHz	rear	10 mm	2 time slots	0.816 W/kg	1.6 W/kg	23.0 °C
190 / 836.6 MHz	left	10 mm	2 time slots	0.565 W/kg	1.6 W/kg	23.0 °C
190 / 836.6 MHz	right	10 mm	2 time slots	0.682 W/kg	1.6 W/kg	23.0 °C
190 / 836.6 MHz	bottom	10 mm	2 time slots	0.075 W/kg	1.6 W/kg	23.0 °C
128 / 824.2 MHz	rear	10 mm	3 time slots	0.909 W/kg	1.6 W/kg	23.0 °C
128 / 824.2 MHz	rear	10 mm	**4 time slots**	**0.964 W/kg**	1.6 W/kg	23.0 °C

Table 13: Test results body SAR GSM 850 MHz

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

Body SAR GSM 1900 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Distance	test condition	Body worn test result	Limit	Liquid temperature
661 / 1880.0 MHz	front	10 mm	2 time slots	0.486 W/kg	1.6 W/kg	22.5 °C
512 / 1850.2 MHz	rear	10 mm	**2 time slots**	**1.290 W/kg**	1.6 W/kg	22.5 °C
661 / 1880.0 MHz	rear	10 mm	2 time slots	1.220 W/kg	1.6 W/kg	22.5 °C
810 / 1909.8 MHz	rear	10 mm	2 time slots	1.150 W/kg	1.6 W/kg	22.5 °C
661 / 1880.0 MHz	left	10 mm	2 time slots	0.037 W/kg	1.6 W/kg	22.5 °C
661 / 1880.0 MHz	right	10 mm	2 time slots	0.229 W/kg	1.6 W/kg	22.5 °C
512 / 1850.2 MHz	bottom	10 mm	2 time slots	1.020 W/kg	1.6 W/kg	22.5 °C
661 / 1880.0 MHz	bottom	10 mm	2 time slots	1.190 W/kg	1.6 W/kg	22.5 °C
810 / 1909.8 MHz	bottom	10 mm	2 time slots	1.270 W/kg	1.6 W/kg	22.5 °C
512 / 1850.2 MHz	rear	10 mm	3 time slots	1.080 W/kg	1.6 W/kg	22.5 °C
512 / 1850.2 MHz	rear	10 mm	4 time slots	1.180 W/kg	1.6 W/kg	22.5 °C

Table 14: Test results body SAR GSM 1900 MHz

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

Body SAR CDMA BC0 850 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Distance	test condition	Body worn test result	Limit	Liquid temperature
384 / 836.52 MHz	front	10 mm	TDSO32	0.681 W/kg	1.6 W/kg	21.5 °C
384 / 836.52 MHz	rear	10 mm	TDSO32	**0.715 W/kg**	1.6 W/kg	21.5 °C
384 / 836.52 MHz	left	10 mm	TDSO32	0.366 W/kg	1.6 W/kg	22.1 °C
384 / 836.52 MHz	right	10 mm	TDSO32	0.474 W/kg	1.6 W/kg	22.1 °C
384 / 836.52 MHz	bottom	10 mm	TDSO32	0.063 W/kg	1.6 W/kg	21.5 °C

Table 15: Test results body SAR CDMA BC0 850 MHz
(see test report no.: SAR_CETE4_015_11001_RDH71CW)

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

Body SAR CDMA BC1 1900 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Distance	test condition	Body worn test result	Limit	Liquid temperature
600 / 1880.0 MHz	front	10 mm	TDSO32	0.367 W/kg	1.6 W/kg	21.7 °C
25 / 1851.25 MHz	rear	10 mm	TDSO32	**1.120 W/kg**	1.6 W/kg	21.7 °C
600 / 1880.0 MHz	rear	10 mm	TDSO32	0.980 W/kg	1.6 W/kg	21.7 °C
1175 / 1908.75 MHz	rear	10 mm	TDSO32	1.050 W/kg	1.6 W/kg	21.7 °C
600 / 1880.0 MHz	left	10 mm	TDSO32	0.214 W/kg	1.6 W/kg	21.6 °C
600 / 1880.0 MHz	right	10 mm	TDSO32	0.052 W/kg	1.6 W/kg	21.6 °C
600 / 1880.0 MHz	bottom	10 mm	TDSO32	0.786 W/kg	1.6 W/kg	21.6 °C

Table 16: Test results body SAR CDMA BC1 1900 MHz
(see test report no.: SAR_CETE4_015_11001_RDH71CW)

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

Body SAR WLAN 2450 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Distance	test condition	Body worn test result	Limit	Liquid temperature
6 / 2437 MHz	front	10 mm	CCK 1 Mbit/s	0.033 W/kg	1.6 W/kg	22.3 °C
6 / 2437 MHz	rear	10 mm	CCK 1 Mbit/s	**0.433 W/kg**	1.6 W/kg	22.3 °C
6 / 2437 MHz	left	10 mm	CCK 1 Mbit/s	0.034 W/kg	1.6 W/kg	22.3 °C
6 / 2437 MHz	right	10 mm	CCK 1 Mbit/s	0.062 W/kg	1.6 W/kg	22.3 °C
6 / 2437 MHz	top edge	10 mm	CCK 1 Mbit/s	0.280 W/kg	1.6 W/kg	22.3 °C

Table 17: Test results body SAR WLAN 2450 MHz

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

Body SAR Bluetooth 2450 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Distance	test condition	Body worn test result	Limit	Liquid temperature
39 / 2441 MHz	front	10 mm	DH5	0.00220 W/kg	1.6 W/kg	22.3 °C
39 / 2441 MHz	rear	10 mm	DH5	0.00159 W/kg	1.6 W/kg	22.3 °C
39 / 2441 MHz	right	10 mm	DH5	**0.00362 W/kg**	1.6 W/kg	22.3 °C

Table 18: Test results body SAR Bluetooth 2450 MHz

Top, bottom and left edge positions are not required since the distance from the Bluetooth antenna to the edge is greater than 2.5cm.

Note:

The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8 W/kg), testing at the high and low channels is optional.
Per Oct 2010 TCB FCC Workshop, 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 with 10 mm air gap between DUT and SAM.

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).
WLAN was tested in 802.11b mode with 1 MBit/s.

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.

No	used	Equipment	Type	Manufacturer	Serial No.	Last Calibration	Frequency (months)
1	☒	Dosimetric E-Field Probe	ET3DV6	Schmid & Partner Engineering AG	1558	August 23, 2011	12
2	☒	Dosimetric E-Field Probe	ET3DV6	Schmid & Partner Engineering AG	1559	January 19, 2011	12
3	☒	900 MHz System Validation Dipole	D900V2	Schmid & Partner Engineering AG	102	August 15, 2011	12
4	☐	1800 MHz System Validation Dipole	D1800V2	Schmid & Partner Engineering AG	287	August 17, 2011	12
5	☒	1900 MHz System Validation Dipole	D1900V2	Schmid & Partner Engineering AG	531	August 17, 2011	12
6	☒	2450 MHz System Validation Dipole	D2450V2	Schmid & Partner Engineering AG	710	August 19, 2011	12
7	☒	Data acquisition electronics	DAE3V1	Schmid & Partner Engineering AG	413	January 13, 2011	12
8	☒	Data acquisition electronics	DAE3V1	Schmid & Partner Engineering AG	477	May 04, 2011	12
9	☒	Software	DASY 4 V4.5	Schmid & Partner Engineering AG	---	N/A	--
10	☒	Phantom	SAM	Schmid & Partner Engineering AG	---	N/A	--
11	☒	Universal Radio Communication Tester	CMU 200	Rohde & Schwarz	106826	January 12, 2011	12
12	☒	Network Analyser 300 kHz to 6 GHz	8753ES	Hewlett Packard)*	US39174436	July 6, 2010	12
13	☒	Dielectric Probe Kit	85070C	Hewlett Packard	US99360146	N/A	12
14	☒	Signal Generator	8665A	Hewlett Packard	2833A00112	January 6, 2011	12
15	☒	Amplifier	25S1G4 (25 Watt)	Amplifier Reasearch	20452	N/A	--
16	☒	Power Meter	NRP	Rohde & Schwarz	101367	January 6, 2011	12
17	☒	Power Meter Sensor	NRP Z22	Rohde & Schwarz	100227	January 6, 2011	12
18	☒	Power Meter Sensor	NRP Z22	Rohde & Schwarz	100234	January 6, 2011	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 verification

Date/Time: 10.09.2011 19:04:12Date/Time: 10.09.2011 19:07:51

SystemPerformanceCheck-D900 body 2011-09-10

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

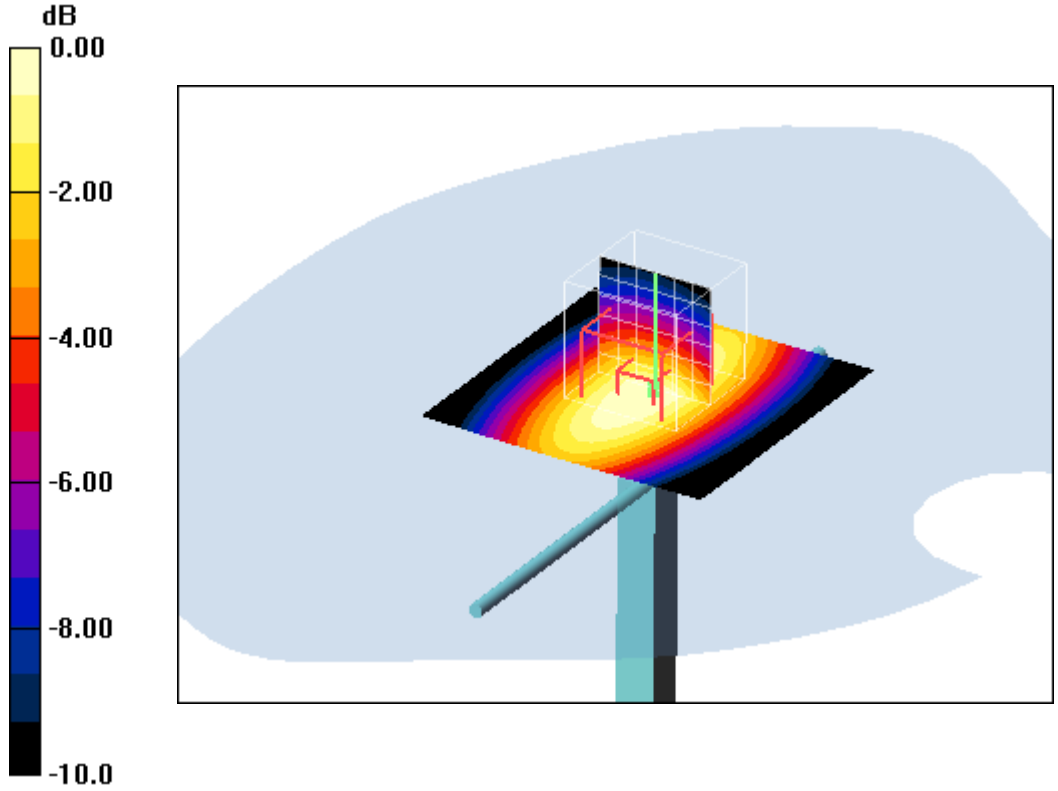
Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1
Medium: M900 Medium parameters used: f = 900 MHz; σ = 1.05 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.77, 5.77, 5.77); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

d=15mm, Pin=1000mW/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm

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

d=15mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 113.9 V/m; Power Drift = -0.027 dB
Peak SAR (extrapolated) = 16.5 W/kg
SAR(1 g) = 11.3 mW/g; SAR(10 g) = 7.35 mW/g
Maximum value of SAR (measured) = 12.3 mW/g



0 dB = 12.3mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 07.09.2011 09:10:03Date/Time: 07.09.2011 09:13:41

SystemPerformanceCheck-D1900 body 2011-09-07

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d009

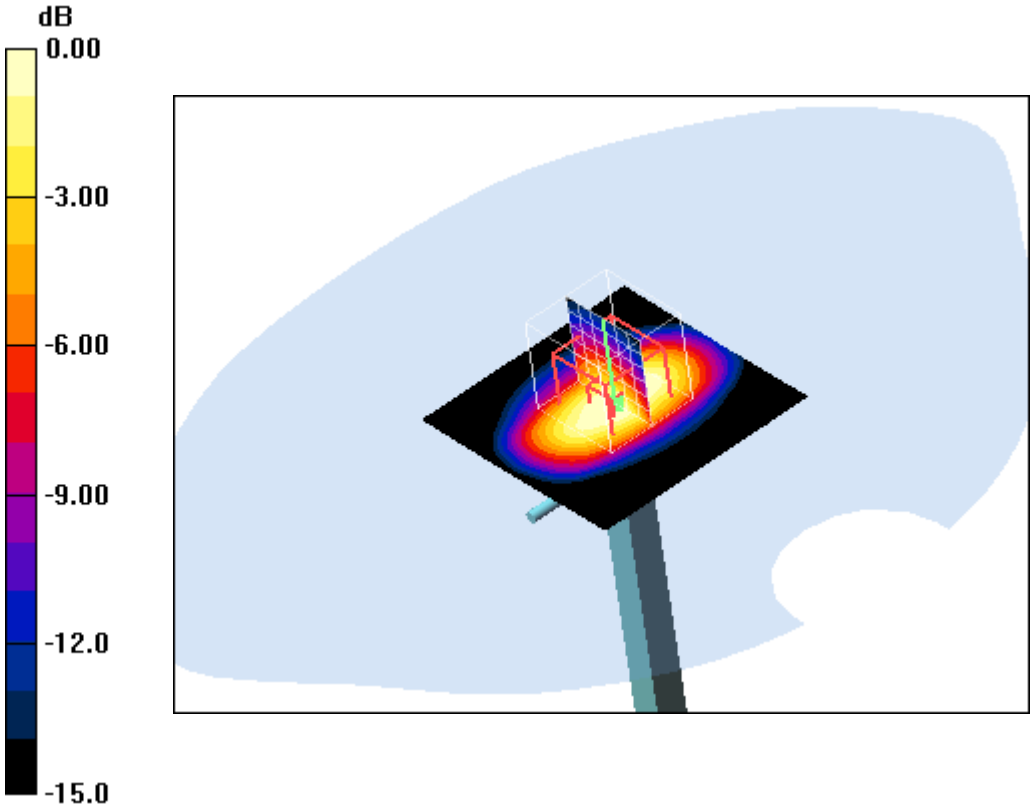
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: M1900 Medium parameters used: f = 1900 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.3, 4.3, 4.3); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

d=10mm, Pin=1000mW/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 56.8 mW/g

d=10mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 185.9 V/m; Power Drift = -0.061 dB
Peak SAR (extrapolated) = 70.0 W/kg
SAR(1 g) = 40.8 mW/g; SAR(10 g) = 21.8 mW/g
Maximum value of SAR (measured) = 46.2 mW/g



0 dB = 46.2mW/g

Additional information:
ambient temperature: 23.3°C; liquid temperature: 23.0°C

Date/Time: 14.09.2011 13:49:56Date/Time: 14.09.2011 13:53:37

SystemPerformanceCheck-D2450 body 2011-09-14

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

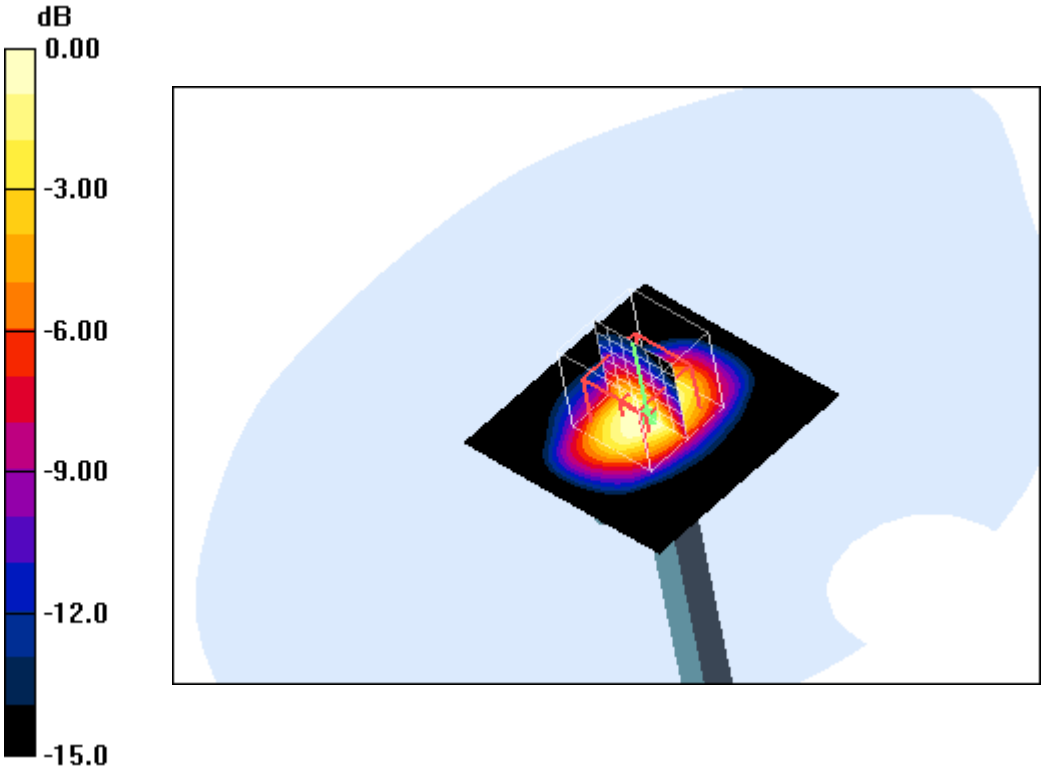
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used: f = 2450 MHz; σ = 1.99 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 17.7 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 88.7 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 25.2 W/kg
SAR(1 g) = 11.8 mW/g; SAR(10 g) = 5.82 mW/g
Maximum value of SAR (measured) = 13.8 mW/g



0 dB = 13.8mW/g

Additional information:
ambient temperature: 23.1°C; liquid temperature: 22.7°C

Date/Time: 15.09.2011 08:52:19Date/Time: 15.09.2011 08:56:09

SystemPerformanceCheck-D2450 body 2011-09-15

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

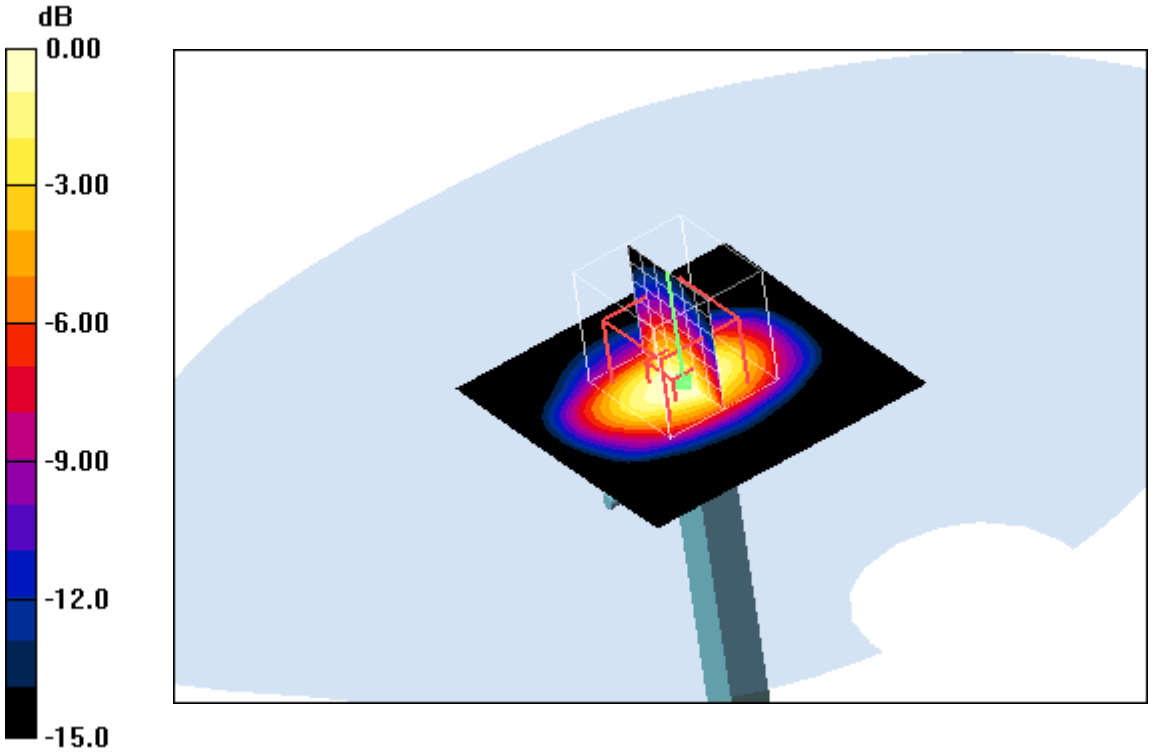
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used: f = 2450 MHz; σ = 1.99 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 18.0 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.8 V/m; Power Drift = 0.080 dB
Peak SAR (extrapolated) = 26.0 W/kg
SAR(1 g) = 12.4 mW/g; SAR(10 g) = 6.09 mW/g
Maximum value of SAR (measured) = 14.4 mW/g



0 dB = 14.4mW/g

Additional information:
ambient temperature: 22.3°C; liquid temperature: 22.3°C

Annex B: DASY4 measurement results

Annex B.1: GSM 850MHz body

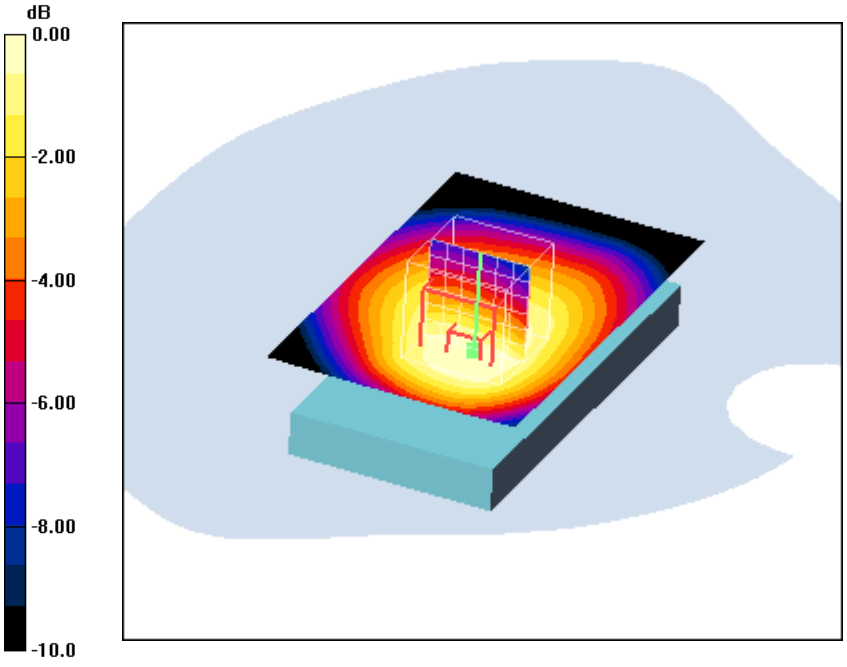
Date/Time: 10.09.2011 15:36:24Date/Time: 10.09.2011 15:43:12

IEEE1528_OET65-Body-GSM850 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524
Communication System: GSM 850 GPRS 2TS; Frequency: 836.6 MHz; Duty Cycle: 1:4
Medium: M850 Medium parameters used: f = 836.6 MHz; σ = 0.98 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.85, 5.85, 5.85); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Middle/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.848 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.2 V/m; Power Drift = -0.016 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.787 mW/g; SAR(10 g) = 0.585 mW/g
Maximum value of SAR (measured) = 0.825 mW/g



0 dB = 0.825mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 10.09.2011 14:37:05Date/Time: 10.09.2011 14:43:35

IEEE1528_OET65-Body-GSM850 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

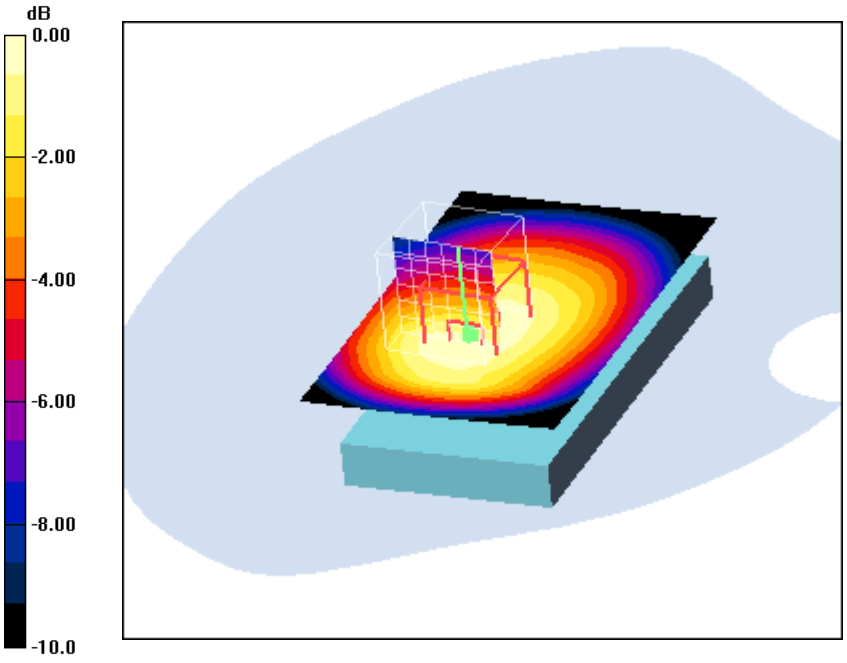
Communication System: GSM 850 GPRS 2TS; Frequency: 824.2 MHz; Duty Cycle: 1:4
Medium: M850 Medium parameters used: f = 824.2 MHz; σ = 0.97 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.85, 5.85, 5.85); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.938 mW/g

Rear position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 32.4 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.880 mW/g; SAR(10 g) = 0.661 mW/g
Maximum value of SAR (measured) = 0.927 mW/g



0 dB = 0.927mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 10.09.2011 14:17:43Date/Time: 10.09.2011 14:24:02

IEEE1528_OET65-Body-GSM850 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

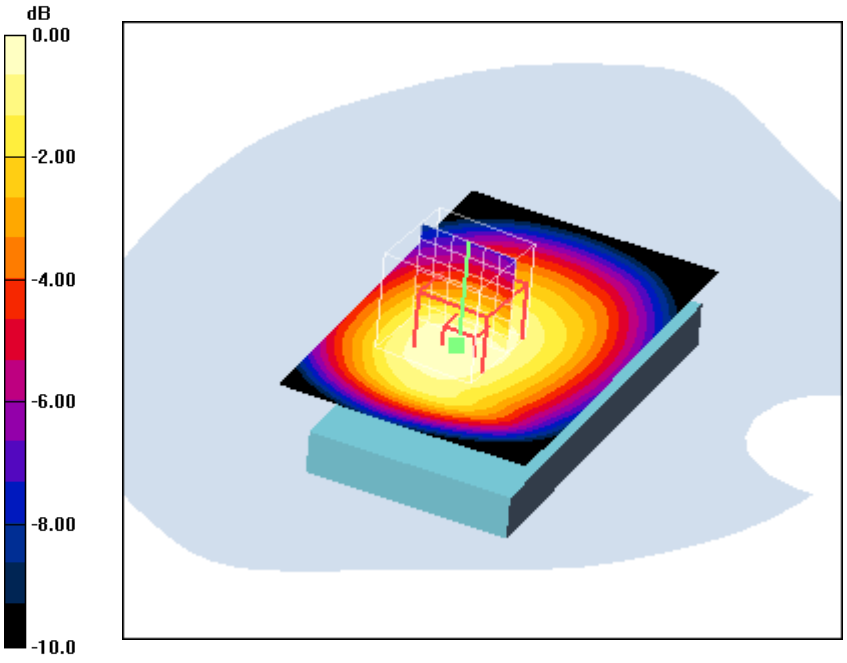
Communication System: GSM 850 GPRS 2TS; Frequency: 836.6 MHz; Duty Cycle: 1:4
Medium: M850 Medium parameters used: f = 836.6 MHz; σ = 0.98 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.85, 5.85, 5.85); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Middle/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.894 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.8 V/m; Power Drift = -0.119 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.851 mW/g; SAR(10 g) = 0.633 mW/g
Maximum value of SAR (measured) = 0.900 mW/g



0 dB = 0.900mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 10.09.2011 14:58:28Date/Time: 10.09.2011 15:04:56

IEEE1528_OET65-Body-GSM850 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

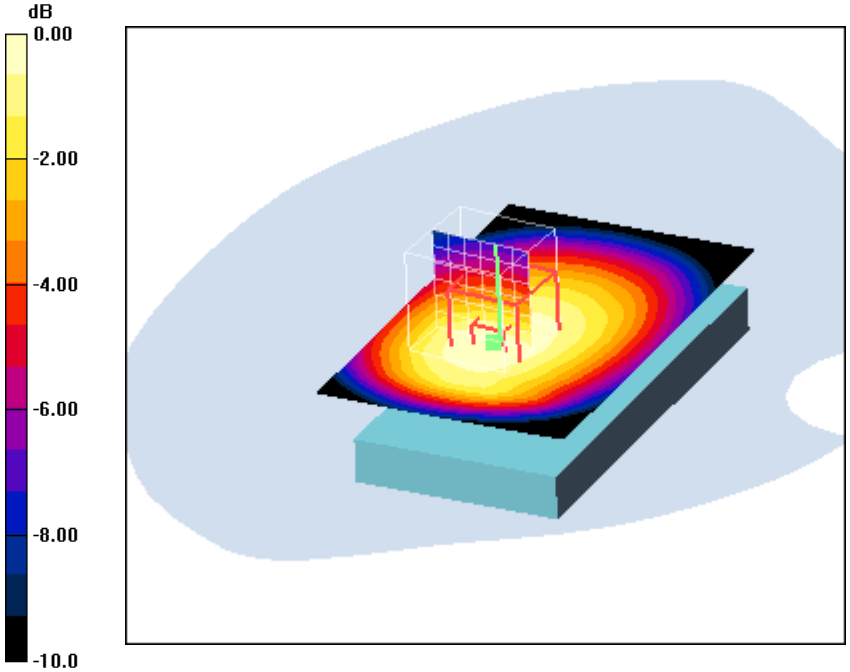
Communication System: GSM 850 GPRS 2TS; Frequency: 848.8 MHz; Duty Cycle: 1:4
Medium: M850 Medium parameters used: f = 848.8 MHz; σ = 1 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.85, 5.85, 5.85); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - High/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

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

Rear position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.8 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.816 mW/g; SAR(10 g) = 0.606 mW/g
Maximum value of SAR (measured) = 0.861 mW/g



0 dB = 0.861mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 10.09.2011 16:00:56Date/Time: 10.09.2011 16:12:17

IEEE1528_OET65-Body-GSM850 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

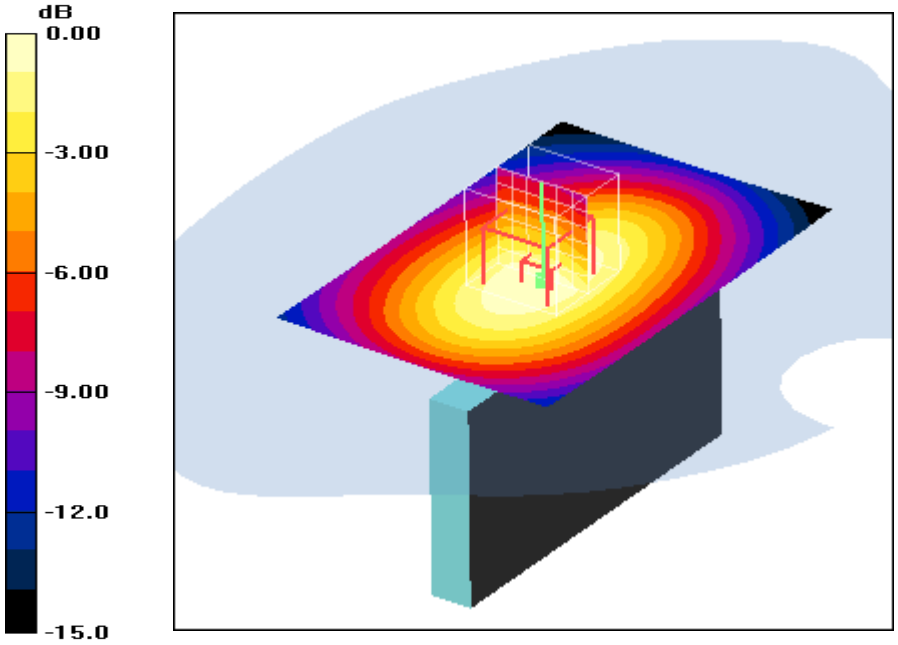
Communication System: GSM 850 GPRS 2TS; Frequency: 836.6 MHz; Duty Cycle: 1:4
Medium: M850 Medium parameters used: f = 836.6 MHz; σ = 0.98 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.85, 5.85, 5.85); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge left position - Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.607 mW/g

Edge left position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.2 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 0.772 W/kg
SAR(1 g) = 0.565 mW/g; SAR(10 g) = 0.395 mW/g
Maximum value of SAR (measured) = 0.600 mW/g



0 dB = 0.600mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 10.09.2011 16:27:49Date/Time: 10.09.2011 16:36:46

IEEE1528_OET65-Body-GSM850 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

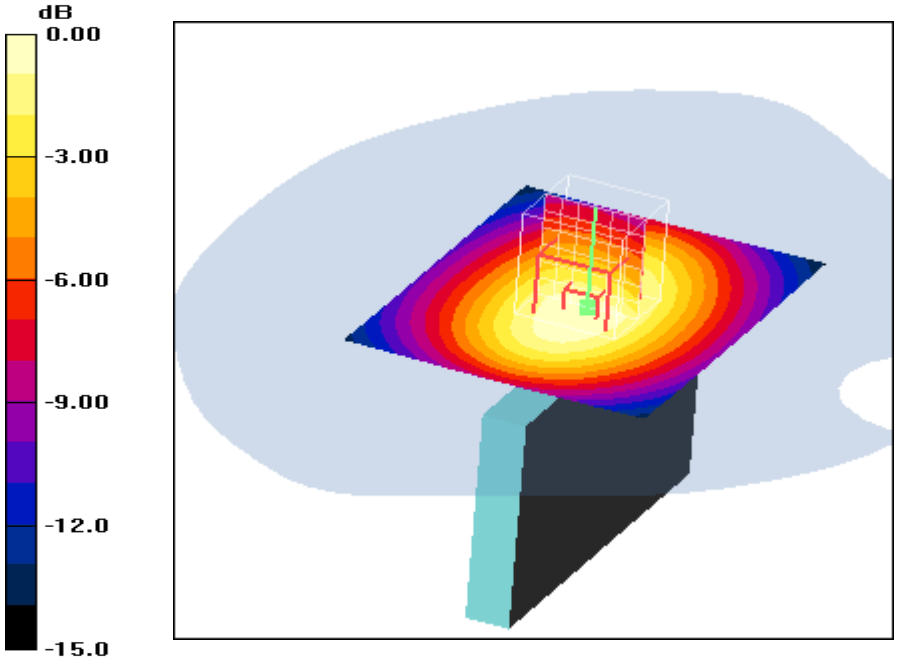
Communication System: GSM 850 GPRS 2TS; Frequency: 836.6 MHz; Duty Cycle: 1:4
Medium: M850 Medium parameters used: f = 836.6 MHz; σ = 0.98 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.85, 5.85, 5.85); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge right position - Middle/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.733 mW/g

Edge right position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 28.7 V/m; Power Drift = -0.030 dB
Peak SAR (extrapolated) = 0.925 W/kg
SAR(1 g) = 0.682 mW/g; SAR(10 g) = 0.474 mW/g
Maximum value of SAR (measured) = 0.731 mW/g



0 dB = 0.731mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 10.09.2011 16:52:39Date/Time: 10.09.2011 17:01:00

IEEE1528_OET65-Body-GSM850 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

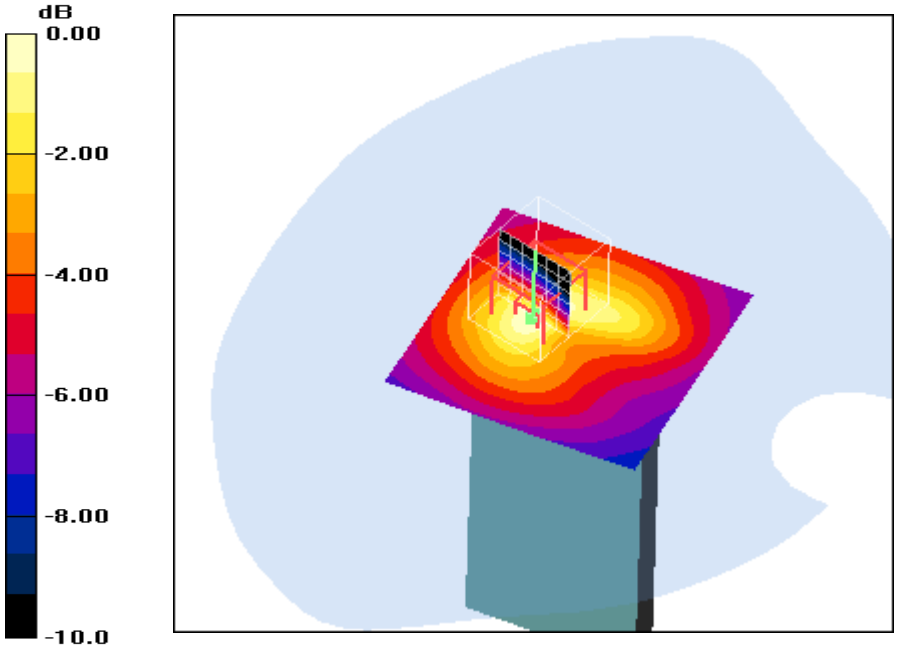
Communication System: GSM 850 GPRS 2TS; Frequency: 836.6 MHz; Duty Cycle: 1:4
Medium: M850 Medium parameters used: f = 836.6 MHz; σ = 0.98 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.85, 5.85, 5.85); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge bottom position - Middle/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.078 mW/g

Edge bottom position - Middle/Zoom Scan (7x7x7) (7x8x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.11 V/m; Power Drift = -0.021 dB
Peak SAR (extrapolated) = 0.134 W/kg
SAR(1 g) = 0.075 mW/g; SAR(10 g) = 0.044 mW/g
Maximum value of SAR (measured) = 0.081 mW/g



0 dB = 0.081mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 10.09.2011 17:28:12Date/Time: 10.09.2011 17:35:00

IEEE1528_OET65-Body-GSM850 GPRS 3TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

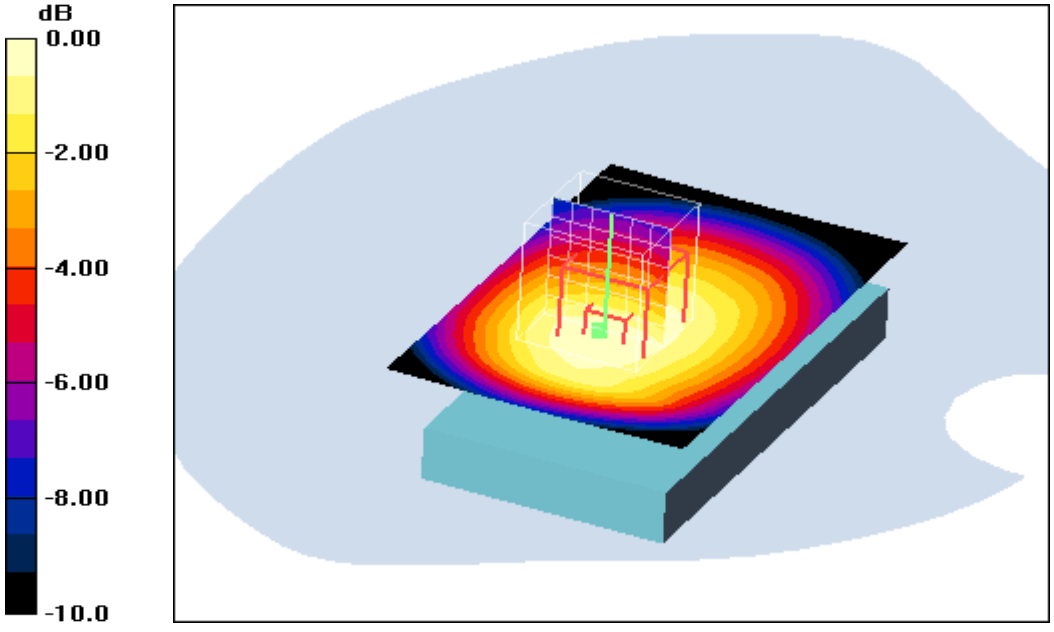
Communication System: PCS 850 GPRS 3TS; Frequency: 824.2 MHz; Duty Cycle: 1:2.7
Medium: M850 Medium parameters used: f = 824.2 MHz; σ = 0.97 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.85, 5.85, 5.85); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.961 mW/g

Rear position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 32.4 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.909 mW/g; SAR(10 g) = 0.680 mW/g
Maximum value of SAR (measured) = 0.957 mW/g



0 dB = 0.957mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 10.09.2011 17:50:08Date/Time: 10.09.2011 17:56:52

IEEE1528_OET65-Body-GSM850 GPRS 4TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

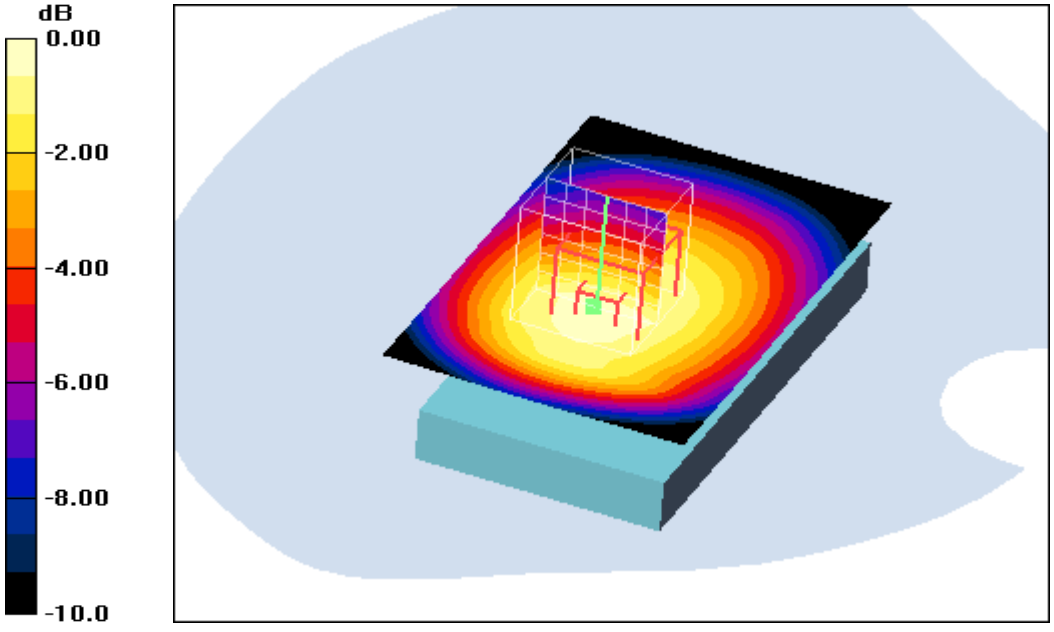
Communication System: PCS 850 GPRS 4TS; Frequency: 824.2 MHz; Duty Cycle: 1:2
Medium: M850 Medium parameters used: f = 824.2 MHz; σ = 0.97 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(5.85, 5.85, 5.85); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.967 mW/g

Rear position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 33.3 V/m; Power Drift = 0.011 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.964 mW/g; SAR(10 g) = 0.719 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



0 dB = 1.02mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.5°C; liquid temperature: 23.0°C

Annex B.2: GSM 1900MHz body

Date/Time: 07.09.2011 13:09:23Date/Time: 07.09.2011 13:19:07

IEEE1528_OET65-Body-GSM1900 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

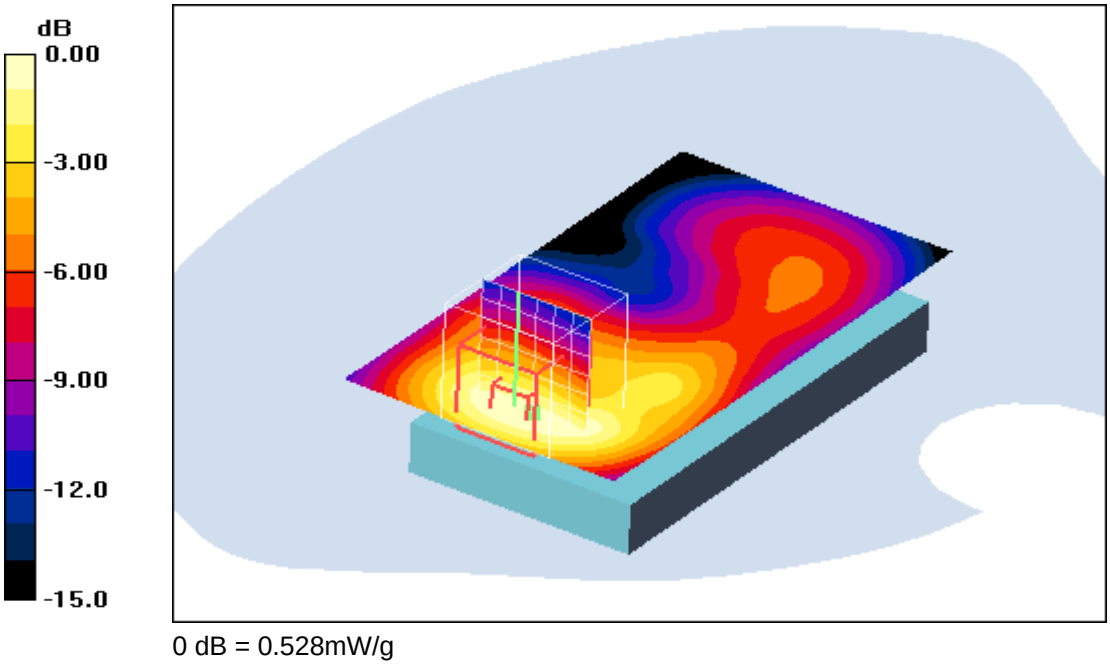
Communication System: GSM 1900 GPRS 2TS; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.3, 4.3, 4.3); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.538 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.9 V/m; Power Drift = -0.128 dB
Peak SAR (extrapolated) = 0.760 W/kg
SAR(1 g) = 0.486 mW/g; SAR(10 g) = 0.291 mW/g
Maximum value of SAR (measured) = 0.528 mW/g



0 dB = 0.528mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 07.09.2011 16:39:10Date/Time: 07.09.2011 16:46:42

IEEE1528_OET65-Body-GSM1900 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

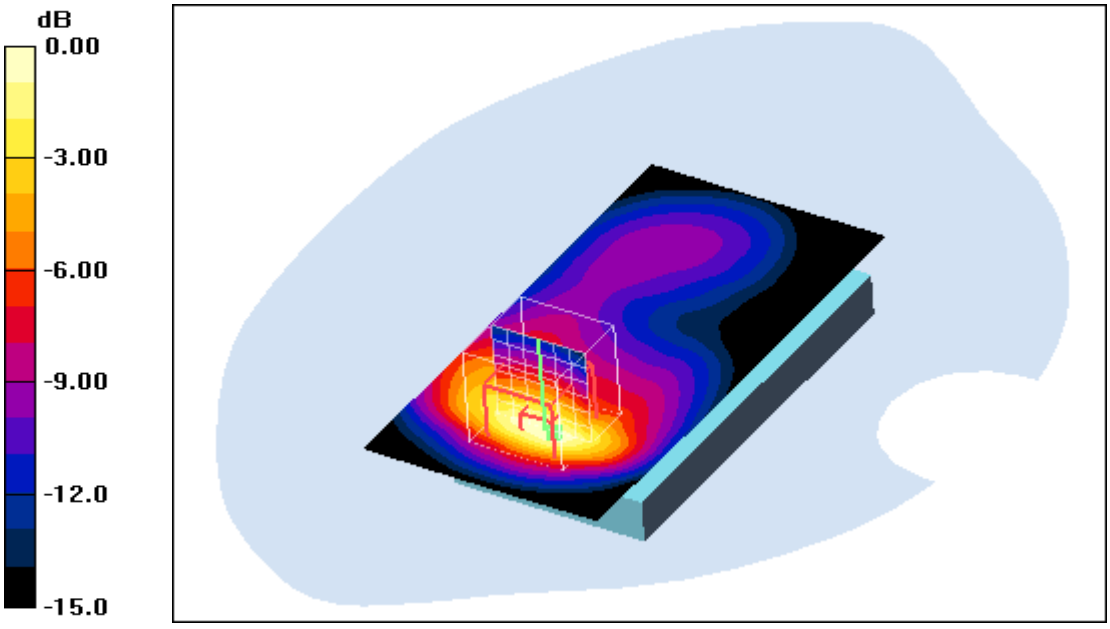
Communication System: GSM 1900 GPRS 2TS; Frequency: 1850.2 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1850.2 MHz; σ = 1.47 mho/m; ε_r = 52.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.3, 4.3, 4.3); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.42 mW/g

Rear position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 32.0 V/m; Power Drift = -0.044 dB
Peak SAR (extrapolated) = 2.13 W/kg
SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.687 mW/g
Maximum value of SAR (measured) = 1.47 mW/g



0 dB = 1.47mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 07.09.2011 16:17:28Date/Time: 07.09.2011 16:25:31

IEEE1528_OET65-Body-GSM1900 GPRS 2TS

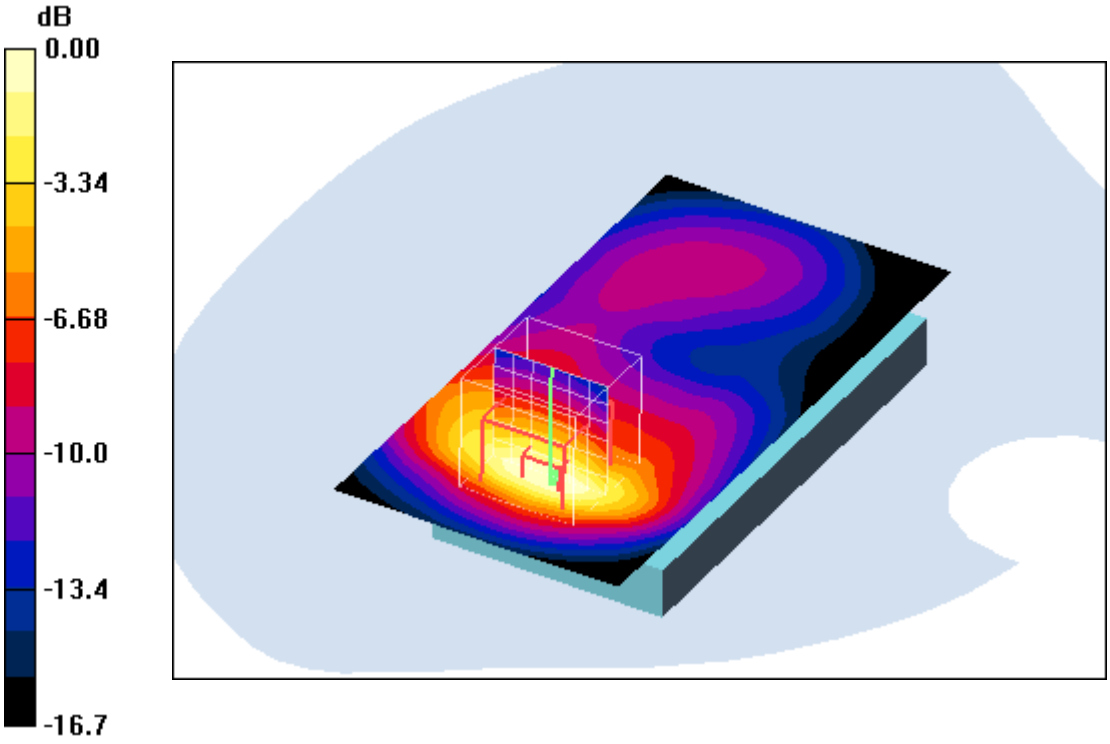
DUT: RIM; Type: RDH71CW; Serial: A00000258E3524
Communication System: GSM 1900 GPRS 2TS; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.3, 4.3, 4.3); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.34 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.9 V/m; Power Drift = -0.163 dB
Peak SAR (extrapolated) = 2.04 W/kg
SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.649 mW/g
Maximum value of SAR (measured) = 1.37 mW/g



0 dB = 1.37mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 07.09.2011 16:59:02Date/Time: 07.09.2011 17:06:29

IEEE1528_OET65-Body-GSM1900 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

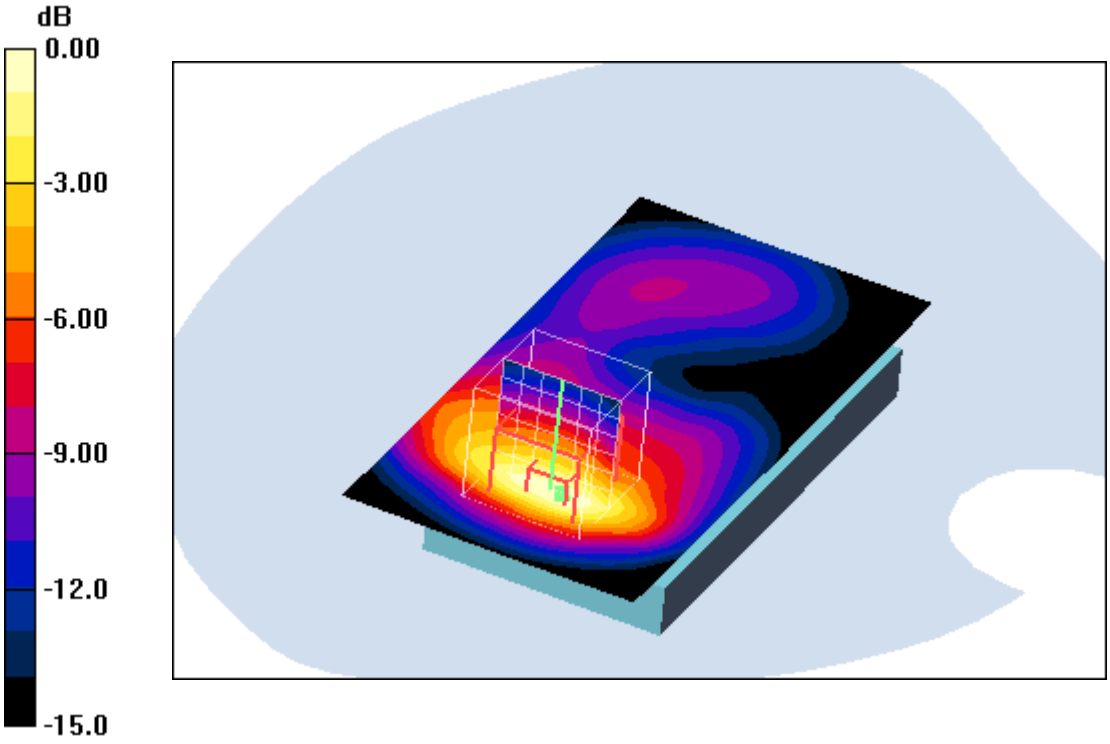
Communication System: GSM 1900 GPRS 2TS; Frequency: 1909.8 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1909.8 MHz; σ = 1.53 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.3, 4.3, 4.3); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - High/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.26 mW/g

Rear position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.2 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.96 W/kg
SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.608 mW/g
Maximum value of SAR (measured) = 1.28 mW/g



0 dB = 1.28mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 07.09.2011 14:49:58Date/Time: 07.09.2011 15:01:30

IEEE1528_OET65-Body-GSM1900 GPRS 2TS

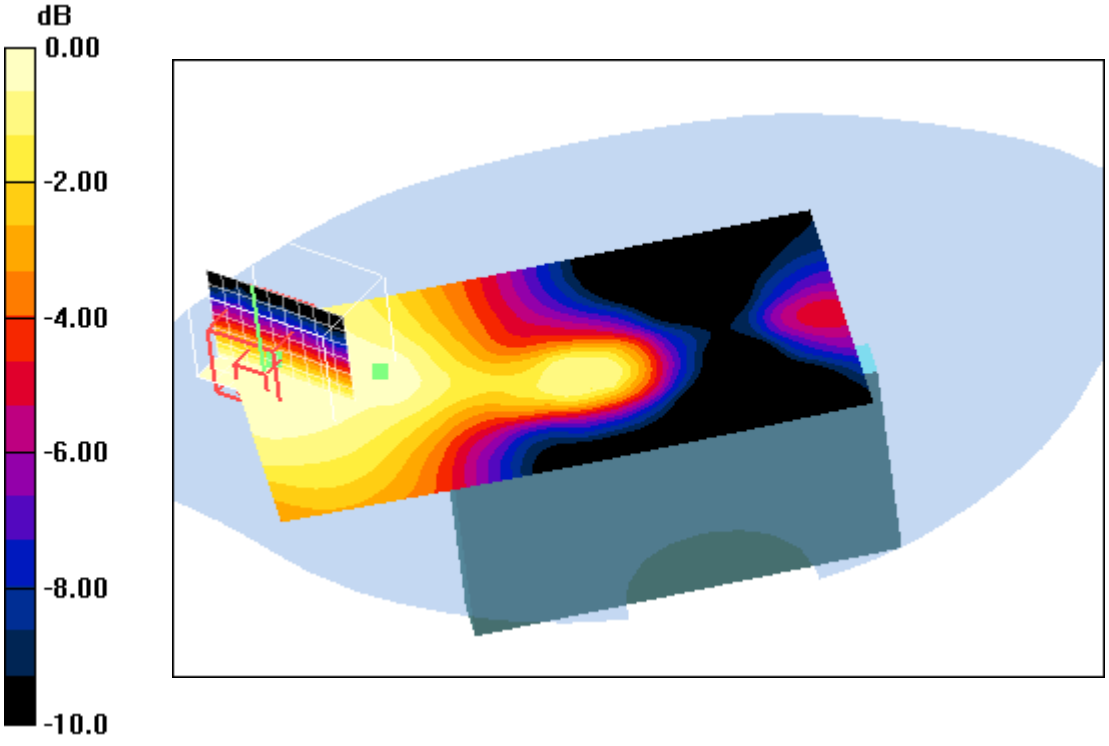
DUT: RIM; Type: RDH71CW; Serial: A00000258E3524
Communication System: GSM 1900 GPRS 2TS; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.3, 4.3, 4.3); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge left position - Middle/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.039 mW/g

Edge left position - Middle/Zoom Scan (7x7x7) (7x10x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.47 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 0.056 W/kg
SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.025 mW/g
Maximum value of SAR (measured) = 0.039 mW/g



0 dB = 0.039mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 07.09.2011 15:21:43Date/Time: 07.09.2011 15:32:32Date/Time: 07.09.2011 15:43:58

IEEE1528_OET65-Body-GSM1900 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524
Communication System: GSM 1900 GPRS 2TS; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.3, 4.3, 4.3); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge right position - Middle/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

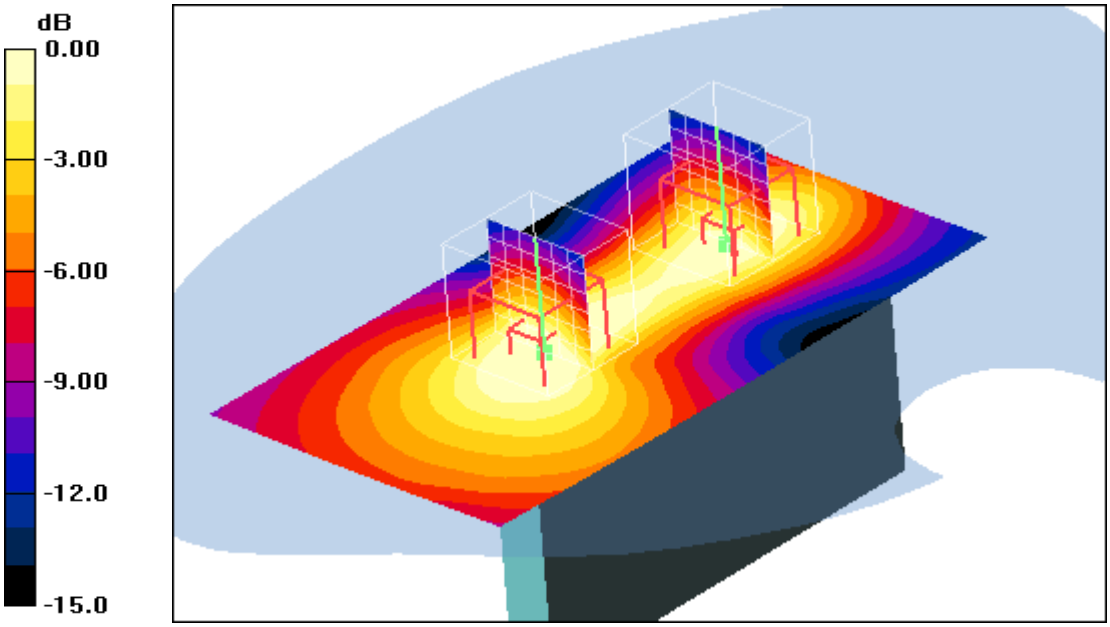
Maximum value of SAR (interpolated) = 0.237 mW/g

Edge right position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.1 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.390 W/kg
SAR(1 g) = 0.229 mW/g; SAR(10 g) = 0.130 mW/g
Maximum value of SAR (measured) = 0.256 mW/g

Edge right position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.1 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.261 W/kg
SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.098 mW/g
Maximum value of SAR (measured) = 0.174 mW/g



0 dB = 0.174mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 07.09.2011 13:55:29Date/Time: 07.09.2011 14:00:44

IEEE1528_OET65-Body-GSM1900 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

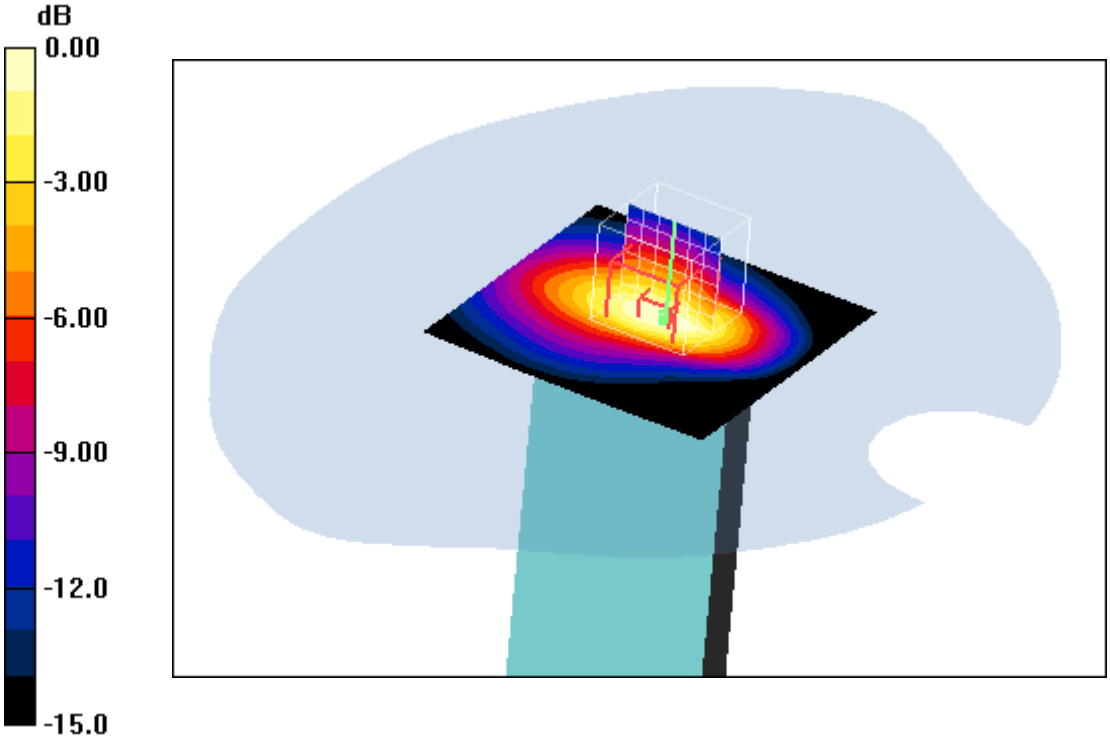
Communication System: GSM 1900 GPRS 2TS; Frequency: 1850.2 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1850.2 MHz; σ = 1.47 mho/m; ε_r = 52.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.3, 4.3, 4.3); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge bottom position - Low/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.16 mW/g

Edge bottom position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.7 V/m; Power Drift = -0.017 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.573 mW/g
Maximum value of SAR (measured) = 1.13 mW/g



0 dB = 1.13mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 07.09.2011 13:35:32Date/Time: 07.09.2011 13:41:11

IEEE1528_OET65-Body-GSM1900 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

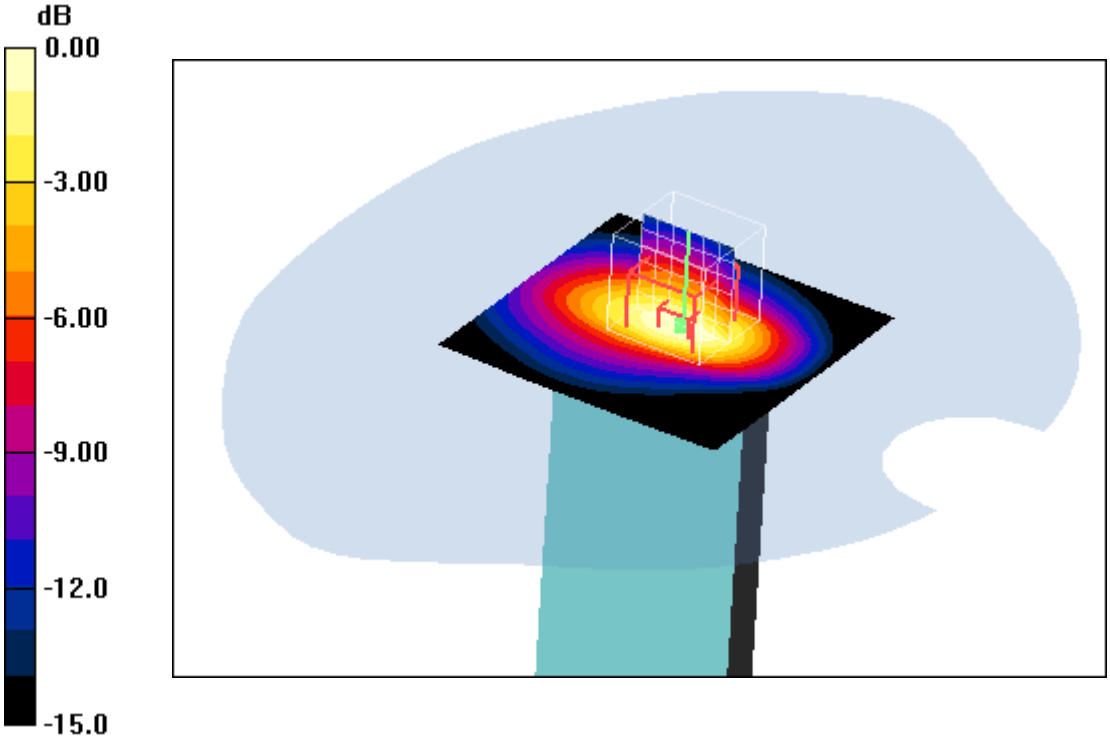
Communication System: GSM 1900 GPRS 2TS; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.3, 4.3, 4.3); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge bottom position - Middle/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.38 mW/g

Edge bottom position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.0 V/m; Power Drift = -0.052 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.668 mW/g
Maximum value of SAR (measured) = 1.33 mW/g



0 dB = 1.33mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 07.09.2011 14:13:54Date/Time: 07.09.2011 14:19:09

IEEE1528_OET65-Body-GSM1900 GPRS 2TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

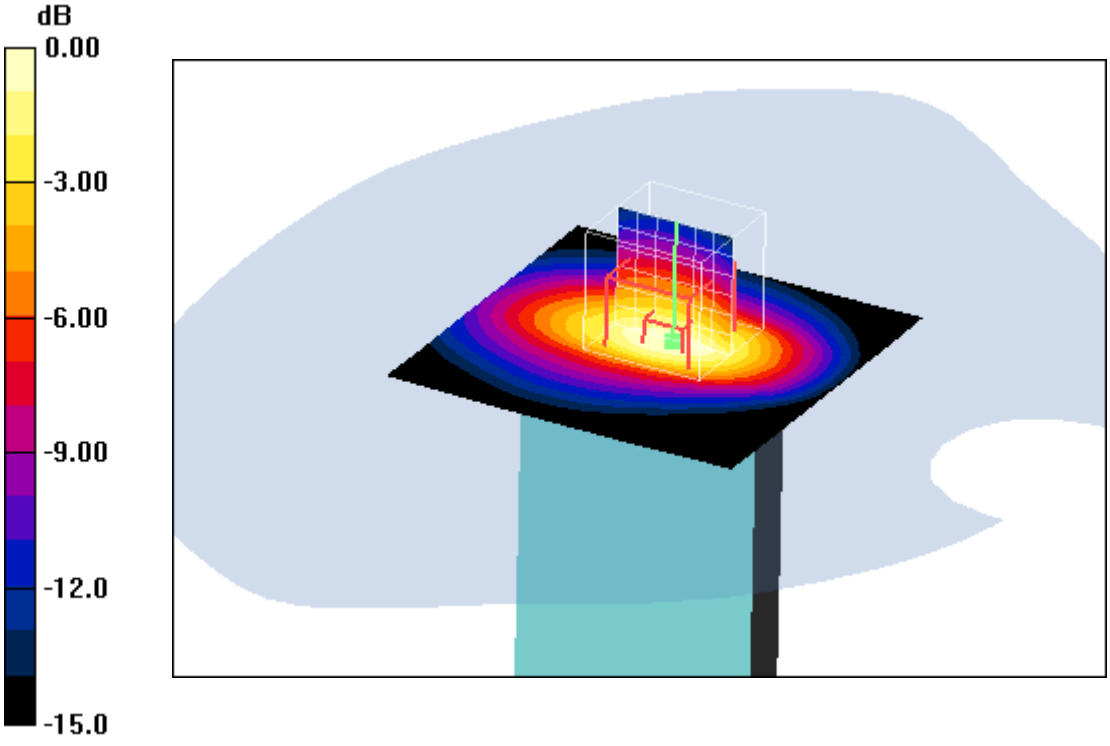
Communication System: GSM 1900 GPRS 2TS; Frequency: 1909.8 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1909.8 MHz; σ = 1.53 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.3, 4.3, 4.3); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge bottom position - High/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.46 mW/g

Edge bottom position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 29.8 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 2.09 W/kg
SAR(1 g) = 1.27 mW/g; SAR(10 g) = 0.706 mW/g
Maximum value of SAR (measured) = 1.41 mW/g



0 dB = 1.41mW/g

Additional information:
position or distance of DUT to SAM: 10mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 07.09.2011 21:42:53Date/Time: 07.09.2011 21:50:45

IEEE1528_OET65-Body-GSM1900 GPRS 3TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

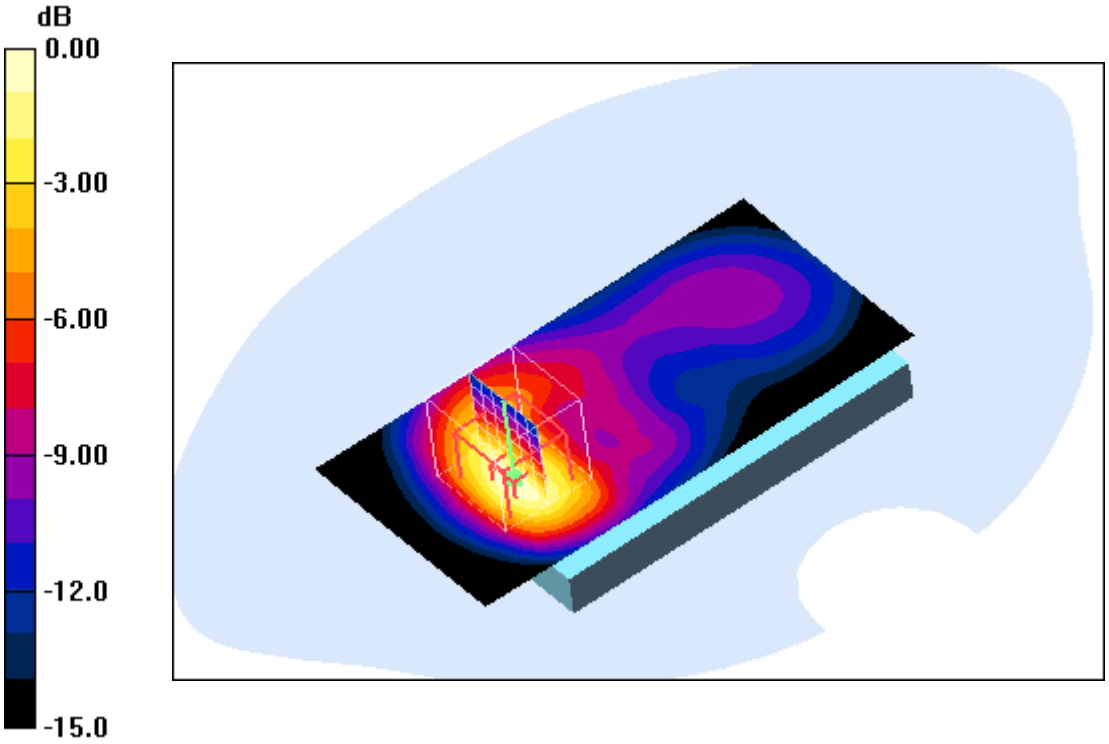
Communication System: PCS 1900 GPRS 3TS; Frequency: 1850.2 MHz; Duty Cycle: 1:2.7
Medium: M1900 Medium parameters used: f = 1850.2 MHz; σ = 1.47 mho/m; ε_r = 52.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.3, 4.3, 4.3); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.20 mW/g

Rear position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.5 V/m; Power Drift = -0.066 dB
Peak SAR (extrapolated) = 1.75 W/kg
SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.577 mW/g
Maximum value of SAR (measured) = 1.24 mW/g



0 dB = 1.24mW/g

Additional information:
position or distance of DUT to SAM: 10 mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Date/Time: 07.09.2011 22:03:34Date/Time: 07.09.2011 22:10:42

IEEE1528_OET65-Body-GSM1900 GPRS 4TS

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

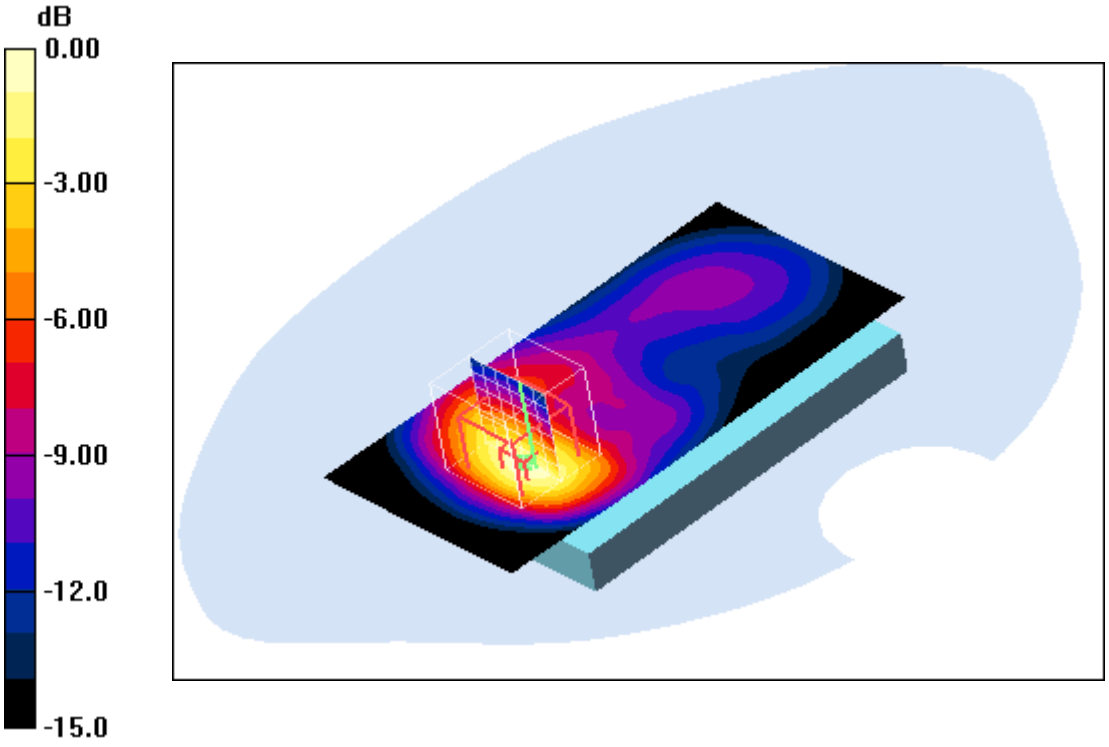
Communication System: PCS 1900 GPRS 4TS; Frequency: 1850.2 MHz; Duty Cycle: 1:2
Medium: M1900 Medium parameters used: f = 1850.2 MHz; σ = 1.47 mho/m; ε_r = 52.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.3, 4.3, 4.3); Calibrated: 23.08.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.24 mW/g

Rear position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.4 V/m; Power Drift = 0.188 dB
Peak SAR (extrapolated) = 1.94 W/kg
SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.623 mW/g
Maximum value of SAR (measured) = 1.33 mW/g



0 dB = 1.33mW/g

Additional information:
position or distance of DUT to SAM: 10 mm
ambient temperature: 23.0°C; liquid temperature: 22.5°C

Annex B.3: WLAN 2450MHz body

Date/Time: 14.09.2011 16:35:59Date/Time: 14.09.2011 16:46:18

EN62209-2_OET65-Body-WLAN

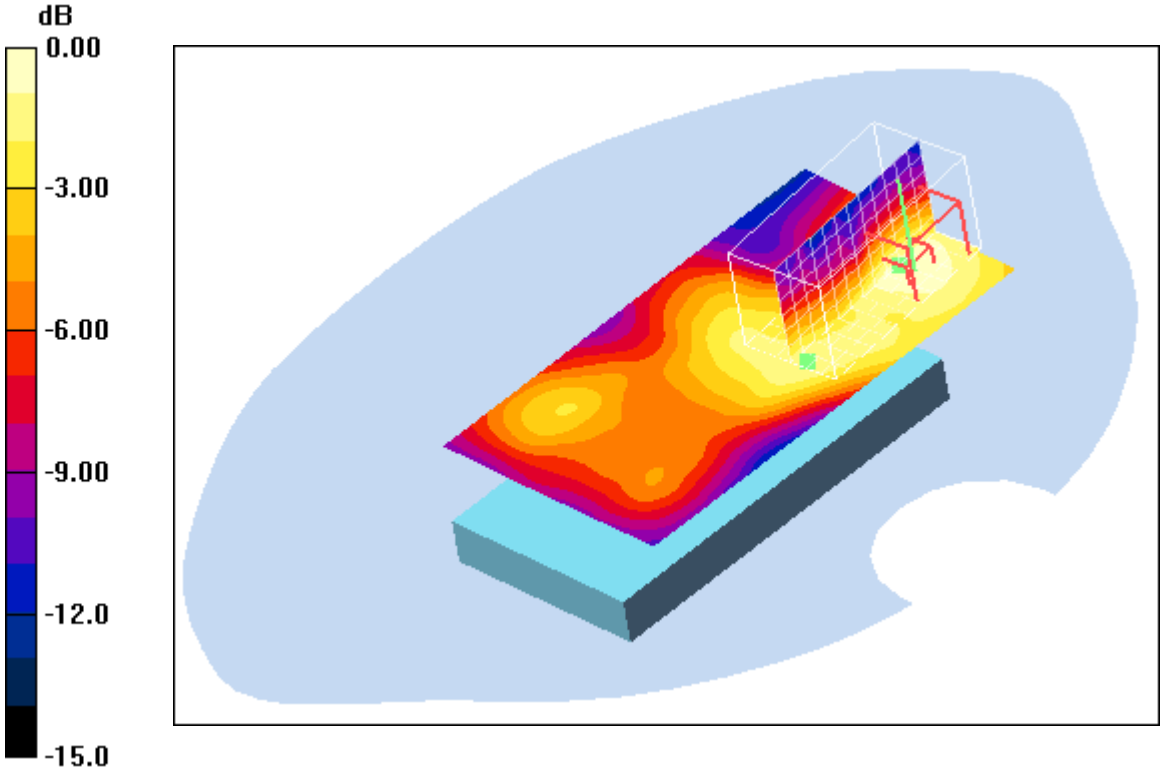
DUT: RIM; Type: RDH71CW; Serial: A00000258E3524
Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2437 MHz; σ = 1.97 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.037 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x13x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.61 V/m; Power Drift = -0.086 dB
Peak SAR (extrapolated) = 0.050 W/kg
SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.020 mW/g
Maximum value of SAR (measured) = 0.036 mW/g



0 dB = 0.036mW/g

Additional information:
position or distance of DUT to SAM: 10 mm
ambient temperature: 22.3°C; liquid temperature: 22.3°C

Date/Time: 14.09.2011 17:13:49Date/Time: 14.09.2011 17:25:11

EN62209-2_OET65-Body-WLAN

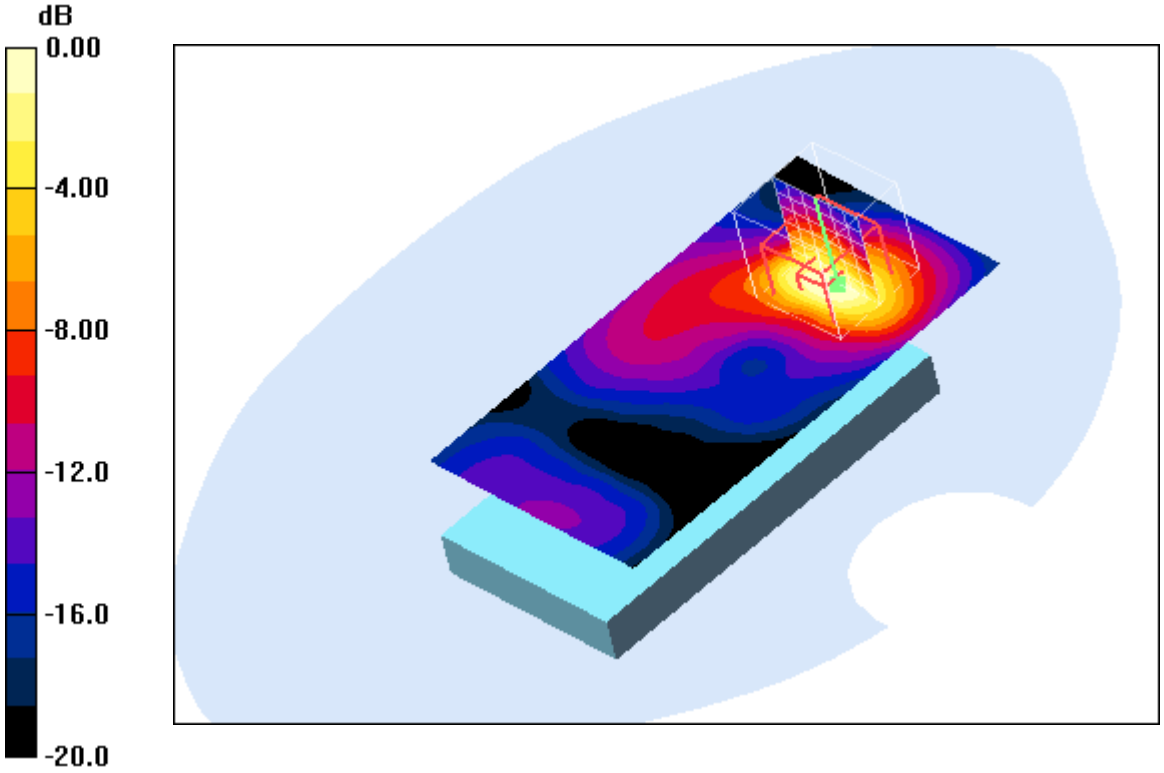
DUT: RIM; Type: RDH71CW; Serial: A00000258E3524
Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2437 MHz; σ = 1.97 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.495 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.5 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 0.778 W/kg
SAR(1 g) = 0.433 mW/g; SAR(10 g) = 0.201 mW/g
Maximum value of SAR (measured) = 0.489 mW/g



0 dB = 0.489mW/g

Additional information:
position or distance of DUT to SAM: 10 mm
ambient temperature: 22.3°C; liquid temperature: 22.3°C

Date/Time: 14.09.2011 17:52:08Date/Time: 14.09.2011 17:58:47

EN62209-2_OET65-Body-WLAN

DUT: RIM; Type: RDH71CW; Serial: A00000258E3524

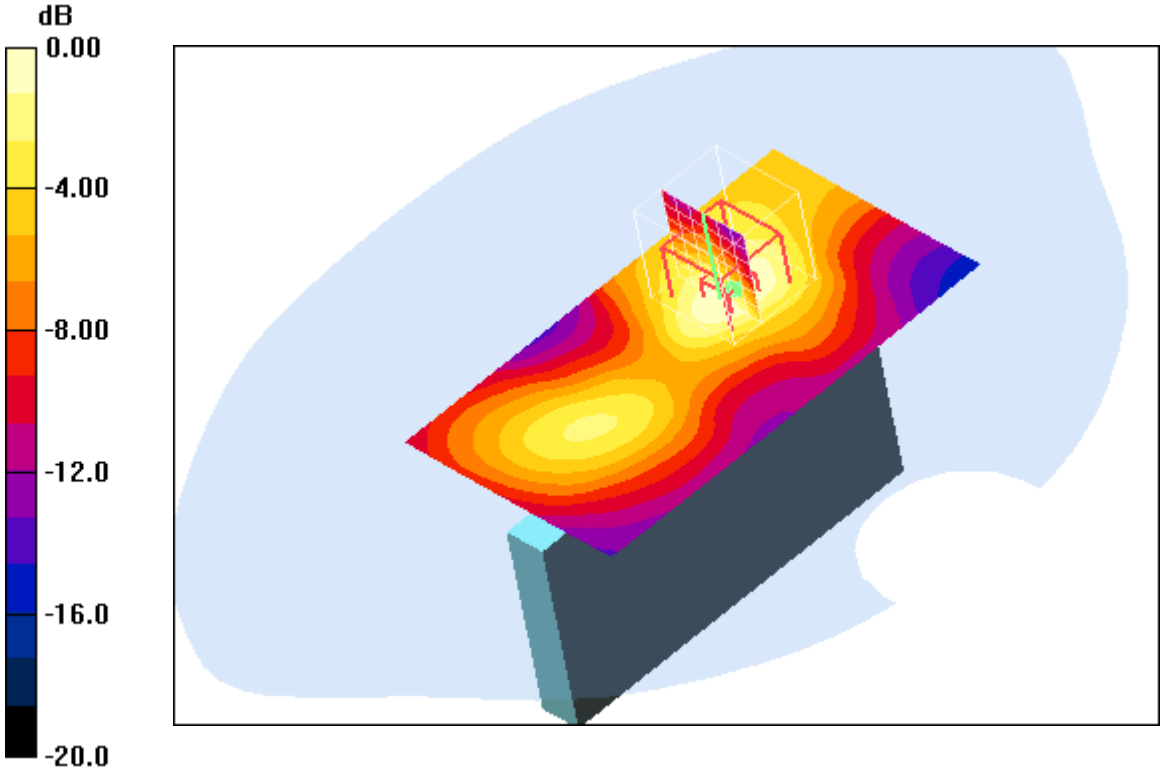
Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2437 MHz; σ = 1.97 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge left position - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.040 mW/g

Edge left position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.96 V/m; Power Drift = -0.043 dB
Peak SAR (extrapolated) = 0.052 W/kg
SAR(1 g) = 0.034 mW/g; SAR(10 g) = 0.020 mW/g
Maximum value of SAR (measured) = 0.037 mW/g



0 dB = 0.037mW/g

Additional information:
position or distance of DUT to SAM: 10 mm
ambient temperature: 22.3°C; liquid temperature: 22.3°C

Date/Time: 14.09.2011 18:18:59Date/Time: 14.09.2011 18:25:31

EN62209-2_OET65-Body-WLAN

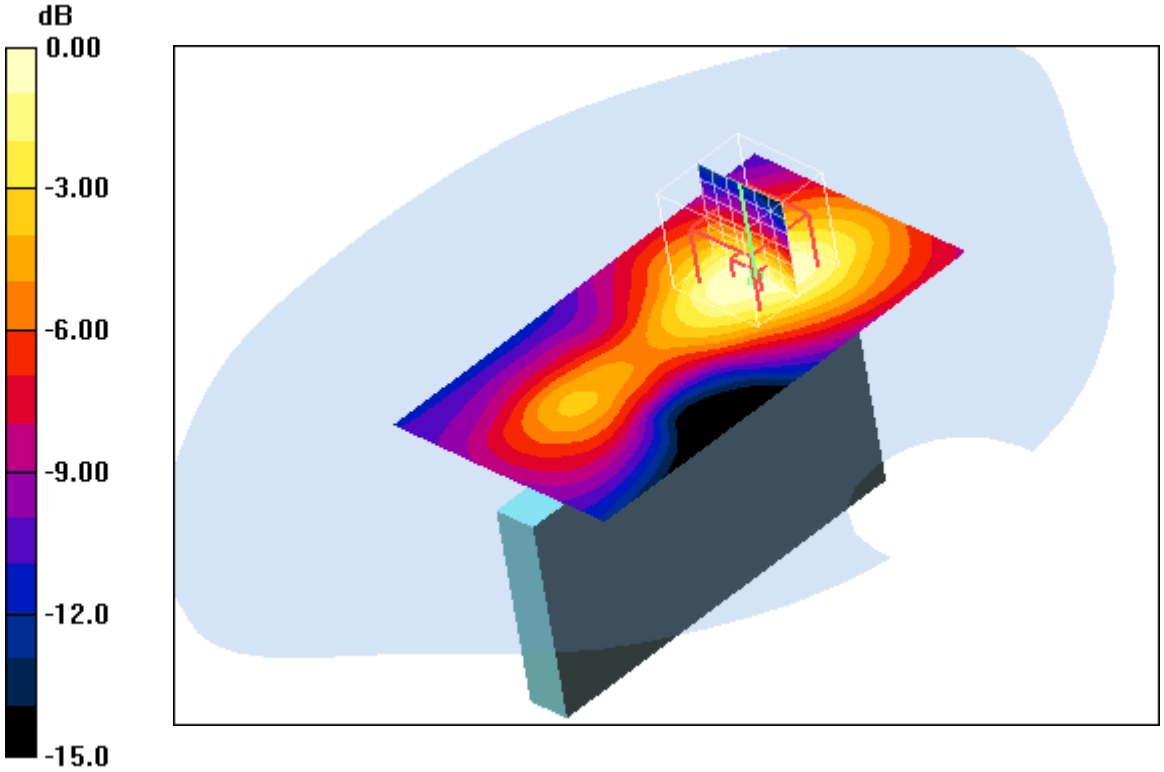
DUT: RIM; Type: RDH71CW; Serial: A00000258E3524
Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2437 MHz; σ = 1.97 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge right position - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.072 mW/g

Edge right position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.13 V/m; Power Drift = -0.056 dB
Peak SAR (extrapolated) = 0.096 W/kg
SAR(1 g) = 0.062 mW/g; SAR(10 g) = 0.037 mW/g
Maximum value of SAR (measured) = 0.069 mW/g



0 dB = 0.069mW/g

Additional information:
position or distance of DUT to SAM: 10 mm
ambient temperature: 22.3°C; liquid temperature: 22.3°C

Date/Time: 14.09.2011 18:49:10Date/Time: 14.09.2011 18:54:44

EN62209-2_OET65-Body-WLAN

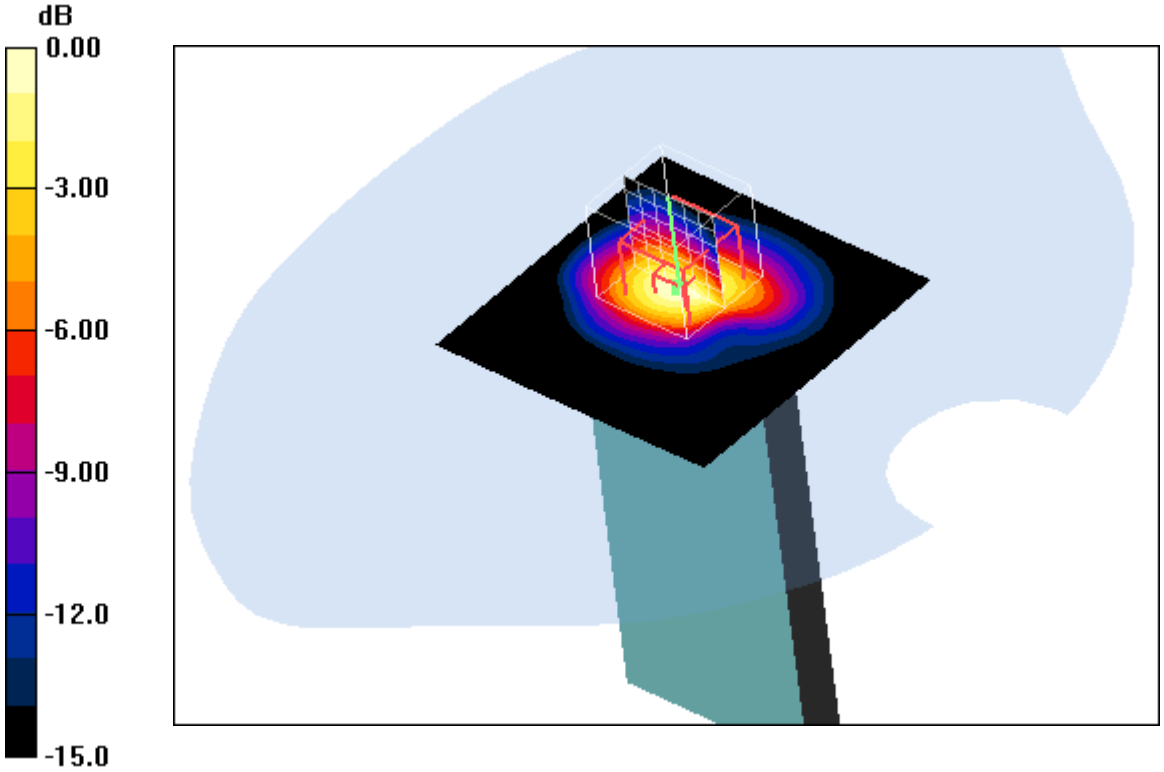
DUT: RIM; Type: RDH71CW; Serial: A00000258E3524
Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2437 MHz; σ = 1.97 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge top position - Middle/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.350 mW/g

Edge top position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.6 V/m; Power Drift = -0.061 dB
Peak SAR (extrapolated) = 0.489 W/kg
SAR(1 g) = 0.280 mW/g; SAR(10 g) = 0.137 mW/g
Maximum value of SAR (measured) = 0.328 mW/g



0 dB = 0.328mW/g

Additional information:
position or distance of DUT to SAM: 10 mm
ambient temperature: 22.3°C; liquid temperature: 22.3°C

Annex B.4: Bluetooth 2450MHz body

Date/Time: 15.09.2011 19:15:36Date/Time: 15.09.2011 19:23:49

OET65-Body-BT

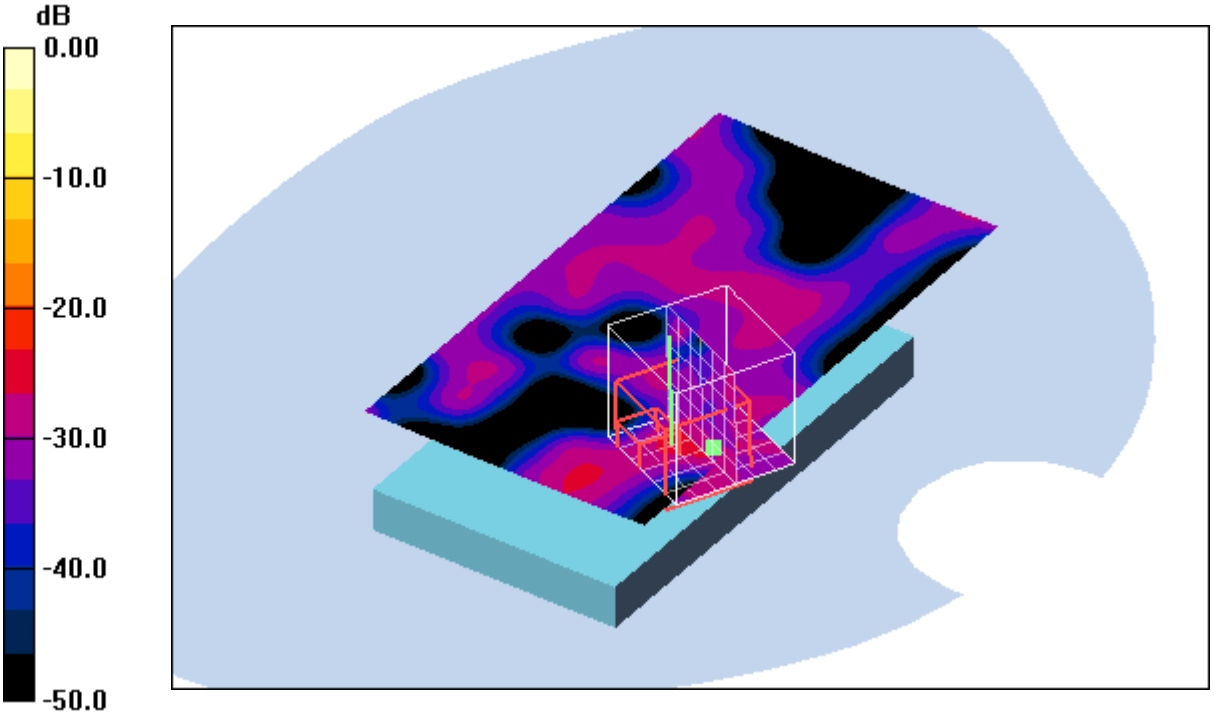
DUT: RIM; Type: RDH71CW; Serial: A00000258E3524
Communication System: Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2441 MHz; σ = 1.98 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.21 V/m; Power Drift = 0.103 dB
Peak SAR (extrapolated) = 0.01 W/kg
SAR(1 g) = 0.0022 mW/g; SAR(10 g) = 0.000717 mW/g
Maximum value of SAR (measured) = 0.00 mW/g



0 dB = 0.00mW/g

Additional information:
position or distance of DUT to SAM: 10 mm
ambient temperature: 22.3°C; liquid temperature: 22.3°C

Date/Time: 15.09.2011 19:59:15Date/Time: 15.09.2011 20:24:14

OET65-Body-BT

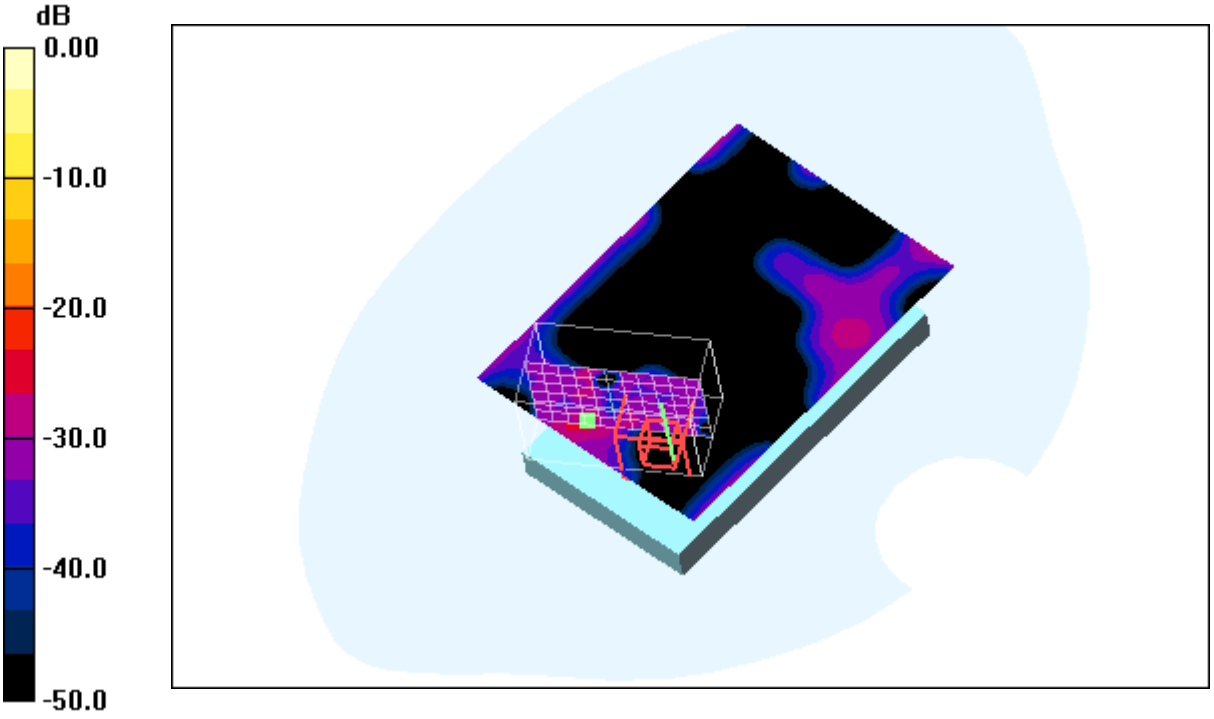
DUT: RIM; Type: RDH71CW; Serial: A00000258E3524
Communication System: Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2441 MHz; σ = 1.98 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Middle/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (12x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.609 V/m; Power Drift = -0.172dB
Peak SAR (extrapolated) = 0.00 W/kg
SAR(1 g) = 0.00159 mW/g; SAR(10 g) = 0.000587 mW/g
Maximum value of SAR (measured) = 0.00 mW/g



0 dB = 0.00mW/g

Additional information:
position or distance of DUT to SAM: 10 mm
ambient temperature: 22.3°C; liquid temperature: 22.3°C

Date/Time: 15.09.2011 17:54:36Date/Time: 15.09.2011 18:04:14

OET65-Body-BT

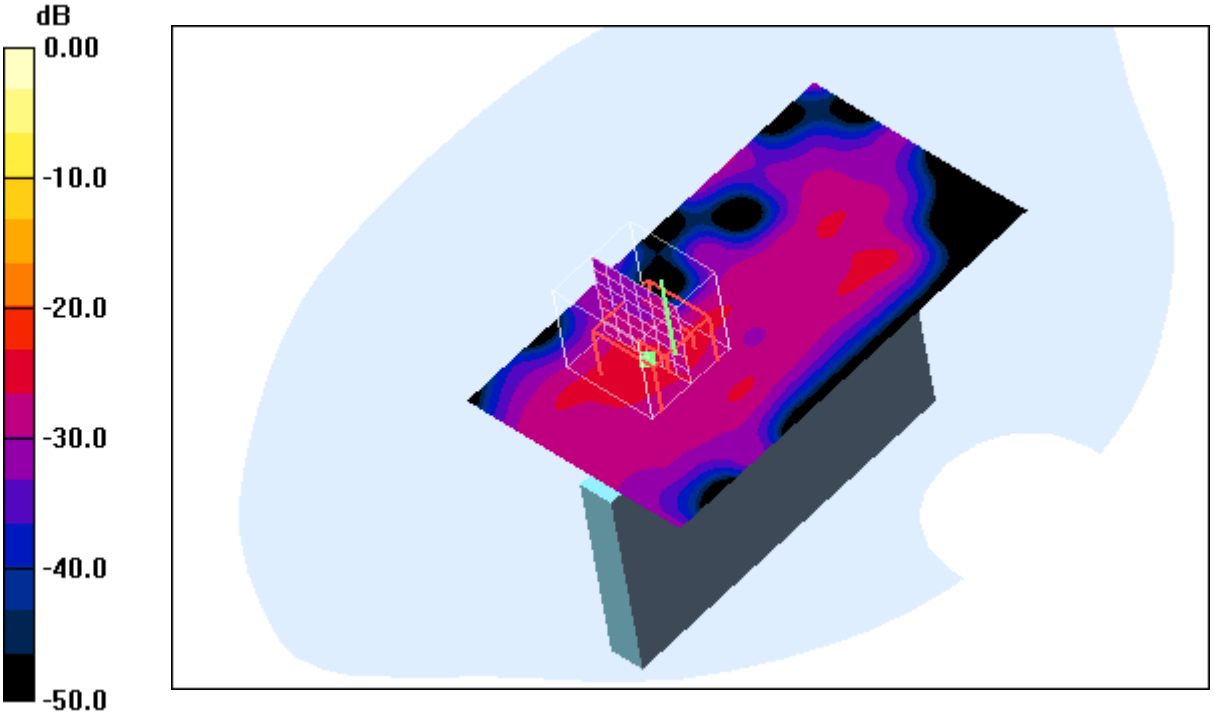
DUT: RIM; Type: RDH71CW; Serial: A00000258E3524
Communication System: Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2441 MHz; σ = 1.98 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge right position - Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.00 mW/g

Edge right position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

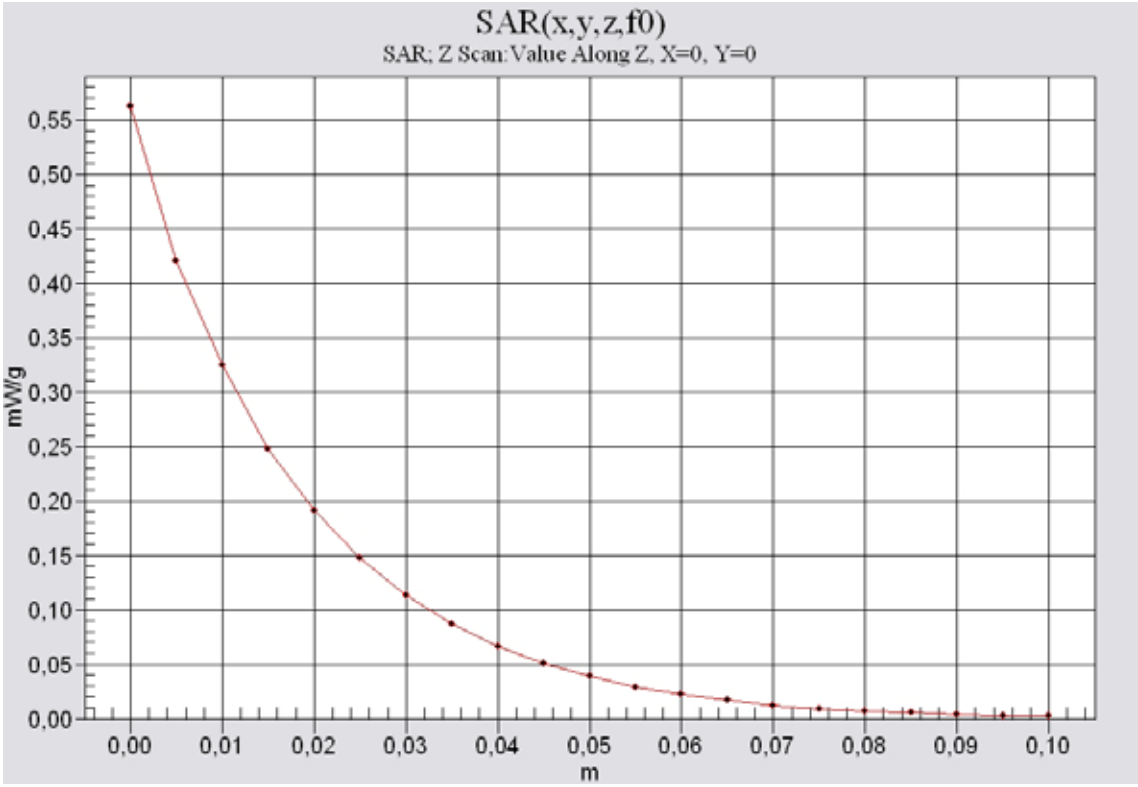
Reference Value = 1.62 V/m; Power Drift = -0.108 dB
Peak SAR (extrapolated) = 0.01 W/kg
SAR(1 g) = 0.00362 mW/g; SAR(10 g) = 0.00198 mW/g
Maximum value of SAR (measured) = 0.00 mW/g



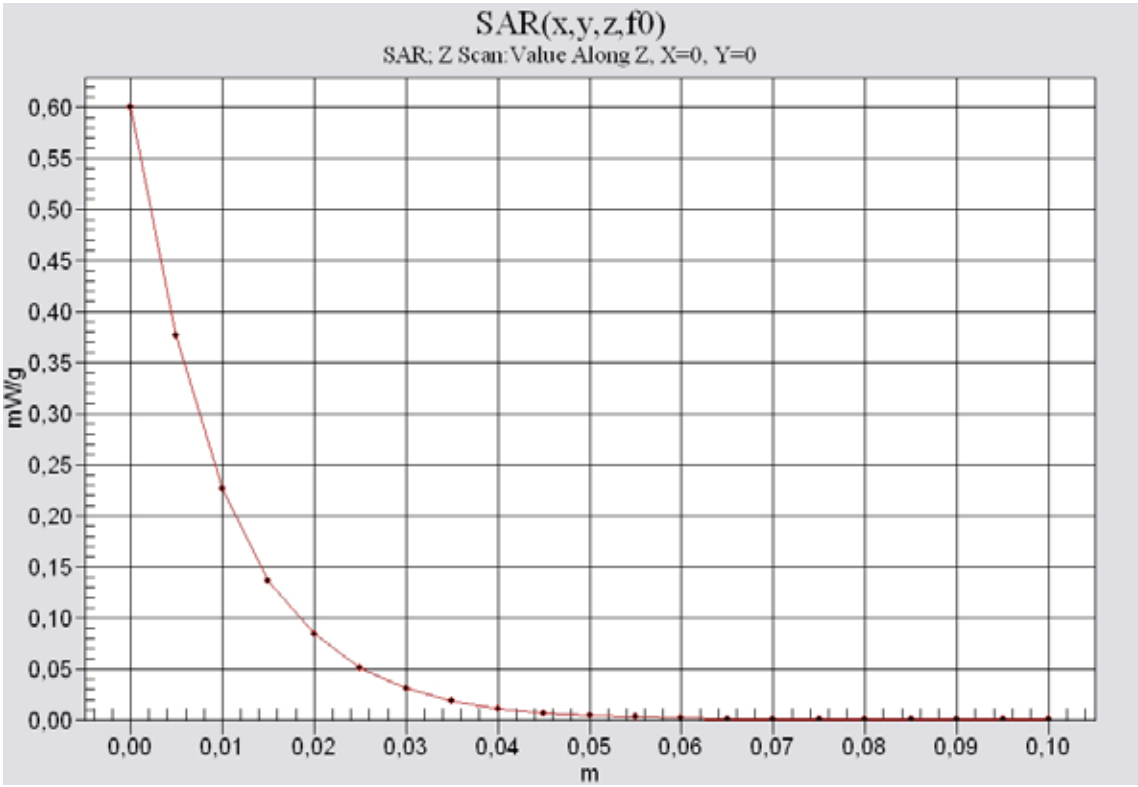
0 dB = 0.00mW/g

Additional information:
position or distance of DUT to SAM: 10 mm
ambient temperature: 22.3°C; liquid temperature: 22.3°C

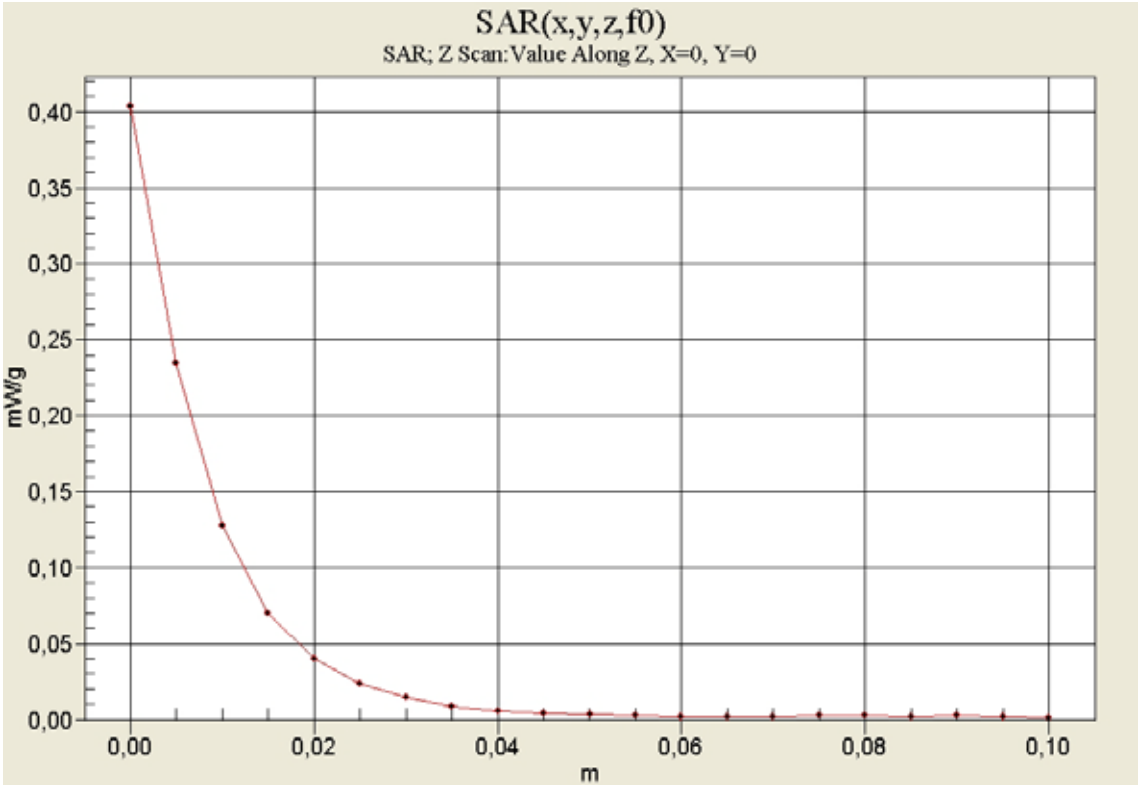
Annex B.5: Z-axis scan



850 body



1900 body



2450 body

Annex B.6: Liquid depth

Photo 1: Liquid depth 850 MHz body simulating liquid

Photo 2: Liquid depth 1900 MHz body simulating liquid

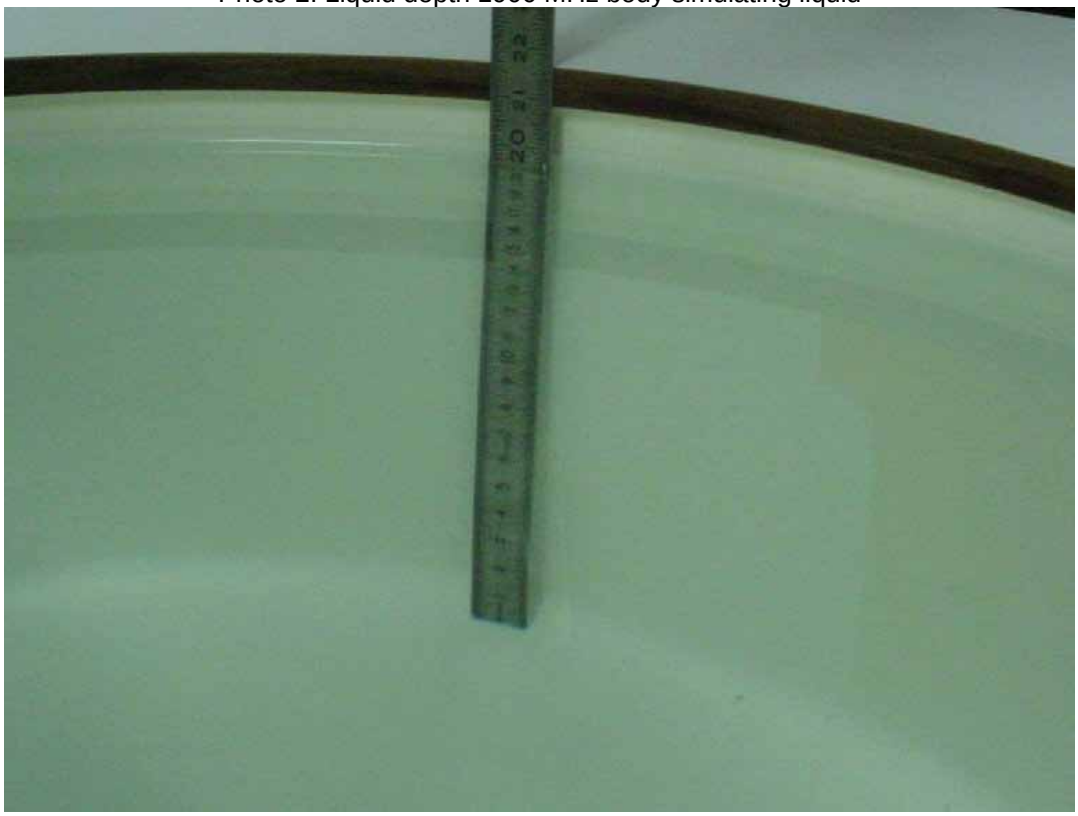
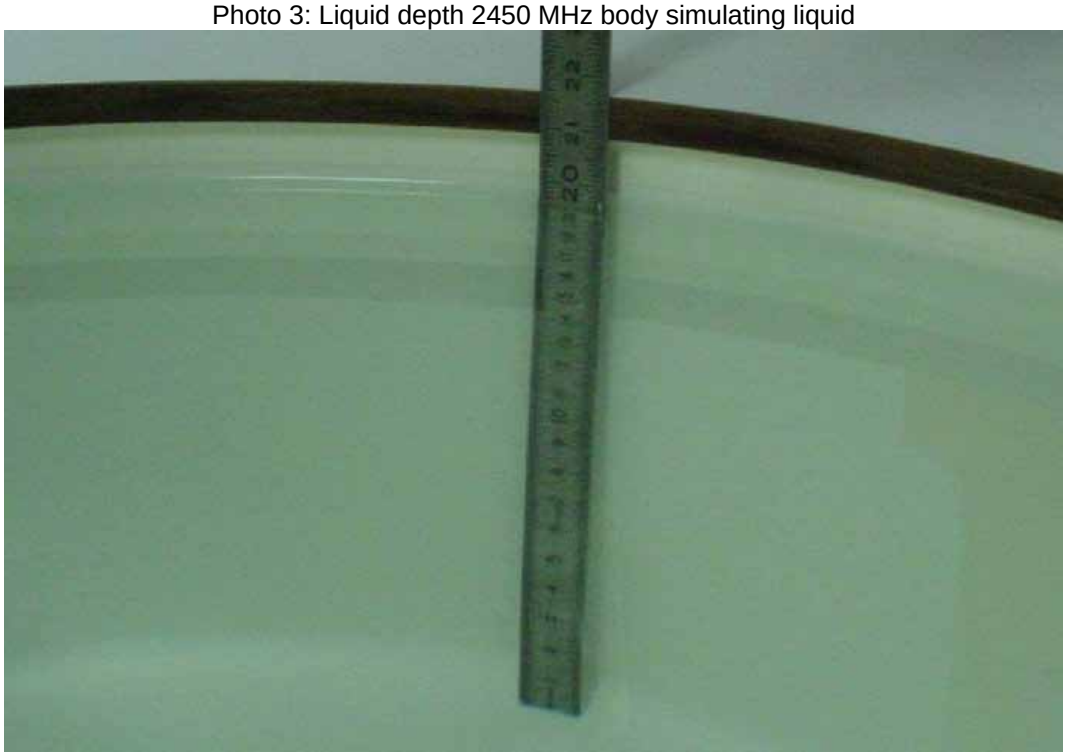


Photo 3: Liquid depth 2450 MHz body simulating liquid



Annex C: Photo documentation

Photo documentation is described in the additional document :

Appendix to test report no. 1-3851/11-01-09 Photo documentation

Annex D: RF Technical Brief Cover Sheet acc. to RSS-102 Annex A

1. COMPANY NUMBER: 2503A

2. MODEL NUMBER: RDH70CW

3. MANUFACTURER: **Research In Motion Limited**

4. TYPE OF EVALUATION:

SAR Evaluation: Body-worn Device

- 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: **1.290 W/kg**. Measured ☒ Computed ☐ Calculated ☐

Annex D.7: 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:

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. 1-3851/11-01-09
Calibration data, Phantom certificate
and detail information of the DASY4 System

Annex F: Document History

Version	Applied Changes	Date of Release
	Initial Release	2011-10-18

Annex G: Further Information

Glossary

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
N/A - not applicable
SAR - Specific Absorption Rate
S/N - Serial Number
SW - Software